

# Family 8286+01 IBM Power System S814 server

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## Product life cycle dates

Type Model	Announced	Available	Marketing Withdrawn	Service Discontinued
8286-41A	2014-04-28	2014-06-10	2019-05-31	-

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## Abstract

The IBM 8286 is a Power S814 designed to be a highly secure architecture, providing a stable database and middleware platform for efficient deployment of business processing applications. A 1-socket system with a 4-core, or 6-core POWER8 processor is available in either a rack or tower configuration. The 8-core higher-performance system is only available in a rack configuration and supports new I/O capabilities, including CAPI accelerators, higher internal disk and SSD capacities, and hot plug PCIe Gen 3 slots.

### Model abstract 8286-41A

The IBM Power S814 supports one-processor sockets, offering 4-core 3.02 GHz, or 6-core 3.02 GHz or 8-core 3.72 GHz POWER8 processor-based configurations in a 19-inch rack-mount, 4U (EIA units) drawer or desk- side configuration. All the cores are active. The Power S814 server supports a maximum of eight DDR4 CDIMM slots. Memory supported are 16 GB, 32 GB, 64 GB, and 128 GB and run at speeds of 1600 Mbps, allowing for a maximum system memory of 1024 GB.

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## Highlights

The IBM Power S814 (8286-41A) server is a powerful 1-socket server that ships with up to eight activated cores and I/O configuration flexibility to meet today's growth and tomorrow's processing needs. The server features:

- The following fully activated IBM POWER8 dual-chip module (DCM) processor configurations in a 4U rack-mount or desk-side form factor:
  - 4-core 3.02 GHz
  - 6-core 3.02 GHz
  - 8-core 3.72 GHz (rack-mount configuration only)
- Up to 1024 GB of memory
- Choice of storage features:
  - Eighteen SFF Bays/DVD Bay/Dual IOA with Write Cache
  - Twelve SFF Bays/DVD Bay
  - Split feature to 6+6 SFF Bays: Add a second SAS Controller
- Expansion capabilities for the EXP24S SFF Gen 2-bay Drawer
- Hot-swap PCIe Gen 3 slots
- Integrated:
  - Service processor
  - EnergyScale technology
  - Hot-swap and redundant cooling
  - Four USB 3.0 ports for general use
  - Two USB 2.0 ports for non-general use
  - Two HMC 1GbE RJ45 ports
  - One system port with RJ45 connector
- Two hot plug, redundant power supplies
- 19-inch rack-mount hardware (4U) and tower option

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## Description

- Highly secure architecture that provides a stable database and middleware platform for efficient deployment of business processing applications
- Ideal for mid-sized business customers consolidating UNIX, IBM i, and Linux workloads
- Ability to gain faster insights with the POWER8 processor and smart acceleration enabled by Coherent Accelerator Processor Interface (CAPI) technologies
- Ability to reduce energy consumption by utilizing advanced energy control

The IBM Power S814 supports one-processor sockets, offering 4-core 3.02 GHz, or 6-core 3.02 GHz or 8-core 3.72 GHz POWER8 processor-based configurations in a 19-inch rack-mount, 4U (EIA units) drawer or desk-side configuration. All the cores are active.

The Power S814 server supports a maximum of eight DDR4 CDIMM slots. Memory supported are 16 GB, 32 GB, 64 GB, and 128 GB, and run at speeds of 1600 Mbps, allowing for a maximum system memory of 1024 GB.

- Rich I/O options in the system unit include:
  - Two PCIe G3 x16 full-height, full-length slots (one CAPI controller per socket at direct PCIe x16 slot from each socket)
  - Four PCIe G3 x8 full-height, half-length slots (One of the four PCIe G3 x8 LP slots will not be available if the high-function RAID controllers are installed.)
  - Eighteen 2.5-in. HDD SFF bays
  - RAID 0, 5, 6, 10, 5T2, 6T2, and 10T2 support
  - One DVD
  - One PCIe G3 x8 slot for 1GbE 4-port LAN controller integrated
- Two front and two rear USB 3.0 ports; one rear system port
- Service processor
- 1+1 Redundant hot-swap ac power supplies in each enclosure
- 19-inch rack-mount 4U or desk-side configuration
- PowerVM
- Red Hat Enterprise Linux 6.5, or later; SUSE Linux Enterprise Server 11 Service Pack 3, or later; AIX 6.1, 7.1, or later; IBM i 7.1, 7.2, or later, operating system support

Summary of standard features for Power S814:

- Power Systems server built with POWER8 processor modules
  - 4-core 3.02 GHz
  - 6-core 3.02 GHz
  - 8-core 3.72 GHz (rack-mount configuration only)
- High-performance 1600 Mbps DDR4 ECC memory
  - 16 GB (#EM91), 32 GB (#EM92), 64 GB (#EM93), or 128 GB (#EM94) memory features
  - Up to 1024 GB memory with one Power Systems processor DCM

Note: DDR3 Memory Dimms (features #EM8B, EM8C, EM8D, and EM8E) are only available as MES.

- Choice of two storage features:
  - Choice one: twelve SFF-3 bays, one DVD bay, one integrated SAS controller without cache, and JBOD, RAID 0, 5, 6, or 10
    - Optionally, split the above SFF bays and add a second integrated SAS controller without cache.
  - Choice two: eighteen SFF-3 bays; one DVD bay; a pair of integrated SAS controllers with cache; RAID 0, 5, 6, 10, 5T2, 6T2, and 10T2
    - Optionally, attach an EXP24S SAS HDD/SSD Expansion Drawer to the dual IOA.
- Hot-swap PCIe Gen 3 slots
  - Seven(1) slots with one POWER8 processor DCM: two x16 slots and five(2) x8 slots

Note: (1) One fewer PCIe slot is available with the dual IOA storage backplane feature EJ0P.

Note: (2) One x8 PCIe slot is used for integrated LAN adapter.

- Integrated:
  - Service processor
  - EnergyScale technology
  - Hot-swap and redundant cooling
  - Four USB 3.0 ports for general use
  - Two USB 2.0 ports for non-general use
  - Two HMC 1GbE RJ45 ports
  - One system port with RJ45 connector
- Two hot plug, redundant power supplies supporting a tower
- Two hot plug, redundant power supplies supporting a rack
- 19-inch rack-mount hardware (4U) and tower option

## PowerVM

IBM PowerVM, which delivers industrial-strength virtualization for IBM AIX and Linux environments on IBM POWER processor-based systems, has been enhanced with a virtualization-oriented performance monitor and performance statistics are available through the HMC. These performance statistics can be used to understand the workload characteristics and to prepare for capacity planning.

## IBM i Solution Edition FOR Power S814

The Power S814 Solution Edition includes no-charge features, resulting in a lower initial list price for qualifying clients. Also included is an IBM Service voucher to help speed implementation of the ISV solution. The requirements to be eligible to purchase a 720 Solution Edition or an S814 Solution Edition order are:

- The offering must include new or upgrade software licenses or software maintenance from the ISV for the qualifying IBM server. Services or training for the qualifying server can also be provided.
- Proof of purchase of the solution with a participating ISV must be provided to IBM on request. The proof must be dated within 90 days before or after the date of order of the qualifying server.
- A Solution Edition is not eligible for registration as a CBU.

## 4-Core processor feature

The 4-core Power S814 offers entry clients running AIX, IBM i or Linux a entry server based on POWER8 technology. It uses a 3.02 GHz POWER8 Processor Card (#EPXK) with processor core activation features (#EPZK and #EPYK). All four processor cores must be activated, but factory deconfiguration feature (#2319) is supported. The chargeable feature EPYK is used for these activations. Three no-charge feature EPZK are used with the IBM Solution Edition (#4928) in place of three EPYK activation features for those eligible to use the solution edition.

There is no upgrade to increase the cores on this feature. This server supports AIX, IBM I and Linux, but is especially attractive to IBM i clients with its P05 software tier. The IBM i Solution Edition (#4928) and Capacity Backup option for IBM i(#0444) are supported.

The 4-core S814 supports the 16GB memory feature (#EM8B). A max of four of these features is supported for a system maximum of 64 GB.

The 4-core S814 supports a maximum of ten disk drives or ten SSD or combination of ten disk and SSD in the system unit. This is true with any of the storage backplane options selected. SAS drives located in feature code I/O drawers such as the EXP24S (#5887) are not supported. Attachment to SANs is supported.

The following SFF-3 SAS drives are supported in 10 of the SAS bays of the 4-core S814 system unit:

#### 15k rpm disk drives

- 146 GB 15k rpm disk drive (#ESDT) 5xx byte blocks (withdrawn from marketing)
- 139 GB 15k rpm disk drive (#ESDU) 5xx byte blocks (withdrawn from marketing)
- 300 GB 15k rpm disk drive (#ESDB) 5xx byte blocks
- 283 GB 15k rpm disk drive (#ESDA) 5xx byte blocks
- 283 GB 15k rpm disk drive (#ESDV) 5xx byte blocks (with IBM i edition, max four, reduced price)
- 300 GB 15k rpm disk drive (#ESFB) 4k byte blocks
- 283 GB 15k rpm disk drive (#ESFA) 4k byte blocks
- 283 GB 15k rpm disk drive (#ESFG) 4k byte blocks (with IBM i edition, max four, reduced price)
- 283 GB 15K rpm disk drive (#ESNJ) 4k byte blocks (IBM i)
- 300 GB 15K rpm disk drive (#ESNK) 4k byte blocks (AIX/Linux)

#### 10k rpm disk drives

- 571 GB 10k rpm disk drive (#ESD4) 5xx byte blocks
- 600 GB 10k rpm disk drive (#ESD5) 5xx byte blocks
- 571 GB 10k rpm disk drive (#ESF4) 4k byte blocks
- 600 GB 10k rpm disk drive (#ESF5) 4k byte blocks

#### SSD

- 387 GB SSD (#ES0L and #ES0M) 5xx byte blocks (older eMLC3 technology) (withdrawn from marketing)
- 387 GB SSD (#ES0U and #ES0V) 4k byte blocks (older eMLC3 technology) (withdrawn from marketing)
- 387 GB SSD (# ES7K and #ES7L) 5xx byte blocks (eML4 technology)
- 387 GB SSD (#ES8N and #ES8P) 4k byte blocks (eML4 technology)
- 387 GB SSD (#ESG9 and #ESGA) 5xx byte blocks (Enterprise technology)
- 387 GB SSD (#ESGT) 5xx byte blocks (Enterprise technology)
- 387 GB SSD (#ESGD and #ESGE) 4k byte blocks (Enterprise technology)
- 387 GB SSD (#ES90 and #ES91) 4k byte blocks (Enterprise technology)
- 931 GB SSD (#ES83 and #ES84) 4k byte blocks (Mainstream technology)
- 931 GB SSD (#ESJ8 and #ESJ9) 4k byte blocks (Mainstream technology)

Other SFF-3 drives are not supported. Note 4k byte drives are generally price advantaged over 5xx byte drives.

The 4-core S814 has seven PCIe Gen3 slots. One slot is used by 1 4-port 1Gb Ethernet adapter. If the expanded function backplane is chosen, another PCIe port is used leaving five ports. The statement of direction made for a future PCIe expansion drawer does not apply to the 4-core S814.

Note: For Italy only, there is a maximum of 40 user entitlements with the 4-core Power S814.

## Capacity backup

Power System S814 (8286-41A) capacity backup (CBU) offering

For IBM i OS:

The Power S814 (8286-41A) CBU designation enables you to temporarily transfer IBM i processor license entitlements and IBM i user license entitlements purchased for a primary machine to a secondary CBU-designated system for HA/DR operations. Temporarily transferring these resources instead of purchasing them for your secondary system may result in significant savings. Processor activations cannot be transferred.

The CBU specify feature 0444 is available only as part of a new server purchase. Certain system prerequisites must be met and system registration and approval are required before the CBU specify feature can be applied on a new server. Standard IBM i terms and conditions do not allow either IBM i processor license entitlements or IBM i user license entitlements to be transferred permanently or temporarily. These entitlements remain with the machine they were ordered for. When you register the association between your primary and on-order CBU system, you must agree to certain terms and conditions regarding the temporary transfer.

After a new CBU system is registered along with the proposed primary system and the configuration is approved, you can temporarily move your optional IBM i processor license entitlement and IBM i user license entitlements from the primary system to the CBU system when the primary system is down or while the primary system processors are inactive. The CBU system can then support failover and role swapping for a full range of test, disaster recovery, and high availability scenarios. Temporary entitlement transfer means that the entitlement is a property transferred from the primary system to the CBU system and may remain in use on the CBU system as long as the registered primary and CBU system are in deployment for the high availability or disaster recovery operation. The intent of the CBU offering is to enable regular role-swap operations.

The Power S814 server is available with six or eight cores in the P10 software tier and four cores in the P05 software tier.

For the Power S814 CBU server in the P10 software tier

The primary systems for a Power S814 (8286-41A) CBU server with a IBM i P10 software tier can be a POWER8 or POWER9 server with a P10 or P20 software tier listed below:

- Power S824 (8286-42A)
- Power S814 6-core or 8-core (8286-41A)
- Power S822 (8284-22A)
- Power S924 (9009 42A)
- Power S914 6-core or 8-core (9009-41A)
- Power S922 (9009-22A)

Before you can temporarily transfer IBM i user entitlements, you must have more than the minimum number of IBM i user entitlements on a primary server. You can then transfer any IBM i user entitlements above the minimum, assuming the total IBM i users on the primary system do not require the IBM i entitlement you want to transfer during the time of the transfer. The Power S924 and S824 servers do not have IBM i user entitlements to transfer, only processor entitlements. For a P10 primary, the minimum number of IBM i user entitlements on the eligible P10 POWER9 and POWER8 servers are:

- Power S814 6-core or 8-core (8286-41A): 10 users
- Power S822 (8284-22A): 10 users
- Power S914 6-core or 8-core (9009-41A): 10 users
- Power S922 (9009-22A): 10 users

For the Power S814 CBU server in the P05 software tier

The primary systems for a Power S814 (8286-41A) CBU server with a IBM i P05 software tier can be a POWER8 or POWER9 server with a P05 or P10 software tier listed below:

- Power S814 (8286-41A) 4, 6, or 8 core
- Power S822 (8284-22A)
- Power S914 (9009-41A) 4, 6, or 8 core
- Power S922 (9009-22A)

Before you can temporarily transfer IBM i user entitlements, you must have more than the minimum number of IBM i user entitlements on a primary server. You can then transfer any IBM i user entitlements above the minimum, assuming the total IBM i users on the primary system do not require the IBM i entitlement you want to transfer during the time of the transfer. The minimum number of IBM i user entitlements on the P05 or P10 POWER9 and POWER8 with IBM i user entitlements are:

- Power S814 4 core (8286-41A): 5 users
- Power S814 6 core or 8 core (8286-41A): 10 users
- Power S822 (8284-22A): 10 users
- Power S914 4 core (9009-41A): 5 users
- Power S914 6 core or 8 core (9009-41A): 10 users
- Power S922 (9009-22A): 10 users

For example, if you have a 2-core server as your primary system with two IBM i processor license entitlements (one above the minimum) and 50 IBM i user entitlements (20 above the minimum), you can temporarily transfer up to one IBM i entitlement and up to 20 user entitlements. During this temporary transfer, the CBU system's internal records of its total number of IBM i processor and user license entitlements is not updated, and you may see IBM i license noncompliance warning messages from the CBU system.

If your primary or CBU machine is sold or discontinued from use, any temporary entitlement transfers must be returned to the machine on which they were originally acquired. For CBU registration and further information visit

<http://www.ibm.com/systems/power/hardware/cbu>

## Power S814 system configuration

The minimum Power S814 initial order must include a processor module, 16 GB of memory, a storage backplane, one HDD or SSD DASD device, a PCIe2 4-port 1GbE adapter, two power supplies and line cords, an operating system indicator, a cover set indicator, and a Language Group Specify.

The minimum defined initial order configuration, if no choice is made, when AIX or Linux is the primary operating system is as follows:

Feature number	Description
EPX0	6-core 3.02 GHz POWER8 Processor module
EPY0	Processor core entitlement activations for EPY0 to equal total processor cores ordered
EM91	16 GB DDR4 Memory
EJ0N	Storage Backplane: 12 SFF-3 Bays and DVD Bay, JBOD, RAID 0, 5, 6, 10
ESDT x 1	146 GB 15k RPM SAS SFF-3 Disk Drive for AIX/Linux
EB2L x 2	CEC AC Power Supply - 900W (Tower or Rack)
or	
EB2M x 2	CEC AC Power Supply - 1400W (Rack only)
5899 x 1	PCIe2 4-port 1GbE Adapter (default)
EN0W x 1	PCIe2 2-port 10/1GbE BaseT RJ45 Adapter (as of 08/29/14 is optional on an AIX or Linux system)
6458 x 2	Power Cord 4.3m (14-ft), Drawer to wall/IBM PDU (250V/10A)
9300/97xx	Language Group Specify
EJT8	Front Bezel for 12-Bay Backplane
2146	Primary Operating System Indicator - AIX
2147	Primary Operating System Indicator - Linux

### Notes

- The racking approach for the initial order must be either a 7014-T00, 7014-T42, or 7953-94Y. If an additional rack is required for I/O expansion drawers as an MES to an existing system, either a feature 0551, 0553, or ER05 rack must be ordered.
- No internal HDD or SSD is required if feature 0837 (Boot from SAN) is selected. A Fibre Channel adapter must be ordered if feature 0837 is selected.
- AIX is small tier licensing.
- #5899 is the default a 1 Gb Ethernet adapter. Options of a 10Gb Ethernet adapter include one of either #EN0H, #EN0K, #EN0S, #EN0U, #EN0W, #EN15, or #EN17.

The minimum defined initial order configuration, if no choice is made, when IBM i is the primary operating system is:

Feature number	Description
EPX0	6-core 3.02 GHz POWER8 Processor module
EPY0	Processor core entitlement activations for EPY0 to equal total processor cores ordered
EM91	16 GB DDR4 Memory
EJ0N	Storage Backplane: 12 SFF-3 Bays and DVD Bay, JBOD, RAID 0, 5, 6, 10
ESDU x 2	139 GB 15k RPM SAS SFF-3 Disk Drive for IBM i
EB2L x 2	CEC AC Power Supply - 900W (Tower or Rack)

or	
EB2M x 2	CEC AC Power Supply - 1400w (Rack only)
5899 x 1	PCIe2 4-port 1GbE Adapter
6458 x 2	Power Cord 4.3m (14-ft), Drawer to wall/IBM PDU (250V/10A)
9300/97xx	Language Group Specify
EJT8	Front Bezel for 12-Bay BackPlane
2145	Primary Operating System Indicator - IBM i
0040	Mirrored System Disk Level Specify Code
0567 or EB72	IBM i 7.1 indicator or IBM i 7.2 indicator
5550 or 5557	System Console on HMC Indicator or System Console-Ethernet No IOP

## Notes

- The racking approach for the initial order must be either a 7014-T00, 7014-T42, or 7953-94Y.
- If an additional rack is required for I/O expansion drawers as an MES to an existing system, either a feature 0551, 0553, or ER05 rack must be ordered.
- No internal HDD or SSD is required if feature 0837 (Boot from SAN) is selected. A Fibre Channel adapter must be ordered if feature 0837 is selected.
- When IBM i is the primary operating system (#2145), a DVD device is not required to be ordered. A DVD device will be needed for normal system operations, but not required on all systems.
- IBM i operating system performance: Clients with write-sensitive disk/HDD workloads should upgrade from the EJ0N backplane to the EJ0P backplane to gain the performance advantage of write cache.
- IBM i is tier 10 licensing, which does have user based licensing and does not include the 5250 features.

## Processor modules

A maximum of one processor of either four processor cores (#EPXK) six processor cores (#EPX0) or eight processor cores (#EPX6) is allowed. All processor cores must be activated. The following defines the allowed quantities of processor activation entitlements:

- One 4-core, 3.02 GHz processor (#EPXK) requires that four processor activation codes be ordered. A maximum of four processor activation code feature (#EPYK) is required.
- One 6-core, 3.026 GHz processor (#EPX0) requires that six processor activation codes be ordered. A maximum of six processor activation code feature (#EPY0) is required.
- One 8-core, 3.724 GHz processor (#EPX6) requires that eight processor activation codes be ordered. A maximum of eight processor activation code feature (#EPY6) is required.

## System memory

- A minimum of 16 GB of memory is required on the Power S814 system.
- Memory upgrades require memory pairs. If the initial order was 16 GB of memory, the original 16 GB memory must be paired as part of the upgrade. Base memory is 16 GB of 1600 Mbps DDR4 memory modules (#EM91).

Plans for future memory upgrades should be taken into account when deciding which memory feature size to use at the time of initial system order.

### Memory features

Feature	Feature number	Minimum DIMM quantity	Maximum DIMM quantity
16 GB 1600 Mbps	EM91	0	8
32 GB 1600 Mbps	EM92	0	8
64 GB 1600 Mbps	EM93	0	8
128 GB 1600 Mbps	EM94	0	8

## Power supply

- Two power supplies supporting a tower: 1+1 900 Watt 100-127 Volt or 200-240 Volt AC options (#EB2L)
- Two power supplies supporting a rack: 1+1 1400 Watt 200-240 Volt (#EB2M) or 1+1 900 Watt 100-127 Volt or 200-240 Volt AC options (#EB2L)

## Redundant fans

Redundant fans are standard.

### Power cords

Two power cords are required. A maximum of two feature 6458 cords is allowed on the system unless a valid I/O drawer or tower is attached to the system. The Power S814 supports power cord 4.3m (14-ft), Drawer to Wall/IBM PDU (250V/10A) in the base shipment group. Refer to the feature listing for other options. 4-Core Processor Feature

For clients that need less than six or eight processor cores in the single-socket IBM Power System S814 server, a 4-Core 3.02 GHz POWER8 Processor Card (#EPXK) is available. There is no upgrade to increase the cores on this feature. This server supports AIX, IBM I and Linux, but is especially attractive to IBM i clients with its P05 software tier. It is designed to meet many entry client requirements with its 64GB memory maximum, eight SAS drives in its system unit maximum and seven PCIe slots maximum. The IBM i Solution Edition (#4928) and Capacity Backup option for IBM i (#0444) are supported.

The 4-core Power S814 uses a 3.02 GHz POWER8 Processor Card (#EPXK) with processor core activation features (#EPZK and #EPYK). All four processor cores must be activated, but factory deconfiguration feature (#2319) is supported. The chargeable feature EPYK is used for these activations. Three no-charge feature EPZK are used with the IBM Solution Edition (#4928) in place of three EPYK activation features for those eligible to use the solution edition.

The 4-core S814 supports the 16GB memory feature (#EM8B). A max of four of these features is supported for a system maximum of 64 GB.

The 4-core S814 supports a maximum of ten disk drives or ten SSD or a combination of ten disk and SSD in the system unit. This is true with any of the storage backplane options selected. SAS drives located in feature code I/O drawers such as the EXP24S (#5887) are not supported. Attachment to SANs is supported.

## I/O support

### PCIe slots

The Power S814 has up to seven PowerPC Gen 3 slots, providing excellent configuration flexibility and expandability. For even more PCIe slots, see the Statement of direction section for an I/O drawer with PCIe slots.

With one POWER8 processor DCM, seven PCIe Gen 3 slots are available. Two are x16 full-height and full-length slots. Five are x8 Gen 3 full-height, half-length slots.

The x16 slots can provide up to twice the bandwidth of a x8 slot because they offer twice as many PCIe lanes. PCIe Gen 3 slots can support up to twice the bandwidth of a PCIe Gen 2 slot and up to four times the bandwidth of a PCIe Gen 1 slot, assuming an equivalent number of PCIe lanes.

At least one PCIe Ethernet adapter is required on the server by IBM to ensure proper manufacture, test, and support of the server. One of the x8 PCIe slots is used for this required adapter, identified as the C10 slot.

These servers are smarter about energy efficiency for cooling the PCIe adapter environment. They sense which IBM PCIe adapters are installed in their PCIe slots, and if an adapter requires higher levels of cooling, they automatically speed up fans to increase airflow across the PCIe adapters. In contrast, POWER7 servers required the user to enter a "non-acoustic mode" command to speed up the fans. Note that faster fans increase the sound level of the server. Higher wattage PCIe adapters include the PCIe3 SAS adapters, PCIe2 SAS adapters, and SSD/flash PCIe adapters (#EJ0J, #EJ0M, #EL3B, #EJ0L, #ESA1, #ESA2, #ESA3, and #5913).

IBM is also introducing a gzip acceleration adapter (#EJ12). This PCIe adapter incorporates the latest in FPGA technology to provide significant performance improvements for customers running workloads such as IBM WebSphere, which require frequent gzip compressions and decompressions. Customers running Java workloads using java/util/gzip will also see impressive performance improvements. This feature is particularly effective for workloads requiring transfer of large buffers. Utilizing this adapter can reduce both storage requirements and network congestion in a customer's environment. This feature is only supported in AIX.

## SAS bays and storage backplane options

Three backplane options provide a great deal of flexibility and capability. One of these three must be configured:

- Storage Backplane 12 SFF-3 Bays/DVD Bay (#EJ0N)
- Features EJ0N + EJ0S (split backplane)
- Storage Backplane 18 SFF-3 Bays/DVD Bay/Dual IOA with Write Cache and Easy Tier functionality (#EJ0P)

Each of the three backplane options provides SFF-3 SAS bays in the system unit. These 2.5-inch or small form factor (SFF) SAS bays can contain SAS drives (HDD or SSD) mounted on a Gen 3 tray or carrier. Thus the drives are designated SFF-3. SFF-1 or SFF-2 drives do not fit in a SFF-3 bay. All SFF-3 bays support concurrent maintenance or "hot plug" capability.

Each of the three backplane options uses leading-edge, integrated SAS RAID controller technology designed and patented by IBM. A custom-designed PowerPC based ASIC chip is the basis of these SAS RAID controllers and provides industry-leading RAID 5 and RAID 6 performance levels, especially for SSD. Internally, 13 (no cache) or 16 (with cache) 6Gb SAS ports are implemented and provide plenty of bandwidth. Similar SAS RAID technology was first introduced with the PCIe Gen 3 SAS adapters, features EJ0J and EJ0L. The integrated SAS controllers are placed in dedicated slots and do not reduce the number of available PCIe slots.

The feature EJ0N storage backplane option provides twelve SFF-3 bays, one SAS controller with zero write cache, and a DVD drive bay.

By optionally adding the feature EJ0S Split Backplane feature, a second integrated SAS controller with no write cache is provided and the twelve SFF-3 bays are logically divided into two sets of six bays. Each SAS controller independently runs one of the six-bay sets of drives.

The feature EJ0P storage backplane option has expanded function compared to the feature EJ0N backplane. Feature EJ0P provides eighteen SFF-3 bays; a pair of integrated SAS controllers, each with 1.8 GB physical (effectively up to 7.2GB with compression) write cache; a DVD bay; two SAS ports enabled for attaching an external feature 5887 EXP24S Drawer; an eight-bay, 1.8-inch SSD Cage; and Easy Tier functionality. The SAS ports are indicated by the EJ0Z feature which is optionally ordered with feature EJ0P. The SAS ports are physically mounted on the rear of the server and use up one PCIe x8 slot. The SSD cage is indicated by feature EJTM feature and must also be ordered with feature EJ0P.

The dual SAS controllers provide both performance and protection advantages. Patented Active-Active capabilities enhance performance when there is more than one array configured. Each of the dual controllers has access to all the backplane SAS bays and can back up the other controller if there were to be a problem with the other controller. Each controller mirrors the other's write cache, providing redundancy protection. Integrated flash memory for the write cache content provides protection against electrical power loss to the server and avoids the need for write cache battery protection and battery maintenance.

All three of these backplane options support HDDs or SSDs or a mixture of HDDs and SSDs in the SFF-3 bays. "Mixing" HDD and SSD applies even within a single set of six bays of the split backplane option. Note, if mixing HDDs and SSDs, they must be in separate arrays (unless using Easy Tier function).

All three of these backplane options can offer different drive protection options: RAID 0, RAID 5, RAID 6, or RAID 10. RAID 5 requires a minimum of three drives of the same capacity. RAID 6 requires a minimum of four drives of the same capacity. RAID 10 requires a minimum of two drives. Hot spare capability is supported with RAID 5 or RAID 6. The high-performance, expanded-function dual-IOA backplane also provides Easy Tier functionality, which is also called RAID 5T2 (2-tiered RAID 5), RAID 6T2 (2-tiered RAID 6), and RAID 10T2 (2-tiered RAID 10).

Note: I/O performance-sensitive workloads with an appreciable percentage of writes should consider using the feature EJ0P backplane with SAS controllers with write cache or use PCIe SAS adapters with write cache, especially for HDDs. Note also that RAID 5 and RAID 6 result in more drive write activity than mirroring or than unprotected drives.

All three of these backplane options are supported by AIX, IBM i, Linux, and VIOS. If used by IBM i, to be a supported configuration, the drives must be protected by methods such as RAID 5, RAID 6, or mirroring. If used by AIX, Linux, or VIOS, it is highly recommended the drives be protected, but not required.

If the client needs a change after the server is already installed, the backplane option can be changed. For example, the feature EJ0S split backplane can be added to an existing feature EJ0N backplane. Or the feature EJ0N can be removed and replaced by the expanded-function dual IOA feature EJ0P backplane. Or a feature EJ0P backplane could be replaced by a feature EJ0N and EJ0S backplane.

Unlike the hot plug PCIe slots and SAS bays, concurrent maintenance is not available for the integrated SAS controllers. Scheduled downtime is required if a service action is required for these integrated resources.

## DVD drive bay

Included in the feature EJ0N or EJ0P backplanes is a slimline media bay that can optionally house a SATA DVD-RAM (#5771). The DVD drive is run by the integrated SAS controllers, and a separate PCIe adapter is not required.

## Storage Backplane Integrated Easy Tier function

The Easy Tier function is provided with the dual IOA, expanded-function storage backplane (#EJ0P). Conceptually, this function is like the Easy Tier function found in the IBM Storage products such as the DS8000, Storwize V7000, or SVC, but implemented just within the integrated Power Systems SAS controllers, the integrated SAS bays, and, optionally, an EXP24S I/O drawer. Hot data is automatically moved to SSDs, and cold data is automatically moved to disk (HDD) in an AIX, Linux, or VIOS environment. No user application coding is required.

Clients commonly have this hot/cold characteristic for their data. It is typical for 10% - 20% of the data to be accessed 80% - 90% of the time. This is called the hot data. If you can get the hot data onto SSDs, it can dramatically improve the performance of I/O-bound applications. And by keeping the cold data on HDDs, the total cost per gigabyte of the solution can be minimized. You can end up with high I/O performance at a very reasonable price. By avoiding the need for lots of HDD arms for performance, you can reduce the number of I/O drawers, maintenance, rack/floor space, and energy.

On the IBM Power S814 server, up to 18 internal HDD/SSD SAS bays, and, optionally, with the EXP24S drawer, an additional 24 SAS bays are supported with the integrated Easy Tier function. In addition or alternatively on 4U servers, the previously announced PCIe Gen 3 large cache SAS adapters (#EJ0L) can provide additional capacity or configuration options for the Easy Tier function. On a 4U server, up to 16 internal HDD/SSD SAS bays and, optionally, with the EXP24S drawer, an additional 24 SAS bays are supported with the integrated Easy Tier function.

Easy Tier function is configured using RAID 5T2 (2-tiered RAID 5), RAID 6T2 (2-tiered RAID 6) or RAID 10T2 (2-tiered RAID 10). HDD and SSD are combined in the same array and the controller or adapter swaps 1M or 2M bands of data between HDD and SSD, automatically moving the hot data to SSD and the cold data to SSD. The HDD and SSD can be different capacities in this array. If an array has multiple capacity points, for example, 300 GB HDD and 600 GB HDD, only 300 GB of the larger 600 GB HDD will be used. Similarly, if the array has 387 GB SSD and 775 GB SSD, only 387 GB of the 775 GB will be used. Note that the block size of the drives in the array must match. All drives must be 5xx byte sectors or all must be 4k byte sectors.

Easy Tier function requires AIX 7.1 TL3 SP3, or later; AIX 6.1 TL9 SP3, or later; RHEL 6.5, or later; SLES 11 SP3, or later; or VIOS 2.2.3.3, or later.

## I/O drawer attachment

The EXP24S SAS HDD/SSD Expansion Drawer (#5887) is attached to SAS ports on either a PCIe SAS adapter located in the server or to the SAS ports on the rear of the server. Two SAS ports on the rear of the server are enabled with the expanded-function storage backplane with dual IOA support.

- One EXP24S drawer in mode 1 can be attached to the two SAS ports on the rear of the server using three meter SAS YO cables such as feature ECBT or ECBU. Either SSDs or HDDs can be placed in this drawer, but SSDs and HDDs cannot be mixed in this drawer.
- The feature 5887 EXP24S drawer can be attached to SAS ports of PCIe SAS adapters using SAS YO or X cables. Up to 14 EXP24S drawers can be attached. Either SSDs or HDDs can be placed in the drawer, depending on the capabilities of the adapter running the bays. Note that longer distance SAS cables are thicker and can fill the Cable Management Arm more quickly.

Clients migrating from earlier generation servers may have been using I/O drawers such as the GX++ attached feature 5802 or 5877 PCIe 12X I/O Drawers with PCIe Gen 1 slots. Though most PCIe adapters in the feature 5802 or 5877 drawers can be moved to this server, and its disk drives converted and moved to the feature 5887 EXP24S drawer, the feature 5802 and 5877 drawers are not supported on this newer Power Systems POWER8 technology-based server. Similarly, the GX++ attached EXP30 Ultra SSD Drawer (#EDR1 or #5888) is not supported.

The older 3.5-inch-based feature 5886 EXP12S SAS Disk Drawer and feature 5786 EXP24 SCSI Disk Drawer are not supported.

IBM offers a 1U multimedia drawer that can hold one or more DVDs, tape drive, or RDX docking stations. The 7226-1U3 is the most current offering. The earlier 7216-1U2 and 7214-1U2 are also supported. Up to six of these multimedia drawers can be attached.

## Cable management arm

A folding arm is attached to the server's rails at the rear of the server. The server's power cords and the cables from the PCIe adapters or integrated ports run through the arm and into the rack. The arm enables the server to be pulled forward on its rails for service access to PCIe slots, memory, processors, and so on without disconnecting the cables from the server. Approximately 1 meter or 3 feet of cord/cable length is needed for the arm.

## Integrated I/O ports

In addition to the integrated SAS controllers and SAS ports associated with the storage backplane, there are two HMC ports, two serial ports, and six USB ports. The two HMC ports are RJ45 supporting 1Gb Ethernet connections.

The two serial ports are also called system ports. They are RJ45 and are supported by AIX and Linux for attaching serial devices such as an asynchronous device like a console. If the device does not have a RJ45 connection, a converter cable such as feature 3930 can provide a 9-pin D-shell connection. Note that serial devices can have very individual characteristics (different pin outs) and the feature 3930 may not be appropriate for all possible devices. In this case the user should acquire an OEM converter cable appropriate for their device.

Four USB-3 ports are available for general client use and two USB-2 ports are available with limited client use. Two USB-3 ports are located on the front of the server, and the other four USB ports (two USB-3 and two USB-2) are on the rear. The USB-2 ports are on the service processor card and there primarily for IBM use; however, IBM i can use one of the USB-2 ports for communicating the status of a UPS (uninterruptible power supply). A converter cable, feature ECCF, provides a USB-to-9-pin D-Shell connection for this function. Connection to a serial port for this UPS communication function for IBM i is not supported.

## Rack-integrated system with Expansion Drawer

Regardless the rack-integrated system to which the PCIe Gen3 I/O Expansion Drawer is attached to, if the Expansion Drawer is ordered as factory integrated, the PDUs in the rack will be defaulted to be placed horizontally to enhance cable management.

Expansion Drawers complicate the access to vertical PDUs if located at the same height. IBM recommends accommodating PDUs horizontally on racks containing one or more PCIe Gen3 I/O Expansion Drawers.

Once the rack with Expansion Drawers is delivered to the customer, the customer is allowed to rearrange the PDUs from horizontal to vertical. However, the configurator will remain considering the PDUs are placed horizontally for the matter of calculating the free space still available in the rack.

Vertical PDUs can be used only if CSRP (#0469) is on the order. When specifying CSRP, the customer will provide the locations where the PCIe Gen3 I/O Expansion Drawers must be placed, avoiding locating those adjacent to Vertical PDU locations, EIA 6 through 16 and 21 through 31.

## Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

[http://www.ibm.com/able/product\\_accessibility/index.h tml](http://www.ibm.com/able/product_accessibility/index.h tml)

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# Reliability, Availability, and Serviceability

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## Reliability, fault tolerance, and data correction

The reliability of systems starts with components, devices, and subsystems that are designed to be highly reliable. During the design and development process, subsystems go through rigorous verification and integration testing processes. During system manufacturing, systems go through a thorough testing process to help ensure the highest level of product quality.

## Memory subsystem RAS

The memory has error detection and correction circuitry designed such that the failure of any one specific memory module within an ECC word by itself can be corrected absent any other fault.

In addition, a spare DRAM per rank on each memory port provides for dynamic DRAM device replacement during runtime operation. Also, dynamic lane sparing on the DMI link allows for repair of a faulty data lane.

Other memory protection features include retry capabilities for certain faults detected at both the memory controller and the memory buffer. Memory is also periodically scrubbed to allow for soft errors to be corrected and for solid single-cell errors reported to the hypervisor, which supports operating system deallocation of a page associated with a hard single-cell fault.

## Mutual surveillance

The service processor monitors the operation of the firmware during the boot process and also monitors the hypervisor for termination. The hypervisor monitors the service processor and reports service reference code when it detects surveillance loss. In the PowerVM environment, it will perform a reset/reload if it detects the loss of the service processor.

#### Environmental monitoring functions

The Power Systems family does ambient and over temperature monitoring and reporting.

#### Availability enhancement functions

The Power Systems family continues to offer and introduce significant enhancements designed to increase system availability.

#### Power Systems with POWER8 processor architecture

As in POWER6, POWER7, and POWER7+, the Power Systems POWER8 processor has the ability to do processor instruction retry for some transient errors and alternate processor recovery for a number of core-related faults. This significantly reduces exposure to both hard (logic) and soft (transient) errors in the processor core. Soft failures in the processor core are transient (intermittent) errors, often due to cosmic rays or other sources of radiation, and generally are not repeatable. When an error is encountered in the core, the Power Systems POWER8 processor will first automatically retry the instruction. If the source of the error was truly transient, the instruction will succeed and the system will continue as before. On IBM systems prior to POWER6, this error would have caused a checkstop.

Hard failures are more difficult, being true logical errors that will be replicated each time the instruction is repeated. Retrying the instruction will not help in this situation. As in POWER6, POWER7, and POWER7+ technology, processors have the ability to extract the failing instruction from the faulty core and retry it elsewhere in the system for a number of faults, after which the failing core is dynamically deconfigured and called out for replacement in the PowerVM environment. These features are designed to avoid a full system outage.

As in POWER6 and POWER7+, the Power Systems POWER8 processor includes single processor check stopping for certain faults that cannot be handled by the availability enhancements described in the preceding section. This significantly reduces the probability of any one processor affecting total system availability.

#### Partition availability priority

Also available is the ability to assign availability priorities to partitions. In the PowerVM environment, if an alternate processor recovery event requires spare processor resources in order to protect a workload, when no other means of obtaining the spare resources is available, the system will determine which partition has the lowest priority and attempt to claim the needed resource. On a properly configured POWER8 processor-based server, this allows that capacity to be first obtained from, for example, a test partition instead of a financial accounting system.

#### Cache availability

The L2 and L3 caches in the Power Systems POWER8 processor and L4 cache in the memory buffer chip are protected with double-bit detect, single-bit correct error detection code (ECC). In addition, a threshold of correctable errors detected on cache lines can result in the data in the cache lines being purged and the cache lines removed from further operation without requiring a reboot in the PowerVM environment. In addition, the L3 cache has the ability to dynamically substitute a spare bit-line for a faulty bit-lane, allowing an entire faulty "column" of cache, impacting multiple cache lines, to be repaired. An ECC uncorrectable error detected in these caches can also trigger a purge and delete of cache lines. This results in no loss of operation if the cache lines contained data unmodified from what was stored in system memory.

Modified data would be handled through Special Uncorrectable Error handling. L1 data and instruction caches also have a retry capability for intermittent errors and a cache set delete mechanism for handling solid failures.

#### Special Uncorrectable Error handling

Special Uncorrectable Error (SUE) handling prevents an uncorrectable error in memory or cache from immediately causing the system to terminate. Rather, the system tags the data and determines whether it will ever be used again. If the error is irrelevant, it will not force a check stop. If the data is used, termination may be limited to the program/kernel or hypervisor owning the data; or the I/O adapters controlled by an I/O hub controller would freeze if data were transferred to an I/O device.

#### PCI extended error handling

PCI extended error handling (EEH)-enabled adapters respond to a special data packet generated from the affected PCI slot hardware by calling system firmware, which will examine the affected bus, allow the device driver to reset it, and continue without a system reboot. For Linux, EEH support extends to the majority of frequently used devices, although some third-party PCI devices may not provide native EEH support.

#### Predictive failure and dynamic component deallocation

Servers with Power processors have long had the capability to perform predictive failure analysis on certain critical components such as processors and memory. When these components exhibit certain symptoms that may indicate a failure is imminent, the system can dynamically deallocate and call home, when enabled, about the failing part before the error is propagated system-wide. In many cases, the system will first attempt to reallocate resources in such a way that will avoid unplanned outages. In the event that insufficient resources exist to maintain full system availability, these servers will attempt to maintain partition availability by user-defined priority.

#### Uncorrectable error recovery

When the auto-restart option is enabled, the system can automatically restart following an unrecoverable software error, hardware failure, or environmentally induced (ac power) failure.

#### Serviceability

The purpose of serviceability is to efficiently repair the system while attempting to minimize or eliminate impact to system operation. Serviceability includes system installation, MES (system upgrades/downgrades), and system maintenance/repair. Depending upon the system and warranty contract, service may be performed by the customer, an IBM representative, or an authorized warranty service provider.

The serviceability features delivered in this system provide a highly efficient service environment by incorporating the following attributes:

- Design for Customer Set Up (CSU), Customer Installed Features (CIF), and Customer Replaceable Units (CRU)
- Detection and Fault Isolation (ED/FI)
- First Failure Data Capture (FFDC)
- Lightpath service indicators:
  - Service labels and service diagrams available on the system and delivered through IBM Knowledge Center
  - Step-by-step service procedures documented in IBM Knowledge Center or available through the Hardware Management Console
  - CRU videos planned to be available on the web at general availability
  - Mobile access to important customer service functions available by scanning a QR label

#### Service environment

In the PowerVM environment, the HMC is a dedicated server that provides functions for configuring and managing servers for either partitioned or full-system partition using a GUI or command-line interface (CLI). An HMC attached to the system allows support personnel (with client authorization) to remotely log in to review error logs and perform remote maintenance if required.

The Power Systems POWER8 processor-based platforms support two main service environments:



- Attachment to one or more HMCs is a supported option by the system with PowerVM. This is the default configuration for servers supporting logical partitions with dedicated or virtual I/O. In this case, all servers have at least one logical partition.
- No HMC. There are two service strategies for non-HMC systems.
  - Full-system partition with PowerVM: A single partition owns all the server resources and only one operating system may be installed.
  - Partitioned system with PowerVM: In this configuration, the system can have more than one partition and can be running more than one operating system. In this environment, partitions are managed by the Integrated Virtualization Manager (IVM), which provides some of the functions provided by the HMC.

## Service interface

The service interface allows support personnel to communicate with the service support applications in a server using a console, an interface, or a terminal. Delivering a clear, concise view of available service applications, the service interface allows the support team to manage system resources and service information in an efficient and effective way. Applications available through the service interface are carefully configured and placed to give service providers access to important service functions.

Different service interfaces are used, depending on the state of the system, hypervisor, and operating environment. The primary service interfaces are:

- LEDs
- Operator Panel
- Service processor menu
- Operating system service menu
- Service Focal Point on the HMC with PowerVM
- Service Focal Point Lite on IVM with PowerVM

In the light path LED implementation, the system can clearly identify components for replacement by using specific component-level LEDs, and can also guide the servicer directly to the component by signaling (turning on solid) the amber system fault LED, enclosure fault LED, and component FRU fault LED. The servicer can also use the identify function to blink the FRU-level LED. When this function is activated, a roll-up to the blue enclosure locate and system locate LEDs will occur. These LEDs will turn on solid and can be used to follow the light path from the system to the enclosure and down to the specific FRU in the PowerVM environment.

## First Failure Data Capture and error data analysis

First Failure Data Capture (FFDC) is a technique that helps ensure that when a fault is detected in a system, the root cause of the fault will be captured without the need to re-create the problem or run any sort of extending tracing or diagnostics program. For the vast majority of faults, a good FFDC design means that the root cause can also be detected automatically without servicer intervention.

FFDC information, error data analysis, and fault isolation are necessary to implement the advanced serviceability techniques that enable efficient service of the systems and to help determine the failing items.

In the rare absence of FFDC and Error Data Analysis, diagnostics are required to re-create the failure and determine the failing items.

## Diagnostics

General diagnostic objectives are to detect and identify problems so they can be resolved quickly. Elements of IBM's diagnostics strategy include:

- Provide a common error code format equivalent to a system reference code with PowerVM, system reference number, checkpoint, or firmware error code.
- Provide fault detection and problem isolation procedures. Support remote connection ability to be used by the IBM Remote Support Center or IBM Designated Service.
- Provide interactive intelligence within the diagnostics with detailed online failure information while connected to IBM's back-end system.

## Automatic diagnostics

Because of the FFDC technology designed into IBM servers, it is not necessary to perform re-create diagnostics for failures or to require user intervention. Solid and intermittent errors are designed to be correctly detected and isolated at the time the failure occurs. Runtime and boot-time diagnostics fall into this category.

## Stand-alone diagnostics with PowerVM

As the name implies, stand-alone or user-initiated diagnostics requires user intervention. The user must perform manual steps, including:

- Booting from the diagnostics CD, DVD, USB, or network
- Interactively selecting steps from a list of choices

## Concurrent maintenance

The determination of whether a firmware release can be updated concurrently is identified in the readme information file that is released with the firmware. An HMC is required for the concurrent firmware update with PowerVM. In addition, hot plugging of PCIe adapters is supported with PowerVM. Concurrent maintenance of the Operator Panel is supported through ASMI.

## Service labels

Service providers use these labels to assist them in performing maintenance actions. Service labels are found in various formats and positions and are intended to transmit readily available information to the servicer during the repair process. Following are some of these service labels and their purpose:

- Location diagrams: Location diagrams are located on the system hardware, relating information regarding the placement of hardware components. Location diagrams may include location codes, drawings of physical locations, concurrent maintenance status, or other data pertinent to a repair. Location diagrams are especially useful when multiple components such as DIMMs, CPUs, processor books, fans, adapter cards, LEDs, and power supplies are installed.
- Remove/replace procedures: Service labels that contain remove/replace procedures are often found on a cover of the system or in other spots accessible to the servicer. These labels provide systematic procedures, including diagrams, detailing how to remove or replace certain serviceable hardware components.
- Arrows: Numbered arrows are used to indicate the order of operation and the serviceability direction of components. Some serviceable parts such as latches, levers, and touch points need to be pulled or pushed in a certain direction and in a certain order for the mechanical mechanisms to engage or disengage. Arrows generally improve the ease of serviceability.

## Packing for service

The following service enhancements are included in the physical packaging of the systems to facilitate service:

- Color coding (touch points): Terracotta-colored touch points indicate that a component (FRU/CRU) can be concurrently maintained. Blue-colored touch points delineate components that are not concurrently maintained -- those that require the system to be turned off for removal or repair.
- Tool-less design: Selected IBM systems support tool-less or simple tool designs. These designs require no tools or simple tools such as flathead screw drivers to service the hardware components.
- Positive retention: Positive retention mechanisms help to assure proper connections between hardware components such as cables to connectors, and between two cards that attach to each other. Without positive retention, hardware components run the risk of becoming loose during shipping or installation, preventing a good electrical connection. Positive retention mechanisms like latches, levers, thumb-screws, pop Nylatches (U-clips), and cables are included to help prevent loose connections and aid in installing (seating) parts correctly. These positive retention items do not require tools.

## Error handling and reporting

In the event of system hardware or environmentally induced failure, the system runtime error capture capability systematically analyzes the hardware error signature to determine the cause of failure. The analysis result will be stored in system NVRAM. When the system can be successfully restarted either manually or automatically, or if the system continues to operate, the error will be reported to the operating system. Hardware and software failures are recorded in the system log. When an HMC is attached in the PowerVM environment, an ELA routine analyzes the error, forwards the event to the Service Focal Point (SFP) application running on the HMC, and notifies the system administrator that it has isolated a likely cause of the system problem. The service processor event log also records unrecoverable checkstop conditions, forwards them to the SFP application, and notifies the system administrator.

The system has the ability to call home through OS to report platform recoverable errors and errors associated with PCI adapters/devices.

In the IVM environment, call home is supported through an IVM partition.

On Power Systems POWER8 processor-based servers, hardware and software failures are recorded in the system log. When an HMC is attached, an ELA routine analyzes the error, forwards the event to the Service Focal Point (SFP) application running on the HMC, and notifies the system administrator that it has isolated a likely cause of the system problem. The service processor event log also records unrecoverable checkstop conditions, forwards them to the SFP application, and notifies the system administrator. Once the information is logged in the SFP application, if the system is properly configured, a call home service request will be initiated and the pertinent failure data with service parts information and part locations will be sent to an IBM service organization. Customer contact information and specific system-related data such as the machine type, model, and serial number, along with error log data related to the failure, are sent to IBM Service.

## Live Partition Mobility

With Live Partition Mobility, users can migrate an AIX, Linux, or IBM i partition running on one POWER partition system to another POWER system without disrupting services. The migration transfers the entire system environment, including processor state, memory, attached virtual devices, and connected users. It provides continuous operating system and application availability during planned partition outages for repair of hardware and firmware faults.

## Service processor

The service processor provides the capability to diagnose, check the status of, and sense the operational conditions of a system. It runs on its own power boundary and does not require resources from a system processor to be operational to perform its tasks.

Under PowerVM the service processor supports surveillance of the connection to the HMC and to the system firmware (hypervisor). It also provides several remote power control options, environmental monitoring, reset, restart, remote maintenance, and diagnostic functions, including console mirroring. The service processors menus (ASMI) can be accessed concurrently with system operation, allowing nondisruptive abilities to change system default parameters.

## Call home

Call home refers to an automatic or manual call from a customer location to the IBM support structure with error log data, server status, or other service-related information. Call home invokes the service organization in order for the appropriate service action to begin. Call home can be done through HMC or most non-HMC managed systems through Electronic Service Agent running on top of the operating system. While configuring call home is optional, clients are encouraged to implement this feature in order to obtain service enhancements such as reduced problem determination and faster and potentially more accurate transmittal of error information. In general, using the call home feature can result in increased system availability. The Electronic Service Agent application can be configured for automated call home. Refer to the next section for specific details on this application.

## IBM Electronic Services

Electronic Service Agent and the IBM Electronic Services web portal comprise the IBM Electronic Services solution, which is dedicated to providing fast, exceptional support to IBM customers. IBM Electronic Service Agent is a no-charge tool that proactively monitors and reports hardware events such as system errors, performance issues, and inventory. Electronic Service Agent can help focus on the customer's company business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues.

System configuration and inventory information collected by Electronic Service Agent also can be viewed on the secure Electronic Services web portal and used to improve problem determination and resolution between the customer and the IBM support team. As part of an increased focus to provide even better service to IBM customers, Electronic Service Agent tool configuration and activation comes standard with the system. In support of this effort, a new HMC External Connectivity security whitepaper has been published, which describes data exchanges between the HMC and the IBM Service Delivery Center (SDC) and the methods and protocols for this exchange. To read the whitepaper and prepare for Electronic Service Agent installation, go to the "Security" section at

<http://www.ibm.com/support/esa>

Select your country. Click "IBM Electronic Service Agent Connectivity Guide."

## Benefits: increased uptime

Electronic Service Agent is designed to enhance the warranty and maintenance service by providing faster hardware error reporting and uploading system information to IBM Support. This can optimize the time monitoring the symptoms, diagnosing the error, and manually calling IBM Support to open a problem record. And 24x7 monitoring and reporting means no more dependency on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

## Security

The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM. The Electronic Service Agent tool is designed to securely transmit either via the Internet (HTTPS or VPN) or modem to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system.

For additional information, refer to IBM Electronic Service Agent

<http://www-01.ibm.com/support/esa/>

## More accurate reporting

Because system information and error logs are automatically uploaded to the IBM Support Center in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM, problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

## Customized support

Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Services website.

The Electronic Services web portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. This web portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The newly improved My Systems and Premium Search functions make it even easier for Electronic Service Agent-enabled customers to track system inventory and find pertinent fixes.

My Systems provides valuable reports of installed hardware and software using information collected from the systems by IBM Electronic Service Agent. Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Service Agent information that has been collected from the system, customers are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, visit the following website or contact an IBM Systems Services Representative

<http://www.ibm.com/support/electronic>

# Product positioning

IBM Power S814 server solutions and services, designed for midsized businesses, help your business capitalize on new opportunities, manage business risk while meeting high service levels, and keep within tight budget constraints.

## Mobile

Worklight on Power provides a mobile application platform to speed development and ongoing management of mobile applications, enabling our clients to extend their business to mobile devices. It includes a comprehensive development environment, mobile-optimized runtime middleware, a private enterprise application store, and an integrated management and analytics console. Worklight on Power enables clients to:

- Simplify operations and reduce complexity by co-locating applications on a more scalable and reliable server
- Streamline access to data and applications with secure, high-performance virtual networking
- Grow seamlessly and accelerate deployment of new applications and services
- Reduce overhead by leveraging existing production and disaster recovery infrastructure

## Analytics

IBM Power Analytics solutions give organizations with high volumes of data the building blocks they need to implement capabilities that enable them to quickly make data-driven business decisions. Each solution can be implemented separately or in combination to deliver a reliable and high-performance infrastructure for business intelligence (BI) and predictive analytics. The software is installed and configured on the server before being shipped, reducing the time and effort required to gain the benefits of the solution. These analytics solutions are available for any new POWER8 processor-based system:

- IBM Solution for Analytics Power Systems Edition
- IBM BLU Acceleration Power Systems Edition

IBM Solution for Analytics Power Systems Edition is a flexible, integrated solution that provides options to preload and configure one or more IBM analytics applications with data warehouse acceleration. IBM Solution for Analytics Power Systems Edition delivers Cognos Business Intelligence capabilities on POWER8 processor-based servers running AIX or Linux. Cognos Business Intelligence is designed to help business users, executives, and analysts in an organization understand the business and make smarter decisions. The solution offers a full range of BI capabilities, including reports, analysis, dashboards, scorecards, mobile BI, and more.

IBM Solution for Analytics Power Systems Edition also delivers SPSS predictive analytics combined with business rules capabilities on a Power server platform running AIX. SPSS Modeler, SPSS Collaboration and Deployment Services, and Analytical Decision Management help empower organizations to make the right decision each time for high-demand, mission-critical business requirements. This solution combines and integrates predictive analytics, rules, scoring, and optimization techniques into an organization's processes to deliver recommended actions at the point of impact.

BLU Acceleration Power Systems Edition is updated to deliver DB2 dynamic in-memory, columnar data warehouse acceleration on a POWER8 processor-based server running AIX. BLU Acceleration is an integral part of DB2 Advanced Workgroup Edition and Advanced Enterprise Edition, enabling organizations to use both row-based and columnar data storage simultaneously. With BLU Acceleration, organizations can dramatically reduce the time to get analytic query results and reports from existing data warehouses. Time and effort to set up analytics is reduced by eliminating the need for aggregates, indexes, tuning, and partitions. InfoSphere DataStage is also a preload option for providing extract, transform, and load (ETL) capabilities from an existing data warehouse to the BLU Acceleration warehouse. A separate purchase of the DB2 and InfoSphere software is required to meet license use requirements.

# Models

## Model summary matrix

Model	Processor	Rack Mount	Memory
41A	4-core 3.02 GHz, or 6-core 3.02, or 8-core 3.72 GHz POWER8	19-inch	maximum 1024 GB

Note: IBM Power System Machine type/Model 8286-41A is being withdrawn in South Korea effective December 31, 2019.

## Customer setup (CSU)

Yes, except processor (EPXK, EPX0, EPX6) features.

## Devices supported

No answer data found for External Machine Type (Support Devices) section.

## Model conversions

Not available.

## Feature conversions

The existing components being replaced during a model or feature conversion become the property of IBM and must be returned.

Feature conversions are always implemented on a "quantity of one for quantity of one" basis. Multiple existing features may not be converted to a single new feature. Single existing features may not be converted to multiple new features.

The following conversions are available to customers:

Feature conversions for 8286-41A adapters features:

From FC:	To FC:	RETURN PARTS
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EJ32 - PCIe3 Crypto Coprocessor no BSC 4767	EJ33 - PCIe3 Crypto Coprocessor BSC-Gen3 4767	No

Feature conversions for 8286-41A adapters features:

From FC:	To FC:	RETURN PARTS
EJ28 - PCIe Crypto Coprocessor Gen3 BSC 4765-001	EJ27 - PCIe Crypto Coprocessor No BSC 4765-001	No
EJ27 - PCIe Crypto Coprocessor No BSC 4765-001	EJ28 - PCIe Crypto Coprocessor Gen3 BSC 4765-001	No

Feature conversions for 8202-E4B disk features

From FC:	To FC:	RETURN PARTS
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8202-E4B solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8202-E4C disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8202-E4C solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8202-E4D disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8202-E4D solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8203-E4A disk features:

From FC:	To FC:	RETURN PARTS
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No

Feature conversions for 8204-E8A disk features:

From FC:	To FC:	RETURN PARTS
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No

Feature conversions for 8205-E6B disk features:

From FC:	To FC:	RETURN PARTS
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8205-E6B solid state drive features:

From FC:	To FC:	RETURN PARTS
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ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8205-E6C disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1886 - 146GB 15k RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15k RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15k RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15k RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10k RPM SAS SFF-2 Disk Drive (IBMi)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8205-E6C solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8205-E6D disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1886 - 146GB 15k RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15k RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15k RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15k RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8205-E6D solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for	ES1A - 387GB SFF-2 SSD for	No

IBM i

IBM i

Feature conversions for 8231-E1C disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBM i)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8231-E1C solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8231-E1D disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBM i)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8231-E1D solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8231-E2B disk features:

From FC:	To FC:	RETURN PARTS
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

1885 - 300GB 10K RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1888 - 139GB 15K RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1879 - 283GB 15K RPM SAS	1948 - 283GB 15k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1880 - 300GB 15K RPM SAS	1953 - 300GB 15k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1911 - 283GB 10K RPM SFF	1956 - 283GB 10k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1916 - 571GB 10k RPM SAS	1962 - 571GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1790 - 600GB 10K RPM SAS	1964 - 600GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
ESD0 - 1.1TB 10K RPM SAS	ESD2 - 1.1TB 10K RPM SAS	No
SFF-1 Disk Drive (IBM i)	SFF-2 Disk Drive (IBMi)	
ESD1 - 1.2TB 10K RPM SAS	ESD3 - 1.2TB 10K RPM SAS	No
SFF-1 Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

Feature conversions for 8231-E2C disk features:

From FC:	To FC:	RETURN PARTS
-----	-----	-----
1737 - 856GB 10k RPM SAS	1738 - 856GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1751 - 900GB 10K RPM SAS	1752 - 900GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1886 - 146GB 15K RPM SFF	1917 - 146GB 15k RPM SAS	No
SAS Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1885 - 300GB 10K RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1888 - 139GB 15K RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1879 - 283GB 15K RPM SAS	1948 - 283GB 15k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1880 - 300GB 15K RPM SAS	1953 - 300GB 15k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1911 - 283GB 10K RPM SFF	1956 - 283GB 10k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1916 - 571GB 10k RPM SAS	1962 - 571GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1790 - 600GB 10K RPM SAS	1964 - 600GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
ESD0 - 1.1TB 10K RPM SAS	ESD2 - 1.1TB 10K RPM SAS	No
SFF-1 Disk Drive (IBM i)	SFF-2 Disk Drive (IBMi)	
ESD1 - 1.2TB 10K RPM SAS	ESD3 - 1.2TB 10K RPM SAS	No
SFF-1 Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

Feature conversions for 8231-E2C solid state drive features:

From FC:	To FC:	RETURN PARTS
-----	-----	-----
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8231-E2D disk features:

From FC:	To FC:	RETURN PARTS
-----	-----	-----
1737 - 856GB 10k RPM SAS	1738 - 856GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1751 - 900GB 10K RPM SAS	1752 - 900GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1886 - 146GB 15K RPM SFF	1917 - 146GB 15k RPM SAS	No
SAS Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1885 - 300GB 10K RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1888 - 139GB 15K RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1879 - 283GB 15K RPM SAS	1948 - 283GB 15k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1880 - 300GB 15K RPM SAS	1953 - 300GB 15k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1911 - 283GB 10K RPM SFF	1956 - 283GB 10k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1916 - 571GB 10k RPM SAS	1962 - 571GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1790 - 600GB 10K RPM SAS	1964 - 600GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
ESD0 - 1.1TB 10K RPM SAS	ESD2 - 1.1TB 10K RPM SAS	No
SFF-1 Disk Drive (IBM i)	SFF-2 Disk Drive (IBMi)	
ESD1 - 1.2TB 10K RPM SAS	ESD3 - 1.2TB 10K RPM SAS	No
SFF-1 Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

Feature conversions for 8231-E2D solid state drive features:

RETURN



From FC:	To FC:	PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8233-E8B disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBM i)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8233-E8B solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8234-EMA disk features:

From FC:	To FC:	RETURN PARTS
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No

Feature conversions for 8236-E8C disk features:

From FC:	To FC:	RETURN PARTS
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8236-E8C solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No

Feature conversions for 8268-E1D disk features:

From FC:	To FC:	RETURN PARTS
-----	-----	-----
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8268-E1D solid state drive features:

From FC:	To FC:	RETURN PARTS
-----	-----	-----
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8286-41A virtualization engine features:

From FC:	To FC:	RETURN PARTS
-----	-----	-----
5227 - PowerVM Standard Edition	5228 - PowerVM Enterprise Edition	No

Feature conversions for 8408-E8D disk features:

From FC:	To FC:	RETURN PARTS
-----	-----	-----
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
7566 - Quantity 150 of #1916	1817 - Quantity 150 of #1962	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7557 - Quantity 150 of #1911	1844 - Quantity 150 of #1956	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1926 - Quantity 150 of #1879	1927 - Quantity 150 of #1948	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
EQ37 - Quantity 150 of #1737 (856GB SFF-1 disk)	EQ38 - Quantity 150 of #1738 (856GB SFF-2 disk)	No
EQ51 - Quantity 150 of #1751 (900GB SFF-1 disk)	EQ52 - Quantity 150 of #1752 (900GB SFF-2 disk)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8408-E8D solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 8412-EAD disk features:

From FC:	To FC:	RETURN PARTS
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 8412-EAD solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No

Feature conversions for 9109-RMD disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
7566 - Quantity 150 of #1916	1817 - Quantity 150 of #1962	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7557 - Quantity 150 of #1911	1844 - Quantity 150 of #1956	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1926 - Quantity 150 of #1879	1927 - Quantity 150 of #1948	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
EQ37 - Quantity 150 of #1737 (856GB SFF-1 disk)	EQ38 - Quantity 150 of #1738 (856GB SFF-2 disk)	No
EQ51 - Quantity 150 of #1751 (900GB SFF-1 disk)	EQ52 - Quantity 150 of #1752 (900GB SFF-2 disk)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBM i)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 9109-RMD solid state drive features:

From FC:	To FC:	RETURN PARTS
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for	ES19 - 387GB SFF-2 SSD for	No

AIX/Linux	AIX/Linux	
ES11 - 387GB SFF-1 SSD for	ES1A - 387GB SFF-2 SSD for	No
IBM i	IBM i	

Feature conversions for 9117-MMA disk features:

From FC:	To FC:	RETURN PARTS
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF	1917 - 146GB 15k RPM SAS	No
SAS Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1885 - 300GB 10K RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1888 - 139GB 15K RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	

Feature conversions for 9117-MMB disk features:

From FC:	To FC:	RETURN PARTS
7566 - Quantity 150 of #1916	1817 - Quantity 150 of #1962	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7557 - Quantity 150 of #1911	1844 - Quantity 150 of #1956	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF	1917 - 146GB 15k RPM SAS	No
SAS Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1885 - 300GB 10K RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1926 - Quantity 150 of #1879	1927 - Quantity 150 of #1948	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1888 - 139GB 15K RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1879 - 283GB 15K RPM SAS	1948 - 283GB 15k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1880 - 300GB 15K RPM SAS	1953 - 300GB 15k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1911 - 283GB 10K RPM SFF	1956 - 283GB 10k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1916 - 571GB 10K RPM SAS	1962 - 571GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1790 - 600GB 10K RPM SAS	1964 - 600GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
EQD0 - Quantity 150 of	EQD2 - Quantity 150 of	No
#ESD0 (1.1TB 10K SFF1)	#ESD2 (1.1TB 10k SFF-2)	
EQD1 - Quantity 150 of	EQD3 - Quantity 150 of	No
#ESD1 (1.2TB 10K SFF-1)	#ESD3 (1.2TB 10k SFF-2)	
ESD0 - 1.1TB 10K RPM SAS	ESD2 - 1.1TB 10K RPM SAS	No
SFF-1 Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
ESD1 - 1.2TB 10K RPM SAS	ESD3 - 1.2TB 10K RPM SAS	No
SFF-1 Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

Feature conversions for 9117-MMB solid state drive features:

From FC:	To FC:	RETURN PARTS
EQ0E - Quantity 150 of	EQ0G - Quantity 150 of	No
#ES0E (775GB SSD SFF-1)	#ES0G (775GB SSD SFF-2)	
EQ0F - Quantity 150 of	EQ0H - Quantity 150 of	No
#ES0F (775GB SSD SFF-1)	#ES0H (775GB SSD SFF-2)	
EQ10 - Quantity 150 of	EQ19 - Quantity 150 of	No
#ES10 (387GB SSD SFF-1)	#ES19 (387GB SSD SFF-2)	
EQ11 - Quantity 150 of	EQ1A - Quantity 150 of	No
#ES11 (387GB SSD SFF-1)	#ES1A (387GB SSD SFF-2)	
ES0E - 775GB SFF-1 SSD for	ES0G - 775GB SFF-2 SSD for	No
AIX/Linux	AIX/Linux	
ES0F - 775GB SFF-1 SSD for	ES0H - 775GB SFF-2 SSD for	No
IBM i	IBM i	
ES10 - 387GB SFF-1 SSD for	ES19 - 387GB SFF-2 SSD for	No
AIX/Linux	AIX/Linux	
ES11 - 387GB SFF-1 SSD for	ES1A - 387GB SFF-2 SSD for	No
IBM i	IBM i	

Feature conversions for 9117-MMC disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS	1738 - 856GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1751 - 900GB 10K RPM SAS	1752 - 900GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
7566 - Quantity 150 of #1916	1817 - Quantity 150 of #1962	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7557 - Quantity 150 of #1911	1844 - Quantity 150 of #1956	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF	1917 - 146GB 15k RPM SAS	No
SAS Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

1885 - 300GB 10K RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1926 - Quantity 150 of #1879	1927 - Quantity 150 of #1948	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1888 - 139GB 15K RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1879 - 283GB 15K RPM SAS	1948 - 283GB 15k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1880 - 300GB 15K RPM SAS	1953 - 300GB 15k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1911 - 283GB 10K RPM SFF	1956 - 283GB 10k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1916 - 571GB 10k RPM SAS	1962 - 571GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1790 - 600GB 10K RPM SAS	1964 - 600GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
EQ37 - Quantity 150 of	EQ38 - Quantity 150 of	No
#1737 (856GB SFF-1 disk)	#1738 (856GB SFF-2 disk)	
EQ51 - Quantity 150 of	EQ52 - Quantity 150 of	No
#1751 (900GB SFF-1 disk)	#1752 (900GB SFF-2 disk)	
EQD0 - Quantity 150 of	EQD2 - Quantity 150 of	No
#ESD0 (1.1TB 10K SSF1)	#ESD2 (1.1TB 10k SFF-2)	
EQD1 - Quantity 150 of	EQD3 - Quantity 150 of	No
#ESD1 (1.2TB 10K SFF-1)	#ESD3 (1.2TB 10k SFF-2)	
ESD0 - 1.1TB 10K RPM SAS	ESD2 - 1.1TB 10K RPM SAS	No
SFF-1 Disk Drive (IBM i)	SFF-2 Disk Drive (IBMi)	
ESD1 - 1.2TB 10K RPM SAS	ESD3 - 1.2TB 10K RPM SAS	No
SFF-1 Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

Feature conversions for 9117-MMC solid state drive features:

From FC:	To FC:	RETURN PARTS
EQ0E - Quantity 150 of	EQ0G - Quantity 150 of	No
#ES0E (775GB SSD SFF-1)	#ES0G (775GB SSD SFF-2)	
EQ0F - Quantity 150 of	EQ0H - Quantity 150 of	No
#ES0F (775GB SSD SFF-1)	#ES0H (775GB SSD SFF-2)	
EQ10 - Quantity 150 of	EQ19 - Quantity 150 of	No
#ES10 (387GB SSD SFF-1)	#ES19 (387GB SSD SFF-2)	
EQ11 - Quantity 150 of	EQ1A - Quantity 150 of	No
#ES11 (387GB SSD SFF-1)	#ES1A (387GB SSD SFF-2)	
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 9117-MMD disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS	1738 - 856GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1751 - 900GB 10K RPM SAS	1752 - 900GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
7566 - Quantity 150 of #1916	1817 - Quantity 150 of #1962	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7557 - Quantity 150 of #1911	1844 - Quantity 150 of #1956	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF	1917 - 146GB 15k RPM SAS	No
SAS Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1885 - 300GB 10K RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1926 - Quantity 150 of #1879	1927 - Quantity 150 of #1948	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1888 - 139GB 15K RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1879 - 283GB 15K RPM SAS	1948 - 283GB 15k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1880 - 300GB 15K RPM SAS	1953 - 300GB 15k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1911 - 283GB 10K RPM SFF	1956 - 283GB 10k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1916 - 571GB 10k RPM SAS	1962 - 571GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1790 - 600GB 10K RPM SAS	1964 - 600GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
EQ37 - Quantity 150 of	EQ38 - Quantity 150 of	No
#1737 (856GB SFF-1 disk)	#1738 (856GB SFF-2 disk)	
EQ51 - Quantity 150 of	EQ52 - Quantity 150 of	No
#1751 (900GB SFF-1 disk)	#1752 (900GB SFF-2 disk)	
EQD0 - Quantity 150 of	EQD2 - Quantity 150 of	No
#ESD0 (1.1TB 10K SSF1)	#ESD2 (1.1TB 10k SFF-2)	
EQD1 - Quantity 150 of	EQD3 - Quantity 150 of	No
#ESD1 (1.2TB 10K SFF-1)	#ESD3 (1.2TB 10k SFF-2)	
ESD0 - 1.1TB 10K RPM SAS	ESD2 - 1.1TB 10K RPM SAS	No
SFF-1 Disk Drive (IBM i)	SFF-2 Disk Drive (IBMi)	
ESD1 - 1.2TB 10K RPM SAS	ESD3 - 1.2TB 10K RPM SAS	No
SFF-1 Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

Feature conversions for 9117-MMD solid state drive features:

From FC:	To FC:	RETURN PARTS
EQ0E - Quantity 150 of #ES0E (775GB SSD SFF-1)	EQ0G - Quantity 150 of #ES0G (775GB SSD SFF-2)	No
EQ0F - Quantity 150 of #ES0F (775GB SSD SFF-1)	EQ0H - Quantity 150 of #ES0H (775GB SSD SFF-2)	No
EQ10 - Quantity 150 of #ES10 (387GB SSD SFF-1)	EQ19 - Quantity 150 of #ES19 (387GB SSD SFF-2)	No
EQ11 - Quantity 150 of #ES11 (387GB SSD SFF-1)	EQ1A - Quantity 150 of #ES1A (387GB SSD SFF-2)	No
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No
ES2A - 387GB SFF-1 SSD for AIX/Linux	ES2C - 387GB SFF-2 SSD for AIX/Linux	No

Feature conversions for 9119-FHA disk features:

From FC:	To FC:	RETURN PARTS
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No

Feature conversions for 9119-FHB disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS SFF Disk Drive (IBM i)	1738 - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1751 - 900GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1752 - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
7566 - Quantity 150 of #1916	1817 - Quantity 150 of #1962	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7557 - Quantity 150 of #1911	1844 - Quantity 150 of #1956	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF SAS Disk Drive (AIX/Linux)	1917 - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1885 - 300GB 10K RPM SFF SAS Disk Drive	1925 - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1926 - Quantity 150 of #1879	1927 - Quantity 150 of #1948	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1888 - 139GB 15K RPM SFF SAS Disk Drive (IBM i)	1947 - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1879 - 283GB 15K RPM SAS SFF Disk Drive (IBM i)	1948 - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	No
1880 - 300GB 15K RPM SAS SFF Disk Drive (AIX/Linux)	1953 - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
1911 - 283GB 10K RPM SFF SAS Disk Drive (IBM i)	1956 - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1916 - 571GB 10k RPM SAS SFF Disk Drive (IBM i)	1962 - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	No
1790 - 600GB 10K RPM SAS SFF Disk Drive (AIX/Linux)	1964 - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	No
EQ37 - Quantity 150 of #1737 (856GB SFF-1 disk)	EQ38 - Quantity 150 of #1738 (856GB SFF-2 disk)	No
EQ51 - Quantity 150 of #1751 (900GB SFF-1 disk)	EQ52 - Quantity 150 of #1752 (900GB SFF-2 disk)	No
EQD0 - Quantity 150 of #ESD0 (1.1TB 10K SFF1)	EQD2 - Quantity 150 of #ESD2 (1.1TB 10k SFF-2)	No
EQD1 - Quantity 150 of #ESD1 (1.2TB 10K SFF-1)	EQD3 - Quantity 150 of #ESD3 (1.2TB 10k SFF-2)	No
ESD0 - 1.1TB 10K RPM SAS SFF-1 Disk Drive (IBM i)	ESD2 - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBM i)	No
ESD1 - 1.2TB 10K RPM SAS SFF-1 Disk Drive (AIX/Linux)	ESD3 - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	No

Feature conversions for 9119-FHB solid state drive features:

From FC:	To FC:	RETURN PARTS
EQ0E - Quantity 150 of #ES0E (775GB SSD SFF-1)	EQ0G - Quantity 150 of #ES0G (775GB SSD SFF-2)	No
EQ0F - Quantity 150 of #ES0F (775GB SSD SFF-1)	EQ0H - Quantity 150 of #ES0H (775GB SSD SFF-2)	No
EQ10 - Quantity 150 of #ES10 (387GB SSD SFF-1)	EQ19 - Quantity 150 of #ES19 (387GB SSD SFF-2)	No

EQ11 - Quantity 150 of	EQ1A - Quantity 150 of	No
#ES11 (387GB SSD SFF-1)	#ES1A (387GB SSD SFF-2)	
ES0E - 775GB SFF-1 SSD for	ES0G - 775GB SFF-2 SSD for	No
AIX/Linux	AIX/Linux	
ES0F - 775GB SFF-1 SSD for	ES0H - 775GB SFF-2 SSD for	No
IBM i	IBM i	
ES10 - 387GB SFF-1 SSD for	ES19 - 387GB SFF-2 SSD for	No
AIX/Linux	AIX/Linux	
ES11 - 387GB SFF-1 SSD for	ES1A - 387GB SFF-2 SSD for	No
IBM i	IBM i	

Feature conversions for 9179-MHB disk features:

From FC:	To FC:	RETURN PARTS
7566 - Quantity 150 of #1916	1817 - Quantity 150 of #1962	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7557 - Quantity 150 of #1911	1844 - Quantity 150 of #1956	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15k RPM SFF	1917 - 146GB 15k RPM SAS	No
SAS Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1885 - 300GB 10k RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1926 - Quantity 150 of #1879	1927 - Quantity 150 of #1948	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1888 - 139GB 15k RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1879 - 283GB 15k RPM SAS	1948 - 283GB 15k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1880 - 300GB 15k RPM SAS	1953 - 300GB 15k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1911 - 283GB 10k RPM SFF	1956 - 283GB 10k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1916 - 571GB 10k RPM SAS	1962 - 571GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1790 - 600GB 10k RPM SAS	1964 - 600GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
EQD0 - Quantity 150 of	EQD2 - Quantity 150 of	No
#ESD0 (1.1TB 10k SFF-1)	#ESD2 (1.1TB 10k SFF-2)	
EQD1 - Quantity 150 of	EQD3 - Quantity 150 of	No
#ESD1 (1.2TB 10k SFF-1)	#ESD3 (1.2TB 10k SFF-2)	
ESD0 - 1.1TB 10k RPM SAS	ESD2 - 1.1TB 10k RPM SAS	No
SFF-1 Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
ESD1 - 1.2TB 10k RPM SAS	ESD3 - 1.2TB 10k RPM SAS	No
SFF-1 Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

Feature conversions for 9179-MHB solid state drive features:

From FC:	To FC:	RETURN PARTS
EQ0E - Quantity 150 of	EQ0G - Quantity 150 of	No
#ES0E (775GB SSD SFF-1)	#ES0G (775GB SSD SFF-2)	
EQ0F - Quantity 150 of	EQ0H - Quantity 150 of	No
#ES0F (775GB SSD SFF-1)	#ES0H (775GB SSD SFF-2)	
EQ10 - Quantity 150 of	EQ19 - Quantity 150 of	No
#ES10 (387GB SSD SFF-1)	#ES19 (387GB SSD SFF-2)	
EQ11 - Quantity 150 of	EQ1A - Quantity 150 of	No
#ES11 (387GB SSD SFF-1)	#ES1A (387GB SSD SFF-2)	
ES0E - 775GB SFF-1 SSD for	ES0G - 775GB SFF-2 SSD for	No
AIX/Linux	AIX/Linux	
ES0F - 775GB SFF-1 SSD for	ES0H - 775GB SFF-2 SSD for	No
IBM i	IBM i	
ES10 - 387GB SFF-1 SSD for	ES19 - 387GB SFF-2 SSD for	No
AIX/Linux	AIX/Linux	
ES11 - 387GB SFF-1 SSD for	ES1A - 387GB SFF-2 SSD for	No
IBM i	IBM i	

Feature conversions for 9179-MHC disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS	1738 - 856GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1751 - 900GB 10k RPM SAS	1752 - 900GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
7566 - Quantity 150 of #1916	1817 - Quantity 150 of #1962	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7557 - Quantity 150 of #1911	1844 - Quantity 150 of #1956	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15k RPM SFF	1917 - 146GB 15k RPM SAS	No
SAS Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1885 - 300GB 10k RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1926 - Quantity 150 of #1879	1927 - Quantity 150 of #1948	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1888 - 139GB 15k RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1879 - 283GB 15k RPM SAS	1948 - 283GB 15k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	

1880 - 300GB 15K RPM SAS	1953 - 300GB 15k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1911 - 283GB 10K RPM SFF	1956 - 283GB 10k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1916 - 571GB 10k RPM SAS	1962 - 571GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1790 - 600GB 10K RPM SAS	1964 - 600GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
EQ37 - Quantity 150 of	EQ38 - Quantity 150 of	No
#1737 (856GB SFF-1 disk)	#1738 (856GB SFF-2 disk)	
EQ51 - Quantity 150 of	EQ52 - Quantity 150 of	No
#1751 (900GB SFF-1 disk)	#1752 (900GB SFF-2 disk)	
EQD0 - Quantity 150 of	EQD2 - Quantity 150 of	No
#ESD0 (1.1TB 10K SSF1)	#ESD2 (1.1TB 10k SFF-2)	
EQD1 - Quantity 150 of	EQD3 - Quantity 150 of	No
#ESD1 (1.2TB 10K SFF-1)	#ESD3 (1.2TB 10k SFF-2)	
ESD0 - 1.1TB 10K RPM SAS	ESD2 - 1.1TB 10K RPM SAS	No
SFF-1 Disk Drive (IBM i)	SFF-2 Disk Drive (IBMi)	
ESD1 - 1.2TB 10K RPM SAS	ESD3 - 1.2TB 10K RPM SAS	No
SFF-1 Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

Feature conversions for 9179-MHC solid state drive features:

From FC:	To FC:	RETURN PARTS
EQ0E - Quantity 150 of	EQ0G - Quantity 150 of	No
#ES0E (775GB SSD SFF-1)	#ES0G (775GB SSD SFF-2)	
EQ0F - Quantity 150 of	EQ0H - Quantity 150 of	No
#ES0F (775GB SSD SFF-1)	#ES0H (775GB SSD SFF-2)	
EQ10 - Quantity 150 of	EQ19 - Quantity 150 of	No
#ES10 (387GB SSD SFF-1)	#ES19 (387GB SSD SFF-2)	
EQ11 - Quantity 150 of	EQ1A - Quantity 150 of	No
#ES11 (387GB SSD SFF-1)	#ES1A (387GB SSD SFF-2)	
ES0E - 775GB SFF-1 SSD for AIX/Linux	ES0G - 775GB SFF-2 SSD for AIX/Linux	No
ES0F - 775GB SFF-1 SSD for IBM i	ES0H - 775GB SFF-2 SSD for IBM i	No
ES10 - 387GB SFF-1 SSD for AIX/Linux	ES19 - 387GB SFF-2 SSD for AIX/Linux	No
ES11 - 387GB SFF-1 SSD for IBM i	ES1A - 387GB SFF-2 SSD for IBM i	No

Feature conversions for 9179-MHD disk features:

From FC:	To FC:	RETURN PARTS
1737 - 856GB 10k RPM SAS	1738 - 856GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1751 - 900GB 10K RPM SAS	1752 - 900GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
7566 - Quantity 150 of #1916	1817 - Quantity 150 of #1962	No
7550 - Quantity 150 of #1790	1818 - Quantity 150 of #1964	No
7557 - Quantity 150 of #1911	1844 - Quantity 150 of #1956	No
7548 - Quantity 150 of #1886	1866 - Quantity 150 of #1917	No
7544 - Quantity 150 of #1888	1868 - Quantity 150 of #1947	No
7547 - Quantity 150 of #1885	1869 - Quantity 150 of #1925	No
1886 - 146GB 15K RPM SFF	1917 - 146GB 15k RPM SAS	No
SAS Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1885 - 300GB 10K RPM SFF	1925 - 300GB 10k RPM SAS	No
SAS Disk Drive	SFF-2 Disk Drive (AIX/Linux)	
1926 - Quantity 150 of #1879	1927 - Quantity 150 of #1948	No
1928 - Quantity 150 of #1880	1929 - Quantity 150 of #1953	No
1888 - 139GB 15K RPM SFF	1947 - 139GB 15k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1879 - 283GB 15K RPM SAS	1948 - 283GB 15k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1880 - 300GB 15K RPM SAS	1953 - 300GB 15k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
1911 - 283GB 10K RPM SFF	1956 - 283GB 10k RPM SAS	No
SAS Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1916 - 571GB 10k RPM SAS	1962 - 571GB 10k RPM SAS	No
SFF Disk Drive (IBM i)	SFF-2 Disk Drive (IBM i)	
1790 - 600GB 10K RPM SAS	1964 - 600GB 10k RPM SAS	No
SFF Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	
EQ37 - Quantity 150 of	EQ38 - Quantity 150 of	No
#1737 (856GB SFF-1 disk)	#1738 (856GB SFF-2 disk)	
EQ51 - Quantity 150 of	EQ52 - Quantity 150 of	No
#1751 (900GB SFF-1 disk)	#1752 (900GB SFF-2 disk)	
EQD0 - Quantity 150 of	EQD2 - Quantity 150 of	No
#ESD0 (1.1TB 10K SSF1)	#ESD2 (1.1TB 10k SFF-2)	
EQD1 - Quantity 150 of	EQD3 - Quantity 150 of	No
#ESD1 (1.2TB 10K SFF-1)	#ESD3 (1.2TB 10k SFF-2)	
ESD0 - 1.1TB 10K RPM SAS	ESD2 - 1.1TB 10K RPM SAS	No
SFF-1 Disk Drive (IBM i)	SFF-2 Disk Drive (IBMi)	
ESD1 - 1.2TB 10K RPM SAS	ESD3 - 1.2TB 10K RPM SAS	No
SFF-1 Disk Drive (AIX/Linux)	SFF-2 Disk Drive (AIX/Linux)	

Feature conversions for 9179-MHD solid state drive features:

From FC:	To FC:	RETURN PARTS
EQ0E - Quantity 150 of	EQ0G - Quantity 150 of	No
#ES0E (775GB SSD SFF-1)	#ES0G (775GB SSD SFF-2)	



EQ0F - Quantity 150 of	EQ0H - Quantity 150 of	No
#ES0F (775GB SSD SFF-1)	#ES0H (775GB SSD SFF-2)	
EQ10 - Quantity 150 of	EQ19 - Quantity 150 of	No
#ES10 (387GB SSD SFF-1)	#ES19 (387GB SSD SFF-2)	
EQ11 - Quantity 150 of	EQ1A - Quantity 150 of	No
#ES11 (387GB SSD SFF-1)	#ES1A (387GB SSD SFF-2)	
ES0E - 775GB SFF-1 SSD for	ES0G - 775GB SFF-2 SSD for	No
AIX/Linux	AIX/Linux	
ES0F - 775GB SFF-1 SSD for	ES0H - 775GB SFF-2 SSD for	No
IBM i	IBM i	
ES10 - 387GB SFF-1 SSD for	ES19 - 387GB SFF-2 SSD for	No
AIX/Linux	AIX/Linux	
ES11 - 387GB SFF-1 SSD for	ES1A - 387GB SFF-2 SSD for	No
IBM i	IBM i	
ES2A - 387GB SFF-1 SSD for	ES2C - 387GB SFF-2 SSD for	No
AIX/Linux	AIX/Linux	

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## Technical description

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### Physical specifications

- 19-inch rack-mount hardware
  - Width: 443 mm (17.5 in.)
  - Depth: 756 mm (29.8 in.)
  - Height: 173 mm (6.9 in.)
  - Weight: 43.8 kg (97 lb)
- Tower hardware
  - Width: 182 mm (7.2 in.)
  - Width with stand: 328.5 mm (13 in.)
  - Depth: 752 mm (29.6 in.)
  - Depth with front rotatable door: 815 mm (32.1 in.)
  - Height: 486 mm (19.4 in.)
  - Weight: 51.89 kg (114.4 lb)

To assure installability and serviceability in non-IBM industry-standard racks, review the installation planning information for any product-specific installation requirements.

### Operating environment

- Temperature: (nonoperating) 5 to 45 degrees C (41 to 113 F); recommended temperature (operating) 18 to 27 degrees C (64 to 80 F); allowable operating temperature 5 to 35 degrees C (41 to 95 F) =
- Relative humidity: Nonoperating 8% to 80%; recommended 5.5 degrees C (42 F) dew point to 60% RH and 15 degrees C (59 F) dew point
- Maximum dew point: 28 degrees C (84 F)(operating)
- Operating voltage:
  - 900W PSU: 100 to 127 or 200 to 240 V ac
  - 1400W PSU: 200 to 240 V ac
- Operating frequency: 47/63 Hz
- Maximum measured power consumption: 1420 watts (maximum)
- Power factor: 0.98
- Thermal output: 4845 Btu/hour (maximum)
- Power-source loading
  - 1.48 kVa (maximum configuration)
  - Maximum altitude: 3,050 m (10,000 ft)

Note: The maximum measured value is the worst case power consumption expected from a fully populated server under an intensive workload. The maximum measured value also accounts for component tolerance and non-ideal operating conditions. Power consumption and heat load vary greatly by server configuration and utilization. The IBM Systems Energy Estimator should be used to obtain a heat output estimate based on a specific configuration  
<http://www-912.ibm.com/see/EnergyEstimator>

#### Noise levels and declared A-weighted sound power level

- Tower system: 5.9 bels operating; 5.9 bels idling
- Rack-mount system: 6.0 bels operating; 6.0 bels idling

See the Installation Planning Guide in the IBM Knowledge Center for addition detail.

For example, the actual sound power noise level is impacted by multiple factors including:

- Enablement of the Turbo mode increases fan speed which increases sound power noise levels
- Usage of the Turbo mode further increases fan speed which further increases sound power noise levels
- Using higher wattage PCIe adapters such as features #5913, EJ0J, EJ0L, EJ10, EJ12 and ESA3 increases fan speed which increases sound power noise levels
- Placing multiple servers in a rack increases the total sound power noise level coming from the rack
- Placing servers in racks with acoustic doors reduces the sound power noise levels.

#### EMC conformance classification:

This equipment is subject to FCC rules and shall comply with the appropriate FCC rules before final delivery to the buyer or centers of distribution.

- US: FCC Class A
- Europe: CISPR 22 Class A
- Japan: VCCI-A
- Korea: Korean Requirement Class A
- China: People's Republic of China commodity inspection law Class A

#### Homologation -- Telecom environmental testing (Safety and EMC):

Homologation approval for specific countries has been initiated with the IBM Homologation and Type Approval (HT&A) organization in LaGaude, France. This Power Systems model and applicable features meet the environmental testing requirements of the country telecom and have been designed and tested in compliance with the Full Quality Assurance Assurance Approval (FQAA) process as delivered by the British Approval Board for Telecom (BABT), the UK Telecom regulatory authority.

This product is not certified for connection by any means whatsoever to interfaces of public telecommunications networks. Certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

#### Product safety/Country testing/Certification

- UL 60950 Underwriters Laboratory, Safety Information
- CSA C22.2 No. 60950-00, Canadian Standards Association
- EN60950 European Norm
- IEC 60950, Edition 1, International Electrotechnical Commission, Safety Information
- Nordic deviations to IEC 60950-1 1st Edition

#### General requirements:

The product is in compliance with IBM Corporate Bulletin C-B 0-2594-000 Statement of Conformity of IBM Product to External Standard (Suppliers Declaration).

#### Homologation

This product is not certified for direct connection by any means whatsoever to interfaces of public telecommunications networks. Certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

#### System limitations

- Integrated system port is not supported under AIX or Linux when the HMC ports are connected to an HMC. Either the HMC ports or the integrated system ports can be used, but not both. FSP2 USB 2.0 port is used for communication to a UPS.
- The integrated system port is supported for modem and TTY terminal connections by AIX or Linux. Any other application using serial ports requires a serial port adapter to be installed in a PCI slot. The integrated system port does not support HACMP configurations.

#### PCIe3 2-Port 40GbE NIC RoCE QSFP+ Adapter (#EC3B)

This feature will not be available in the following countries:

- Bahrain
- Comoros
- Djibouti
- Iraq
- Kuwait
- Lebanon
- Libya
- Malaysia
- Morocco
- Oman
- Pakistan
- Qatar
- Saudi Arabia
- Somalia
- Tunisia
- United Arab Emirates which includes IBM Middle East:
  - Dubai
  - Abu Dhabi
  - Yemen

#### Boot requirements

- If IBM i (#2145) is selected as the primary operating system and SAN boot is not selected (#0837), one of the following Load Source specify codes must be specified.
  - #0871 Load Source Specify for 139 GB 15k RPM SAS SFF-2 Disk Drive for IBM i (#1947)
  - #0872 Load Source Specify for 283 GB 15k RPM SAS SFF-2 Disk (#1948)
  - #0874 Load Source Specify for 283 GB 10k RPM SAS SFF-2 Disk (#1956)
  - #0875 Load Source Specify for 571 GB 10k RPM SAS SFF-2 Disk (#1962)
  - #0880 Load Source Specify for 856 GB 10k RPM SAS SFF-2 Disk (#1738)
  - #0894 Load Source Specify for 387 GB SFF-2 SSD for IBM i (#ES0D)
  - #0911 Load Source Specify for 1.1 TB 10K RPM SAS SFF-2 Disk (#ESD2)
  - #ELS4 Load Source Specify for 571 GB 10K RPM SAS SFF-3 for IBM i (#ESD4)
  - #ELS8 Load Source Specify for 1.1 TB 10K RPM SAS SFF-3 for IBM i (#ESD8)
  - #ELSA Load Source Specify for 283 GB 15K RPM SAS SFF-3 for IBM i (#ESDA)
  - #ELSK Load Source Specify for 387 GB 1.8" SSD for IBM i (#ES0K)
  - #ELSM Load Source Specify for 387 GB SFF-3 SSD for IBM i (#ES0M)
  - #ELSP Load Source Specify for 775 GB SFF-3 SSD for IBM i (#ES0P)
  - #ELTA Load Source Specify for 283 GB 15K RPM SAS SFF-3 4K Block - 4224 (#ESFA)
  - #ELTE Load Source Specify for 571 GB 15K RPM SAS SFF-3 4K Block - 4224 (#ESFE)
  - #ELTN Load Source Specify for 571 GB 15K RPM SAS SFF-2 4K Block - 4224 (#ESFN)
  - #ELTY Load Source Specify for 283 GB 15K RPM SAS SFF-2 4K Block - 4224 (#ESEY)
- If IBM i (#2145) is selected and the load source disk unit is not in the CEC (system unit), one of the following specify codes must also be selected:
  - #0719 Load Source Not in CEC and are to be placed in I/O drawers or in external SAN-attached disk.
  - #0728 Load Source Specifies DASD are placed in an EXP24S SFF Gen 2 bay Drawer (#5887 or #EL1S)
  - #0837 SAN Operating System Load Source Specify
- If IBM i (#2145) is selected, one of the following system console specify codes must be selected:
  - #5550 -- System Console on HMC
  - #5557 -- System Console - Internal LAN

## PCIe Gen 1 adapters

PCIe Gen 1 adapters are only supported in the high bandwidth, x16 PCIe slots of the system. The PCIe Gen1 adapters are:

- #5901 PCIe Dual-x4 SAS Adapter
- #5287 PCIe2 LP 2-port 10GbE SR Adapter
- #5288 PCIe2 2-Port 10GbE SFP+ Copper Adapter

## Limitations

- Integrated system port is not supported under AIX or Linux when the HMC ports are connected to an HMC. Either the HMC ports or the integrated system ports can be used, but not both. FSP2 USB 2.0 port is used for communication to a UPS.
- The integrated system port is supported for modem and TTY terminal connections by AIX or Linux. Any other application using serial ports requires a serial port adapter to be installed in a PCI slot. The integrated system port does not support HACMP configurations.
- Features #5748 and #EC42 adapters are not supported in the PCIe Gen3 I/O Drawer.
- Features #EJ0J, #EJ10, #EJ0L, #EJ14, #5913, #ESA3, #EC33, #EC38, #EC2N, #EJ12, #EJ17, #EC3F, #EC3U, and #EC3M are not supported in a tower configuration.

## Hardware requirements

The Power S814 offers 6-core and 8-core configurations with one processor module. The system can contain up to 512 GB of system memory, storage backplane options of twelve or eighteen SFF-3 disk/SSD bays, two PCIe x 16 Gen 3 adapters (full-height, full-length slots), four PCIe x 8 Gen 3 adapters (full-height, half-length slots), and multiple media devices, as desired. This flexibility is made available through the many optional features for the Power S814.

One system central electronics complex (CEC) enclosure with the following items:

- Choose one or two processor modules from:
  - One 4-core 3.02 GHz POWER8 processor module (#EPXK)
  - One 6-core 3.02 GHz POWER8 Processor module (#EPX0)
  - One 8-core 3.72 GHz POWER8 Processor module (#EPX6)

Note: The total number of processor activation features must equal the total number of cores on the system.

- Choose 16 GB minimum memory from:
  - 16 GB CDIMM, 1600 Mbps, 4 Gb DDR4 DRAM (#EM91)
  - 32 GB CDIMM, 1600 Mbps, 4 Gb DDR4 DRAM (#EM92)
  - 64 GB CDIMM, 1600 Mbps, 4 Gb DDR4 DRAM (#EM93)
  - 128 GB CDIMM, 1600 Mbps, 4 Gb DDR4 DRAM (#EM94)
- Choose storage backplane from:
  - Twelve SFF-3 Bays/DVD Bay (#EJ0N)
  - Eighteen SFF-3 Bays/DVD Bay/Dual IOA with Write Cache (#EJ0P)
  - Split feature EJ0N to 6+6 SFF-3 Bays: Add a second SAS Controller (#EJ0S)
- One PCIe2 4-port 1 GbE Adapter (#5899) is defaulted. Options for servers with AIX and Linux as the primary operating system are one of a 10GB Ethernet adapter either #EN0H, #EN0K, #EN0S, #EN0U, #EN0W, #EN15, or #EN17  
Note: The adapter takes up one PCIe slot.
- Choose HDDs and SSDs from any orderable SFF HDD or SSD. The defaults are 283 GB 15K RPM SAS SFF-3 for IBM i (2 x #ESDA) and 300 GB 15K RPM SAS SFF-3 for AIX/Linux (#ESDB).

### Notes

- When feature 2145, the IBM i operating system, is selected, a minimum of two HDDs or SSDs is required.
- No internal HDD or SSD is required if feature 0837 (Boot from SAN) is selected. In this case, a Fibre Channel or Fibre Channel over Ethernet adapter must also be ordered.

- Choose the Primary Operating System Indicator from:
  - IBM i (#2145 -- requires #0566 or #0567, and #0040)
  - AIX (#2146)
  - Linux (#2147)
- One Language Group, Specify (#9300 or #97xx)
- Two power supplies supporting a tower: 1+1 900 Watt 100-127 V ac or 200-240 V ac options
- Two power supplies supporting a rack: 1+1 1400 Watt 200-240 V dc or 180-400 V dc options or 1+1 900 Watt 100-127 V ac or 200-240 V ac options
- Two PDU power cords (#6665, #6458, #6672, #6671, #6577, #6660, #6460, #6469, or 6669)
- Choose a cover set from:
  - IBM Rack-mount Drawer Bezel and Hardware (#EJTC, used with #EJ0N backplane)
  - IBM Rack-mount Drawer Bezel and Hardware (#EJTD, used with #EJ0P backplane)
  - OEM Rack-mount Drawer Bezel and Hardware (#EJTE, used with #EJ0N backplane)
  - OEM Rack-mount Drawer Bezel and Hardware (#EJTF, used with #EJ0P backplane)

#### Hardware Management Console (HMC) machine code

An HMC or IVM is required to manage the Power S814 (8286-41A) implementing partitioning with PowerVM. Multiple POWER6, POWER7, and Power Systems POWER8 processor-based servers can be supported by a single HMC. If an HMC is used to manage the Power S814, the HMC code level 8.810 can only be loaded on a rack-mount model CR5, or later, or desktide model C08.

If you are attaching an HMC to a new server or adding function to an existing server that requires a firmware update, the HMC machine code may need to be updated because HMC code must always be equal to or higher than the managed server's firmware. Access to firmware and machine code updates is conditioned on entitlement and license validation in accordance with IBM policy and practice. IBM may verify entitlement through customer number, serial number, electronic restrictions, or any other means or methods employed by IBM at its discretion.

To determine the HMC machine code level required for the firmware level on any server, go to the following web page to access the Fix Level Recommendation Tool (FLRT) on or after the planned availability date for this product. FLRT will identify the correct HMC machine code for the selected system firmware level

<https://www14.software.ibm.com/webapp/set2/sas/f/hmc/home.html>

If a single HMC is attached to multiple servers, the HMC machine code level must be updated to be at or higher than the server with the most recent firmware level. All prior levels of server firmware are supported with the latest HMC machine code level.

The HMC code level 8.810 contains the following:

- Support for managing IBM Power System S814, S822, S824, S812L and S822L systems.
- Support for the new HMC model 7042-CR8.
- Support for PowerVM functions such as new HMC GUI interface for VIOS management.
- GUI for HMC's Performance and Capacity Monitoring function.
- A new HMC command to initiate a Remote Restart operation. This removes the requirement of VMControl for the PowerVM Remote Restart function.
- For PowerVM GUI functions, VIOS 2.2.3.3 is recommended.

## Software requirements

The Power S814 supports:

- Red Hat Enterprise Linux 6.5, or later
- SUSE Linux Enterprise Server 11 Service Pack 3, or later  
If installing the Linux operating systems LPAR in nonproduction SAP implementations:
  - SUSE Linux Enterprise Server for SAP with SUSE Linux Enterprise Server 11 Service Pack 4, or later
  - SUSE Linux Enterprise Server for SAP with SUSE Linux Enterprise Server 12 Service Pack 3, or later
  - Red Hat Enterprise Linux for SAP with Red Hat Enterprise Linux 7 for Power LE version 7.4, or later
- AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
- AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
- AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 5 or later (planned availability August 29, 2014)
- AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 10 or later (planned availability August 29, 2014)
- AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 5 or later (planned availability August 29, 2014)
- AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 10 or later (planned availability August 29, 2014)
- These additional AIX levels are supported in an LPAR using virtualize I/O only:
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-01 Technology Level and Service Pac 6, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pac 1, or later
  - AIX Version 6.1 with the 6100-08 Technology Level and Service Pac 1, or later
  - AIX Version 6.1 with the 6100-07 Technology Level and Service Pac 6, or later
- IBM i 7.1 with TR8, or later; 7.2, or later
- VIOS 2.2.3.3 with interim fix IV56366, or later
- VIOS 2.2.2.5 (planned availability August 29, 2014)
- VIOS 2.2.1.9 (planned availability August 29, 2014)

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## Publications

IBM Power Systems hardware documentation provides clients with the following topical information:

- Licenses, notices, safety, and warranty information
- Planning for the system
- Installing and configuring the system
- Troubleshooting, service, and support
- Installing, configuring, and managing consoles, terminals, and interfaces
- Installing operating systems
- Creating a virtual computing environment
- Enclosures and expansion units
- Glossary

You can access the product documentation at

<http://www.ibm.com/support/knowledgecenter/POWER8>

Product documentation is also available on DVD (SK5T-7087).

The following information is shipped with the 8286-41A:

- Power Hardware Information DVD SK5T-7087
- Installing the 8286-41A
- Important Notices
- Warranty Information
- License Agreement for Machine Code

Hardware documentation such as installation instructions, user's information, and service information is available to download or view at

<http://www.ibm.com/systems/support>

You can access IBM i documentation at

[http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i/welcome](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i/welcome)

You can access AIX documentation at

[http://www.ibm.com/support/knowledgecenter/ssw\\_aix/welcome](http://www.ibm.com/support/knowledgecenter/ssw_aix/welcome)

You can access documentation about Linux on IBM systems at

<http://www.ibm.com/support/knowledgecenter/linuxonibm/laab/ic-homepage.htm>

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## Features

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↓ [Feature availability matrix](#)

↓ [Feature descriptions](#)

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### Features - No charge

- Languages
  - (#9300) -Language Group Specify - US English
  - (#9700) -Language Group Specify - Dutch
  - (#9703) -Language Group Specify - French
  - (#9704) -Language Group Specify - German
  - (#9705) -Language Group Specify - Polish
  - (#9706) -Language Group Specify - Norwegian
  - (#9707) -Language Group Specify - Portuguese
  - (#9708) -Language Group Specify - Spanish
  - (#9711) -Language Group Specify - Italian
  - (#9712) -Language Group Specify - Canadian French
  - (#9714) -Language Group Specify - Japanese
  - (#9715) -Language Group Specify - Traditional Chinese (Taiwan)
  - (#9716) -Language Group Specify - Korean
  - (#9718) -Language Group Specify - Turkish
  - (#9719) -Language Group Specify - Hungarian
  - (#9720) -Language Group Specify - Slovakian
  - (#9721) -Language Group Specify - Russian
  - (#9722) -Language Group Specify - Simplified Chinese (PRC)
  - (#9724) -Language Group Specify - Czech
  - (#9725) -Language Group Specify -- Romanian
  - (#9726) -Language Group Specify - Croatian
  - (#9727) -Language Group Specify -- Slovenian
  - (#9728) -Language Group Specify - Brazilian Portuguese
  - (#9729) -Language Group Specify - Thai
- Specify Codes
  - (#9440) -New AIX License Core Counter
  - (#9441) -New IBM i License Core Counter
  - (#9442) -New Red Hat License Core Counter
  - (#9443) -New SUSE License Core Counter
  - (#9444) -Other AIX License Core Counter
  - (#9445) -Other Linux License Core Counter
  - (#9446) -3rd Party Linux License Core Counter
  - (#9447) -VIOS Core Counter
  - (#9449) -Other License Core Counter

## Features - Chargeable

### Special Features - Initial Orders

- Administrative
  - (#0465) -SSD Placement Indicator - 5887, EL1S
  - (#EBC0) -Blockchain on Power
  - (#ECP0) -Cloud Private Solution
  - (#ESC0) -S&H - No Charge
  - (#ESC6) -S&H-b
- Cable
  - (#4256) -Extender Cable - USB Keyboards, 1.8M
  - (#ECCF) -System Port Converter Cable for UPS
- Disk
  - (#ESDV) -283GB 15K RPM SAS SFF-3 Disk 5xx Block
  - (#ESFG) -283GB 15K RPM SAS SFF-3 Disk 4K Block
- Drive
  - (#EUA3) -RDX USB Top Mount Docking Station for Removable Cartridge
- Editions
  - (#EU2B) -BLU Acceleration Solution Edition Indicator
  - (#EU2C) -Express Edition 4 core (IBM i)
  - (#EU2D) -Express Edition 6-core (IBM i)
- Linecards
  - (#EPAC) -Auto Selected HVDC Power Cord
- Miscellaneous
  - (#0444) -CBU Specify
  - (#0712) -Power Cloud Integrated Solution Indicator For Order Routing
  - (#4927) -IBM i Solution Edition for Power 720 and Power S814
  - (#4928) - Solution Edition for IBM i (4-core)
  - (#5000) -Software Preload Required
  - (#8143) -Linux Software Preinstall
  - (#8144) -Linux Software Preinstall (Business Partners)
  - (#9461) -Month Indicator
  - (#9462) -Day Indicator
  - (#9463) -Hour Indicator
  - (#9464) -Minute Indicator
  - (#9465) -Qty Indicator
  - (#9466) -Countable Member Indicator
  - (#ECSS) -Integrated Solution Packing
  - (#EHCE) -IBM Cognos Business Intelligence
  - (#EHDS) -InfoSphere Information Server (IIS) / Data Stage
  - (#EHKV) -SAP HANA TRACKING FEATURE
  - (#EHSS) -SPSS Modeler Server Gold
  - (#EUC0) -Solution Specify - Reserved
  - (#EUC1) -Solution Specify - Reserved
  - (#EUC2) -Solution Specify - Reserved
  - (#EUC3) -Solution Specify - Reserved
- Power
  - (#EB2L) -AC Power Supply - 900W
- Processor
  - (#2319) -Factory Deconfiguration of 1-core
- Services
  - (#0456) -Customer Specified Placement
  - (#ERF1) -RFID Tags for Servers, Compute Nodes, Chassis, Racks, and HMCs
- Specify Codes
  - (#0205) -RISC-to-RISC Data Migration
  - (#4650) -Rack Indicator-Not Factory Integrated  
One and only one rack indicator feature is required on all orders (#4650 to #4666).

- (#4651) -Rack Indicator, Rack #1
- (#4652) -Rack Indicator, Rack #2
- (#4653) -Rack Indicator, Rack #3
- (#4654) -Rack Indicator, Rack #4
- (#4655) -Rack Indicator, Rack #5
- (#4656) -Rack Indicator, Rack #6
- (#4657) -Rack Indicator, Rack #7
- (#4658) -Rack Indicator, Rack #8
- (#4659) -Rack Indicator, Rack #9
- (#4660) -Rack Indicator, Rack #10
- (#4661) -Rack Indicator, Rack #11
- (#4662) -Rack Indicator, Rack #12
- (#4663) -Rack Indicator, Rack #13
- (#4664) -Rack Indicator, Rack #14
- (#4665) -Rack Indicator, Rack #15
- (#4666) -Rack Indicator, Rack #16
- (#5557) -System Console-Ethernet No IOP
- (#9169) -Order Routing Indicator-System Plant
- (#9450) -Ubuntu Linux License Core Counter
- Standard Factory Services
  - (#4648) -Rack Integration Services: BP only
  - (#4649) -Rack Integration Services

Special Features - Plant and/or Field Installable



- Accessory
  - (#EU19) -Cable Ties & Labels
  - (#EC3F) -PCIe3 2-port 100Gb EDR IB Adapter x16
  - (#EC3U) -PCIe3 1-port 100Gb EDR IB Adapter x16
- Adapters
  - (#2893) -PCIe 2-Line WAN w/Modem
  - (#4807) -PCIe Crypto Coprocessor No BSC 4765-001
  - (#5708) -10Gb FCoE PCIe Dual Port Adapter
  - (#5717) -4-Port 10/100/1000 Base-TX PCI Express Adapter
  - (#5767) -2-Port 10/100/1000 Base-TX Ethernet PCI Express Adapter
  - (#5768) -2-Port Gigabit Ethernet-SX PCI Express Adapter
  - (#5769) -10 Gigabit Ethernet-SR PCI Express Adapter
  - (#5774) -4 Gigabit PCI Express Dual Port Fibre Channel Adapter
  - (#5785) -4 Port Async EIA-232 PCIe Adapter
  - (#5285) -PCIe2 2-Port 4X IB QDR Adapter 40Gb
  - (#5287) -PCIe2 2-port 10GbE SR Adapter
  - (#5289) -2 Port Async EIA-232 PCIe Adapter
  - (#5729) -PCIe2 8Gb 4-port Fibre Channel Adapter
  - (#5735) -8 Gigabit PCI Express Dual Port Fibre Channel Adapter
  - (#5744) -PCIe2 4-Port 10GbE&1GbE SR&RJ45 Adapter
  - (#5748) -POWER GXT145 PCI Express Graphics Accelerator
  - (#5772) -10 Gigabit Ethernet-LR PCI Express Adapter
  - (#5805) -PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter
  - (#5899) -PCIe2 4-port 1GbE Adapter
  - (#5901) -PCIe Dual-x4 SAS Adapter
  - (#5913) -PCIe2 1.8GB Cache RAID SAS Adapter Tri-port 6Gb
  - (#5923) -Non-paired PCIe SAS RAID Indicator
  - (#5924) -Non-paired Indicator 5913 PCIe SAS RAID Adapter
  - (#EC28) -PCIe2 2-Port 10GbE RoCE SFP+ Adapter
  - (#EC55) -PCIe3 1.6TB NVMe Flash Adapter
  - (#EC57) -PCIe3 3.2TB NVMe Flash Adapter
  - (#EC2J) -PCIe2 2-port 10GbE SFN6122F Adapter
  - (#EC2N) -PCIe3 2-port 10GbE NIC&RoCE SR Adapter
  - (#EC30) -PCIe2 2-Port 10GbE RoCE SR Adapter
  - (#EC33) -PCIe3 2-port 56Gb FDR IB Adapter x16
  - (#EC38) -PCIe3 2-port 10GbE NIC&RoCE SFP+ Copper Adapter
  - (#EC3B) -PCIe3 2-Port 40GbE NIC RoCE QSFP+ Adapter
  - (#EC3M) -PCIe3 2-port 100GbE (NIC&RoCE) QSFP28 Adapter x16
  - (#EC42) -PCIe2 3D Graphics Adapter x1
  - (#EC46) -PCIe2 4-Port USB 3.0 Adapter
  - (#EJ08) -PCIe3 Optical Cable Adapter for PCIe3 Expansion Drawer
  - (#EJ0J) -PCIe3 RAID SAS Adapter Quad-port 6Gb x8
  - (#EJ0L) -PCIe3 12GB Cache RAID SAS Adapter Quad-port 6Gb x8
  - (#EJ10) -PCIe3 SAS Tape/DVD Adapter Quad-port 6Gb x8
  - (#EJ12) -PCIe3 FPGA Accelerator Adapter
  - (#EJ14) -PCIe3 12GB Cache RAID PLUS SAS Adapter Quad-port 6Gb x8
  - (#EJ17) -PCIe3 CAPI FlashSystem Accelerator Adapter
  - (#EJ1P) -PCIe1 SAS Tape/DVD Dual-port 3Gb x8 Adapter
  - (#EJ27) -PCIe Crypto Coprocessor No BSC 4765-001
  - (#EJ28) -PCIe Crypto Coprocessor Gen3 BSC 4765-001
  - (#EJ32) -PCIe3 Crypto Coprocessor no BSC 4767
  - (#EJ33) -PCIe3 Crypto Coprocessor BSC-Gen3 4767
  - (#EN0A) -PCIe3 16Gb 2-port Fibre Channel Adapter
  - (#EN0G) -PCIe2 8Gb 2-Port Fibre Channel Adapter
  - (#EN0H) -PCIe3 4-port (10Gb FCoE & 1GbE) SR&RJ45
  - (#EN0K) -PCIe3 4-port (10Gb FCoE & 1GbE) SFP+Copper&RJ45
  - (#EN0M) -PCIe3 4-port(10Gb FCoE & 1GbE) LR&RJ45 Adapter
  - (#EN0S) -PCIe2 4-Port (10Gb+1GbE) SR+RJ45 Adapter
  - (#EN0U) -PCIe2 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter
  - (#EN0W) -PCIe2 2-port 10/1GbE BaseT RJ45 Adapter
  - (#EN12) -PCIe2 8Gb 4-port Fibre Channel Adapter
  - (#EN13) -PCIe 1-port Bisync Adapter
  - (#EN15) -PCIe3 4-port 10GbE SR Adapter
  - (#EN17) -PCIe3 4-port 10GbE SFP+ Copper Adapter
  - (#EN27) -2 Port Async EIA-232 PCIe Adapter
  - (#EN29) -2 Port Async EIA-232 PCIe Adapter
  - (#ESA3) -PCIe2 1.8GB Cache RAID SAS Adapter Tri-port 6Gb CR
- Administrative
  - (#0719) -Load Source Not in CEC
  - (#B0LG) -ServicePac Not Selected

- (#B0LH) -Service Renewal Requested

- (#B0UQ) -SP WSU 3Y 24x7 SD
- (#B0VH) -SP HDR/MR POWER 3Y
- (#EHS2) -SSD Placement Indicator - #ESLS/#ELLS
- Cable
  - (#0348) -V.24/EIA232 6.1m (20-Ft) PCI Cable
  - (#0353) -V.35 6.1m (20-Ft) PCI Cable
  - (#0359) -X.21 6.1m (20-Ft) PCI Cable
  - (#0368) -V.24/EIA232 20-Ft. PCI Cable with M3
  - (#1010) -Modem Cable - Austria
  - (#1011) -Modem Cable - Belgium
  - (#1012) -Modem Cable - Africa
  - (#1014) -Modem Cable - Italy
  - (#1015) -Modem Cable - France
  - (#1016) -Modem Cable - Germany
  - (#1017) -Modem Cable - UK
  - (#1018) -Modem Cable - Iceland/Sweden
  - (#1021) -Modem Cable - Fin/Nor
  - (#1022) -Modem Cable - Netherlands
  - (#1023) -Modem Cable - Swiss
  - (#1024) -Modem Cable - Denmark
  - (#1025) -Modem Cable - US/Canada and General Use
  - (#2456) -2M LC-SC 50 Micron Fiber Converter Cable
  - (#2459) -2M LC-SC 62.5 Micron Fiber Converter Cable
  - (#2934) -3M Asynchronous Terminal/Printer Cable EIA-232
  - (#2936) -Asynchronous Cable EIA-232/V.24 3M
  - (#3124) -Serial-to-Serial Port Cable for Drawer/Drawer-3.7M
  - (#3125) -Serial-to-Serial Port Cable for Rack/Rack-8M
  - (#3287) -1m, (3.3-ft) IB 40G Copper Cable QSFP/QSFP
  - (#3288) -3m, (9.8-ft.) IB 40G Copper Cable QSFP/QSFP
  - (#3289) -5m QDR IB/E'Net Copper Cable QSFP/QSFP
  - (#3290) -10 meter Quad Data Rate InfiniBand Optical Cable, QSFP/ QSFP
  - (#3293) -30 meter Quad Data Rate InfiniBand Optical Cable, QSFP/ QSFP
  - (#3450) -SAS YO Cable 1.5m - HD 6Gb Adapter to Enclosure
  - (#3451) -SAS YO Cable 3m - HD 6Gb Adapter to Enclosure
  - (#3452) -SAS YO Cable 6m - HD 6Gb Adapter to Enclosure
  - (#3453) -SAS YO Cable 10m - HD 6Gb Adapter to Enclosure
  - (#3454) -SAS X Cable 3m - HD 6Gb 2-Adapter to Enclosure
  - (#3455) -SAS X Cable 6m - HD 6Gb 2-Adapter to Enclosure
  - (#3456) -SAS X Cable 10m - HD 6Gb 2-Adapter to Enclosure
  - (#3457) -SAS YO Cable 15m - HD 3Gb Adapter to Enclosure
  - (#3458) -SAS X Cable 15m - HD 3Gb 2-Adapter to Enclosure
  - (#3661) -SAS Cable (X) Adapter to SAS Enclosure, Dual Controller/ Dual Path 3M:
  - (#3662) -SAS Cable (X) Adapter to SAS Enclosure, Dual Controller/ Dual Path 6M:
  - (#3663) -SAS Cable (X) Adapter to SAS Enclosure, Dual Controller/ Dual Path 15M:
  - (#3681) -3M SAS CABLE, ADPTR TO ADPTR (AA)
  - (#3684) -SAS Cable (AE) Adapter to Enclosure, single controller/ single path 3M
  - (#3685) -SAS Cable (AE) Adapter to Enclosure, single controller/ single path 6M
  - (#3691) -SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/Dual Path 1.5 M
  - (#3692) -SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/Dual Path 3 M
  - (#3693) -SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/Dual Path 6 M
  - (#3694) -SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/Dual Path 15 M
  - (#3925) -0.3M Serial Port Converter Cable, 9-Pin to 25-Pin
  - (#3927) -Serial Port Null Modem Cable, 9-pin to 9-pin, 3.7M
  - (#3928) -Serial Port Null Modem Cable, 9-pin to 9-pin, 10M
  - (#3930) -System Serial Port Converter Cable
  - (#4242) -1.8 M (6-ft) Extender Cable for Displays (15-pin D-shell to 15-pin D-shell)
  - (#4276) -VGA to DVI Connection Converter
  - (#5915) -SAS AA Cable 3m - HD 6Gb Adapter to Adapter
  - (#5916) -SAS AA Cable 6m - HD 6Gb Adapter to Adapter
  - (#5917) -SAS AA Cable 1.5m - HD 6Gb Adapter to Adapter
  - (#5918) -SAS AA Cable 0.6m - HD 6Gb Adapter to Adapter
  - (#7802) -Ethernet Cable, 15m, Hardware Management Console to System Unit
  - (#EB27) -QSFP+ 40GBase-SR Transceiver
  - (#EB2B) -1m (3.3-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)
  - (#EB2H) -3m (9.8-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)
  - (#EB2J) -10m (30.3-ft), IBM Passive QSFP+ MTP Optical Cable
  - (#EB2K) -30m (90.3-ft), IBM Passive QSFP+ MTP Optical Cable
  - (#EB40) -0.5M FDR IB / 40GbE Copper Cable QSFP
  - (#EB41) -1M FDR IB / 40GbE Copper Cable QSFP

- (#EB42) -2M FDR IB / 40GbE Copper Cable QSFP

- (#EB4A) -3M FDR IB / 40GbE Optical Cable SFP
- (#EB4B) -5M FDR IB / 40GbE Optical Cable QSFP
- (#EB4C) -10M FDR IB / 40GbE Optical Cable QSFP
- (#EB4D) -15M FDR IB / 40GbE Optical Cable QSFP
- (#EB4E) -20M FDR IB / 40GbE Optical Cable QSFP
- (#EB4F) -30M FDR IB / 40GbE Optical Cable QSFP
- (#EB4G) -50M FDR IB / 40GbE Optical Cable QSFP
- (#EB50) - 0.5M EDR IB Copper Cable QSFP28
- (#EB51) - 1.0M EDR IB Copper Cable QSFP28
- (#EB52) - 2.0M EDR IB Copper Cable QSFP28
- (#EB54) - 1.5M EDR IB Copper Cable QSFP28
- (#EB59) -100Gb Optical Transceiver QSFP28
- (#EB5A) - 3M EDR IB Optical Cable QSFP28
- (#EB5B) - 5M EDR IB Optical Cable QSFP28
- (#EB5C) - 10M EDR IB Optical Cable QSFP28
- (#EB5D) - 15M EDR IB Optical Cable QSFP28
- (#EB5E) - 20M EDR IB Optical Cable QSFP28
- (#EB5F) - 30M EDR IB Optical Cable QSFP28
- (#EB5G) - 50M EDR IB Optical Cable QSFP28
- (#EB5H) - 100M EDR IB Optical Cable QSFP28
- (#EB5J) -0.5M 100GbE Copper Cable QSFP28
- (#EB5K) -1.0M 100GbE Copper Cable QSFP28
- (#EB5L) -1.5M 100GbE Copper Cable QSFP28
- (#EB5M) -2.0M 100GbE Copper Cable QSFP28
- (#EB5N) -25M EDR IB Optical Cable QSFP28
- (#EB5R) -3M 100GbE Optical Cable QSFP28 (AOC)
- (#EB5S) -5M 100GbE Optical Cable QSFP28 (AOC)
- (#EB5T) -10M 100GbE Optical Cable QSFP28 (AOC)
- (#EB5U) -15M 100GbE Optical Cable QSFP28 (AOC)
- (#EB5V) -20M 100GbE Optical Cable QSFP28 (AOC)
- (#EB5W) -30M 100GbE Optical Cable QSFP28 (AOC)
- (#EB5X) -50M 100GbE Optical Cable QSFP28 (AOC)
- (#EB5Y) -100M 100GbE Optical Cable QSFP28 (AOC)
- (#ECBJ) -SAS X Cable 3m - HD Narrow 6Gb 2-Adapters to Enclosure
- (#ECBK) -SAS X Cable 6m - HD Narrow 6Gb 2-Adapters to Enclosure
- (#ECBL) -SAS X Cable 10m - HD Narrow 6Gb 2-Adapters to Enclosure
- (#ECBM) -SAS X Cable 15m - HD Narrow 3Gb 2-Adapters to Enclosure
- (#ECBN) -5m (16.4-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)
- (#ECBT) -SAS YO Cable 1.5m - HD Narrow 6Gb Adapter to Enclosure
- (#ECBU) -SAS YO Cable 3m - HD Narrow 6Gb Adapter to Enclosure
- (#ECBV) -SAS YO Cable 6m - HD Narrow 6Gb Adapter to Enclosure
- (#ECBW) -SAS YO Cable 10m - HD Narrow 6Gb Adapter to Enclosure
- (#ECBX) -SAS YO Cable 15m - HD Narrow 3Gb Adapter to Enclosure
- (#ECBY) -SAS AE1 Cable 4m - HD Narrow 6Gb Adapter to Enclosure
- (#ECBZ) -SAS YE1 Cable 3m - HD Narrow 6Gb Adapter to Enclosure
- (#ECC0) -SAS AA Cable 0.6m - HD Narrow 6Gb Adapter to Adapter
- (#ECC2) -SAS AA Cable 1.5m - HD Narrow 6Gb Adapter to Adapter
- (#ECC3) -SAS AA Cable 3m - HD Narrow 6Gb Adapter to Adapter
- (#ECC4) -SAS AA Cable 6m - HD Narrow 6Gb Adapter to Adapter
- (#ECC7) -3M Optical Cable Pair for PCIe3 Expansion Drawer
- (#ECC8) -10M Optical Cable Pair for PCIe3 Expansion Drawer
- (#ECCS) -3M Copper CXP Cable Pair for PCIe3 Expansion Drawer
- (#ECDJ) -3.0M SAS X12 Cable (Two Adapter to Enclosure)
- (#ECDK) -4.5M SAS X12 Active Optical Cable (Two Adapter to Enclosure)
- (#ECDL) -10M SAS X12 Active Optical Cable (Two Adapter to Enclosure)
- (#ECDT) -1.5M SAS YO12 Cable (Adapter to Enclosure)
- (#ECDU) -3.0M SAS YO12 Cable (Adapter to Enclosure)
- (#ECDV) -4.5M SAS YO12 Active Optical Cable (Adapter to Enclosure)
- (#ECDW) -10M SAS YO12 Active Optical Cable (Adapter to Enclosure)
- (#ECE0) -0.6M SAS AA12 Cable (Adapter to Adapter)
- (#ECE3) -3.0M SAS AA12 Cable
- (#ECE4) -4.5M SAS AA12 Active Optical Cable (Adapter to Adapter)
- (#ECW0) -Optical Wrap Plug
- (#EJ0Z) -SAS Ports/Cabling for Dual IOA BackPlane
- (#EN01) -1m (3.3-ft), 10GbE'Net Cable SFP+ Act Twinax Copper
- (#EN02) -3m (9.8-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper
- (#EN03) -5m (16.4-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper
- (#EQ02) -Quantity 150 of #3452 SAS YO Cable 6m - HD 6Gb Adapter to Enclosure
- (#EQ03) -Quantity 150 of #3453 SAS YO Cable 10m - HD 6Gb Adapter to Enclosure



- Disk
  - (#1738) -856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)
  - (#1752) -900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)
  - (#1817) -Quantity 150 of #1962
  - (#1818) -Quantity 150 of #1964
  - (#1844) -Quantity 150 of #1956
  - (#1866) -Quantity 150 of #1917
  - (#1868) -Quantity 150 of #1947
  - (#1869) -Quantity 150 of #1925
  - (#1917) -146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)
  - (#1925) -300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)
  - (#1927) -Quantity 150 of #1948
  - (#1929) -Quantity 150 of #1953
  - (#1947) -139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)
  - (#1948) -283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)
  - (#1953) -300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)
  - (#1956) -283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)
  - (#1962) -571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)
  - (#1964) -600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)
  - (#ELS4) -#ESD4 Load Source Specify (571GB 10K RPM SAS SFF-3 for IBM i)
  - (#ELS8) -#ESD8 Load Source Specify (1.1TB 10K RPM SAS SFF-3 for IBM i)
  - (#ELSA) -#ESDA Load Source Specify (283GB 15K RPM SAS SFF-3 for IBM i)
  - (#ELSE) -#ESDE Load Source Specify (571GB 15k RPM SFF-3 )
  - (#ELSN) -#ESDN Load Source Specify (571GB 15K RPM SFF-2 )
  - (#ELT0) -#ESFU Load Source Specify (1.7TB HDD SFF-3)
  - (#ELT2) -#ESF2 Load Source Specify (1.1TB HDD SFF-2)
  - (#ELT4) -#ESF4 Load Source Specify (571GB HDD SFF-3)
  - (#ELT8) -#ESF8 Load Source Specify (1.1TB HDD SFF-3)
  - (#ELTA) -#ESFA Load Source Specify (283GB 15K RPM SAS SFF-3 4K Block - 4224)
  - (#ELTE) -#ESFE Load Source Specify (571GB 15K RPM SAS SFF-3 4K Block - 4224)
  - (#ELTN) -#ESFN Load Source Specify (571GB 15K RPM SAS SFF-2 4K Block - 4224)
  - (#ELTS) -#ESFS Load Source Specify (1.7TB HDD SFF-2)
  - (#ELTU) -#ESEU Load Source Specify (571GB HDD SFF-2)
  - (#ELTY) -#ESEY Load Source Specify (283GB 15K RPM SAS SFF-2 4K Block - 4224)
  - (#ELUJ) -#ESNJ Load Source Specify (283GB HDD SFF-3)
  - (#ELUL) -#ESNL Load Source Specify (283GB HDD SFF-2)
  - (#ELUN) -#ESNN Load Source Specify (571GB HDD SFF-3)
  - (#ELUQ) -#ESNQ Load Source Specify (571GB HDD SFF-2)
  - (#EQ38) -Quantity 150 of #1738 (856GB SFF-2 disk)
  - (#EQ52) -Quantity 150 of #1752 (900GB SFF-2 disk)
  - (#EQ62) -Quantity 150 of #ES62 3.86-4.0 TB 7200 rpm 4k LFF-1 Disk
  - (#EQ64) -Quantity 150 of #ES64 7.72-8.0 TB 7200 rpm 4k LFF-1 Disk
  - (#EQD2) -Quantity 150 of #ESD2 (1.1TB 10k SFF-2)
  - (#EQD3) -Quantity 150 of #ESD3 (1.2TB 10k SFF-2)
  - (#EQEU) -Quantity 150 of #ESEU (571GB 10k SFF-2)
  - (#EQEV) -Quantity 150 of #ESEV (600GB 10k SFF-2)
  - (#EQEY) -Quantity 150 of #ESEY (283 GB SFF-2)
  - (#EQEZ) -Quantity 150 of #ESEZ (300GB SFF-2)
  - (#EQFN) -Quantity 150 of #ESFN (571GB SFF-2)
  - (#EQFP) -Quantity 150 of #ESFP (600GB SFF-2)
  - (#ESD2) -1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)
  - (#ESD3) -1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)
  - (#ESD4) -571GB 10K RPM SAS SFF-3 Disk Drive (IBM i)
  - (#ESD5) -600GB 10K RPM SAS SFF-3 Disk Drive (AIX/Linux)
  - (#ESD8) -1.1TB 10K RPM SAS SFF-3 Disk Drive (IBM i)
  - (#ESD9) -1.2TB 10K RPM SAS SFF-3 Disk Drive (AIX/Linux)
  - (#ESDA) -283GB 15K RPM SAS SFF-3 Disk Drive (IBM i)
  - (#ESDB) -300GB 15K RPM SAS SFF-3 Disk Drive (AIX/Linux)
  - (#ESDR) -300GB 10k RPM SAS SFF-3 Disk Drive (AIX/Linux)
  - (#ESDS) -283GB 10k RPM SAS SFF-3 Disk Drive (IBM i)
  - (#ESDT) -146GB 15k RPM SAS SFF-3 Disk Drive (AIX/Linux)
  - (#ESDU) -139GB 15k RPM SAS SFF-3 Disk Drive (IBM i)
  - (#ESEY) -283GB 15K RPM SAS SFF-2 4K Block - 4224 Disk Drive
  - (#ESEZ) -300GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive
  - (#EQF2) -Quantity 150 of #ESF2 (1.1TB 10k SFF-2)
  - (#EQF3) -Quantity 150 of #ESF3 (1.2TB 10k SFF-2)
  - (#ESFA) -283GB 15K RPM SAS SFF-3 4K Block - 4224 Disk Drive
  - (#ESFB) -300GB 15K RPM SAS SFF-3 4K Block - 4096 Disk Drive
  - (#ESFE) -571GB 15K RPM SAS SFF-3 4K Block - 4224 Disk Drive
  - (#ESFF) -600GB 15K RPM SAS SFF-3 4K Block - 4096 Disk Drive





- (#ESFN) -571GB 15K RPM SAS SFF-2 4K Block - 4224 Disk Drive
- (#ESFP) -600GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive
- (#EQFS) -Quantity 150 of #ESFS (1.7TB 10k SFF-2)
- (#EQFT) -Quantity 150 of #ESFT (1.8TB 10k SFF-2)
- (#EQDN) -Quantity 150 of #ESDN (571GB 15K RPM SAS SFF-2 for IBM i)
- (#EQDP) -Quantity 150 of #ESDP (600GB 15K RPM SAS SFF-2 for AIX/ LINUX)
- (#ES62) -3.86-4.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)
- (#ES64) -7.72-8.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)
- (#ESDE) -571GB 15k RPM SAS SFF-3 Disk Drive - 528 Block
- (#ESDF) -600GB 15k RPM SAS SFF-3 Disk Drive - 5xx Block
- (#ESDN) -571GB 15K RPM SAS SFF-2 Disk Drive - 528 Block
- (#ESDP) -600GB 15K RPM SAS SFF-2 Disk Drive - 5xx Block
- (#ESEU) -571GB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4224
- (#ESEV) -600GB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096
- (#ESF2) -1.1TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4224
- (#ESF3) -1.2TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096
- (#ESF4) -571GB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4224
- (#ESF5) -600GB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4096
- (#ESF8) -1.1TB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4224
- (#ESF9) -1.2TB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4096
- (#ESFS) -1.7TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4224
- (#ESFT) -1.8TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096
- (#ESFU) -1.7TB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4224
- (#ESFV) -1.8TB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4096
- (#ESNJ) -283GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (IBM i)
- (#ESNK) -300GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (AIX/ Linux)
- (#ESNL) -283GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (IBM i)
- (#ESNM) -300GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/ Linux)
- (#ESNN) -571GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (IBM i)
- (#ESNP) -600GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (AIX/ Linux)
- (#ESNQ) -571GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (IBM i)
- (#ESNR) -600GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/ Linux)
- (#ESPL) -Quantity 150 of #ESNL (283GB 15k SFF-2)
- (#ESPM) -Quantity 150 of #ESNM (300GB 15k SFF-2)
- (#ESPQ) -Quantity 150 of #ESNQ (571GB 15k SFF-2)
- (#ESPR) -Quantity 150 of #ESNR (600GB 15k SFF-2)
- Display
  - (#3632) -Widescreen LCD Monitor
- Drive
  - (#1107) -USB 500 GB Removable Disk Drive
  - (#EU01) -1TB Removable Disk Drive Cartridge
  - (#EU04) -RDX USB External Docking Station for Removable Disk Cartridge
  - (#EU08) -RDX 320 GB Removable Disk Drive
  - (#EU15) -1.5TB Removable Disk Drive Cartridge
  - (#EU2T) -2TB Removable Disk Drive Cartridge (RDX)
  - (#EUA4) -RDX USB External Docking Station
- Keyboards
  - (#EK51) -Full Width Keyboard -- USB, US English, #103P
  - (#EK52) -Full Width Keyboard -- USB, French, #189
  - (#EK53) -Full Width Keyboard -- USB, Italian, #142
  - (#EK54) -Full Width Keyboard -- USB, German/Austrian, #129
  - (#EK55) -Full Width Keyboard -- USB, UK English, #166P
  - (#EK56) -Full Width Keyboard -- USB, Spanish, #172
  - (#EK57) -Full Width Keyboard -- USB, Japanese, #194
  - (#EK60) -Full Width Keyboard -- USB, Korean, #413
  - (#EK61) -Full Width Keyboard -- USB, Chinese, #467
  - (#EK62) -Full Width Keyboard -- USB, French Canadian, #445
  - (#EK64) -Full Width Keyboard -- USB, Belgian/UK, #120
  - (#EK65) -Full Width Keyboard -- USB, Swedish/Finnish, #153
  - (#EK66) -Full Width Keyboard -- USB, Danish, #159
  - (#EK67) -Full Width Keyboard -- USB, Bulgarian, #442
  - (#EK68) -Full Width Keyboard -- USB, Swiss/French/German, #150
  - (#EK69) -Full Width Keyboard -- USB, Norwegian, #155
  - (#EK70) -Full Width Keyboard -- USB, Dutch, #143
  - (#EK71) -Full Width Keyboard -- USB, Portuguese, #163
  - (#EK72) -Full Width Keyboard -- USB, Greek, #319
  - (#EK73) -Full Width Keyboard -- USB, Hebrew, #212
  - (#EK74) -Full Width Keyboard -- USB, Polish, #214
  - (#EK75) -Full Width Keyboard -- USB, Slovakian, #245
  - (#EK76) -Full Width Keyboard -- USB, Czech, #243

- (#EK77) -Full Width Keyboard -- USB, Turkish, #179

- (#EK78) -Full Width Keyboard -- USB, LA Spanish, #171

- (#EK79) -Full Width Keyboard -- USB, Arabic, #253
- (#EK80) -Full Width Keyboard -- USB, Thai, #191
- (#EK81) -Full Width Keyboard -- USB, Russian, #443
- (#EK82) -Full Width Keyboard -- USB, Slovenian, #234
- (#EK83) -Full Width Keyboard -- USB, US English Euro, #103P
- Linecords
  - (#6458) - Pwr Crd 4.3m 14ft to IBM PDU
  - (#6460) -Power Cord 4.3m (14-ft), Drawer To OEM PDU (125V, 15A)
  - (#6469) -Power Cord 4.3m (14-ft), Drawer to Wall/OEM PDU (250V/ 15A) U. S.
  - (#6470) -Power Cord 1.8m (6-ft), Drawer to Wall (125V/15A)
  - (#6471) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU (250V/10A)
  - (#6472) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU (250V/ 16A)
  - (#6473) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU (250V/ 10A)
  - (#6474) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/ 13A)
  - (#6475) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/ 16A)
  - (#6476) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/ 10A)
  - (#6477) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/ 16A)
  - (#6478) -Power Cord 2.7 M(9-foot), To Wall/OEM PDU, (250V, 16A)
  - (#6488) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (125V/ 15A or 250V/10A )
  - (#6489) -4.3m (14-Ft) 3PH/32A 380-415V Power Cord
  - (#6491) -4.3m (14-Ft) 1PH/63A 200-240V Power Cord
  - (#6492) -4.3m (14-Ft) 1PH/48A 200-240V Power Cord
  - (#6493) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/ 10A)
  - (#6494) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/ 10A)
  - (#6496) -Power Cord 2.7M (9-foot), To Wall/OEM PDU, (250V, 10A)
  - (#6577) -Power Cable - Drawer to IBM PDU, 200-240V/10A
  - (#6651) -Power Cord 2.7M (9-foot), To Wall/OEM PDU, (125V, 15A)
  - (#6653) -4.3m (14-Ft) 3PH/16A 380-415V Power Cord
  - (#6654) -4.3m (14-Ft) 1PH/24A Power Cord
  - (#6655) -4.3m (14-Ft) 1PH/24A WR Power Cord
  - (#6656) -4.3m (14-Ft) 1PH/32A Power Cord
  - (#6657) -4.3m (14-Ft) 1PH/32A Power Cord
  - (#6658) -4.3m (14-Ft) 1PH/24A Power Cord-Korea
  - (#6659) -Power Cord 2.7M (9-foot), To Wall/OEM PDU, (250V, 15A)
  - (#6660) -Power Cord 4.3m (14-ft), Drawer to Wall/OEM PDU (125V/ 15A)
  - (#6665) -Power Cord 2.8m (9.2-ft), Drawer to IBM PDU, (250V/10A)
  - (#6667) -4.3m (14-Ft) 3PH/32A 380-415V Power Cord-Australia
  - (#6669) -Power Cord 4.3M (14-foot), Drawer to OEM PDU, (250V, 15A)
  - (#6671) -Power Cord 2.7M (9-foot), Drawer to IBM PDU, 250V/10A
  - (#6672) -Power Cord 2M (6.5-foot), Drawer to IBM PDU, 250V/10A
  - (#6680) -Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/ 10A)
  - (#ECJ5) - 4.3m (14-Ft) PDU to Wall 3PH/24A 200-240V Delta-wired Power Cord
  - (#ECJ7) - 4.3m (14-Ft) PDU to Wall 3PH/48A 200-240V Delta-wired Power Cord
  - (#ELC0) -PDU Access Cord 0.38m
  - (#ELC5) -Power Cable - Drawer to IBM PDU (250V/10A)
  - (#EPAD) -2.5 Meter HVDC Power Cord
- Manufacturing Instruction
  - (#9359) -specify mode-1 & (1)5901/5278 for EXP24S #5887/EL1S
  - (#9360) -Specify mode-1 & (2)5901/5278 for EXP24S #5887/EL1S
  - (#9361) -Specify mode-2 & (2)5901/5278 for EXP24S #5887/EL1S
  - (#9365) -Specify mode-4 & (4)5901/5278 for EXP24S #5887/EL1S
  - (#9366) -Specify mode-2 & (4)5901/5278 for EXP24S #5887/EL1S
  - (#9367) -Specify mode-1 & (2)5903/5805 for EXP24S #5887/EL1S
  - (#9368) -Specify mode-2 & (4)5903/5805 for EXP24S #5887/EL1S
  - (#9385) -Specify mode-1 & (2) 5913 for EXP24S #5887/EL1S
  - (#9386) -Specify mode-2 & (4) 5913 for EXP24S #5887/EL1S
  - (#9387) -Specify mode-1 & CEC SAS port for EXP24 #5887/EL1S
  - (#EJPJ) -Specify mode-2 (1)5901/5278 for EXP24 #5887 or #EL1S
  - (#EJPK) -Specify mode-2 (2)5901/5278 for EXP24 #5887 or #EL1S
  - (#EJPL) -Specify mode-4 (1)5901/5278 for EXP24 #5887 or #EL1S
  - (#EJPM) -Specify mode-4 (2)5901/5278 for EXP24 #5887 or #EL1S
  - (#EJPN) -Specify mode-4 (3)5901/5278 for EXP24 #5887 or #EL1S
  - (#EJPR) -Specify mode-2 (2)5903/5805 for EXP24 #5887 or #EL1S
  - (#EJPT) -Specify mode-2 (2)5913 for EXP24 #5887 or #EL1S
  - (#EJR1) -Specify Mode-1 & (1)EJOJ/EJOM/EL3B for EXP24S (#5887/EL1S)
  - (#EJR2) -Specify Mode-1 & (2)EJOJ/EJOM/EL3B for EXP24S (#5887/EL1S)
  - (#EJR3) Specify Mode-2 & (2)EJOJ/EJOM/EL3B & (2) X for EXP24S (#5887/EL1S)
  - (#EJR4) -Specify Mode-2 & (4)EJOJ/EJOM/EL3B for EXP24S (#5887/EL1S)
  - (#EJR5) -Specify Mode-4 & (4)EJOJ/EJOM/EL3B for EXP24S (#5887/EL1S)
  - (#EJR6) Specify Mode-2 & (1)EJOJ/EJOM/EL3B & (2) X for EXP24S (#5887/EL1S)



- (#EJR7) Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (2) YO for EXP24S (#5887/EL1S)

- (#EJRA) Specify Mode-2 & (1)EJ0J/EJ0M/EL3B & (1) YO for EXP24S (#5887/EL1S)
- (#EJRB) Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (1) X for EXP24S (#5887/EL1S)
- (#EJRC) -Specify Mode-4 & (1)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)
- (#EJRD) -Specify Mode-4 & (2)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)
- (#EJRE) -Specify Mode-4 & (3)EJ0J/EJ0M/EL3B for EXP24S (#5888/EL1S)
- (#EJRF) -Specify Mode-1 & (2)EJ14 for EXP24S (#5887/EL1S)
- (#EJRG) Specify Mode-2 & (2)EJ14 & (2) X for EXP24S (#5887/EL1S)
- (#EJRH) Specify Mode-2 & (2)EJ14 & (1) X for EXP24S (#5887/EL1S)
- (#EJRJ) -Specify Mode-2 & (4)EJ14 for EXP24S (#5887/EL1S)
- (#EJRL) -Non-paired Indicator EJ14 PCIe SAS RAID+ Adapter
- (#EJRP) -Specify Mode-1 & (2)EJ0L for EXP24S (#5887/EL1S)
- (#EJRR) -Specify mode-2 & (4) EJ0L for EXP24S #5887/EL1S
- (#EJRS) Specify Mode-2 & (2)EJ0L & (2) X for EXP24S (#5887/EL1S)
- (#EJRT) Specify Mode-2 & (2)EJ0L & (1) X for EXP24S (#5887/EL1S)
- (#EJRU) -Non-paired Indicator EJ0L PCIe SAS RAID Adapter
- (#EJS1) -Non-paired Indicator ESA3 PCIe SAS RAID Adapter
- (#EJS2) -Specify Mode-2 & (2)ESA3 for EXP24S (#5887/#EL1S)
- (#EJS3) -Specify Mode-1 & (2)ESA3 for EXP24S (#5887/#EL1S)
- (#EJS4) -Specify Mode-2 & (4)ESA3 for EXP24S (#5887/#EL1S)
- (#EJV0) -Specify Mode-1 & CEC SAS Ports & (2)YO12 for EXP12SX #ESLL/ELLL
- (#EJV1) -Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP12SX #ESLL/ELLL
- (#EJV2) -Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL
- (#EJV3) -Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL
- (#EJV4) -Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL
- (#EJV5) -Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL
- (#EJV6) -Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL
- (#EJV7) -Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL
- (#EJVA) -Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP12SX #ESLL/ELLL
- (#EJVB) -Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL
- (#EJVC) -Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL
- (#EJVD) -Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL
- (#EJVE) -Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL
- (#EJVF) -Specify Mode-1 & (2)EJ14 & (2)YO12 for EXP12SX #ESLL/ ELLL
- (#EJVG) -Specify Mode-2 & (2)EJ14 & (2)X12 for EXP12SX #ESLL/ELLL
- (#EJVH) -Specify Mode-2 & (2)EJ14 & (1)X12 for EXP12SX #ESLL/ELLL
- (#EJVJ) -Specify Mode-2 & (4)EJ14 & (2)X12 for EXP12SX #ESLL/ELLL
- (#EJVP) -Specify Mode-1 & (2)EJ0L & (2)YO12 for EXP12SX #ESLL/ ELLL
- (#EJVR) -Specify Mode-2 & (4)EJ0L & (2)X12 for EXP12SX #ESLL/ELLL
- (#EJVS) -Specify Mode-2 & (2)EJ0L & (2)X12 for EXP12SX #ESLL/ELLL
- (#EJVT) -Specify Mode-2 & (2)EJ0L& (1)X12 for EXP12SX #ESLL/ELLL
- (#EJW0) -Specify Mode-1 & CEC SAS Ports & (2)YO12 for EXP24SX #ESLS/ELS
- (#EJW1) -Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP24SX #ESLS/ELLS
- (#EJW2) -Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP24SX #ESLS/ELLS
- (#EJW3) -Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS
- (#EJW4) -Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS
- (#EJW5) -Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS
- (#EJW6) -Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP24SX #ESLS/ELLS
- (#EJW7) -Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP24SX #ESLS/ELLS
- (#EJWA) -Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP24SX #ESLS/ELLS
- (#EJWB) -Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS
- (#EJWC) -Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS
- (#EJWD) -Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS
- (#EJWE) -Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS
- (#EJWF) -Specify Mode-1 & (2)EJ14 & (2)YO12 for EXP24SX #ESLS/ ELLS
- (#EJWG) -Specify Mode-2 & (2)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS
- (#EJWH) -Specify Mode-2 & (2)EJ14 & (1)X12 for EXP24SX #ESLS/ELLS
- (#EJWJ) -Specify Mode-2 & (4)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS
- (#EJWP) -Specify Mode-1 & (2)EJ0L & (2)YO12 for EXP24SX #ESLS/ ELLS
- (#EJWR) -Specify Mode-2 & (4)EJ0L & (2)X12 for EXP24SX #ESLS/ELLS
- (#EJWS) -Specify Mode-2 & (2)EJ0L & (2)X12 for EXP24SX #ESLS/ELLS
- (#EJWT) -Specify Mode-2 & (2)EJ0L& (1)X12 for EXP24SX #ESLS/ELLS
- Media Devices
  - (#5771) -SATA Slimline DVD-RAM Drive
  - (#EJ0N) -Storage Backplane 12 SFF-3 Bays/DVD Bay
  - (#EJ0P) -Storage Backplane 18 SFF-3 Bays/DVD Bay/Dual IOA with Write Cache
  - (#EJ0S) -Split #EJ0N to 6+6 SFF-3 Bays: Add 2nd SAS Controller
- Memory
  - (#4794) -Power Active Memory Expansion Enablement
  - (#EM8B) -16 GB DDR3 Memory
  - (#EM8C) -32 GB DDR3 Memory

- (#EM8C) -32 GB DDR3 Memory
- (#EM8D) -64 GB DDR3 Memory
- (#EM8E) -128GB DDR3 Memory
- (#EM91) -16 GB DDR4 Memory
- (#EM92) -32 GB DDR4 Memory
- (#EM93) -64 GB DDR4 Memory
- (#EM94) -128 GB DDR4 Memory
- Miscellaneous
  - (#0004) -EMEA Bulk MES Indicator
  - (#1140) -Custom Service Specify, Rochester Minn, USA
  - (#2145) -Primary OS - IBM i
  - (#2146) -Primary OS - AIX
  - (#2147) -Primary OS - Linux
  - (#6586) -Modem Tray for 19-Inch Rack
  - (#ECSC) -Custom Service Specify, Shenzhen, China
  - (#ECSF) -Custom Service Specify, Montpellier, France
  - (#ECSM) -Custom Service Specify, Mexico
  - (#ECSP) -Custom Service Specify, Poughkeepsie, USA
  - (#EJTG) -Front Door and Covers for 12-Bay Backplane
  - (#EJTH) -Front Door and Covers for 18-Bay Backplane
  - (#EJTJ) -Front OEM Door and Covers for 12-Bay Backplane
  - (#EJTK) -Front OEM Door and Covers for 18-Bay Backplane
  - (#EU29) -Order Placed Indicator
- Pointing Device
  - (#8845) -USB Mouse
- Power
  - (#7109) -Intelligent PDU+, 1 EIA Unit, Universal UTG0247 Connector
  - (#7188) -Power Distribution Unit
  - (#7196) -Power Distribution Unit (US) - 1 EIA Unit, Universal, Fixed Power Cord
  - (#EB2M) -AC Power Supply - 1400W for System Unit (200-240 VAC)
  - (#EB2N) -DC Power Supply - 1400W (180-400V)
  - (#ECJJ) - High Function 9xC19 Single-Phase or Three-Phase Wye PDU plus
  - (#ECJL) - High Function 9xC19 PDU plus 3-Phase Delta
  - (#ECJN) - High Function 12xC13 Single-Phase or Three-Phase Wye PDU plus
  - (#ECJQ) - High Function 12xC13 PDU plus 3-Phase Delta
  - (#EMXA) -AC Power Supply Conduit for PCIe3 Expansion Drawer
  - (#EMXB) -DC Power Supply Conduit for PCIe3 Expansion Drawer
  - (#EPAA) -HVDC PDU - 90A 6xOutlet
  - (#EPTJ) -High Function 9xC19 PDU: Switched, Monitoring
  - (#EPTL) -High Function 9xC19 PDU 3-Phase: Switched, Monitoring
  - (#EPTN) -High Function 12xC13 PDU: Switched, Monitoring
  - (#EPTQ) -High Function 12xC13 PDU 3-Phase: Switched, Monitoring
  - (#ESLA) -Specify AC Power Supply for EXP12SX/EXP24SX Storage Enclosure
- Processor
  - (#EPX0) -6-core 3.02 GHz POWER8 Processor Card
  - (#EPX6) -8-core 3.72 GHz POWER8 Processor Card
  - (#EPXK) -4-Core 3.02 GHz POWER8 Processor Card
  - (#EPY0) -One Processor Core Activation for #EPX0
  - (#EPY6) -One Processor Core activation for #EPX6
  - (#EPYK) -One Processor Core Activation for #EPXK
  - (#EPZ0) -One Zero-Priced Processor Core Activation for #EPX0  
Feature #EPZ0 is not available in People's Republic of China, Hong Kong S.A.R. of the PRC, Marco S.A.R. of the PRC and Taiwan.
  - (#EPZ6) -One Zero-Priced Processor Core Activation for #EPX6  
Feature #EPZ6 is not available in People's Republic of China, Hong Kong S.A.R. of the PRC, Marco S.A.R. of the PRC and Taiwan.



- (#EPZK) -One Zero-Priced Processor core Activation for #EPXK
- Rack Related
  - (#0551) -19 inch, 1.8 meter high rack
  - (#0553) -19 inch, 2.0 meter high rack
  - (#0599) -Rack Filler Panel Kit
  - (#5887) -EXP24S SFF Gen2-bay Drawer
  - (#6068) -Opt Front Door for 1.8m Rack
  - (#6069) -Opt Front Door for 2.0m Rack
  - (#6248) -1.8m Rack Acoustic Doors
  - (#6249) -2.0m Rack Acoustic Doors
  - (#6263) -1.8m Rack Trim Kit
  - (#6272) -2.0m Rack Trim Kit
  - (#6580) -Optional Rack Security Kit
  - (#7118) -Environmental Monitoring Probe
  - (#EB3Z) -Lift tool based on GenieLift GL-8 (standard)
  - (#EB4Z) -Service wedge shelf tool kit for EB3Z
  - (#EBA5) -HVDC PDU Horizontal Mounting
  - (#EC01) -Rack Front Door (Black)
  - (#EC02) -Rack Rear Door
  - (#EC03) -Rack Side Cover
  - (#EC04) -Rack Suite Attachment Kit
  - (#EC07) -Slim Rear Acoustic Door
  - (#EC08) -Slim Front Acoustic Door
  - (#EC15) -Rear Door Heat Exchanger for 2.0 Meter Slim Rack
  - (#ECR0) -2.0 Meter Slim Rack
  - (#ECRF) -Rack Front Door High-End appearance
  - (#ECRG) -Rack Rear Door Black
  - (#ECRJ) -Rack Side Cover
  - (#ECRK) -Rack Rear Extension 5-In
  - (#ECRM) -Rack Front Door for Rack (Black/Flat)
  - (#EJT8) -Front Bezel for 12-Bay BackPlane
  - (#EJT9) -Front Bezel for 18-Bay BackPlane
  - (#EJTA) -Front OEM Bezel for 12-Bay BackPlane
  - (#EJTB) -Front OEM Bezel for 18-Bay BackPlane
  - (#EJTN) -Rack-mount Rail Kit
  - (#EMX0) -PCIe Gen3 I/O Expansion Drawer
  - (#EMXF) -PCIe3 6-Slot Fanout Module for PCIe3 Expansion Drawer
  - (#EMXG) -PCIe3 6-Slot Fanout Module for PCIe3 Expansion Drawer
  - (#EPth) -Horizontal PDU Mounting Hardware
  - (#ER05) -42U Slim Rack
  - (#ERG0) -Rear rack extension
  - (#ESB0) -387GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
  - (#ESB2) -387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux
  - (#ESB4) -775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
  - (#ESB6) -775GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux
  - (#ESB8) -387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
  - (#ESB9) -387GB Enterprise SAS 4k SFF-3 SSD for IBM i
  - (#ESBA) -387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
  - (#ESBB) -387GB Enterprise SAS 4k SFF-2 SSD for IBM i
  - (#ESBE) -775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
  - (#ESBF) -775GB Enterprise SAS 4k SFF-3 SSD for IBM i
  - (#ESBG) -775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
  - (#ESBH) -775GB Enterprise SAS 4k SFF-2 SSD for IBM i
  - (#ESBJ) -1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
  - (#ESBK) -1.55TB Enterprise SAS 4k SFF-3 SSD for IBM i
  - (#ESBL) -1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
  - (#ESBM) -1.55TB Enterprise SAS 4k SFF-2 SSD for IBM i
  - (#ESLL) -EXP12SX SAS Storage Enclosure
  - (#ESLS) -EXP24SX SAS Storage Enclosure
  - (#ESQ2) -Quantity 150 of ESB2 387GB SAS 4k
  - (#ESQ6) -Quantity 150 of ESB6 775GB SAS 4k
  - (#ESQA) -Quantity 150 of ESBA 387GB SAS 4k
  - (#ESQB) -Quantity 150 of ESBB 387GB SAS 4k
  - (#ESQG) -Quantity 150 of ESBG 775GB SAS 4k
  - (#ESQH) -Quantity 150 of ESBH 775GB SAS 4k
  - (#ESQL) -Quantity 150 of ESBL 1.55TB SAS 4k
  - (#ESQM) -Quantity 150 of ESBM 1.55TB SAS 4k
- Services
  - (#0010) -One CSC Billing Unit
  - (#0011) -Ten CSC Billing Units



- (#EUC6) -Core Use HW Feature
- (#EUC7) -Core Use HW Feature 10X
- Solid State Drive
  - (#0894) -#ES0D Load Source Specify (387GB SFF-2 SSD for IBM i)
  - (#ELS9) -#ES1A Load Source Specify (387GB SSD SFF-2)
  - (#ELSH) -#ES0H Load Source Specify (775GB SSD SFF-2)
  - (#ELSM) -#ES0M Load Source Specify (387GB SFF-3 SSD for IBM i)
  - (#ELSP) -#ES0P Load Source Specify (775GB SFF-3 SSD for IBM i)
  - (#ELSR) -#ES0R Load Source Specify (387GB SSD SFF-2 4K)
  - (#ELST) -#ES0T Load Source Specify (775GB SSD SFF-2 4K)
  - (#ELSV) -#ES0V Load Source Specify (387GB SSD SFF-3 4k)
  - (#ELSX) -#ES0X Load Source Specify (775GB SSD SFF-3 4k)
  - (#ELT1) -#ES81 Load Source Specify (1.9TB SFF-2 SSD)
  - (#ELT6) -#ES86 Load Source Specify (387GB SFF-2 SSD 4k for IBM i)
  - (#ELT9) -#ES79 Load Source Specify (387GB SFF-2 SSD 5xx for IBM i)
  - (#ELTD) -#ES8D Load Source Specify (775GB SFF-2 SSD 4k for IBM i)
  - (#ELTF) -#ES7F Load Source Specify (775GB SFF-2 SSD 5xx for IBM i)
  - (#ELTG) -#ES8G Load Source Specify (1.55TB SFF-2 SSD 4k for IBM i)
  - (#ELTK) -#ES8K Load Source Specify (1.9TB SFF-3 SSD)
  - (#ELTL) -#ES7L Load Source Specify (387GB SFF-3 SSD 5xx for IBM i)
  - (#ELTP) -#ES8P Load Source Specify (387GB SFF-3 SSD 4k for IBM i)
  - (#ELTQ) -#ES7Q Load Source Specify (775GB SFF-3 SSD 5xx for IBM i)
  - (#ELTR) -#ES8R Load Source Specify (775GB SFF-3 SSD 4k for IBM i)
  - (#ELTW) -#ES8W Load Source Specify (1.55TB SFF-3 SSD 4k for IBM i)
  - (#ELZ2) -#ESE2 Load Source Specify (3.72TB SSD SFF-3)
  - (#ELZ3) -#ES93 Load Source Specify (1.86TB SSD SFF-3)
  - (#ELZ4) -#ES84 Load Source Specify (931GB SSD SFF-3)
  - (#ELZ6) -#ESG6 Load Source Specify (387GB SSD SFF-2)
  - (#ELZ7) -#ES97 Load Source Specify (1.86TB SSD SFF-2)
  - (#ELZ8) -#ESE8 Load Source Specify (3.72TB SSD SFF-2)
  - (#ELZA) -#ESGA Load Source Specify (387GB SSD SFF-3)
  - (#ELZC) -#ESGC Load Source Specify (387GB SSD SFF-2)
  - (#ELZE) -#ESGE Load Source Specify (387GB SSD SFF-3)
  - (#ELZG) -#ESGG Load Source Specify (775GB SSD SFF-2)
  - (#ELZJ) -#ESGJ Load Source Specify (775GB SSD SFF-3)
  - (#ELZL) -#ESGL Load Source Specify (775GB SSD SFF-2)
  - (#ELZN) -#ESGN Load Source Specify (775GB SSD SFF-3)
  - (#ELZQ) -#ESGQ Load Source Specify (1.55TB SSD SFF-2)
  - (#ELZS) -#ESGS Load Source Specify (1.55TB SSD SFF-3)
  - (#ELZZ) -#ES8Z Load Source Specify (931GB SSD SFF-2)
  - (#EQ0C) -Quantity of 150 #ES0C
  - (#EQ0D) -Quantity of 150 #ES0D
  - (#EQ0G) -Quantity 150 of #ES0G (775GB SSD SFF-2)
  - (#EQ0H) -Quantity 150 of #ES0H (775GB SSD SFF-2)
  - (#EQ0Q) -Quantity 150 of #ES0Q 387GB SFF-2 4k SSD (AIX/Linux)
  - (#EQ0R) -Quantity 150 of #ES0R 387GB SFF-2 4k SSD (IBM i)
  - (#EQ0S) -Quantity 150 of #ES0S 775GB SFF-2 4k SSD (AIX/Linux)
  - (#EQ0T) -Quantity 150 of #ES0T 775GB SFF-2 4k SSD (IBM i)
  - (#EQ19) -Quantity 150 of #ES19 (387GB SSD SFF-2)
  - (#EQ1A) -Quantity 150 of #ES1A (387GB SSD SFF-2)
  - (#EQ78) -Quantity 150 of #ES78 387GB SFF-2 SSD 5xx
  - (#EQ79) -Quantity 150 of #ES79 387GB SFF-2 SSD 5xx
  - (#EQ7E) -Quantity 150 of #ES7E 775GB SFF-2 SSD 5xx
  - (#EQ7F) -Quantity 150 of #ES7F 775GB SFF-2 SSD 5xx
  - (#EQ80) -Quantity 150 of #ES80 1.9TB SFF-2 SSD 4k
  - (#EQ81) -Quantity 150 of ES81 1.9TB SFF-2 SSD 4k
  - (#EQ85) -Quantity 150 of #ES85 387GB SFF-2 SSD 4k
  - (#EQ86) -Quantity 150 of #ES86 387GB SFF-2 SSD 4k
  - (#EQ8C) -Quantity 150 of #ES8C 775GB SFF-2 SSD 4k
  - (#EQ8D) -Quantity 150 of #ES8D 775GB SFF-2 SSD 4k
  - (#EQ8F) -Quantity 150 of #ES8F 1.55TB SFF-2 SSD 4k
  - (#EQ8G) -Quantity 150 of #ES8G 1.55TB SFF-2 SSD 4k
  - (#EQ8Y) -Quantity 150 of #ES8Y 931GB SFF-2 SSD 4k
  - (#EQ8Z) -Quantity 150 of ES8Z 931GB SFF-2 SSD 4k
  - (#EQ96) -Quantity 150 of ES96 1.86TB SFF-2 SSD 4k
  - (#EQ97) -Quantity 150 of ES97 1.86TB SFF-2 SSD 4k
  - (#EQE7) -Quantity 150 of #ESE7 3.72TB SFF-2 SSD 4k
  - (#EQE8) -Quantity 150 of ESE8 3.72TB SFF-2 SSD 4k
  - (#EQG5) -Quantity 150 of #ESG5 (387GB SAS 5xx)

- (#EQG6) -Quantity 150 of #ESG6 (387GB SAS 5xx)

- (#EQGB) -Quantity 150 of #ESGB (387GB SAS 4k)
- (#EQGC) -Quantity 150 of #ESGC (387GB SAS 4k)
- (#EQGF) -Quantity 150 of #ESGF (775GB SAS 5xx)
- (#EQGG) -Quantity 150 of #ESGG (775GB SAS 5xx)
- (#EQGK) -Quantity 150 of #ESGK (775GB SAS 4k)
- (#EQGL) -Quantity 150 of #ESGL (775GB SAS 4k)
- (#EQGP) -Quantity 150 of #ESGP (1.55TB SAS 4k)
- (#EQGQ) -Quantity 150 of #ESGQ (1.55TB SAS 4k)
- (#ER94) -Quantity 150 of ES94 387GB SAS 4k
- (#ER95) -Quantity 150 of ES95 387GB SAS 4k
- (#ERGV) -Quantity 150 of ESGV 387GB SSD 4k
- (#ERGZ) -Quantity 150 of ESGZ 775GB SSD 4k
- (#ERHJ) -Quantity 150 of #ESHJ 931 GB SSD 4k SFF-2
- (#ERHK) -Quantity 150 of #ESHK 931 GB SSD 4k SFF-2
- (#ERHL) -Quantity 150 of #ESHL 1.86 TB SSD 4k SFF-2
- (#ERHM) -Quantity 150 of #ESHM 1.86 TB SSD 4k SFF-2
- (#ERJ0) -Quantity 150 of ESJ0 931GB SAS 4k
- (#ERJ1) -Quantity 150 of ESJ1 931GB SAS 4k
- (#ERJ2) -Quantity 150 of ESJ2 1.86TB SAS 4k
- (#ERJ3) -Quantity 150 of ESJ3 1.86TB SAS 4k
- (#ERJ4) -Quantity 150 of ESJ4 3.72TB SAS 4k
- (#ERJ5) -Quantity 150 of ESJ5 3.72TB SAS 4k
- (#ERM8) -Quantity 150 of #ESM8 3.72 TB SSD 4k SFF-2
- (#ERM9) -Quantity 150 of #ESM9 3.72 TB SSD 4k SFF-2
- (#ERNA) -Quantity 150 of ESNA 775GB SSD 4k
- (#ERNB) -Quantity 150 of ESNB 775GB SSD 4k
- (#ERNE) -Quantity 150 of ESNE 1.55TB SSD 4k
- (#ERNF) -Quantity 150 of ESNF 1.55TB SSD 4k
- (#ES0C) -387GB SFF-2 SSD for AIX/Linux with eMLC
- (#ES0D) -387GB SFF-2 SSD for IBM i with eMLC
- (#ES0G) -775GB SFF-2 SSD for AIX/Linux
- (#ES0H) -775GB SFF-2 SSD for IBM i
- (#ES0L) -387GB SFF-3 SSD for AIX/Linux
- (#ES0M) -387GB SFF-3 SSD for IBM i
- (#ES0N) -775GB SFF-3 SSD for AIX/Linux
- (#ES0P) -775GB SFF-3 SSD for IBM i
- (#ES0Q) -387GB SFF-2 4K SSD for AIX/Linux
- (#ES0R) -387GB SFF-2 4k SSD for IBM i
- (#ES0S) -775GB SFF-2 4k SSD for AIX/Linux
- (#ES0T) -775GB SFF-2 4k SSD for IBM i
- (#ES0U) -387GB SFF-3 4k SSD AIX/Linux
- (#ES0V) -387GB SSF-3 4k SSD for IBM i
- (#ES0W) -775GB SFF-3 4k SSD for AIX/Linux
- (#ES0X) -775GB SFF-3 4k SSD for IBM i
- (#ES19) -387GB SFF-2 SSD for AIX/Linux
- (#ES1A) -387GB SFF-2 SSD for IBM i
- (#ES78) -387GB SFF-2 SSD 5xx eMLC4 for AIX/Linux
- (#ES79) -387GB SFF-2 SSD 5xx eMLC4 for IBM i
- (#ES7E) -775GB SFF-2 SSD 5xx eMLC4 for AIX/Linux
- (#ES7F) -775GB SFF-2 SSD 5xx eMLC4 for IBM i
- (#ES7K) -387GB SFF-3 SSD 5xx eMLC4 for AIX/Linux
- (#ES7L) -387GB SFF-3 SSD 5xx eMLC4 for IBM i
- (#ES7P) -775GB SFF-3 SSD 5xx eMLC4 for AIX/Linux
- (#ES7Q) -775GB SFF-3 SSD 5xx eMLC4 for IBM i
- (#ES80) -1.9TB Read Intensive SAS 4k SFF-2 SSD for AIX/Linux
- (#ES81) -1.9TB Read Intensive SAS 4k SFF-2 SSD for IBM i
- (#ES83) -931GB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ES84) -931GB Mainstream SAS 4k SFF-3 SSD for IBM i
- (#ES85) -387GB SFF-2 SSD 4k eMLC4 for AIX/Linux
- (#ES86) -387GB SFF-2 SSD 4k eMLC4 for IBM i
- (#ES8C) -775GB SFF-2 SSD 4k eMLC4 for AIX/Linux
- (#ES8D) -775GB SFF-2 SSD 4k eMLC4 for IBM i
- (#ES8F) -1.55TB SFF-2 SSD 4k eMLC4 for AIX/Linux
- (#ES8G) -1.55TB SFF-2 SSD 4k eMLC4 for IBM i
- (#ES8J) -1.9TB Read Intensive SAS 4k SFF-3 SSD for AIX/Linux
- (#ES8K) -1.9TB Read Intensive SAS 4k SFF-3 SSD for IBM i
- (#ES8N) -387GB SFF-3 SSD 4k eMLC4 for AIX/Linux
- (#ES8P) -387GB SFF-3 SSD 4k eMLC4 for IBM i
- (#ES8Q) -775GB SFF-3 SSD 4k eMLC4 for AIX/Linux

- (#ES8R) -775GB SFF-3 SSD 4k eMLC4 for IBM i

- (#ES8V) -1.55TB SFF-3 SSD 4k eMLC4 for AIX/Linux
- (#ES8W) -1.55TB SFF-3 SSD 4k eMLC4 for IBM i
- (#ES8Y) -931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ES8Z) -931GB Mainstream SAS 4k SFF-2 SSD for IBM i
- (#ES90) -387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ES91) -387GB Enterprise SAS 4k SFF-3 SSD for IBM i
- (#ES92) -1.86TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ES93) -1.86TB Mainstream SAS 4k SFF-3 SSD for IBM i
- (#ES94) -387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ES95) -387GB Enterprise SAS 4k SFF-2 SSD for IBM i
- (#ES96) -1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ES97) -1.86TB Mainstream SAS 4k SFF-2 SSD for IBM i
- (#ESE1) -3.72TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESE2) -3.72TB Mainstream SAS 4k SFF-3 SSD for IBM i
- (#ESE7) -3.72TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESE8) -3.72TB Mainstream SAS 4k SFF-2 SSD for IBM i
- (#ESG5) -387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux
- (#ESG6) -387GB Enterprise SAS 5xx SFF-2 SSD for IBM i
- (#ESG9) -387GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
- (#ESGA) -387GB Enterprise SAS 5xx SFF-3 SSD for IBM i
- (#ESGB) -387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESGC) -387GB Enterprise SAS 4k SFF-2 SSD for IBM i
- (#ESGD) -387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ESGE) -387GB Enterprise SAS 4k SFF-3 SSD for IBM i
- (#ESGF) -775GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux
- (#ESGG) -775GB Enterprise SAS 5xx SFF-2 SSD for IBM i
- (#ESGH) -775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
- (#ESGJ) -775GB Enterprise SAS 5xx SFF-3 SSD for IBM i
- (#ESGK) -775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESGL) -775GB Enterprise SAS 4k SFF-2 SSD for IBM i
- (#ESGM) -775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ESGN) -775GB Enterprise SAS 4k SFF-3 SSD for IBM i
- (#ESGP) -1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESGQ) -1.55TB Enterprise SAS 4k SFF-2 SSD for IBM i
- (#ESGR) -1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ESGS) -1.55TB Enterprise SAS 4k SFF-3 SSD for IBM i
- (#ESGT) -387GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
- (#ESGV) -387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux
- (#ESGX) -775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
- (#ESGZ) -775GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux
- (#ESHJ) -931 GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESHK) -931 GB Mainstream SAS 4k SFF-2 SSD for IBM i
- (#ESHL) -1.86 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESHM) -1.86 TB Mainstream SAS 4k SFF-2 SSD for IBM i
- (#ESHS) -931 GB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESHT) -931 GB Mainstream SAS 4k SFF-3 SSD for IBM i
- (#ESHU) -1.86 TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESHV) -1.86 TB Mainstream SAS 4k SFF-3 SSD for IBM i
- (#ESJ0) -931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESJ1) -931GB Mainstream SAS 4k SFF-2 SSD for IBM i
- (#ESJ2) -1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESJ3) -1.86TB Mainstream SAS 4k SFF-2 SSD for IBM i
- (#ESJ4) -3.72TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESJ5) -3.72TB Mainstream SAS 4k SFF-2 SSD for IBM i
- (#ESJ8) -931GB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESJ9) -931GB Mainstream SAS 4k SFF-3 SSD for IBM i
- (#ESJA) -1.86TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESJB) -1.86TB Mainstream SAS 4k SFF-3 SSD for IBM i
- (#ESJC) -3.72TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESJD) -3.72TB Mainstream SAS 4k SFF-3 SSD for IBM i
- (#ESM8) -3.72 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESM9) -3.72 TB Mainstream SAS 4k SFF-2 SSD for IBM i
- (#ESMQ) -3.72 TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESMR) -3.72 TB Mainstream SAS 4k SFF-3 SSD for IBM i
- (#ESNA) -775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESNB) -775GB Enterprise SAS 4k SFF-2 SSD for IBM i
- (#ESNC) -775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ESND) -775GB Enterprise SAS 4k SFF-3 SSD for IBM i
- (#ESNE) -1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

- (#ESNF) -1.55TB Enterprise SAS 4k SFF-2 SSD for IBM i
- (#ESNG) -1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ESNH) -1.55TB Enterprise SAS 4k SFF-3 SSD for IBM i
- Specify Codes
  - (#0040) -Mirrored System Disk Level, Specify Code
  - (#0041) -Device Parity Protection-All, Specify Code
  - (#0043) -Mirrored System Bus Level, Specify Code
  - (#0047) -Device Parity RAID-6 All, Specify Code
  - (#0265) -AIX Partition Specify
  - (#0266) -Linux Partition Specify
  - (#0267) -IBM i Operating System Partition Specify
  - (#0296) -Specify Custom Data Protection
  - (#0308) -Mirrored Level System Specify Code
  - (#0347) -RAID Hot Spare Specify
  - (#0567) -IBM i 7.1 Specify Code
  - (#0728) -Specify #5887 or #EL1S Load Source placement
  - (#0837) -SAN Load Source Specify
  - (#0871) -#1947 Load Source Specify (139GB 15k RPM SAS SFF-2 Disk Drive for IBM i)
  - (#0872) -#1948 Load Source Specify (283GB 15k RPM SAS SFF-2 Disk)
  - (#0874) -#1956 Load Source Specify (283GB 10k RPM SAS SFF-2 Disk)
  - (#0875) -#1962 Load Source Specify (571GB 10k RPM SAS SFF-2 Disk)
  - (#0880) -#1738 Load Source Specify (856GB 10k RPM SAS SFF-2 Disk)
  - (#0911) -#ESD2 Load Source Specify (1.1TB 10k SFF-2)
  - (#5550) -Sys Console On HMC
  - (#EB72) -IBM i 7.2 Indicator
  - (#EB73) -IBM i 7.3 Indicator
  - (#EHR1) -Boot Drive / Load Source in EXP12SX Specify (in #ESLL or #ELLL)
  - (#EHR2) -Boot Drive / Load Source in EXP24SX Specify (in #ESLS or #ELLS)
  - (#ELSS) -#ESDS Load Source Specify (283GB 10k SAS SFF3 for IBM i)
  - (#ELSU) -#ESDU Load Source Specify (139GB 15k SAS SFF3 for IBM i)
  - (#EB74) -IBM i 7.4 Indicator
  - (#ELZ1) -ES91 Load Source Specify (387GB SSD SFF-3)
  - (#ELZ5) -ES95 Load Source Specify (387GB SSD SFF-2)
  - (#ELZ9) -#ESM9 Load Source Specify (3.72 TB SSD 4k SFF-2)
  - (#ELZB) -ESNB Load Source Specify (775GB SSD SFF-2)
  - (#ELZD) -ESND Load Source Specify (775GB SSD SFF-3)
  - (#ELZF) -ESNF Load Source Specify (1.55TB SSD SFF-2)
  - (#ELZH) -ESNH Load Source Specify (1.55TB SSD SFF-3)
  - (#ELZK) -#ESHK Load Source Specify (931 GB SSD 4k SFF-2)
  - (#ELZM) -#ESHM Load Source Specify (1.86 TB SSD 4k SFF-2)
  - (#ELZR) -#ESMR Load Source Specify (3.72 TB SSD 4k SFF-3)
  - (#ELZT) -#ESHT Load Source Specify (931 GB SSD 4k SFF-3)
  - (#ELZV) -#ESHV Load Source Specify (1.86 TB SSD 4k SFF-3)
  - (#ESL9) -ESB9 Load Source Specify (387GB SSD SFF-3)
  - (#ESLB) -ESBB Load Source Specify (387GB SSD SFF-2)
  - (#ESLF) -ESBF Load Source Specify (775GB SSD SFF-3)
  - (#ESLH) -ESBH Load Source Specify (775GB SSD SFF-2)
  - (#ESLK) -ESBK Load Source Specify (1.55TB SSD SFF-3)
  - (#ESLM) -ESBM Load Source Specify (1.55TB SSD SFF-2)
  - (#EU41) -ESJ1 Load Source Specify (931GB SSD SFF-2)
  - (#EU43) -ESJ3 Load Source Specify (1.86TB SSD SFF-2)
  - (#EU45) -ESJ5 Load Source Specify (3.72TB SSD SFF-2)
  - (#EU49) -ESJ9 Load Source Specify (931GB SSD SFF-3)
  - (#EU4B) -ESJB Load Source Specify (1.86TB SSD SFF-3)
  - (#EU4D) -ESJD Load Source Specify (3.72TB SSD SFF-3)
- Virtualization Engine
  - (#5227) -PowerVM Standard Edition
  - (#5228) -PowerVM Enterprise Edition
  - (#EC2A) -CAPI Activation
  - (#ELPM) -Trial PowerVM Live Partition Mobility for POWER8 and below Clients on PowerVM Standard edition

## Feature availability matrix

The following feature availability matrix for MT 8286 uses the letter "A" to indicate features that are available and orderable on the specified models. "S" indicates a feature that is supported on the new model during a model conversion; these features will work on the new model, but additional quantities of these features cannot be ordered on the new model; they can only be removed. "N" indicates that the feature is not supported on the new model and must be removed during the model conversion. As additional features are announced, supported, or withdrawn, this list will be updated. Please check with your Marketing Representative for additional information.

4	A = AVAILABLE	S = SUPPORTED
1	N = NOT SUPPORTED,	MUST BE REMOVED
A		



FEAT/PN	DESCRIPTION
0004	A  EMEA Bulk MES Indicator
0010	A  One CSC Billing Unit
0011	A  Ten CSC Billing Units
0040	A  Mirrored System Disk Level, Specify Code
0041	A  Device Parity Protection-All, Specify Code
0043	A  Mirrored System Bus Level, Specify Code
0047	A  Device Parity RAID-6 All, Specify Code
0205	S  RISC-to-RISC Data Migration
0265	A  AIX Partition Specify
0266	A  Linux Partition Specify
0267	A  IBM i Operating System Partition Specify
0296	A  Specify Custom Data Protection
0308	A  Mirrored Level System Specify Code
0347	A  RAID Hot Spare Specify
0348	A  V.24/EIA232 6.1m (20-Ft) PCI Cable
0353	A  V.35 6.1m (20-Ft) PCI Cable
0359	A  X.21 6.1m (20-Ft) PCI Cable
0368	S  V.24/EIA232 20-Ft. PCI Cable with M3
0444	S  CBU Specify
0456	S  Customer Specified Placement
0465	S  SSD Placement Indicator - 5887, EL1S
0551	A  19 inch, 1.8 meter high rack
0553	A  19 inch, 2.0 meter high rack
0567	S  IBM i 7.1 Specify Code
0599	A  Rack Filler Panel Kit
0719	A  Load Source Not in CEC
0712	S  Power Cloud Integrated Solution Indicator For Order Routing
0728	S  Specify #5887 or #EL1S Load Source placement
0837	A  SAN Load Source Specify
0871	A  #1947 Load Source Specify (139GB 15k RPM SAS SFF-2 Disk Drive for IBM i)
0872	A  #1948 Load Source Specify (283GB 15k RPM SAS SFF-2 Disk)
0874	A  #1956 Load Source Specify (283GB 10k RPM SAS SFF-2 Disk)
0875	A  #1962 Load Source Specify (571GB 10k RPM SAS SFF-2 Disk)
0880	S  #1738 Load Source Specify (856GB 10k RPM SAS SFF-2 Disk)
0894	A  #ES0D Load Source Specify (387GB SFF-2 SSD for IBM i)
0911	A  #ESD2 Load Source Specify (1.1TB 10k SFF-2)
1010	S  Modem Cable - Austria
1011	S  Modem Cable - Belgium
1012	S  Modem Cable - Africa
1014	S  Modem Cable - Italy
1015	S  Modem Cable - France
1016	S  Modem Cable - Germany
1017	S  Modem Cable - UK
1018	S  Modem Cable - Iceland/Sweden
1021	S  Modem Cable - Fin/Nor
1022	S  Modem Cable - Netherlands
1023	S  Modem Cable - Swiss
1024	S  Modem Cable - Denmark
1025	S  Modem Cable - US/Canada and General Use
1107	A  USB 500 GB Removable Disk Drive
1140	A  Custom Service Specify, Rochester Minn, USA
1738	S  856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)
1752	S  900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)
1817	S  Quantity 150 of #1962
1818	A  Quantity 150 of #1964
1844	S  Quantity 150 of #1956
1866	S  Quantity 150 of #1917
1868	S  Quantity 150 of #1947
1869	S  Quantity 150 of #1925
1917	S  146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)
1925	S  300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)

1927	S	Quantity 150 of #1948
1929	A	Quantity 150 of #1953
1947	S	139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)
1948	S	283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)
1953	A	300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)
1956	S	283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)
1962	S	571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)
1964	A	600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)
2145	A	Primary OS - IBM i
2146	A	Primary OS - AIX
2147	A	Primary OS - Linux
2319	S	Factory Deconfiguration of 1-core
2456	A	2M LC-SC 50 Micron Fiber Converter Cable
2459	A	2M LC-SC 62.5 Micron Fiber Converter Cable
2728	N	4 port USB PCIe Adapter
2893	S	PCIe 2-Line WAN w/Modem

  

2934	A	3M Asynchronous Terminal/Printer Cable EIA-232
2936	A	Asynchronous Cable EIA-232/V.24 3M
3124	A	Serial-to-Serial Port Cable for Drawer/Drawer- 3.7M
3125	A	Serial-to-Serial Port Cable for Rack/Rack- 8M
3287	A	1m, (3.3-ft.) IB 40G Copper Cable QSFP/QSFP
3288	A	3m, (9.8-ft.) IB 40G Copper Cable QSFP/QSFP
3289	S	5m QDR IB/E'Net Copper Cable QSFP/QSFP
3290	S	10 meter Quad Data Rate InfiniBand Optical Cable, QSFP/QSFP
3293	S	30 meter Quad Data Rate InfiniBand Optical Cable, QSFP/QSFP
3450	S	SAS YO Cable 1.5m - HD 6Gb Adapter to Enclosure
3451	S	SAS YO Cable 3m - HD 6Gb Adapter to Enclosure
3452	S	SAS YO Cable 6m - HD 6Gb Adapter to Enclosure
3453	A	SAS YO Cable 10m - HD 6Gb Adapter to Enclosure
3454	A	SAS X Cable 3m - HD 6Gb 2-Adapter to Enclosure
3455	A	SAS X Cable 6m - HD 6Gb 2-Adapter to Enclosure
3456	S	SAS X Cable 10m - HD 6Gb 2-Adapter to Enclosure
3457	S	SAS YO Cable 15m - HD 3Gb Adapter to Enclosure
3458	A	SAS X Cable 15m - HD 3Gb 2-Adapter to Enclosure
3632	S	Widescreen LCD Monitor
3661	A	SAS Cable (X) Adapter to SAS Enclosure, Dual Controller/ Dual Path 3M:
3662	A	SAS Cable (X) Adapter to SAS Enclosure, Dual Controller/ Dual Path 6M:
3663	S	SAS Cable (X) Adapter to SAS Enclosure, Dual Controller/ Dual Path 15M:
3681	S	3M SAS CABLE, ADPTR TO ADPTR (AA)
3684	A	SAS Cable (AE) Adapter to Enclosure, single controller/ single path 3M
3685	A	SAS Cable (AE) Adapter to Enclosure, single controller/ single path 6M
3691	A	SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/ Dual Path 1.5 M
3692	A	SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/ Dual Path 3 M
3693	A	SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/ Dual Path 6 M
3694	S	SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/ Dual Path 15 M
3925	A	0.3M Serial Port Converter Cable, 9-Pin to 25-Pin
3927	A	Serial Port Null Modem Cable, 9-pin to 9-pin, 3.7M
3928	A	Serial Port Null Modem Cable, 9-pin to 9-pin, 10M
3930	A	System Serial Port Converter Cable
4242	S	1.8 M (6-ft) Extender Cable for Displays (15-pin D-shell to 15-pin D-shell)
4256	A	Extender Cable - USB Keyboards, 1.8M
4276	A	VGA to DVI Connection Converter
4648	A	Rack Integration Services: BP only
4649	S	Rack Integration Services

One and only one rack indicator feature is required on all orders (#4650 to #4666).

4650	S	Rack Indicator- Not Factory Integrated
4651	S	Rack Indicator, Rack #1
4652	S	Rack Indicator, Rack #2
4653	S	Rack Indicator, Rack #3
4654	S	Rack Indicator, Rack #4
4655	S	Rack Indicator, Rack #5
4656	S	Rack Indicator, Rack #6
4657	S	Rack Indicator, Rack #7
4658	S	Rack Indicator, Rack #8
4659	S	Rack Indicator, Rack #9
4660	S	Rack Indicator, Rack #10
4661	S	Rack Indicator, Rack #11
4662	S	Rack Indicator, Rack #12
4663	S	Rack Indicator, Rack #13
4664	S	Rack Indicator, Rack #14
4665	S	Rack Indicator, Rack #15
4666	S	Rack Indicator, Rack #16
4794	A	Power Active Memory Expansion Enablement
4807	S	PCIe Crypto Coprocessor No BSC 4765-001
4927	S	IBM i Solution Edition for Power 720 and Power S814
4928	S	Solution Edition for IBM i (4-core)
5000	S	Software Preload Required
5227	A	PowerVM Standard Edition
5228	A	PowerVM Enterprise Edition
5285	S	PCIe2 2-Port 4x IB QDR Adapter 40Gb

5287 | S | PCIe2 2-port 10GbE SR Adapter  
 5289 | N | 2 Port Async EIA-232 PCIe Adapter  
 5550 | A | Sys Console On HMC  
 5557 | S | System Console-Ethernet No IOP  
 5708 | S | 10Gb FCoE PCIe Dual Port Adapter  
 5717 | S | 4-Port 10/100/1000 Base-TX PCI Express Adapter  
 5729 | S | PCIe2 8Gb 4-port Fibre Channel Adapter  
 5735 | S | 8 Gigabit PCI Express Dual Port Fibre Channel Adapter  
 5744 | S | PCIe2 4-Port 10GbE&1GbE SR&RJ45 Adapter  
 5748 | A | POWER GXT145 PCI Express Graphics Accelerator  
 5767 | S | 2-Port 10/100/1000 Base-TX Ethernet PCI Express Adapter  
 5768 | S | 2-Port Gigabit Ethernet-SX PCI Express Adapter  
 5769 | S | 10 Gigabit Ethernet-SR PCI Express Adapter  
 5771 | A | SATA Slimline DVD-RAM Drive  
 5772 | S | 10 Gigabit Ethernet-LR PCI Express Adapter  
 5774 | S | 4 Gigabit PCI Express Dual Port Fibre Channel Adapter  
 5785 | A | 4 Port Async EIA-232 PCIe Adapter  
 5805 | S | PCIe 380MB Cache Dual - x4 3Gb SAS RAID Adapter  
 5887 | S | EXP24S SFF Gen2-bay Drawer  
 5899 | A | PCIe2 4-port 1GbE Adapter  
 5901 | S | PCIe Dual-x4 SAS Adapter  
 5913 | S | PCIe2 1.8GB Cache RAID SAS Adapter Tri-port 6Gb  
 5915 | A | SAS AA Cable 3m - HD 6Gb Adapter to Adapter  
 5916 | A | SAS AA Cable 6m - HD 6Gb Adapter to Adapter  
 5917 | A | SAS AA Cable 1.5m - HD 6Gb Adapter to Adapter  
 5918 | A | SAS AA Cable 0.6m - HD 6Gb Adapter to Adapter  
 5923 | S | Non-paired PCIe SAS RAID Indicator  
 5924 | S | Non-paired Indicator 5913 PCIe SAS RAID Adapter  
 6068 | A | Opt Front Door for 1.8m Rack  
 6069 | A | Opt Front Door for 2.0m Rack  
 6248 | A | 1.8m Rack Acoustic Doors  
 6249 | A | 2.0m Rack Acoustic Doors  
 6263 | A | 1.8m Rack Trim Kit  
 6272 | A | 2.0m Rack Trim Kit  
 6458 | A | Pwr Crd 4.3m 14ft to IBM PDU  
 6460 | A | Power Cord 4.3m (14-ft), Drawer To OEM PDU (125V, 15A)  
 6469 | A | Power Cord 4.3m (14-ft), Drawer to wall/OEM PDU (250V/15A)  
 | U. S.  
 6470 | A | Power Cord 1.8m (6-ft), Drawer to wall (125V/15A)  
 6471 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU (250V/10A)  
 6472 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU (250V/16A)  
 6473 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU (250V/10A)  
 6474 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU, (250V/13A)  
 6475 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU, (250V/16A)  
 6476 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU, (250V/10A)  
 6477 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU, (250V/16A)  
 6478 | A | Power Cord 2.7 M(9-foot), To wall/OEM PDU, (250V, 16A)  
 6488 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU, (125V/15A  
 | or 250v/10A )  
 6489 | A | 4.3m (14-Ft) 3PH/32A 380-415V Power Cord  
 6491 | A | 4.3m (14-Ft) 1PH/63A 200-240V Power Cord  
 6492 | A | 4.3m (14-Ft) 1PH/48A 200-240V Power Cord  
 6493 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU, (250V/10A)  
 6494 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU, (250V/10A)  
 6496 | A | Power Cord 2.7M (9-foot), To wall/OEM PDU, (250V, 10A)  
 6577 | A | Power Cable - Drawer to IBM PDU, 200-240V/10A  
 6580 | A | Optional Rack Security Kit  
 6586 | S | Modem Tray for 19-Inch Rack  
 6651 | A | Power Cord 2.7M (9-foot), To wall/OEM PDU, (125V, 15A)  
 6653 | A | 4.3m (14-Ft) 3PH/16A 380-415V Power Cord  
 6654 | A | 4.3m (14-Ft) 1PH/24A Power Cord  
 6655 | A | 4.3m (14-Ft) 1PH/24A WR Power Cord  
 6656 | A | 4.3m (14-Ft) 1PH/32A Power Cord  
 6657 | A | 4.3m (14-Ft) 1PH/32A Power Cord  
 6658 | A | 4.3m (14-Ft) 1PH/24A Power Cord-Korea  
 6659 | A | Power Cord 2.7M (9-foot), To wall/OEM PDU, (250V, 15A)  
 6660 | A | Power Cord 4.3m (14-ft), Drawer to wall/OEM PDU (125V/15A)  
 6665 | A | Power Cord 2.8m (9.2-ft), Drawer to IBM PDU, (250V/10A)  
 6667 | A | 4.3m (14-Ft) 3PH/32A 380-415V Power Cord-Australia  
 6669 | A | Power Cord 4.3M (14-foot), Drawer to OEM PDU, (250V, 15A)  
 6671 | A | Power Cord 2.7m (9-foot), Drawer to IBM PDU, 250V/10A  
 6672 | A | Power Cord 2M (6.5-foot), Drawer to IBM PDU, 250V/10A  
 6680 | A | Power Cord 2.7m (9-ft), Drawer to wall/OEM PDU, (250V/10A)  
 7109 | S | Intelligent PDU+, 1 EIA Unit, Universal UTG0247 Connector  
 7118 | A | Environmental Monitoring Probe  
 7188 | A | Power Distribution Unit  
 7196 | S | Power Distribution Unit (US) - 1 EIA Unit, Universal,  
 | Fixed Power Cord

7802 | A | Ethernet Cable, 15m, Hardware Management Console to System  
 | Unit  
 8143 | S | Linux Software Preinstall  
 8144 | S | Linux Software Preinstall (Business Partners)  
 8845 | S | USB Mouse  
 9169 | S | Order Routing Indicator- System Plant  
 9300 | S | Language Group Specify - US English  
 9359 | S | specify mode-1 & (1)5901/5278 for EXP24S #5887/EL1S  
 9360 | S | Specify mode-1 & (2)5901/5278 for EXP24S #5887/EL1S  
 9361 | S | Specify mode-2 & (2)5901/5278 for EXP24S #5887/EL1S  
 9365 | S | Specify mode-4 & (4)5901/5278 for EXP24S #5887/EL1S  
 9366 | S | Specify mode-2 & (4)5901/5278 for EXP24S #5887/EL1S  
 9367 | S | Specify mode-1 & (2)5903/5805 for EXP24S #5887/EL1S

9368	S	Specify mode-2 & (4)5903/5805 for EXP24S #5887/EL1S
9385	S	Specify mode-1 & (2) 5913 for EXP24S #5887/EL1S
9386	S	Specify mode-2 & (4) 5913 for EXP24S #5887/EL1S
9387	S	Specify mode-1 & CEC SAS port for EXP24 #5887/EL1S
9440	S	New AIX License Core Counter
9441	S	New IBM i License Core Counter
9442	S	New Red Hat License Core Counter
9443	S	New SUSE License Core Counter
9444	S	Other AIX License Core Counter
9445	S	Other Linux License Core Counter
9446	S	3rd Party Linux License Core Counter
9447	S	VIOS Core Counter
9449	S	Other License Core Counter
9450	S	Ubuntu Linux License Core Counter
9461	S	Month Indicator
9462	S	Day Indicator
9463	S	Hour Indicator
9464	S	Minute Indicator
9465	S	Qty Indicator
9466	S	Countable Member Indicator
9700	S	Language Group Specify - Dutch
9703	S	Language Group Specify - French
9704	S	Language Group Specify - German
9705	S	Language Group Specify - Polish
9706	S	Language Group Specify - Norwegian
9707	S	Language Group Specify - Portuguese
9708	S	Language Group Specify - Spanish
9711	S	Language Group Specify - Italian
9712	S	Language Group Specify - Canadian French
9714	S	Language Group Specify - Japanese
9715	S	Language Group Specify - Traditional Chinese (Taiwan)
9716	S	Language Group Specify - Korean
9718	S	Language Group Specify - Turkish
9719	S	Language Group Specify - Hungarian
9720	S	Language Group Specify - Slovakian
9721	S	Language Group Specify - Russian
9722	S	Language Group Specify - Simplified Chinese (PRC)
9724	S	Language Group Specify - Czech
9725	S	Language Group Specify -- Romanian
9726	S	Language Group Specify - Croatian
9727	S	Language Group Specify -- Slovenian
9728	S	Language Group Specify - Brazilian Portuguese
9729	S	Language Group Specify - Thai
B0LG	S	ServicePac Not Selected
B0LH	S	Service Renewal Requested
B0UQ	A	SP WSU 3Y 24x7 SD

B0VH	A	SP HDR/MR POWER 3Y
EBA5	S	HVDC PDU Horizontal Mounting
EB27	A	QSFP+ 40GBase-SR Transceiver
EB2B	A	1m (3.3-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)
EB2H	A	3m (9.8-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)
EB2J	A	10m (30.3-ft), IBM Passive QSFP+ MTP Optical Cable
EB2K	A	30m (90.3-ft), IBM Passive QSFP+ MTP Optical Cable
EB2L	A	AC Power Supply - 900W
EB2M	A	AC Power Supply - 1400W for System Unit (200-240 VAC)
EB2N	S	DC Power Supply - 1400W (180-400V)
EB3Z	A	Lift tool based on GenieLift GL-8 (standard)
EB40	A	0.5M FDR IB / 40GbE Copper Cable QSFP
EB41	A	1M FDR IB / 40GbE Copper Cable QSFP
EB42	A	2M FDR IB / 40GbE Copper Cable QSFP
EB4A	A	3M FDR IB / 40GbE Optical Cable SFP
EB4B	A	5M FDR IB / 40GbE Optical Cable QSFP
EB4C	A	10M FDR IB / 40GbE Optical Cable QSFP
EB4D	A	15M FDR IB / 40GbE Optical Cable QSFP
EB4E	A	20M FDR IB / 40GbE Optical Cable QSFP
EB4F	A	30M FDR IB / 40GbE Optical Cable QSFP
EB4G	S	50M FDR IB / 40GbE Optical Cable QSFP
EB4Z	A	Service wedge shelf tool kit for EB3Z
EB50	S	0.5M EDR IB Copper Cable QSFP28
EB51	A	1.0M EDR IB Copper Cable QSFP28
EB52	A	2.0M EDR IB Copper Cable QSFP28
EB54	A	1.5M EDR IB Copper Cable QSFP28
EB59	A	100Gb Optical Transceiver QSFP28
EB5A	A	3M EDR IB Optical Cable QSFP28
EB5B	A	5M EDR IB Optical Cable QSFP28
EB5C	A	10M EDR IB Optical Cable QSFP28
EB5D	A	15M EDR IB Optical Cable QSFP28
EB5E	A	20M EDR IB Optical Cable QSFP28
EB5F	A	30M EDR IB Optical Cable QSFP28
EB5G	A	50M EDR IB Optical Cable QSFP28
EB5H	A	100M EDR IB Optical Cable QSFP28
EB5J	A	0.5M 100GbE Copper Cable QSFP28
EB5K	A	1.0M 100GbE Copper Cable QSFP28
EB5L	A	1.5M 100GbE Copper Cable QSFP28
EB5M	A	2.0M 100GbE Copper Cable QSFP28
EB5N	S	25M EDR IB Optical Cable QSFP28
EB5R	A	3M 100GbE optical cable QSFP28 (AOC)
EB5S	A	5M 100GbE optical cable QSFP28 (AOC)
EB5T	A	10M 100GbE optical cable QSFP28 (AOC)
EB5U	A	15M 100GbE optical cable QSFP28 (AOC)
EB5V	A	20M 100GbE optical cable QSFP28 (AOC)

EB5W	A	30M 100GbE Optical Cable QSFP28 (AOC)
EB5X	A	50M 100GbE Optical Cable QSFP28 (AOC)
EB5Y	A	100M 100GbE Optical Cable QSFP28 (AOC)
EB72	S	IBM i 7.2 Indicator
EB73	A	IBM i 7.3 Indicator
EB74	A	IBM i 7.4 Indicator
EBC0	S	Blockchain on Power
EC01	A	Rack Front Door (Black)
EC02	A	Rack Rear Door
EC03	A	Rack Side Cover
EC04	A	Rack Suite Attachment Kit
EC07	A	Slim Rear Acoustic Door
EC08	A	Slim Front Acoustic Door
EC15	A	Rear Door Heat Exchanger for 2.0 Meter Slim Rack
EC28	S	PCIe2 2-Port 10GbE RoCE SFP+ Adapter
EC2A	A	CAPI Activation
EC2J	S	PCIe2 2-port 10GbE SFN6122F Adapter
EC30	S	PCIe2 2-Port 10GbE RoCE SR Adapter
EC33	S	PCIe3 2-port 56Gb FDR IB Adapter x16
EC38	S	PCIe3 2-port 10GbE NIC&RoCE SFP+ Copper Adapter
EC2N	A	PCIe3 2-port 10GbE NIC&RoCE SR Adapter
EC3B	S	PCIe3 2-Port 40GbE NIC RoCE QSFP+ Adapter
EC3F	S	PCIe3 2-port 100Gb EDR IB Adapter x16
EC3M	S	PCIe3 2-port 100GbE (NIC&RoCE) QSFP28 Adapter x16
EC3U	S	PCIe3 1-port 100Gb EDR IB Adapter x16
EC42	S	PCIe2 3D Graphics Adapter x1
EC46	S	PCIe2 4-Port USB 3.0 Adapter
EC55	S	PCIe3 1.6TB NVMe Flash Adapter
EC57	S	PCIe3 3.2TB NVMe Flash Adapter
ECBJ	A	SAS X Cable 3m - HD Narrow 6Gb 2-Adapters to Enclosure
ECBK	A	SAS X Cable 6m - HD Narrow 6Gb 2-Adapters to Enclosure
ECBL	S	SAS X Cable 10m - HD Narrow 6Gb 2-Adapters to Enclosure
ECBM	A	SAS X Cable 15m - HD Narrow 3Gb 2-Adapters to Enclosure
ECBN	S	5m (16.4-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)
ECBT	A	SAS YO Cable 1.5m - HD Narrow 6Gb Adapter to Enclosure
ECBU	A	SAS YO Cable 3m - HD Narrow 6Gb Adapter to Enclosure
ECBV	A	SAS YO Cable 6m - HD Narrow 6Gb Adapter to Enclosure
ECBW	A	SAS YO Cable 10m - HD Narrow 6Gb Adapter to Enclosure
ECBX	S	SAS YO Cable 15m - HD Narrow 3Gb Adapter to Enclosure
ECBY	A	SAS AE1 Cable 4m - HD Narrow 6Gb Adapter to Enclosure
ECBZ	A	SAS YE1 Cable 3m - HD Narrow 6Gb Adapter to Enclosure
ECC0	A	SAS AA Cable 0.6m - HD Narrow 6Gb Adapter to Adapter
ECC2	A	SAS AA Cable 1.5m - HD Narrow 6Gb Adapter to Adapter
ECC3	A	SAS AA Cable 3m - HD Narrow 6Gb Adapter to Adapter
ECC4	S	SAS AA Cable 6m - HD Narrow 6Gb Adapter to Adapter
ECC7	A	3M Optical Cable Pair for PCIe3 Expansion Drawer
ECC8	A	10M Optical Cable Pair for PCIe3 Expansion Drawer
ECCF	A	System Port Converter Cable for UPS
ECCS	A	3M Copper CXP Cable Pair for PCIe3 Expansion Drawer
ECDJ	A	3.0M SAS X12 Cable (Two Adapter to Enclosure)
ECDK	A	4.5M SAS X12 Active Optical Cable (Two Adapter to Enclosure)
ECDL	A	10M SAS X12 Active Optical Cable (Two Adapter to Enclosure)
ECDT	A	1.5M SAS YO12 Cable (Adapter to Enclosure)
ECDU	A	3.0M SAS YO12 Cable (Adapter to Enclosure)
ECDV	A	4.5M SAS YO12 Active Optical Cable (Adapter to Enclosure)
ECDW	A	10M SAS YO12 Active Optical Cable (Adapter to Enclosure)
ECE0	A	0.6M SAS AA12 Cable (Adapter to Adapter)
ECE3	A	3.0M SAS AA12 Cable
ECE4	A	4.5M SAS AA12 Active Optical Cable (Adapter to Adapter)
ECJ5	A	4.3m (14-Ft) PDU to wall 3PH/24A 200-240V Delta-wired Power Cord
ECJ7	A	4.3m (14-Ft) PDU to wall 3PH/48A 200-240V Delta-wired Power Cord
ECJJ	A	High Function 9xC19 Single-Phase or Three-Phase wye PDU plus
ECJL	A	High Function 9xC19 PDU plus 3-Phase Delta
ECJN	A	High Function 12xC13 Single-Phase or Three-Phase wye PDU plus
ECJQ	A	High Function 12xC13 PDU plus 3-Phase Delta
ECPO	S	Cloud Private Solution
ECR0	A	2.0 Meter Slim Rack
ECRF	A	Rack Front Door High-End appearance
ECRG	A	Rack Rear Door Black
ECRJ	A	Rack Side Cover
ECRK	A	Rack Rear Extension 5-In
ECRM	A	Rack Front Door for Rack (Black/Flat)

ECSC	A	Custom Service Specify, Shenzhen, China
ECSF	A	Custom Service Specify, Montpellier, France

ECSM	A	Custom Service Specify, Mexico
ECSP	A	Custom Service Specify, Poughkeepsie, USA
ECSS	S	Integrated Solution Packing
ECW0	A	Optical Wrap Plug
EHCE	S	IBM Cognos Business Intelligence
EHDS	S	InfoSphere Information Server (IIS) / Data Stage
EHKV	S	SAP HANA TRACKING FEATURE
EHR1	A	Boot Drive / Load Source in EXP12SX Specify (in #ESLL or

EHR2	A	#ELLL) Boot Drive /Load Source in EXP24SX Specify (in #ESLS or #ELLS)
EHS2	A	SSD Placement Indicator - #ESLS/#ELLS
EHSS	S	SPSS Modeler Server Gold
EJ0J	A	PCIe3 RAID SAS Adapter Quad-port 6Gb x8
EJ0L	A	PCIe3 12GB Cache RAID SAS Adapter Quad-port 6Gb x8
EJ0N	S	Storage Backplane 12 SFF-3 Bays/DVD Bay
EJ0P	S	Storage Backplane 18 SFF-3 Bays/DVD Bay/Dual IOA with Write Cache
EJ0S	S	Split #EJ0N to 6+6 SFF-3 Bays: Add 2nd SAS Controller
EJ0Z	A	SAS Ports/Cabling for Dual IOA BackPlane
EJ08	S	PCIe3 Optical Cable Adapter for PCIe3 Expansion Drawer
EJ10	A	PCIe3 SAS Tape/DVD Adapter Quad-port 6Gb x8
EJ12	S	PCIe3 FPGA Accelerator Adapter
EJ14	A	PCIe3 12GB Cache RAID PLUS SAS Adapter Quad-port 6Gb x8
EJ17	S	PCIe3 CAPI FlashSystem Accelerator Adapter
EJ1P	S	PCIe1 SAS Tape/DVD Dual-port 3Gb x8 Adapter
EJ27	S	PCIe Crypto Coprocessor No BSC 4765-001
EJ28	S	PCIe Crypto Coprocessor Gen3 BSC 4765-001
EJ32	A	PCIe3 Crypto Coprocessor no BSC 4767
EJ33	S	PCIe3 Crypto Coprocessor BSC-Gen3 4767
EJJP	S	Specify mode-2 (1)5901/5278 for EXP24 #5887 or #EL1S
EJPK	S	Specify mode-2 (2)5901/5278 for EXP24 #5887 or #EL1S
EJPL	S	Specify mode-4 (1)5901/5278 for EXP24 #5887 or #EL1S
EJPM	S	Specify mode-4 (2)5901/5278 for EXP24 #5887 or #EL1S
EJPN	S	Specify mode-4 (3)5901/5278 for EXP24 #5887 or #EL1S
EJPR	S	Specify mode-2 (2)5903/5805 for EXP24 #5887 or #EL1S
EJPT	S	Specify mode-2 (2)5913 for EXP24 #5887 or #EL1S
EJR1	S	Specify Mode-1 & (1)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S))
EJR2	S	Specify Mode-1 & (2)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S))
EJR3	S	Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (2) X for EXP24S (#5887/EL1S)
EJR4	S	Specify Mode-2 & (4)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)
EJR5	S	Specify Mode-4 & (4)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)
EJR6	S	Specify Mode-2 & (1)EJ0J/EJ0M/EL3B & (2) YO for EXP24S (#5887/EL1S)
EJR7	S	Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (2) YO for EXP24S (#5887/EL1S)
EJRA	S	Specify Mode-2 & (1)EJ0J/EJ0M/EL3B & (1) YO for EXP24S (#5887/EL1S)
EJRB	S	Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (1) X for EXP24S (#5887/EL1S)
EJRC	S	Specify Mode-4 & (1)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)
EJRD	S	Specify Mode-4 & (2)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)
EJRE	S	Specify Mode-4 & (3)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)
EJRF	S	Specify Mode-1 & (2)EJ14 for EXP24S (#5887/EL1S)
EJRG	S	Specify Mode-2 & (2)EJ14 & (2) X for EXP24S (#5887/EL1S)
EJRH	S	Specify Mode-2 & (2)EJ14 & (1) X for EXP24S (#5887/EL1S)
EJRJ	S	Specify Mode-2 & (4)EJ14 for EXP24S (#5887/EL1S)
EJRL	A	Non-paired Indicator EJ14 PCIe SAS RAID+ Adapter
EJRP	S	Specify Mode-1 & (2)EJ0L for EXP24S (#5887/EL1S)
EJRR	S	Specify mode-2 & (4) EJ0L for EXP24S #5887/EL1S
EJRS	S	Specify Mode-2 & (2)EJ0L & (2) X for EXP24S (#5887/EL1S)
EJRT	S	Specify Mode-2 & (2)EJ0L & (1) X for EXP24S (#5887/EL1S)
EJRU	A	Non-paired Indicator EJ0L PCIe SAS RAID Adapter
EJS1	A	Non-paired Indicator ESA3 PCIe SAS RAID Adapter
EJS2	S	Specify Mode-2 & (2)ESA3 for EXP24S (#5887/#EL1S)
EJS3	S	Specify Mode-1 & (2)ESA3 for EXP24S (#5887/#EL1S)
EJS4	S	Specify Mode-2 & (4)ESA3 for EXP24S (#5887/#EL1S)
ELS9	A	#ES1A Load Source Specify (387GB SSD SFF-2)
EJT8	S	Front Bezel for 12-Bay BackPlane
EJT9	S	Front Bezel for 18-Bay BackPlane
EJTA	A	Front OEM Bezel for 12-Bay BackPlane
EJTB	A	Front OEM Bezel for 18-Bay BackPlane
EJTG	S	Front Door and Covers for 12-Bay Backplane
EJTH	S	Front Door and Covers for 18-Bay Backplane
EJTI	S	Front OEM Door and Covers for 12-Bay Backplane
EJTK	S	Front OEM Door and Covers for 18-Bay Backplane
EJTN	S	Rack-mount Rail Kit
EJV0	A	Specify Mode-1 & CEC SAS Ports & (2)YO12 for EXP12SX #ESLL/ELLL
EJV1	A	Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP12SX #ESLL/ELLL
EJV2	A	Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL
EJV3	A	Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL
EJV4	A	Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL
EJV5	A	Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL
EJV6	A	Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL
EJV7	A	Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL
EJVA	A	Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP12SX #ESLL/ELLL
EJVB	A	Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL
EJVC	A	Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL
EJVD	A	Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL
EJVE	A	Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL

EJVF	A	Specify Mode-1 & (2)EJ14 & (2)Y012 for EXP12SX #ESLL/ELLL
EJVG	S	Specify Mode-2 & (2)EJ14 & (2)X12 for EXP12SX #ESLL/ELLL
EJVH	S	Specify Mode-2 & (2)EJ14 & (1)X12 for EXP12SX #ESLL/ELLL
EJVJ	S	Specify Mode-2 & (4)EJ14 & (2)X12 for EXP12SX #ESLL/ELLL
EJVP	A	Specify Mode-1 & (2)EJ0L & (2)Y012 for EXP12SX #ESLL/ELLL
EJVR	S	Specify Mode-2 & (4)EJ0L & (2)X12 for EXP12SX #ESLL/ELLL
EJVS	S	Specify Mode-2 & (2)EJ0L & (2)X12 for EXP12SX #ESLL/ELLL
EJVT	S	Specify Mode-2 & (2)EJ0L& (1)X12 for EXP12SX #ESLL/ELLL
EJW0	A	Specify Mode-1 & CEC SAS Ports & (2)Y012 for EXP24SX #ESLS/ELLS
EJW1	A	Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)Y012 for EXP24SX #ESLS/ELLS
EJW2	A	Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)Y012 for EXP24SX #ESLS/ELLS
EJW3	A	Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS
EJW4	A	Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS
EJW5	A	Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS
EJW6	A	Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)Y012 for EXP24SX #ESLS/ELLS
EJW7	A	Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)Y012 for EXP24SX #ESLS/ELLS
EJWA	A	Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)Y012 for EXP24SX #ESLS/ELLS
EJWB	A	Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS
EJWC	A	Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS
EJWD	A	Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS
EJWE	A	Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS
EJWF	A	Specify Mode-1 & (2)EJ14 & (2)Y012 for EXP24SX #ESLS/ELLS
EJWG	A	Specify Mode-2 & (2)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS
EJWH	A	Specify Mode-2 & (2)EJ14 & (1)X12 for EXP24SX #ESLS/ELLS
EJWJ	A	Specify Mode-2 & (4)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS
EJWP	A	Specify Mode-1 & (2)EJ0L & (2)Y012 for EXP24SX #ESLS/ELLS
EJWR	A	Specify Mode-2 & (4)EJ0L & (2)X12 for EXP24SX #ESLS/ELLS
EJWS	A	Specify Mode-2 & (2)EJ0L & (2)X12 for EXP24SX #ESLS/ELLS
EJWT	A	Specify Mode-2 & (2)EJ0L& (1)X12 for EXP24SX #ESLS/ELLS
EK51	S	Full width Keyboard -- USB, US English, #103P
EK52	S	Full width Keyboard -- USB, French, #189
EK53	S	Full width Keyboard -- USB, Italian, #142
EK54	S	Full width Keyboard -- USB, German/Austrian, #129
EK55	S	Full width Keyboard -- USB, UK English, #166P
EK56	S	Full width Keyboard -- USB, Spanish, #172
EK57	S	Full width Keyboard -- USB, Japanese, #194
EK58	S	Full width Keyboard -- USB, Brazilian Portuguese, #275
EK59	S	Full width Keyboard -- USB, Hungarian, #208
EK60	S	Full width Keyboard -- USB, Korean, #413
EK61	S	Full width Keyboard -- USB, Chinese, #467
EK62	S	Full width Keyboard -- USB, French Canadian, #445
EK64	S	Full width Keyboard -- USB, Belgian/UK, #120
EK65	S	Full width Keyboard -- USB, Swedish/Finnish, #153
EK66	S	Full width Keyboard -- USB, Danish, #159
EK67	S	Full width Keyboard -- USB, Bulgarian, #442
EK68	S	Full width Keyboard -- USB, Swiss/French/German, #150
EK69	S	Full width Keyboard -- USB, Norwegian, #155
EK70	S	Full width Keyboard -- USB, Dutch, #143
EK71	S	Full width Keyboard -- USB, Portuguese, #163
EK72	S	Full width Keyboard -- USB, Greek, #319
EK73	S	Full width Keyboard -- USB, Hebrew, #212
EK74	S	Full width Keyboard -- USB, Polish, #214
EK75	S	Full width Keyboard -- USB, Slovakian, #245
EK76	S	Full width Keyboard -- USB, Czech, #243
EK77	S	Full width Keyboard -- USB, Turkish, #179
EK78	S	Full width Keyboard -- USB, LA Spanish, #171
EK79	S	Full width Keyboard -- USB, Arabic, #253
EK80	S	Full width Keyboard -- USB, Thai, #191
EK81	S	Full width Keyboard -- USB, Russian, #443
EK82	S	Full width Keyboard -- USB, Slovenian, #234
EK83	S	Full width Keyboard -- USB, US English Euro, #103P
ELC0	A	PDU Access Cord 0.38m
ELC5	A	Power Cable - Drawer to IBM PDU (250V/10A)
ELPM	A	Trial PowerVM Live Partition Mobility for POWER8 and below Clients on PowerVM Standard edition
ELS4	A	#ESD4 Load Source Specify (571GB 10K RPM SAS SFF-3 for IBM i)
ELS8	A	#ESD8 Load Source Specify (1.1TB 10K RPM SAS SFF-3 for IBM i)
ELSA	A	#ESDA Load Source Specify (283GB 15K RPM SAS SFF-3 for IBM i)
ELSE	A	#ESDE Load Source Specify (571GB 15k RPM SFF-3 )
ELSH	A	#ES0H Load Source Specify (775GB SSD SFF-2)
ELSM	A	#ES0M Load Source Specify (387GB SFF-3 SSD for IBM i)
ELSP	A	#ES0P Load Source Specify (775GB SFF-3 SSD for IBM i)
ELSS	A	#ESDS Load Source Specify (283GB 10k SAS SFF3 for IBM i)
ELSU	A	#ESDU Load Source Specify (139GB 15k SAS SFF3 for IBM i)
ELSN	A	#ESDN Load Source Specify (571GB 15K RPM SFF-2 )
ELSR	A	#ES0R Load Source Specify (387GB SSD SFF-2 4K)
ELST	A	#ES0T Load Source Specify (775GB SSD SFF-2 4K)
ELSV	A	#ES0V Load Source Specify (387GB SSD SFF-3 4k)
ELSX	A	#ES0X Load Source Specify (775GB SSD SFF-3 4k)
ELT0	A	#ESFU Load Source Specify (1.7TB HDD SFF-3)

ELT1	A	#ES81 Load Source Specify	(1.9TB SFF-2 SSD)
ELT2	A	#ESF2 Load Source Specify	(1.1TB HDD SFF-2)
ELT4	A	#ESF4 Load Source Specify	(571GB HDD SFF-3)
ELT6	S	#ES86 Load Source Specify	(387GB SFF-2 SSD 4k for IBM i)
ELT8	A	#ESF8 Load Source Specify	(1.1TB HDD SFF-3)
ELT9	S	#ES79 Load Source Specify	(387GB SFF-2 SSD 5xx for IBM i)
ELTA	A	#ESFA Load Source Specify	(283GB 15K RPM SAS SFF-3 4K Block - 4224)
ELTD	S	#ES8D Load Source Specify	(775GB SFF-2 SSD 4k for IBM i)
ELTE	A	#ESFE Load Source Specify	(571GB 15K RPM SAS SFF-3 4K Block - 4224)
ELTF	S	#ES7F Load Source Specify	(775GB SFF-2 SSD 5xx for IBM i)
ELTG	S	#ES8G Load Source Specify	(1.55TB SFF-2 SSD 4k for IBM i)
ELTK	A	#ES8K Load Source Specify	(1.9TB SFF-3 SSD)
ELTL	S	#ES7L Load Source Specify	(387GB SFF-3 SSD 5xx for IBM i)
ELTN	A	#ESFN Load Source Specify	(571GB 15K RPM SAS SFF-2 4K Block - 4224)
ELTP	S	#ES8P Load Source Specify	(387GB SFF-3 SSD 4k for IBM i)
ELTQ	S	#ES7Q Load Source Specify	(775GB SFF-3 SSD 5xx for IBM i)
ELTR	S	#ES8R Load Source Specify	(775GB SFF-3 SSD 4k for IBM i)
ELTS	A	#ESFS Load Source Specify	(1.7TB HDD SFF-2)
ELTU	A	#ESEU Load Source Specify	(571GB HDD SFF-2)
ELTW	S	#ES8W Load Source Specify	(1.55TB SFF-3 SSD 4k for IBM i)
ELTY	A	#ESEY Load Source Specify	(283GB 15K RPM SAS SFF-2 4K Block - 4224)
ELUJ	A	#ESNJ Load Source Specify	(283GB HDD SFF-3)
ELUL	A	#ESNL Load Source Specify	(283GB HDD SFF-2)
ELUN	A	#ESNN Load Source Specify	(571GB HDD SFF-3)
ELUQ	A	#ESNQ Load Source Specify	(571GB HDD SFF-2)
ELZ1	S	ES91 Load Source Specify	(387GB SSD SFF-3)
ELZ2	S	#ESE2 Load Source Specify	(3.72TB SSD SFF-3)
ELZ3	S	#ES93 Load Source Specify	(1.86TB SSD SFF-3)
ELZ4	S	#ES84 Load Source Specify	(931GB SSD SFF-3)
ELZ5	S	ES95 Load Source Specify	(387GB SSD SFF-2)
ELZ6	S	#ESG6 Load Source Specify	(387GB SSD SFF-2)
ELZ7	S	#ES97 Load Source Specify	(1.86TB SSD SFF-2)
ELZ8	S	#ESE8 Load Source Specify	(3.72TB SSD SFF-2)
ELZ9	S	#ESM9 Load Source Specify	(3.72 TB SSD 4k SFF-2)
ELZA	A	#ESGA Load Source Specify	(387GB SSD SFF-3)
ELZB	S	ESNB Load Source Specify	(775GB SSD SFF-2)
ELZC	S	#ESGC Load Source Specify	(387GB SSD SFF-2)
ELZD	S	ESND Load Source Specify	(775GB SSD SFF-3)
ELZE	S	#ESGE Load Source Specify	(387GB SSD SFF-3)
ELZF	S	ESNF Load Source Specify	(1.55TB SSD SFF-2)
ELZG	S	#ESGG Load Source Specify	(775GB SSD SFF-2)
ELZH	S	ESNH Load Source Specify	(1.55TB SSD SFF-3)
ELZJ	A	#ESGJ Load Source Specify	(775GB SSD SFF-3)
ELZK	S	#ESHK Load Source Specify	(931 GB SSD 4k SFF-2)
ELZL	S	#ESGL Load Source Specify	(775GB SSD SFF-2)
ELZM	S	#ESHM Load Source Specify	(1.86 TB SSD 4k SFF-2)
ELZN	S	#ESGN Load Source Specify	(775GB SSD SFF-3)
ELZQ	S	#ESGQ Load Source Specify	(1.55TB SSD SFF-2)
ELZR	S	#ESMR Load Source Specify	(3.72 TB SSD 4k SFF-3)
ELZS	A	#ESGS Load Source Specify	(1.55TB SSD SFF-3)
ELZT	S	#ESHT Load Source Specify	(931 GB SSD 4k SFF-3)
ELZV	S	#ESHV Load Source Specify	(1.86 TB SSD 4k SFF-3)
ELZZ	S	#ES8Z Load Source Specify	(931GB SSD SFF-2)
EM8B	S	16 GB DDR3 Memory	
EM8C	S	32 GB DDR3 Memory	
EM8D	S	64 GB DDR3 Memory	
EM8E	S	128GB DDR3 Memory	
EM91	S	16 GB DDR4 Memory	
EM92	A	32 GB DDR4 Memory	
EM93	A	64 GB DDR4 Memory	
EM94	A	128 GB DDR4 Memory	
EMX0	A	PCIe Gen3 I/O Expansion Drawer	
EMXA	A	AC Power Supply Conduit for PCIe3 Expansion Drawer	
EMXB	S	DC Power Supply Conduit for PCIe3 Expansion Drawer	
EMXF	S	PCIe3 6-Slot Fanout Module for PCIe3 Expansion Drawer	
EMXG	S	PCIe3 6-Slot Fanout Module for PCIe3 Expansion Drawer	
EN01	A	1m (3.3-ft), 10GbE'Net Cable SFP+ Act Twinax Copper	
EN02	A	3m (9.8-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper	
EN03	A	5m (16.4-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper	
EN0A	A	PCIe3 16Gb 2-port Fibre Channel Adapter	
EN0G	S	PCIe2 8Gb 2-Port Fibre Channel Adapter	
EN0H	S	PCIe3 4-port (10Gb FCoE & 1GbE) SR&RJ45	
EN0K	S	PCIe3 4-port (10Gb FCoE & 1GbE) SFP+Copper&RJ45	
EN0M	S	PCIe3 4-port(10Gb FCoE & 1GbE) LR&RJ45 Adapter	
EN0S	A	PCIe2 4-Port (10Gb+1GbE) SR+RJ45 Adapter	
EN0U	A	PCIe2 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter	
EN0W	A	PCIe2 2-port 10/1GbE BaseT RJ45 Adapter	
EN12	S	PCIe2 8Gb 4-port Fibre Channel Adapter	
EN13	S	PCIe 1-port Bisync Adapter	

EN15	A	PCIe3 4-port 10GbE SR Adapter
EN17	S	PCIe3 4-port 10GbE SFP+ Copper Adapter
EN27	S	2 Port Async EIA-232 PCIe Adapter
EN29	A	2 Port Async EIA-232 PCIe Adapter



EPAA	S	HVDC PDU - 90A 6xOutlet
EPAC	A	Auto Selected HVDC Power Cord
EPAD	S	2.5 Meter HVDC Power Cord
EPTH	A	Horizontal PDU Mounting Hardware
EPTJ	S	High Function 9xC19 PDU: Switched, Monitoring
EPTL	S	High Function 9xC19 PDU 3-Phase: Switched, Monitoring
EPTN	S	High Function 12xC13 PDU: Switched, Monitoring
EPTQ	S	High Function 12xC13 PDU 3-Phase: Switched, Monitoring
EPX0	A	6-core 3.02 GHZ POWER8 Processor Card
EPX6	A	8-core 3.72 GHZ POWER8 Processor Card
EPXK	A	4-Core 3.02 GHZ POWER8 Processor Card
EPY0	A	One Processor Core Activation for #EPX0
EPY6	A	One Processor Core activation for #EPX6
EPYK	A	One Processor Core Activation for #EPXK

Feature #EPZ0 is not available in People's Republicof China, Hong Kong S.A.R. of the PRC, Marco S.

EPZ0	A	One Zero-Priced Processor Core Activation for #EPX0
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Feature #EPZ6 is not available in People's Republicof China, Hong Kong S.A.R. of the PRC, Marco S.

EPZ6	A	One Zero-Priced Processor Core Activation for #EPX6
EPZK	A	One Zero-Priced Processor core Activation for #EPXK
EQ02	S	Quantity 150 of #3452 SAS YO Cable 6m - HD 6Gb Adapter to Enclosure
EQ03	A	Quantity 150 of #3453 SAS YO Cable 10m - HD 6Gb Adapter to Enclosure
EQ0C	S	Quantity of 150 #ES0C
EQ0D	S	Quantity of 150 #ES0D
EQ0G	S	Quantity 150 of #ES0G (775GB SSD SFF-2)
EQ0H	S	Quantity 150 of #ES0H (775GB SSD SFF-2)
EQ0Q	S	Quantity 150 of #ES0Q 387GB SFF-2 4k SSD (AIX/Linux)
EQ0R	S	Quantity 150 of #ES0R 387GB SFF-2 4k SSD (IBM i)
EQ0S	S	Quantity 150 of #ES0S 775GB SFF-2 4k SSD (AIX/Linux)
EQ0T	S	Quantity 150 of #ES0T 775GB SFF-2 4k SSD (IBM i)
EQ19	S	Quantity 150 of #ES19 (387GB SSD SFF-2)
EQ1A	S	Quantity 150 of #ES1A (387GB SSD SFF-2)
EQ38	S	Quantity 150 of #1738 (856GB SFF-2 disk)
EQ52	S	Quantity 150 of #1752 (900GB SFF-2 disk)
EQ62	A	Quantity 150 of #ES62 3.86-4.0 TB 7200 rpm 4k LFF-1 Disk
EQ64	A	Quantity 150 of #ES64 7.72-8.0 TB 7200 rpm 4k LFF-1 Disk
EQ78	S	Quantity 150 of #ES78 387GB SFF-2 SSD 5xx
EQ79	S	Quantity 150 of #ES79 387GB SFF-2 SSD 5xx
EQ7E	S	Quantity 150 of #ES7E 775GB SFF-2 SSD 5xx
EQ7F	S	Quantity 150 of #ES7F 775GB SFF-2 SSD 5xx
EQ80	A	Quantity 150 of #ES80 1.9TB SFF-2 SSD 4k
EQ81	A	Quantity 150 of ES81 1.9TB SFF-2 SSD 4k
EQ85	S	Quantity 150 of #ES85 387GB SFF-2 SSD 4k
EQ86	S	Quantity 150 of #ES86 387GB SFF-2 SSD 4k
EQ8C	S	Quantity 150 of #ES8C 775GB SFF-2 SSD 4k
EQ8D	S	Quantity 150 of #ES8D 775GB SFF-2 SSD 4k
EQ8F	S	Quantity 150 of #ES8F 1.55TB SFF-2 SSD 4k
EQ8G	S	Quantity 150 of #ES8G 1.55TB SFF-2 SSD 4k
EQ8Y	S	Quantity 150 of #ES8Y 931GB SFF-2 SSD 4k
EQ8Z	A	Quantity 150 of ES8Z 931GB SFF-2 SSD 4k
EQ96	S	Quantity 150 of ES96 1.86TB SFF-2 SSD 4k
EQ97	S	Quantity 150 of ES97 1.86TB SFF-2 SSD 4k
EQD2	S	Quantity 150 of #ESD2 (1.1TB 10k SFF-2)
EQD3	A	Quantity 150 of #ESD3 (1.2TB 10k SFF-2)
EQDN	S	Quantity 150 of #ESDN (571GB 15K RPM SAS SFF-2 for IBM i)
EQDP	S	Quantity 150 of #ESDP (600GB 15K RPM SAS SFF-2 for AIX/LINUX)
EQE7	S	Quantity 150 of #ESE7 3.72TB SFF-2 SSD 4k
EQE8	S	Quantity 150 of ESE8 3.72TB SFF-2 SSD 4k
EQEU	A	Quantity 150 of #ESEU (571GB 10k SFF-2)
EQEV	A	Quantity 150 of #ESEV (600GB 10k SFF-2)
EQEY	A	Quantity 150 of #ESEY (283 GB SFF-2)
EQEZ	S	Quantity 150 of #ESEZ (300GB SFF-2)
EQF2	A	Quantity 150 of #ESF2 (1.1TB 10k SFF-2)
EQF3	A	Quantity 150 of #ESF3 (1.2TB 10k SFF-2)
EQFN	S	Quantity 150 of #ESFN (571GB SFF-2)
EQFP	S	Quantity 150 of #ESFP (600GB SFF-2)
EQFS	A	Quantity 150 of #ESFS (1.7TB 10k SFF-2)
EQFT	A	Quantity 150 of #ESFT (1.8TB 10k SFF-2)
EQG5	S	Quantity 150 of #ESG5 (387GB SAS 5xx)
EQG6	S	Quantity 150 of #ESG6 (387GB SAS 5xx)
EQGB	S	Quantity 150 of #ESGB (387GB SAS 4k)
EQGC	S	Quantity 150 of #ESGC (387GB SAS 4k)
EQGF	S	Quantity 150 of #ESGF (775GB SAS 5xx)
EQGG	S	Quantity 150 of #ESGG (775GB SAS 5xx)
EQGK	S	Quantity 150 of #ESGK (775GB SAS 4k)
EQGL	S	Quantity 150 of #ESGL (775GB SAS 4k)
EQGP	S	Quantity 150 of #ESGP (1.55TB SAS 4k)
EQGQ	S	Quantity 150 of #ESGQ (1.55TB SAS 4k)
ER05	S	42U Slim Rack
ER94	S	Quantity 150 of ES94 387GB SAS 4k
ER95	S	Quantity 150 of ES95 387GB SAS 4k
ERF1	S	RFID Tags for Servers, Compute Nodes, Chassis, Racks, and HMCs
ERG0	A	Rear rack extension
ERGV	S	Quantity 150 of ESGV 387GB SSD 4k
ERGZ	S	Quantity 150 of ESGZ 775GB SSD 4k
ERHJ	S	Quantity 150 of #ESHJ 931 GB SSD 4k SFF-2
ERHK	S	Quantity 150 of #ESHK 931 GB SSD 4k SFF-2
ERHL	S	Quantity 150 of #ESHL 1.86 TB SSD 4k SFF-2

ERJM	S	Quantity 150 of #ESHM 1.86 TB SSD 4k SFF-2
ERJ0	A	Quantity 150 of ESJ0 931GB SAS 4k
ERJ1	A	Quantity 150 of ESJ1 931GB SAS 4k
ERJ2	A	Quantity 150 of ESJ2 1.86TB SAS 4k
ERJ3	A	Quantity 150 of ESJ3 1.86TB SAS 4k
ERJ4	A	Quantity 150 of ESJ4 3.72TB SAS 4k
ERJ5	A	Quantity 150 of ESJ5 3.72TB SAS 4k
ERM8	S	Quantity 150 of #ESM8 3.72 TB SSD 4k SFF-2
ERM9	S	Quantity 150 of #ESM9 3.72 TB SSD 4k SFF-2
ERNA	S	Quantity 150 of ESNA 775GB SSD 4k
ERNB	S	Quantity 150 of ESNB 775GB SSD 4k
ERNE	S	Quantity 150 of ESNE 1.55TB SSD 4k
ERNF	S	Quantity 150 of ESNF 1.55TB SSD 4k
ES0C	S	387GB SFF-2 SSD for AIX/Linux with eMLC
ES0D	S	387GB SFF-2 SSD for IBM i with eMLC
ES0G	S	775GB SFF-2 SSD for AIX/Linux
ES0H	S	775GB SFF-2 SSD for IBM i
ES0L	S	387GB SFF-3 SSD for AIX/Linux
ES0M	S	387GB SFF-3 SSD for IBM i
ES0N	S	775GB SFF-3 SSD for AIX/Linux
ES0P	S	775GB SFF-3 SSD for IBM i
ES0Q	S	387GB SFF-2 4K SSD for AIX/Linux
ES0R	S	387GB SFF-2 4k SSD for IBM i
ES0S	S	775GB SFF-2 4k SSD for AIX/Linux
ES0T	S	775GB SFF-2 4k SSD for IBM i
ES0U	S	387GB SFF-3 4k SSD AIX/Linux
ES0V	S	387GB SFF-3 4k SSD for IBM i
ES0W	S	775GB SFF-3 4k SSD for AIX/Linux
ES0X	S	775GB SFF-3 4k SSD for IBM i
ES19	S	387GB SFF-2 SSD for AIX/Linux
ES1A	S	387GB SFF-2 SSD for IBM i
ES62	A	3.86-4.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)
ES64	A	7.72-8.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)
ES78	S	387GB SFF-2 SSD 5xx eMLC4 for AIX/Linux
ES79	S	387GB SFF-2 SSD 5xx eMLC4 for IBM i
ES7E	S	775GB SFF-2 SSD 5xx eMLC4 for AIX/Linux
ES7F	S	775GB SFF-2 SSD 5xx eMLC4 for IBM i
ES7K	S	387GB SFF-3 SSD 5xx eMLC4 for AIX/Linux
ES7L	S	387GB SFF-3 SSD 5xx eMLC4 for IBM i
ES7P	S	775GB SFF-3 SSD 5xx eMLC4 for AIX/Linux
ES7Q	S	775GB SFF-3 SSD 5xx eMLC4 for IBM i
ES80	A	1.9TB Read Intensive SAS 4k SFF-2 SSD for AIX/Linux
ES81	A	1.9TB Read Intensive SAS 4k SFF-2 SSD for IBM i
ES83	S	931GB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
ES84	S	931GB Mainstream SAS 4k SFF-3 SSD for IBM i
ES85	S	387GB SFF-2 SSD 4k eMLC4 for AIX/Linux
ES86	S	387GB SFF-2 SSD 4k eMLC4 for IBM i
ES8C	S	775GB SFF-2 SSD 4k eMLC4 for AIX/Linux
ES8D	S	775GB SFF-2 SSD 4k eMLC4 for IBM i
ES8F	S	1.55TB SFF-2 SSD 4k eMLC4 for AIX/Linux
ES8G	S	1.55TB SFF-2 SSD 4k eMLC4 for IBM i
ES8J	A	1.9TB Read Intensive SAS 4k SFF-3 SSD for AIX/Linux
ES8K	A	1.9TB Read Intensive SAS 4k SFF-3 SSD for IBM i
ES8N	S	387GB SFF-3 SSD 4k eMLC4 for AIX/Linux
ES8P	S	387GB SFF-3 SSD 4k eMLC4 for IBM i
ES8Q	S	775GB SFF-3 SSD 4k eMLC4 for AIX/Linux
ES8R	S	775GB SFF-3 SSD 4k eMLC4 for IBM i
ES8V	S	1.55TB SFF-3 SSD 4k eMLC4 for AIX/Linux
ES8W	S	1.55TB SFF-3 SSD 4k eMLC4 for IBM i
ES8Y	S	931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
ES8Z	S	931GB Mainstream SAS 4k SFF-2 SSD for IBM i
ES90	S	387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ES91	S	387GB Enterprise SAS 4k SFF-3 SSD for IBM i
ES94	S	387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ES95	S	387GB Enterprise SAS 4k SFF-2 SSD for IBM i
ES92	S	1.86TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
ES93	S	1.86TB Mainstream SAS 4k SFF-3 SSD for IBM i
ES96	S	1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
ES97	S	1.86TB Mainstream SAS 4k SFF-2 SSD for IBM i
ESA3	S	PCIe2 1.8GB Cache RAID SAS Adapter Tri-port 6Gb CR
ESB0	A	387GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
ESB2	A	387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux
ESB4	A	775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
ESB6	A	775GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux
ESB8	A	387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ESB9	A	387GB Enterprise SAS 4k SFF-3 SSD for IBM i
ESBA	A	387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESBB	A	387GB Enterprise SAS 4k SFF-2 SSD for IBM i
ESBE	A	775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ESBF	A	775GB Enterprise SAS 4k SFF-3 SSD for IBM i
ESBG	A	775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESBH	A	775GB Enterprise SAS 4k SFF-2 SSD for IBM i
ESBJ	A	1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ESBK	A	1.55TB Enterprise SAS 4k SFF-3 SSD for IBM i
ESBL	A	1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESBM	A	1.55TB Enterprise SAS 4k SFF-2 SSD for IBM i
ESL9	A	ESB9 Load Source Specify (387GB SSD SFF-3)
ESLB	A	ESB9 Load Source Specify (387GB SSD SFF-2)
ESLF	A	ESBF Load Source Specify (775GB SSD SFF-3)
ESLH	A	ESBH Load Source Specify (775GB SSD SFF-2)
ESLK	A	ESBK Load Source Specify (1.55TB SSD SFF-3)
ESC0	A	S&H - No Charge
ESC6	S	S&H-b
ESD2	S	1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)

ESD3	S	1.2TB	10K	RPM	SAS	SFF-2	Disk Drive	(AIX/Linux)
ESD4	S	571GB	10K	RPM	SAS	SFF-3	Disk Drive	(IBM i)
ESD5	A	600GB	10K	RPM	SAS	SFF-3	Disk Drive	(AIX/Linux)
ESD8	S	1.1TB	10K	RPM	SAS	SFF-3	Disk Drive	(IBM i)
ESD9	S	1.2TB	10K	RPM	SAS	SFF-3	Disk Drive	(AIX/Linux)
ESDA	S	283GB	15K	RPM	SAS	SFF-3	Disk Drive	(IBM i)
ESDB	A	300GB	15K	RPM	SAS	SFF-3	Disk Drive	(AIX/Linux)
ESDE	S	571GB	15k	RPM	SAS	SFF-3	Disk Drive	- 528 Block
ESDF	S	600GB	15k	RPM	SAS	SFF-3	Disk Drive	- 5xx Block
ESDN	S	571GB	15K	RPM	SAS	SFF-2	Disk Drive	- 528 Block
ESDP	S	600GB	15K	RPM	SAS	SFF-2	Disk Drive	- 5xx Block
ESDR	S	300GB	10K	RPM	SAS	SFF-3	Disk Drive	(AIX/Linux)
ESDS	S	283GB	10k	RPM	SAS	SFF-3	Disk Drive	(IBM i)
ESDT	S	146GB	15k	RPM	SAS	SFF-3	Disk Drive	(AIX/Linux)
ESDU	S	139GB	15k	RPM	SAS	SFF-3	Disk Drive	(IBM i)
ESDV	S	283GB	15K	RPM	SAS	SFF-3	Disk	5xx Block
ESE1	S	3.72TB	Mainstream	SAS	4k	SFF-3	SSD	for AIX/Linux
ESE2	S	3.72TB	Mainstream	SAS	4k	SFF-3	SSD	for IBM i
ESE7	S	3.72TB	Mainstream	SAS	4k	SFF-2	SSD	for AIX/Linux
ESE8	S	3.72TB	Mainstream	SAS	4k	SFF-2	SSD	for IBM i
ESEU	A	571GB	10K	RPM	SAS	SFF-2	Disk Drive	4K Block - 4224
ESEV	A	600GB	10K	RPM	SAS	SFF-2	Disk Drive	4K Block - 4096
ESEY	S	283GB	15K	RPM	SAS	SFF-2	4K Block	- 4224 Disk Drive
ESEZ	S	300GB	15K	RPM	SAS	SFF-2	4K Block	- 4096 Disk Drive
ESF2	A	1.1TB	10K	RPM	SAS	SFF-2	Disk Drive	4K Block - 4224
ESF3	A	1.2TB	10K	RPM	SAS	SFF-2	Disk Drive	4K Block - 4096
ESF4	A	571GB	10K	RPM	SAS	SFF-3	Disk Drive	4K Block - 4224
ESF5	A	600GB	10K	RPM	SAS	SFF-3	Disk Drive	4K Block - 4096
ESF8	A	1.1TB	10K	RPM	SAS	SFF-3	Disk Drive	4K Block - 4224
ESF9	A	1.2TB	10K	RPM	SAS	SFF-3	Disk Drive	4K Block - 4096
ESFA	S	283GB	15K	RPM	SAS	SFF-3	4K Block	- 4224 Disk Drive
ESFB	S	300GB	15K	RPM	SAS	SFF-3	4K Block	- 4096 Disk Drive
ESFE	S	571GB	15K	RPM	SAS	SFF-3	4K Block	- 4224 Disk Drive
ESFF	S	600GB	15K	RPM	SAS	SFF-3	4K Block	- 4096 Disk Drive
ESFG	S	283GB	15K	RPM	SAS	SFF-3	Disk	4K Block
ESFN	S	571GB	15K	RPM	SAS	SFF-2	4K Block	- 4224 Disk Drive
ESFP	S	600GB	15K	RPM	SAS	SFF-2	4K Block	- 4096 Disk Drive
ESFS	A	1.7TB	10K	RPM	SAS	SFF-2	Disk Drive	4K Block - 4224
ESFT	A	1.8TB	10K	RPM	SAS	SFF-2	Disk Drive	4K Block - 4096
ESFU	A	1.7TB	10K	RPM	SAS	SFF-3	Disk Drive	4K Block - 4224
ESFV	A	1.8TB	10K	RPM	SAS	SFF-3	Disk Drive	4K Block - 4096
ESG5	S	387GB	Enterprise	SAS	5xx	SFF-2	SSD	for AIX/Linux
ESG6	S	387GB	Enterprise	SAS	5xx	SFF-2	SSD	for IBM i
ESG9	S	387GB	Enterprise	SAS	5xx	SFF-3	SSD	for AIX/Linux
ESGA	S	387GB	Enterprise	SAS	5xx	SFF-3	SSD	for IBM i
ESGB	S	387GB	Enterprise	SAS	4k	SFF-2	SSD	for AIX/Linux
ESGC	S	387GB	Enterprise	SAS	4k	SFF-2	SSD	for IBM i
ESGD	S	387GB	Enterprise	SAS	4k	SFF-3	SSD	for AIX/Linux
ESGE	S	387GB	Enterprise	SAS	4k	SFF-3	SSD	for IBM i
ESGF	S	775GB	Enterprise	SAS	5xx	SFF-2	SSD	for AIX/Linux
ESGG	S	775GB	Enterprise	SAS	5xx	SFF-2	SSD	for IBM i
ESGH	S	775GB	Enterprise	SAS	5xx	SFF-3	SSD	for AIX/Linux
ESGJ	S	775GB	Enterprise	SAS	5xx	SFF-3	SSD	for IBM i
ESGK	S	775GB	Enterprise	SAS	4k	SFF-2	SSD	for AIX/Linux
ESGL	S	775GB	Enterprise	SAS	4k	SFF-2	SSD	for IBM i
ESGM	S	775GB	Enterprise	SAS	4k	SFF-3	SSD	for AIX/Linux
ESGN	S	775GB	Enterprise	SAS	4k	SFF-3	SSD	for IBM i
ESGP	S	1.55TB	Enterprise	SAS	4k	SFF-2	SSD	for AIX/Linux
ESGQ	S	1.55TB	Enterprise	SAS	4k	SFF-2	SSD	for IBM i
ESGR	S	1.55TB	Enterprise	SAS	4k	SFF-3	SSD	for AIX/Linux
ESGS	S	1.55TB	Enterprise	SAS	4k	SFF-3	SSD	for IBM i
ESGT	S	387GB	Enterprise	SAS	5xx	SFF-3	SSD	for AIX/Linux
ESGV	S	387GB	Enterprise	SAS	5xx	SFF-2	SSD	for AIX/Linux
ESGX	S	775GB	Enterprise	SAS	5xx	SFF-3	SSD	for AIX/Linux
ESGZ	S	775GB	Enterprise	SAS	5xx	SFF-2	SSD	for AIX/Linux
ESHJ	S	931 GB	Mainstream	SAS	4k	SFF-2	SSD	for AIX/Linux
ESHK	S	931 GB	Mainstream	SAS	4k	SFF-2	SSD	for IBM i
ESHL	S	1.86 TB	Mainstream	SAS	4k	SFF-2	SSD	for AIX/Linux
ESHM	S	1.86 TB	Mainstream	SAS	4k	SFF-2	SSD	for IBM i
ESHS	S	931 GB	Mainstream	SAS	4k	SFF-3	SSD	for AIX/Linux
ESHT	S	931 GB	Mainstream	SAS	4k	SFF-3	SSD	for IBM i
ESHU	S	1.86 TB	Mainstream	SAS	4k	SFF-3	SSD	for AIX/Linux
ESHV	S	1.86 TB	Mainstream	SAS	4k	SFF-3	SSD	for IBM i
ESJ0	A	931GB	Mainstream	SAS	4k	SFF-2	SSD	for AIX/Linux
ESJ1	A	931GB	Mainstream	SAS	4k	SFF-2	SSD	for IBM i
ESJ2	A	1.86TB	Mainstream	SAS	4k	SFF-2	SSD	for AIX/Linux
ESJ3	A	1.86TB	Mainstream	SAS	4k	SFF-2	SSD	for IBM i
ESJ4	A	3.72TB	Mainstream	SAS	4k	SFF-2	SSD	for AIX/Linux
ESJ5	A	3.72TB	Mainstream	SAS	4k	SFF-2	SSD	for IBM i
ESJ8	A	931GB	Mainstream	SAS	4k	SFF-3	SSD	for AIX/Linux
ESJ9	A	931GB	Mainstream	SAS	4k	SFF-3	SSD	for IBM i
ESJA	A	1.86TB	Mainstream	SAS	4k	SFF-3	SSD	for AIX/Linux
ESJB	A	1.86TB	Mainstream	SAS	4k	SFF-3	SSD	for IBM i
ESJC	A	3.72TB	Mainstream	SAS	4k	SFF-3	SSD	for AIX/Linux
ESJD	A	3.72TB	Mainstream	SAS	4k	SFF-3	SSD	for IBM i
ESLM	A	ESBM Load Source Specify (1.55TB SSD SFF-2)						
ESLA	A	Specify AC Power Supply for EXP12SX/EXP24SX Storage Enclosure						
ESLL	A	EXP12SX SAS Storage Enclosure						
ESLS	A	EXP24SX SAS Storage Enclosure						
ESM8	S	3.72 TB	Mainstream	SAS	4k	SFF-2	SSD	for AIX/Linux
ESM9	S	3.72 TB	Mainstream	SAS	4k	SFF-2	SSD	for IBM i
ESMQ	S	3.72 TB	Mainstream	SAS	4k	SFF-3	SSD	for AIX/Linux
ESMR	S	3.72 TB	Mainstream	SAS	4k	SFF-3	SSD	for IBM i
ESNA	S	775GB	Enterprise	SAS	4k	SFF-2	SSD	for AIX/Linux
ESNB	S	775GB	Enterprise	SAS	4k	SFF-2	SSD	for IBM i

ESNC	S	775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ESND	S	775GB Enterprise SAS 4k SFF-3 SSD for IBM i
ESNE	S	1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESNF	S	1.55TB Enterprise SAS 4k SFF-2 SSD for IBM i
ESNG	S	1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ESNH	S	1.55TB Enterprise SAS 4k SFF-3 SSD for IBM i
ESNJ	A	283GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (IBM i)
ESNK	A	300GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (AIX/Linux)
ESNL	A	283GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (IBM i)
ESNM	A	300GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/Linux)
ESNN	A	571GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (IBM i)
ESNP	A	600GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (AIX/Linux)
ESNQ	A	571GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (IBM i)
ESNR	A	600GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/Linux)
ESPL	A	Quantity 150 of #ESNL (283GB 15k SFF-2)
ESPM	A	Quantity 150 of #ESNM (300GB 15k SFF-2)
ESPO	A	Quantity 150 of #ESNQ (571GB 15k SFF-2)
ESPR	A	Quantity 150 of #ESNR (600GB 15k SFF-2)
ESQ2	A	Quantity 150 of ESB2 387GB SAS 4k
ESQ6	A	Quantity 150 of ESB6 775GB SAS 4k
ESQA	A	Quantity 150 of ESBA 387GB SAS 4k
ESQB	A	Quantity 150 of ESBB 387GB SAS 4k
ESQG	A	Quantity 150 of ESBG 775GB SAS 4k
ESQH	A	Quantity 150 of ESBH 775GB SAS 4k
ESQL	A	Quantity 150 of ESBL 1.55TB SAS 4k
ESQM	A	Quantity 150 of ESBM 1.55TB SAS 4k
EU01	A	1TB Removable Disk Drive Cartridge
EU04	S	RDX USB External Docking Station for Removable Disk Cartridge
EU08	S	RDX 320 GB Removable Disk Drive
EU15	S	1.5TB Removable Disk Drive Cartridge
EU19	A	Cable Ties & Labels

EU29 |A| Order Placed Indicator

EU2B	S	BLU Acceleration Solution Edition Indicator
EU2C	S	Express Edition 4 core (IBM i)
EU2D	S	Express Edition 6-core (IBM i)
EU2T	A	2TB Removable Disk Drive Cartridge (RDX)
EU41	A	ESJ1 Load Source Specify (931GB SSD SFF-2)
EU43	A	ESJ3 Load Source Specify (1.86TB SSD SFF-2)
EU45	A	ESJ5 Load Source Specify (3.72TB SSD SFF-2)
EU49	A	ESJ9 Load Source Specify (931GB SSD SFF-3)
EU4B	A	ESJB Load Source Specify (1.86TB SSD SFF-3)
EU4D	A	ESJD Load Source Specify (3.72TB SSD SFF-3)
EUA3	S	RDX USB Top Mount Docking Station for Removable Cartridge

EUA4 |A| RDX USB External Docking Station

EUC0	S	Solution Specify - Reserved
EUC1	S	Solution Specify - Reserved
EUC2	S	Solution Specify - Reserved
EUC3	S	Solution Specify - Reserved
EUC6	A	Core Use HW Feature
EUC7	A	Core Use HW Feature 10X

## Feature descriptions

Note: Not all of the following features are available in all countries. Check with your country representative for specific feature availability. The following is a list of all feature codes in numeric order for the IBM Power Systems 8286 machine type.

Attributes, as defined in the following feature descriptions, state the interaction of requirements among features.

Minimums and maximums are the absolute limits for a single feature without regard to interaction with other features. The maximum valid quantity for MES orders may be different than for initial orders. The maximums listed below refer to the largest quantity of these two possibilities.

The order type defines if a feature is orderable only on initial orders, only on MES orders, on both initial and MES orders, or if a feature is supported on a model due to a model conversion. Supported features cannot be ordered on the converted model, only left on or removed from the converted model.

(#0004) - EMEA Bulk MES Indicator

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#0010) - One CSC Billing Unit

One Billing Unit used by the Customer Solution Center.

- Attributes provided: One CSC Billing Unit
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#0011) - Ten CSC Billing Units

Ten Billing Units used by the Customer Solutions Center.

- Attributes provided: Ten CSC Billing Units
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 100 (Initial order maximum: 100)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#0040) - Mirrored System Disk Level, Specify Code

This code indicates the level of disk protection desired and helps ensure that adequate hardware is in the final configuration.

- Attributes provided: Device-level mirrored protection
- Attributes required: Minimum of two (2) disk units
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0041) - Device Parity Protection-All, Specify Code

This code indicates the level of disk protection desired and helps ensure that adequate hardware is in the final configuration.

- Attributes provided: RAID Data Protection
- Attributes required: RAID-capable disk unit controller
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0043) - Mirrored System Bus Level, Specify Code

This code indicates the level of disk protection desired and helps ensure that adequate hardware is in the final configuration.

For new systems: The marketing configurator will error on an order if sufficient disk units, and expansion units are not included on the order to support bus-level mirrored protection for all disk units. New, preloaded systems will be shipped with bus-level mirroring enabled.

- Attributes provided: Bus-level mirrored protection
- Attributes required: Minimum of 2 (two) disk units
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0047) - Device Parity RAID-6 All, Specify Code

This code indicates the level of disk protection desired and helps ensure that adequate hardware is in the final configuration.

- Attributes provided: RAID-6 Data Protection
- Attributes required: RAID-6 capable disk unit controller
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0205) - RISC-to-RISC Data Migration

(No longer available as of May 31, 2019)

#0205 is used on initial orders to designate that the new server should only receive a partial load of IBM i in IBM Mfg.

When #0205 is on the order, manufacturing will only load SLIC and up through QSYS of IBM i. Ensure that enough storage is ordered to contain the additional OS code that will be loaded following installation of the system at the Client location. Specify code #0205 is mutually exclusive with #5000, SW Preload Required

The migration process requires that the installed model be at the same version and release level of IBM i and other licensed programs as the new server.

More information, and an updated IBM i Upgrade and Data Migration Road Map (RISC-RISC) are available at

<http://publib.boulder.ibm.com/series/>

- Attributes provided: Partial load of IBM i in IBM Mfg.
- Attributes required: #2145 - Primary OS - IBM i and partition specify code #0267 and RISC to RISC Data Migration from Clients existing system
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#0265) - AIX Partition Specify

This feature indicates customers intend to create a partition on the system that will use the AIX operating system. This feature should be included once for each intended AIX partition. This feature is an indicator and does not deliver parts, software, or services.

- Attributes provided: None
- Attributes required: Customers intend to create a partition on the system that will run the AIX operating system.
- Minimum required: 0
- Maximum allowed: 240 (Initial order maximum: 240)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0266) - Linux Partition Specify

This feature indicates customers intend to create a partition on the system that will use the Linux operating system. This feature should be included once for each intended Linux partition. This feature is an indicator and does not deliver parts, software, or services.

- Attributes provided: None
- Attributes required: Customers intend to create a partition on the system that will run the Linux operating system.
- Minimum required: 0
- Maximum allowed: 240 (Initial order maximum: 240)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0267) - IBM i Operating System Partition Specify

This feature indicates customers intend to create a partition on the system that will use the IBM i operating system. This feature should be included once for each intended IBM i partition. This feature is an indicator and does not deliver parts, software, or services.

- Attributes provided: None
- Attributes required: Customers intend to create a partition on the system that will run the IBM i operating system.
- Minimum required: 0
- Maximum allowed: 240 (Initial order maximum: 240)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0296) - Specify Custom Data Protection

#0296 specifies that a system has multiple IBM i partitions and that data protection schemes should be considered separately for each partition instead of only for an overall system level. Each partition's data protection scheme can be different or the same.

- Attributes provided: N/A
- Attributes required: N/A
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0308) - Mirrored Level System Specify Code

This specify code indicates the level of disk protection desired and helps ensure that adequate hardware is in the final configuration.

For new systems, the marketing configurator will show an error if sufficient disk units and disk controllers are not included on the order to support IOA-level mirroring protection. #0308 causes all disk units to be placed into configurations capable of IOA-level mirroring. Each disk unit and its mirrored pair must be on a different disk controller.

Note that the load source disk unit in a new, preloaded system will be device-level mirrored (same protection as provided with feature #0040). This means that the load source is controlled by the first disk unit controller on the first system bus, and will be mirrored with a like disk unit that is also attached to the same first disk controller on the first system bus.

For upgrade orders, #0308 will cause the marketing configurator to show an error if sufficient disk units and disk controllers are not available to provide the capability to enable IOA-level mirrored protection for all DASD.

It is the client's responsibility to start mirroring on their system.

- Attributes provided: IOA level system mirroring
- Attributes required: A minimum of two disk controllers and an even number of disk units (with a minimum of four disk units on a system).
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0347) - RAID Hot Spare Specify

#0347 is a specify code that indicates to IBM configuration tools and to IBM Manufacturing that RAID-5 or RAID-6 disk arrays should be further protected using the IBM i function of RAID hot spare. If specified, IBM will ship a configuration which has at least one stand-by disk drive for each disk controller in the system or designated partition. The customer may alter the hot spare configuration selecting different options once the system is installed.

- Attributes provided: N/A
- Attributes required: Existence of #0041 or #0047
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0348) - V.24/EIA232 6.1m (20-Ft) PCI Cable

This feature provides a 20-foot WAN PCI cable that supports a V.24 or a EIA232 electrical connection interface.

- Attributes provided: N/A
- Attributes required: N/A
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0353) - V.35 6.1m (20-Ft) PCI Cable

This feature provides a 20-foot WAN PCI cable that supports a V.35 electrical connection interface.

- Attributes provided: N/A
- Attributes required: N/A
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0359) - X.21 6.1m (20-Ft) PCI Cable

This feature provides a 20-foot WAN PCI cable that supports a X.21 electrical connection interface.

- Attributes provided: N/A
- Attributes required: N/A
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0368) - V.24/EIA232 20-Ft. PCI Cable with M3

(No longer available as of December 31, 2020)

This feature provides a 20-foot WAN PCI cable that supports a V.24 or an EIA232 electrical interface with M3 attachment screws. For Germany.

- Attributes provided: Cable
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0444) - CBU Specify

(No longer available as of May 31, 2019)

This specify code indicates this system has been properly registered as a Capacity BackUp system and has, through that registration been authorized to temporarily receive IBM i Operating System License Entitlements and either 5250 Processor Enablement entitlements or IBM i user entitlements, from a primary system under the conditions specified at the time the system was registered. This feature is an indicator only, authorization to use this system as a backup is obtained only by registering the system with IBM on the CBU website at



- Attributes provided: Indicates the system has been registered for use as a CBU system for IBM i License entitlement purposes.
- Attributes required: # 2145 Primary OS - IBM i or #0267 IBM i Operating System Partition Specify
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#0456) - Customer Specified Placement

(No longer available as of May 31, 2019)

1. Requests that IBM deliver the system to the customer according to the slot in drawer hardware placement defined by the account team.
2. Eliminates the need to have these parts relocated in the customers environment as may happen if the order is placed without this feature code.
3. Client placement specifications are collected using the System Planning Tool (SPT) and processed through the marketing configurator. (Use of the SPT is not required).
4. Requires account team to submit the output of the marketing configurator into IBM manufacturing via the CSP website <http://www.ibm.com/eserver/power/csp> (US Business Partners and Distributors can bypass this step.)
5. Requires account team to assure that the marketing configurator output submitted reflects the actual order placed.

- Attributes provided: I/O component placement
- Attributes required: Marketing Configurator output submitted to the CSP website. (US Business Partners and Distributors can bypass this step.)
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#0465) - SSD Placement Indicator - 5887, EL1S

(No longer available as of May 31, 2019)

This is an IBM internal automatic generated SSD specify indicator for placement and it is not selectable.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#0551) - 19 inch, 1.8 meter high rack

Provides a 19 inch, 1.8 meter high rack with 36 EIA units of total space for installing rack mounted CECs and/or expansion units. Every 0551 rack is equipped with a standard rear door and (2x) side covers. #0551 racks, however, do not come equipped with a front door or trim kit. One of the following front door or trim kit features is therefore required with every #0551:

- #6068 - Optional Front Door for 1.8m Rack
- #6263 - 1.8m Rack Trim Kit
- #6248 - 1.8m Rack Acoustic Front and Rear Doors

The following features are also orderable on the #0551:

- #0599 - Rack Filler Panel Kit
- #6580 - Optional Rack Security Kit
- #6586 - Modem Tray

The #0551 can support up to eight PDUs, four mounted vertically and four mounted horizontally. Each PDU mounted horizontally takes up 1 EIA of rack space. The following PDUs are supported:

- #7188 - Power Distribution Unit (12, C-13 sockets)
- #7109 - Power Distribution Unit (12, C-13 sockets)
- #7196 - Power Distribution Unit (6, C-19 sockets)
- #EPTJ - Power Distribution Unit (9, C-19 sockets)
- #EPTL - Power Distribution Unit (9, C-19 sockets)
- #EPTN-Power Distribution Unit (12, C-13 sockets)
- #EPTQ-Power Distribution Unit (12, C-13 sockets)
- #EPAA - HVDC Power Distribution Unit (6, Rong Feng sockets)
- Attributes provided: 19 inch, 1.8M, 36 EIA Rack with standard rear door and (2x) standard side covers.
- Attributes required: #6068 or #6248 or #6263.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#0553) - 19 inch, 2.0 meter high rack

Provides a 19-inch, 2.0 meter high rack with 42 EIA units of total space for installing rack mounted CECs and/or expansion units. Every 0553 rack is equipped with a standard rear door and (2x) side covers. #0553 racks, however, do not come equipped with a front door or trim kit. One of the following front door or trim kit features is therefore required with every #0553:

- #6069 - Optional Front Door for 2.0m Rack
- #6247 - 2.0m Rack Trim Kit (w/d 5/28/2010)
- #6272 - 2.0m Rack Trim Kit
- #6249 - 2.0m Rack Front and Rear Acoustic Doors
- #EC08 - Slim Front Acoustic Door

The following optional features on the #0553 rack:

- #EC07-Slim Rear Acoustic Door
- #6238\_ High-End Appearance Side Covers (Note: #6238 is limited to high-end servers).
- #ERG0 - Rear rack extension
- #6580 - Rack Security Kit
- #0599 - Rack Filler Panel Kit
- #6586 - Modem Tray

The #0553 can support up to nine power distribution units (PDU), four mounted vertically and five mounted horizontally. Each PDU mounted horizontally takes up 1 EIA of rack space. The following PDUs are supported:

- #7188 - Power Distribution Unit (12, C13 sockets)
- #7109 - Power Distribution Unit (12, C13 sockets)
- #7196 - Power Distribution Unit (6, C19 sockets)
- #EPTJ - Power Distribution Unit (9, C19 sockets)
- #EPTL - Power Distribution Unit (9, C19 sockets)
- #EPTN-Power Distribution Unit (12, C13 sockets)
- #EPTQ-Power Distribution Unit (12, C13 sockets)
- #EPAA - HVDC Power Distribution Unit (6, Rong Feng sockets)

The manufacturing practice and recommended configuration of the rack is:

- Reserve 2U Rack Space at Bottom of Rack
- Reserve 1U rack horizontal space - 1 EIA. Supports horizontally mounted PDU if needed.
- Attributes provided: 19 inch, 2.0M, 42 EIA Rack, standard rear door and standard side covers.
- Attributes required: #6069 or #6247 or #6272 or #6249 or #EC08.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#0567) - IBM i 7.1 Specify Code

(No longer available as of October 19, 2018)

This feature is used to indicate the correct level of code when IBM i is specified.

- Attributes provided: IBM i 7.1 indicator
- Attributes required: IBM i operating system
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0599) - Rack Filler Panel Kit

Provides rack filler panels for IBM 19-inch racks. The #0599 provides three 1-EIA -unit filler panels and one 3-EIA-unit filler panel. These are snap-on panels.

- Attributes provided: Snap on rack filler panels
- Attributes required: 19-inch rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0712) - Power Cloud Integrated Solution Indicator For Order Routing

(No longer available as of May 31, 2019)

A manufacturing code used to identify when a Machine Type/Model is part of a Power Cloud solution or configuration.

- Attributes provided: Manufacturing Routing Code
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#0719) - Load Source Not in CEC

This specify feature indicates to the IBM Marketing configurator tools and IBM manufacturing that disk drives will not be placed in the system unit, but will be placed in I/O drawers or in external SAN attached disk.

- Attributes provided: System unit(s) are shipped with no disk units placed inside.
- Attributes required: Alternate load source specified
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0728) - Specify #5887 or #EL1S Load Source placement

(No longer available as of December 31, 2020)

#0728 Specifies that Load/Source DASD are placed in an EXP24S SFF Gen2-bay Drawer.

- Attributes provided: External load source placement specify
- Attributes required: DASD Slot 1 open in drawer
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#0837) - SAN Load Source Specify

Indicates that a SAN drive is being used as the Load Source for the operating system.

- Attributes provided: SAN load source placement specify
- Attributes required: Fiber Channel adapter
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0871) #1947 Load Source Specify (139GB 15k RPM SAS SFF-2 Disk Drive for IBM i)

This specify code indicates that a #1947 Disk Unit is being used as the Load Source.

- Attributes provided: None
- Attributes required: Feature #1947
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0872) - #1948 Load Source Specify (283GB 15k RPM SAS SFF-2 Disk)

This specify code indicates that a #1948 Disk Unit is being used as the Load Source.

- Attributes provided: None
- Attributes required: Feature #1948
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0874) - #1956 Load Source Specify (283GB 10k RPM SAS SFF-2 Disk)

This specify code indicates that a #1956 Disk Unit is being used as the Load Source.

- Attributes provided: None
- Attributes required: Feature #1956
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0875) - #1962 Load Source Specify (571GB 10k RPM SAS SFF-2 Disk)

This specify code indicates that a #1962 Disk Unit is being used as the Load Source.

- Attributes provided: None
- Attributes required: Feature #1962
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0880) - #1738 Load Source Specify (856GB 10k RPM SAS SFF-2 Disk)

(No Longer Available as of January 20, 2017)

This specify code indicates that a #1738 Disk Unit is being used as the Load Source.

- Attributes provided: None
- Attributes required: Feature #1738
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#0894) - #ES0D Load Source Specify (387GB SFF-2 SSD for IBM i)

This specify code indicates that a #ES0D Solid State Drive is being used as the Load Source.

- Attributes provided: None
- Attributes required: Feature #ES0D
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#0911) - #ESD2 Load Source Specify (1.1TB 10k SFF-2)

Indicates that a #ESD2 (1.1 TB 10k rpm SFF-2 disk drive) is being used as the Load Source.

- Attributes provided: None
- Attributes required: Feature #ESD2
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1010) - Modem Cable - Austria

(No longer available as of December 31, 2020)

Austria modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1011) - Modem Cable - Belgium

(No longer available as of December 31, 2020)

Belgium modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1012) - Modem Cable - Africa

(No longer available as of December 31, 2020)

Africa modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1014) - Modem Cable - Italy

(No longer available as of December 31, 2020)

Italy modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1015) - Modem Cable - France

(No longer available as of December 31, 2020)

France modem cable use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1016) - Modem Cable - Germany

(No longer available as of November 12, 2019)

Germany modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1017) - Modem Cable - UK

(No longer available as of December 31, 2020)

United Kingdom modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1018) - Modem Cable - Iceland/Sweden

(No longer available as of December 31, 2020)

Iceland/Sweden modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1021) - Modem Cable - Fin/Nor

(No longer available as of December 31, 2020)

Finland/Norway modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1022) - Modem Cable - Netherlands

(No longer available as of December 31, 2020)

Netherlands modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1023) - Modem Cable - Swiss

(No longer available as of December 31, 2020)

Switzerland modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1024) - Modem Cable - Denmark

(No longer available as of December 31, 2020)

Denmark modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1025) - Modem Cable - US/Canada and General Use

(No longer available as of December 31, 2020)

Modem cable, use with #2893, 6808 and 6833 or similar modem adapters. Maximum of two per adapter. Select this cable for use with your modem if there is not another cable feature that is identified as specific to your country.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1107) - USB 500 GB Removable Disk Drive

Provides an RDX disk drive in a rugged cartridge to be used in an RDX Internal and External docking station such as the #1103, #1104, #1123, #EU03, #EU04, #EU23 or #EU07. 500 GB is uncompressed. With typical 2X compression, capacity would be 1000 GB. Compression/ decompression is provided by the operating system, not the drive itself. Feature 1107 is not entitled under the IBM Maintenance Agreement, if one is purchased.

- Attributes provided: 500 GB RDX rugged disk/cartridge
- Attributes required: None.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
 Note: VIOS supported. Refer to Software requirements for specific code levels supported.  
 Note: IBM i supports the #1107 cartridge.

## (#1140) - Custom Service Specify, Rochester Minn, USA

Having #1140 on the order, will cause the order to be routed to Rochester and the machine to be internally routed to the CSC build area in building 114 (Rochester).

- Attributes provided: Customization
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#1738) - 856GB 10k RPM SAS SFF-2 Disk Drive (IBM i)

(No Longer Available as of January 20, 2017)

856GB SFF 10k rpm SAS drive in gen 2 SFF carrier. Supported in SFF SAS bays such as provided in #5887 EXP24S Gen2 I/O drawer. Disk is formatted for 528 byte sectors.

The drive can be reformatted to 512 byte sectors and used by AIX/ Linux/VIOS

Limitation: Cannot be used in #5802/5803 I/O drawers or in CEC bays due to physical difference in Gen1 and Gen2 carriers.

- Attributes provided: 856GB of Disk Storage mounted in a Gen2 carrier
- Attributes required: One SFF SAS disk drive bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#1752) - 900GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)

(No Longer Available as of January 20, 2017)

900GB SFF 10k rpm SAS drive in Gen-2 carrier. Supported in SFF SAS bays such as provided in #5887 EXP24S Gen2 I/O drawer. Disk is formatted for 512 byte sectors.

The drive can be reformatted to 528 byte sectors and then used by IBM i/AIX/Linux/VIOS

Limitation: Cannot be used in #5802/5803 I/O drawers or in CEC SFF bays due to physical difference in Gen1 and Gen2 carriers.

- Attributes provided: 900GB of Disk Storage mounted in a Gen2 carrier
- Attributes required: one SFF (SFF-2) SAS GEN2 drive bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#1817) - Quantity 150 of #1962

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #1962 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.



- Attributes provided: see feature #1962
- Attributes required: see feature #1962
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1818) - Quantity 150 of #1964

This feature ships a quantity of 150 #1964 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: see feature #1964
- Attributes required: see feature #1964
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1844) - Quantity 150 of #1956

(No Longer Available as of July 8, 2016)

This feature ships a quantity of 150 #1956 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: see feature #1956
- Attributes required: see feature #1956
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1866) - Quantity 150 of #1917

(No Longer Available as of July 8, 2016)

This feature ships a quantity of 150 #1917 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: see feature #1917
- Attributes required: see feature #1917
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1868) - Quantity 150 of #1947

(No Longer Available as of July 8, 2016)

This feature ships a quantity of 150 #1947 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: see feature #1947
- Attributes required: see feature #1947
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#1869) - Quantity 150 of #1925

(No Longer Available as of July 8, 2016)

This feature ships a quantity of 150 #1925 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: see feature #1925
- Attributes required: see feature #1925
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1917) - 146GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)

(No Longer Available as of July 8, 2016)

146GB SFF 15k RPM SAS SFF-2 Disk Drive (AIX/Linux) mounted in Gen-2 carrier and supported in SFF SAS bays such as provided in #5887 EXP24S Gen2 I/O drawer. Disk is formatted for 512 byte sectors.

Limitation: Cannot be used in #5802/5803 I/O drawers due to physical difference in Gen1 and Gen2 carriers.

- Attributes provided: 146GB of Disk Storage mounted in a Gen-2 carrier
- Attributes required: One SFF SAS disk drive bay slot
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1925) - 300GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)

(No Longer Available as of July 8, 2016)

300GB SFF 10k RPM SAS SFF-2 Disk Drive (AIX/Linux). Supported in SFF SAS bays such as provided in #5887 EXP24S Gen2 I/O drawer. Disk is formatted for 512 byte sectors.

Limitation: Cannot be used in #5802/5803 I/O drawers or in CEC due to physical difference in Gen1 and Gen2 carriers.

- Attributes provided: 300GB SFF disk drive mounted in a carrier
- Attributes required: One SFF Gen-2 bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1927) - Quantity 150 of #1948

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #1948 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: see feature #1948
- Attributes required: see feature #1948
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1929) - Quantity 150 of #1953

This feature ships a quantity of 150 #1953 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: see feature #1953
- Attributes required: see feature #1953
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1947) - 139GB 15k RPM SAS SFF-2 Disk Drive (IBM i)

(No Longer Available as of July 8, 2016)

139GB SFF 15k RPM SAS SFF-2 Disk Drive (IBM i) Supported in SFF SAS bays such as provided in #5887 EXP24S Gen2 I/O drawer. Disk is formatted for 528 byte sectors.

Limitation: Cannot be used in #5802/5803 I/O drawers or in CEC due to physical difference in Gen1 and Gen2 carriers.

- Attributes provided: 139GB SAS disk drive
- Attributes required: One disk bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1948) - 283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)

(No longer available as of December 31, 2020)

283 GB SFF 15k RPM SAS disk drive mounted in a Gen-2 carrier and supported in SFF SAS bay such as provided in the #5887 EXP24S I/O drawer. Disk is formatted for 528 sectors as shipped from IBM Manufacturing. CCIN is 19B1.

Limitations: physical difference in Gen1 and Gen2 carriers prevent usage in SFF-1 bays such as used in the #5802/5803 I/O drawer.

- Attributes provided: 283GB of SFF (2.5-inch) SAS disk storage mounted in Gen-2 carrier.
- Attributes required: one SFF-2 drive bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1953) - 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)

300 GB SFF 15k RPM SAS disk drive mounted in a Gen-2 carrier and supported in SFF SAS bay such as used in the #5887 EXP24S I/O drawer or #ESLS EXP24SX I/O drawer. Disk can be formatted for either 512 bytes or 528 byte sectors and is thus called having 5xx drive sectors. 528 byte sectors provide additional protection. IBM Manufacturing will ship pre-formatted with 528 or with 512 byte sectors. Selection of the formatting is selected by IBM Manufacturing based on manufacturing rules, but the client may change at their location. In the EPX24SX IBM Manufacturing will ship using 528 byte sectors. Capacity is 300 GB with 512 byte formatting and is 283 GB with 528 byte sector. CCIN is 19B1.

Limitations: physical difference in carriers prevent this drive from being used in SFF-1 bays such as used in the #5802/5803 I/O drawer or in SFF-3 bays such as used in POWER8 system units.

- Attributes provided: 300 GB/283 GB of SFF (2.5-inch) SAS disk storage mounted in Gen-2 carrier.
- Attributes required: one SFF-2 drive bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1956) - 283GB 10k RPM SAS SFF-2 Disk Drive (IBM i)

(No Longer Available as of July 8, 2016)

283GB SFF 10k RPM SAS SFF-2 Disk Drive (AIX/Linux). Supported in SFF SAS bays such as provided in #5887 EXP24S Gen2 I/O drawer. Disk is formatted for 528 byte sectors.

Limitation: Cannot be used in #5802/5803 I/O drawers or CEC due to physical difference in Gen1 and Gen2 carriers.

- Attributes provided: 283GB SAS disk drive
- Attributes required: one drive bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1962) - 571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)

(No longer available as of December 31, 2020)

571GB SFF 10k rpm SAS drive in gen 1 SFF carrier. Supported in SFF SAS bays such as provided in #5887 EXP24S Gen2 I/O drawer. Disk is formatted for 528 byte sectors.

Limitation: Cannot be used in #5802/5803 I/O drawers or in CEC bays due to physical difference in Gen1 and Gen2 carriers.

- Attributes provided: 571GB of Disk Storage mounted in a Gen2 carrier
- Attributes required: one SFF SAS disk drive bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#1964) - 600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)

600 GB SFF 10k RPM SAS disk drive mounted in a Gen-2 carrier and supported in SFF SAS bay such as used in the #5887 EXP24S I/O drawer or #ESLS EXP24SX I/O drawer. Disk can be formatted for either 512 bytes or 528 byte sectors and is thus called having 5xx drive sectors. 528 byte sectors provide additional protection. IBM Manufacturing will ship pre-formatted with 528 or with 512 byte sectors. Selection of the formatting is selected by IBM Manufacturing based on manufacturing rules, but the client may change at their location. In the EPX24SX IBM Manufacturing will ship using 528 byte sectors. Capacity is 600 GB with 512 byte formatting and is 571 GB with 528 byte sector.

Limitations: physical difference in carriers prevent this drive from being used in SFF-1 bays such as used in the #5802/5803 I/O drawer or in SFF-3 bays such as used in POWER8 system units.

- Attributes provided: 600GB/571GB of SFF (2.5-inch) SAS disk storage mounted in Gen-2 carrier.
- Attributes required: one SFF-2 drive bay.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#2145) - Primary OS - IBM i

Indicates clients intend to use the IBM i operating system on the primary system partition. This feature is used as a Manufacturing Routing indicator and does not deliver parts, software or services.

- Attributes provided: None
- Attributes required: Indicates clients intend to use the IBM i operating system on the primary system partition.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#2146) - Primary OS - AIX

Indicates clients intend to use the AIX operating system on the primary system partition. This feature is used as a Manufacturing Routing indicator and does not deliver parts, software or services.

- Attributes provided: None
- Attributes required: Indicates clients intend to use the AIX operating system on the primary system partition.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 1)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS supported. Refer to Software requirements for specific code levels supported.

### (#2147) - Primary OS - Linux

Indicates clients intend to use the Linux operating system on the primary system partition. This feature is used as a Manufacturing Routing indicator and does not deliver parts, software or services.

- Attributes provided: None
- Attributes required: Indicates clients intend to use the Linux operating system on the primary system partition.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Ubuntu Server
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#2319) - Factory Deconfiguration of 1-core

(No longer available as of May 31, 2019)

Factory deconfiguration of 1 processor core to assist with optimization of software licensing. The maximum number of this feature that can be ordered is one less than the number of cores on the system, e.g. 7 for an 8-core system and 15 for a 16-core system.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 7 (Initial order maximum: 7)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#2456) - 2M LC-SC 50 Micron Fiber Converter Cable

The 50 micron fiber cable is used to convert from LC type to SC type connectors. The 2 meter cable has a male LC type connector on one end and a female SC type connector on the other.

- Attributes provided: Cable with (1X) LC type plug and (1X) SC type receptacle
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#2459) - 2M LC-SC 62.5 Micron Fiber Converter Cable

The 62.5 micron fiber cable is used to convert from LC type to SC type connectors. The 2 meter cable has a male LC type connector on one end and a female SC type connector on the other.

- Attributes provided: Cable with (1X) LC type plug and (1X) SC type receptacle
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#2728) - 4 port USB PCIe Adapter

The PCI-Express 4 port USB adapter provides support for USB devices. In applications that require the use of an USB extension cable, use one FC 4256 per port.

- Attributes provided: Connectivity with USB 1.0 - 2.0 capable devices
- Attributes required: One available PCI-Express slot
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Must Remove
- CSU: Yes
- Return parts MES: No

## (#2893) - PCIe 2-Line WAN w/Modem

(No Longer Available as of January 6, 2015)

The #2893 is a 2-line/port WAN w/modem PCIe adapter. This feature is the non-CIM (Complex Impedance Matching) version offered in all countries except Australia and New Zealand.

Port 0 is the modem port and supports V.92 56K Async PPP, V.92 data modem, V.44 data compression, V.34 FAX modem and FAX functions, such as ECM and 2D/1D conversion.

Port 0 does not provide Sync modem capabilities (SDLC and Sync PPP). Port 1 is the RVX port and supports multiple communications protocols, including synchronous operations.

Select one of the following cables to attach to port 0(modem port):

- #1010 Modem Cable - Austria
- #1011 Modem Cable - Belgium
- #1012 Modem Cable - Africa
- #1013 Modem Cable - Israel (supported only, not orderable)
- #1014 Modem Cable - Italy
- #1015 Modem Cable - France
- #1016 Modem Cable - Germany
- #1017 Modem Cable - UK
- #1018 Modem Cable - Iceland/Sweden
- #1020 Modem Cable - HK/NZ
- #1021 Modem Cable - Fin/Nor
- #1022 Modem Cable - Netherlands
- #1023 Modem Cable - Swiss
- #1024 Modem Cable - Denmark
- #1025 Modem Cable - US/Canada

Select one of the following cables to attach to port 1(RVX port):

- #0348 - V.24/EIA232 20-Ft PCI Cable
- #0353 - V.35 20-Ft PCI Cable
- #0359 - X.21 20-Ft PCI Cable
- #0367 - Operations Console PCI Cable (ships with a 25 pin to 9 pin adapter) Multiple #0367 cables can be ordered but only one per #2893) to serve as consoles for secondary partitions when Logical Partitioning is utilized. ECS is supported from both the modem port, and the RVX port.

The following cable is required to support ECS from the RVX port:

- #0348 - V.24/EIA232 20-Ft PCI Cable

The #2893 does not support the remote ring indicate function.

- Attributes provided: One PCIe slot
- Attributes required: Modem
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#2934) - 3M Asynchronous Terminal/Printer Cable EIA-232

The Asynchronous Printer/Terminal Cable is used for attaching printers, plotters, and terminals that support the EIA-232 standard to any asynchronous adapter. This cable is the equivalent of the combination of FC 2936 (modem cable) and FC 2937 (printer/terminal interposer) and replaces this method of printer/terminal attachment.

This cable is 3m (9.8 feet) long, uses DB25 connectors and is supported on all RS/6000 systems using any asynchronous ports.

- Attributes provided: EIA232 device attachment capability
- Attributes required: Any Asynchronous port
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#2936) - Asynchronous Cable EIA-232/V.24 3M

Used to attach a modem to the standard I/O ports with the 10-pin to 25-pin converter cable (#3925), 8-port Cable Assembly, 16-Port Cable Assembly. The cable is 3 meters (9.8 feet) in length.

- Attributes provided: Modem attachment to async or serial port
- Attributes required: Async or serial port
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3124) - Serial-to-Serial Port Cable for Drawer/Drawer- 3.7M

This 3.7 meter cable is available to provide a null-modem connection between the serial ports of two system drawers that are mounted within the same rack. The cable provides a DB25 female connector at each end.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3125) - Serial-to-Serial Port Cable for Rack/Rack- 8M

This 8 meter cable is available to provide a null-modem connection between the serial ports of two system drawers that are mounted in separate racks. The cable provides a DB25 female connector at each end.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3287) - 1m, (3.3-ft) IB 40G Copper Cable QSFP/QSFP

This 1 meter (3.3 foot) copper cable provides a high bandwidth connection up to 40 Gb/s (Quad Data Rate). Both ends of the cable have a QFSP connector. The cable connectors can be described as QSFP+/QSFP+ as well as QSFP/QSFP. Usage examples include a) connecting a PCIe2 InfiniBand QDR Adapter to a QDR IB switch or b) connecting two IBM Rack Switches together using QSFP+ ports.

- Attributes provided: 1 meter Quad Data Rate InfiniBand Copper Cable, QSFP/QSFP
- Attributes required: QDR InfiniBand QSFP port
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3288) - 3m, (9.8-ft.) IB 40G Copper Cable QSFP/QSFP

This 3 meter (9.8 foot) copper cable provides a high bandwidth connection up to 40 Gb/s (Quad Data Rate). Both ends of the cable have a QFSP connector. The cable connectors can be described as QSFP+/QSFP+ as well as QSFP/QSFP. Usage examples include a) connecting a PCIe2 InfiniBand QDR Adapter to a QDR IB switch or b) connecting two IBM Rack Switches together using QSFP+ ports.

- Attributes provided: 3 meter Quad Data Rate InfiniBand Copper Cable, QSFP/QSFP
- Attributes required: QDR InfiniBand QSFP port
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3289) - 5m QDR IB/E'Net Copper Cable QSFP/QSFP

(No longer available as of December 31, 2020)

This 5 meter Quad Data Rate (40Gb/s) InfiniBand copper cable is used to connect the QDR Host Channel Adapter to QDR InfiniBand Switches.

- Attributes provided: 5 meter Quad Data Rate InfiniBand Copper Cable, QSFP/QSFP
- Attributes required: QDR InfiniBand port
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3290) - 10 meter Quad Data Rate InfiniBand Optical Cable, QSFP/QSFP

(No longer available as of December 31, 2020)

This 10 meter Quad Data Rate (40Gb/s) InfiniBand optical cable is used to connect the QDR Host Channel Adapter to QDR InfiniBand Switches. It can also be used for QDR InfiniBand switch-to-switch applications.

- Attributes provided: 10 meter Quad Data Rate InfiniBand Optical Cable, QSFP/QSFP
- Attributes required: InfiniBand switch #3699, or follow-on
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3293) - 30 meter Quad Data Rate InfiniBand Optical Cable, QSFP/QSFP

(No longer available as of December 31, 2020)

This 30 meter Quad Data Rate (40Gb/s) InfiniBand optical cable is used to connect the QDR Host Channel Adapter to QDR InfiniBand Switches. It can also be used for QDR InfiniBand switch-to-switch applications.

- Attributes provided: 30 meter Quad Data Rate InfiniBand Optical Cable, QSFP/QSFP
- Attributes required: InfiniBand switch #3699, or follow-on
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3450) - SAS YO Cable 1.5m - HD 6Gb Adapter to Enclosure

(No longer available as of December 31, 2020)

This 1.5 meter SAS cable connects a SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density) connector and two Mini SAS connectors. The Mini-SAS HD connector attaches to a SAS adapter such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the SAS I/O drawer.

- Attributes provided: connection between SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3451) - SAS YO Cable 3m - HD 6Gb Adapter to Enclosure

(No longer available as of December 31, 2020)



This 6 meter SAS cable connects a SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density)connector and two Mini SAS connectors. The Mini-SAS HD connector attaches to a SAS adapter such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the SAS I/O drawer.

- Attributes provided: connection between SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3452) - SAS YO Cable 6m - HD 6Gb Adapter to Enclosure

(No longer available as of December 31, 2020)

This 6 meter SAS cable connects a SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density)connector and two Mini SAS connectors. The Mini-SAS HD connector attaches to a SAS adapter such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the SAS I/O drawer.

- Attributes provided: connection between SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3453) - SAS YO Cable 10m - HD 6Gb Adapter to Enclosure

This 10 meter SAS cable connects a SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density)connector and two Mini SAS connectors. The Mini-SAS HD connector attaches to a SAS adapter such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the SAS I/O drawer.

- Attributes provided: connection between SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3454) - SAS X Cable 3m - HD 6Gb 2-Adapter to Enclosure

This 3 meter SAS cable connects two SAS adapters to a SAS I/O enclosure. This X cable has four connectors, two Mini-SAS HD (High Density) connector and two Mini SAS connectors. The Mini-SAS HD connectors attaches to two SAS adapters such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapters can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

- Attributes provided: connection between two SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3455) - SAS X Cable 6m - HD 6Gb 2-Adapter to Enclosure

This 6 meter SAS cable connects two SAS adapters to a SAS I/O enclosure. This X cable has four connectors, two Mini-SAS HD (High Density) connector and two Mini SAS connectors. The Mini-SAS HD connectors attaches to two SAS adapters such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapters can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

- Attributes provided: connection between two SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3456) - SAS X Cable 10m - HD 6Gb 2-Adapter to Enclosure

(No longer available as of December 31, 2020)

This 10 meter SAS cable connects two SAS adapters to a SAS I/O enclosure. This X cable has four connectors, two Mini-SAS HD (High Density) connector and two Mini SAS connectors. The Mini-SAS HD connectors attaches to two SAS adapters such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapters can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

- Attributes provided: connection between two SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3457) - SAS YO Cable 15m - HD 3Gb Adapter to Enclosure

(No longer available as of December 31, 2020)

This 15 meter SAS cable connects a SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density)connector and two Mini SAS connectors. The Mini-SAS HD connector attaches to a SAS adapter such as the #5913 1.8GB RAID SAS Adapter or #ESA1/ESA2 PCIe2 RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5887 EXP24S SAS I/O drawer. This cable can support up to 3Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the SAS I/O drawer.

- Attributes provided: connection between SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3458) - SAS X Cable 15m - HD 3Gb 2-Adapter to Enclosure

This 15 meter SAS cable connects two SAS adapters to a SAS I/O enclosure. This X cable has four connectors, two Mini-SAS HD (High Density) connector and two Mini SAS connectors. The Mini-SAS HD connectors attaches to two SAS adapters such as the #5913 1.8GB RAID SAS Adapter or #ESA1/ESA2 PCIe2 RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 3Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapters can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

- Attributes provided: connection between two SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3632) - Widescreen LCD Monitor

(No Longer Available as of August 08, 2017)

The Widescreen LCD Monitor has the following general characteristics:

- Black color
- Minimum 533mm (21 inch) diagonal LCD digital screen
- Maximum native resolution of 1680 x 1050 (widescreen format 1.6:1)
- Can display traditional resolutions (1024x768 and 1280x1024) without stretching
- Tilt, swivel, and height stand adjustments
- Industry standard analog input (15-pin D) and a DVI to VGA converter
- Attributes provided: Color Flat-panel Monitor
- Attributes required: Graphics Adapter
- Attributes provided: Color Flat-panel Monitor
- Attributes required: Graphics Adapter
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

Note: Not supported in Mainland China.

### (#3661) SAS Cable (X) Adapter to SAS Enclosure, Dual Controller/Dual Path 3M

This SAS cable (X) connects a SAS disk drawer to two SAS controller adapters. This cable supports dual controller/dual path attach between two SAS controller adapters and the SAS disk drawer. The SAS controller adapters can be in the same or in different host systems. This cable has four Mini SAS 4x plug connectors. Two of the Mini SAS 4x plug connectors attach to the adapters and are keyed as END DEVICES. Two of the Mini SAS 4x plug connectors attach to the SAS disk drawer and are keyed for ENCLOSURE DOWN Arrow. All of the connectors are wired in 2x mode. Follow the directions on the connector labels when attaching the connectors on this cable. This cable is 3 meters long, choose the SAS (X) cable length that matches the distance between the adapters and the SAS disk drawer. The adapter legs of this cable are each 2.5 meters long.

- Attributes provided: Connection between two SAS controller adapters and a SAS disk drawer
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3662) SAS Cable (X) Adapter to SAS Enclosure, Dual Controller/Dual Path 6M

This SAS cable (X) connects a SAS disk drawer to two SAS controller adapters. This cable supports dual controller/dual path attach between two SAS controller adapters and the SAS disk drawer. The SAS controller adapters can be in the same or in different host systems. This cable has four Mini SAS 4x plug connectors. Two of the Mini SAS 4x plug connectors attach to the adapters and are keyed as END DEVICES. Two of the Mini SAS 4x plug connectors attach to the SAS disk drawer and are keyed for ENCLOSURE DOWN Arrow. All of the connectors are wired in 2x mode. Follow the directions on the connector labels when attaching the connectors on this cable. This cable is 6 meters long, choose the SAS (X) cable length that matches the distance between the adapters and the SAS disk drawer. The adapter legs of this cable are each 5.5 meters long.

- Attributes provided: Connection between two SAS controller adapters and a SAS disk drawer
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3663) SAS Cable (X) Adapter to SAS Enclosure, Dual Controller/Dual Path 15M

(No longer available as of December 31, 2020)

This SAS cable (X) connects a SAS disk drawer to two SAS controller adapters. This cable supports dual controller/dual path attach between two SAS controller adapters and the SAS disk drawer. The SAS controller adapters can be in the same or in different host systems. This cable has four Mini SAS 4x plug connectors. Two of the Mini SAS 4x plug connectors attach to the adapters and are keyed as END DEVICES. Two of the Mini SAS 4x plug connectors attach to the SAS disk drawer and are keyed for ENCLOSURE DOWN Arrow. All of the connectors are wired in 2x mode. Follow the directions on the connector labels when attaching the connectors on this cable. This cable is 15 meters long, choose the SAS (X) cable length that matches the distance between the adapters and the SAS disk drawer. The adapter legs of this cable are each 14.5 meters long.

- Attributes provided: Connection between two SAS controller adapters and a SAS disk drawer
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3681) - 3M SAS CABLE, ADPTR TO ADPTR (AA)

(No longer available as of December 31, 2020)

The dedicated 2:6 connection between the dedicated top port on #5904, #5906 or #5908 for a SAS RAID Dual controller configuration providing (higher performance) path for all the dual controller communication including the mirroring of Write Cache and Parity update footprints between the adapters.

If the cable fails or is disconnected for some reason, then the "traditional" dual controller communication path via the SAS fabric (i.e. through the common disk expanders) is used for the adapter-to-adapter communication (mirror Write Cache, Parity Update footprints, etc...). This cable provides higher performance and redundancy. The cable is required for dual SAS RAID configuration. It is not required nor used for a single SAS RAID adapter (standalone) configuration.

- Attributes provided: Higher performance path for all the dual controller communication including the mirroring of Write Cache and Parity update footprints between the adapters.
- Attributes required: Two of any combination of the following SAS RAID adapters #5904, #5906 or 5908.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3684) SAS Cable (AE) Adapter to Enclosure, single controller/single path 3M

This adapter-to-enclosure (AE) SAS cable most commonly connects a SAS controller to a media expansion drawer.

For AIX and Linux, this cable can also be used to connect two SAS adapters to a SAS disk drawer in a specific dual controller HA two system JBOD configuration using two #5912 controllers. Single controller/single path connections are supported with this cable only for this specific JBOD configuration, and, as such, two #5912 SAS controllers and two (AE style) cables are required for a supported configuration. The two SAS adapters must be in different host systems/partitions.

This cable has one mini SAS 4X plug connector on the adapter end wired in 4x mode and one mini SAS 4X plug connector on the drawer end, wired in 4x mode. Follow the directions on the connector labels when attaching the connectors on this cable. This cable is three meters long. Select the SAS (AE) cable length that best matches the distance between the host system and the remote SAS drawer being attached.

- Attributes provided: Connection between a SAS controller and a media expansion drawer or for AIX and Linux connection between #5912 SAS controller and a SAS disk drawer in a dual controller HA two system JBOD configuration only
- Attributes required: none
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: n/a
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3685) SAS Cable (AE) Adapter to Enclosure, single controller/single path 6M

This adapter-to-enclosure (AE) SAS cable most commonly connects a SAS controller to a media expansion drawer.

For the AIX and Linux operating systems, this cable can also be used to connect two SAS adapters to a SAS disk drawer in a specific dual controller HA two system JBOD configuration using two #5912 controllers. Single controller/single path connections are supported with this cable only for this specific JBOD configuration, and, as such, two #5912 SAS controllers and two (AE style) cables are required for a supported configuration. The two SAS adapters must be in different host systems/partitions.

This cable has one mini SAS 4X plug connector on the adapter end wired in 4x mode and one mini SAS 4X plug connector on the drawer end, wired in 4x mode. Follow the directions on the connector labels when attaching the connectors on this cable. This cable is three meters long. Select the SAS (AE) cable length that best matches the distance between the host system and the remote SAS drawer being attached.

- Attributes provided: Connection between a SAS controller and a media expansion drawer or for AIX and Linux connection between #5912 SAS controller and a SAS disk drawer in a dual controller HA two system JBOD configuration only
- Attributes required: none
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: n/a
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3691) SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/Dual Path 1.5M

This SAS cable (YO) connects a remote SAS drawer to a SAS controller adapter. This cable supports single controller/dual path attach between the SAS controller adapter and the SAS disk drawer. This cable has one Mini SAS 4X plug connector on the adapter end keyed for an END DEVICE, wired in 4x mode and two Mini SAS 4X plug connectors on the drawer end keyed for ENCLOSURE DOWN Arrow, both are wired in 2x mode. Follow the directions on the connector labels when attaching the connectors on this cable. This cable is 1.5 meters long, choose the SAS (YO) cable length that matches the distance between the adapter and the SAS disk drawer.

- Attributes provided: connection between SAS controller adapter and a SAS disk drawer
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3692) SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/Dual Path 3M

This SAS cable (YO) connects a remote SAS drawer to a SAS controller adapter. This cable supports single controller/dual path attach between the SAS controller adapter and the SAS disk drawer. This cable has one Mini SAS 4X plug connector on the adapter end keyed for an END DEVICE, wired in 4x mode and two Mini SAS 4X plug connectors on the drawer end keyed for ENCLOSURE DOWN Arrow, both are wired in 2x mode. Follow the directions on the connector labels when attaching the connectors on this cable. This cable is 3 meters long, choose the SAS (YO) cable length that matches the distance between the adapter and the SAS disk drawer.

- Attributes provided: connection between SAS controller adapter and a SAS disk drawer
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#3693) SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/Dual Path 6M

This SAS cable (YO) connects a remote SAS drawer to a SAS controller adapter. This cable supports single controller/dual path attach between the SAS controller adapter and the SAS disk drawer. This cable has one Mini SAS 4X plug connector on the adapter end keyed for an END DEVICE, wired in 4x mode and two Mini SAS 4X plug connectors on the drawer end keyed for ENCLOSURE DOWN Arrow, both are wired in 2x mode. Follow the directions on the connector labels when attaching the connectors on this cable. This cable is 6 meters long, choose the SAS (YO) cable length that matches the distance between the adapter and the SAS disk drawer.

- Attributes provided: connection between SAS controller adapter and a SAS disk drawer
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#3694) SAS Cable (YO) Adapter to SAS Enclosure, Single Controller/Dual Path 15M

(No longer available as of December 31, 2020)

This SAS cable (YO) connects a remote SAS drawer to a SAS controller adapter. This cable supports single controller/dual path attach between the SAS controller adapter and the SAS disk drawer. This cable has one Mini SAS 4X plug connector on the adapter end keyed for an END DEVICE, wired in 4x mode and two Mini SAS 4X plug connectors on the drawer end keyed for ENCLOSURE DOWN Arrow, both are wired in 2x mode. Follow the directions on the connector labels when attaching the connectors on this cable. This cable is 15 meters long, choose the SAS (YO) cable length that matches the distance between the adapter and the SAS disk drawer.

- Attributes provided: connection between SAS controller adapter and a SAS disk drawer
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#3925) - 0.3M Serial Port Converter Cable, 9-Pin to 25-Pin

This cable converts the 9-pin serial port on the system to a 25-pin serial port which allows the user to attach 25-pin serial devices to the system.

- Attributes provided: 9-Pin to 25-Pin connectivity
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#3927) - Serial Port Null Modem Cable, 9-pin to 9-pin, 3.7M

This 3.7 meter 9 pin to 9 pin Null modem Serial cable allows two EIA-232 communications ports to exchange data with one another without going through a modem.

- Attributes provided: 9 pin female connector at each end of the cable
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#3928) - Serial Port Null Modem Cable, 9-pin to 9-pin, 10M

This 10 meter 9 pin to 9 pin Null Modem Serial cable allows two EIA-232 communications ports to exchange data with one another without going through a modem.

- Attributes provided: 9 pin female connector at each end of the cable
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#3930) - System Serial Port Converter Cable

This cable is used to connect the System port/UPS Conversion Cable (#1827) to the CEC serial port. Also used to connect an ASCII terminal or modem to the serial port which is physically an RJ45 connection on the Power 710/720/730/740 and Power S824/S822/S814/ S822L/S812L systems unit.

- Attributes provided: Attachment of #1827 to CEC serial port; attachment of ASCII terminal or modem to the serial port.
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#4242) 1.8 M (6-ft) Extender Cable for Displays (15-pin D-shell to 15-pin D-shell)

(No Longer Available as of March 31, 2018)

This cable is required to connect displays with a 15-pin "D" shell connector to the appropriate accelerator connector when it is farther away than the attached monitor cable can reach. Rack mounted systems are likely candidates for this extender cable.

- Attributes provided: 6-foot extension cable
- Attributes required: Supported monitor and adapter with a 15-pin "D" shell connector.
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#4256) - Extender Cable - USB Keyboards, 1.8M

This feature provides a 1.8M extension cable for use with USB keyboards.

- Attributes provided: 1.8M Extension Cable
- Attributes required: USB Keyboard
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: N/A
- Return parts MES: No

### (#4276) - VGA to DVI Connection Converter

This feature is a plug converter that will allow a Video device with a 15 pin D-shell VGA cable plug (such as a KVM switch) to connect to a graphics adapter with a 28 pin D-shell DVI receptacle connector. This device has both a 28 pin D-Shell DVI plug and a 15 pin D-shell VGA receptacle.

- Attributes provided: VGA to DVI connection converter
- Attributes required: VGA device and graphics adapter with DVI connector.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#4648) - Rack Integration Services: BP only

#4648 is a prerequisite for business partner integration: #4651-4666.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: No

## (#4649) - Rack Integration Services

(No longer available as of May 31, 2019)

#4649 is a prerequisite for #4651-4666.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: No

One and only one rack indicator feature is required on all orders (#4650 to #4666).

## (#4650) - Rack Indicator- Not Factory Integrated

(No longer available as of May 31, 2019)

This indicator is used to specify that the rack mountable device in this initial order should not be merged into a rack within IBM Manufacturing. If a device with 4650 is ordered with a rack, the device will not be factory integrated in the ordered rack and will ship uninstalled in the rack.

Note: This "no additional charge" feature will be placed on an initial order for a rack mountable device by the Configuration Tool when the order does not ship from IBM Manufacturing in a Rack.

A rack integration indicator is required on all 19" Rack mountable device initial orders. One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

- Attributes provided: System will not be shipped in a rack.
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

## (#4651) - Rack Indicator, Rack #1

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the first rack for a multi rack order, or the only rack for a single rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #1.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack Integration/ Rack Specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

## (#4652) - Rack Indicator, Rack #2

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the second rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #2 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack Integration/Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#4653) - Rack Indicator, Rack #3

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the third rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #3 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#4654) - Rack Indicator, Rack #4

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the fourth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #4 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#4655) - Rack Indicator, Rack #5

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the fifth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #5 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply



#### (#4656) - Rack Indicator, Rack #6

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the sixth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #6 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#4657) - Rack Indicator, Rack #7

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the seventh rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #7 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#4658) - Rack Indicator, Rack #8

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the eighth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #8 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#4659) - Rack Indicator, Rack #9

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the ninth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #9 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#4660) - Rack Indicator, Rack #10

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the tenth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #10 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#4661) - Rack Indicator, Rack #11

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the eleventh rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #11 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#4662) - Rack Indicator, Rack #12

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the twelfth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #12 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#4663) - Rack Indicator, Rack #13

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the thirteenth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #13 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#4664) - Rack Indicator, Rack #14

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the fourteenth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #14 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#4665) - Rack Indicator, Rack #15

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the fifteenth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #15 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#4666) - Rack Indicator, Rack #16

(No longer available as of May 31, 2019)

When added to an initial rack order, this indicator is used to specify the sixteenth rack for a multi rack order.

When added to an initial rack mountable device order, this indicator is used to specify that the rack mountable device (such as a system or I/O drawer) is to be mounted in rack #16 of a multi rack order.

Note: For 19" rack mountable device orders: One feature code from the group 4650 to 4666 must be listed on the order. More than one feature code from this group is not allowed.

For 19" rack orders: If IBM Mfg. is to assemble a rack mountable device into the rack, one feature code selection from the group 4651 to 4666 must be listed on the order. More than one feature code selection from this group is not allowed. The quantity of this selected feature code on the 19" rack order must equal the number of rack mountable devices to be installed in the rack by IBM Mfg.

- Attributes provided: Rack specify
- Attributes required: Rack
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#4794) - Power Active Memory Expansion Enablement

This feature enables memory expansion on the system. Using compression/decompression of memory content can effectively expand the maximum memory capacity providing additional server workload capacity and performance.

- Attributes provided: None
- Attributes required: An HMC
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i not supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#4807) - PCIe Crypto Coprocessor No BSC 4765-001

(No Longer Available as of February 27, 2015)

Secure-key adapter provides both cryptographic coprocessor and cryptographic accelerator functions in a single PCIe card. The adapter is well suited to applications requiring high-speed, security-sensitive, RSA acceleration, cryptographic operations for data encryption and digital signing, secure management, and use of cryptographic keys, or custom cryptographic applications. It provides secure storage of cryptographic keys in a tamper-resistant hardware security module designed to meet FIPS 140-2 level 4 security requirements. The adapter is a PCIe 4x full height - short card.

#4807, #4808 and #4809 are all feature codes representing the same physical card with the same CCIN of 4765, but different feature codes are used to indicate if a blind swap cassette is used and its type. #4807 indicates no blind swap cassette. #4808 indicates a Gen 3 blind swap cassette. #4809 indicates a Gen 4 blind swap cassette.

Other IBM PCIe Cryptographic Coprocessor adapter highlights

- Integrated Dual processors that operate in parallel for higher reliability
- Supports IBM Common Cryptographic Architecture or PKCS#11 standard
- Ability to configure adapter as coprocessor or accelerator
- Support for smart card applications using Europay, MasterCard and Visa
- Cryptographic key generation and random number generation
- PIN processing - generation, verification, translation
- Encrypt/Decrypt using AES and DES keys

Please refer to the following URL for the latest firmware and software updates.

<http://www-03.ibm.com/security/cryptocards/>

- Attributes provided: Cryptographic and Accelerator Function
- Attributes required: One PCIe Cryptographic CoProcessor card slot per adapter
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - Linux - not supported
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#4927) - Solution Edition for IBM i (6-core)

(No longer available as of May 31, 2019)

This feature defines to the configurator a select minimum configuration for a Solution Edition for IBM i (6-core) offerings.

- Attributes provided: Solution Edition for IBM i
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#4928) - Solution Edition for IBM i (4-core)

(No longer available as of May 31, 2019)

This feature defines to the configurator a select minimum configuration for a Solution Edition for IBM i (4-core) offering.

- Attributes provided: Solution Edition for IBM i
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 6.1 supported
  - IBM i 7.1 supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#5000) - Software Preload Required

(No longer available as of May 31, 2019)

Indicates that preloaded software and/or consolidated I/O is shipped with the initial order. A maximum of one (#5000) is supported. This feature has country-specific usage.

- Attributes provided: Software Pre-load
- Attributes required: N/A
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#5227) - PowerVM Standard Edition

This feature allows the customer to create partitions that are in units of less than 1 CPU (sub-CPU LPARs) and allows the same system I/O to be virtually allocated to these partitions. When PowerVM is installed in the system, all activated processors must have the PowerVM feature. A fully activated 4-core system requires that four of this feature be ordered. An encrypted key is supplied to the customer and is installed on the system, authorizing the partitioning at the sub-processor level. Note: If feature 5227 is ordered, the quantity ordered must be equal to the number of active processors.

- Attributes provided: Capability to partition processor
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#5228) - PowerVM Enterprise Edition

This feature allows the customer to create partitions that are in units of less than 1 CPU (sub-CPU LPARs) and allows the same system I/O to be virtually allocated to these partitions. When PowerVM is installed in the system, all activated processors must have the PowerVM feature. A fully activated 4-core system requires that four of this feature be ordered. An encrypted key is supplied to the customer and is installed on the system, authorizing the partitioning at the sub-processor level. PowerVM Enterprise Edition also includes Live Partition Mobility, which allows for the movement of a logical partition from one Power6, Power7, Power7+ or Power8 server to another Power6, Power7, Power7+ or Power8 with no application downtime. Note: If feature 5228 is ordered, the quantity ordered must be equal to the number of active processors.

- Attributes provided: Capability to partition processor
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#5285) - PCIe2 2-Port 4X IB QDR Adapter 40Gb

(No Longer Available as of January 20, 2017)

The PCIe Gen-2 2-port 4X Infiniband QDR adapter provides high speed connectivity with other servers or IB switches. Each port maximum of 40Gb assuming no other system or switch bottlenecks are present. This adapter performs the same function as #5283 but with a high profile (HP) tail stock and cannot be plugged into a low profile Gen-2 slot.

Note: As of 3/12/2013 This feature is not available in the following EMEA countries, Bahrain, Comoros, Djibouti, Iraq, Kuwait, Lebanon, Libya, Malaysia, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Tunisia and United Arab Emirates which includes IBM Middle East - Dubai and Abu Dhabi and Yemen.

Limitation: Not supported by VIOS

- Attributes provided: PCIe2 2-Port 4X IB QDR Adapter 40Gb
- Attributes required: PCIe Gen2 full high slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#5287) - PCIe2 2-port 10GbE SR Adapter

(No Longer Available as of January 6, 2015)

The PCIe2 2-port 10GbE SR Adapter is a full high, Gen2, high performance adapter that uses a LC Duplex type connector and is capable of transferring data a distance of 300m over MMF-850nm Fiber cable. The product conforms to the IEEE, 802.3ae 10GBASE-SR specification for Ethernet transmission.

Characteristics

- MSI-X and support of legacy pin interrupts
- 10GBASE-Direct attach SFP+ twinax cable
- IEEE 802.3ae (10 GbE)
- IEEE 802.1p priority and 802.1Q VLAN tagging
- IEEE 802.3x flow control
- Link aggregation, 802.3ad 802.3 compliance
- IEEE 802.3ad load-balancing and failover
- Ether II and 802.3 encapsulated frames
- Multiple MAC addresses per interface
- Jumbo frames up to 9.6 KB
- TCP checksum offload for IPv4
- TCP segmentation Offload (TSO) for IPv4
- UDP checksum offload for IPv4
- Receive side scaling and packet steering
- Line rate packet filtering and attack protection
- Attributes provided: PCIe-gen 2.0 x8 10GBASE-SR short-reach optics adapter
- Attributes required: 1 full high Gen2 PCIe slot, Fiber Cable (Optional LC-SC 62.5 micron converter cable, 50 micron LC-SC connections), LC wrap plug-d
- Minimum required: 0
- Maximum allowed: 12 (Initial order maximum: 12)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 or later supported only with VIOS
  - IBM i 7.2 or later supported only with VIOS
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#5289) - 2 Port Async EIA-232 PCIe Adapter

(No longer available)

Adapter provides connection for 2 asynchronous EIA-232 devices. Ports are programmable to support EIA-232 protocols, at a line speed of 128K bps. Two RJ45 connections are located on the rear of the adapter. To attach to devices using a 9-pin (DB9) connection, use an RJ45-to-DB9 converter. For convenience, one converter is included with this feature. One converter for each connector needing a DB9 connector is needed.

The converter cable shipped with the feature is a 10-pin RJ-45 approximately 30 cm or 1 foot in length. 10-pin is often used for DCE devices like modems. DTE devices may be able to use fewer pin connections. Multiple RJ-45 pin out options are used and sold across the industry. The #3930 feature provides an 8-pin RJ45-to-DB9 converter cable. If an addition 10-pin RJ45-to-DB9 connector like the cable provided with the adapter is desired, it is commonly available from multiple sources and identified as a serial cable with a Digi part number 76000239. It is also possible to look up the cable's pin out specifications and build your own cables.

Note #5289 and # 5290 are physically and electrically identical adapters, except for the type of PCIe slot used (full-high or low profile). Note also the 2-port #5289/5290 is functionally nearly identical to the 4-port #5785/5277 except for the number and type of connectors.

- Attributes provided: 2-Port Asynchronous EIA-232 via 2x RJ45 connectors, one RJ45-to-DB9 converter cable..
- Attributes required: 1 full high PCIe Slot
- Minimum required: 0
- Maximum allowed: 0 (Initial order maximum: 0)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: MUST REMOVE
- CSU: Yes
- Return parts MES: No  
Note: KVM - supported, refer to the Software requirements section for the supported KVM levels

### (#5550) - Sys Console On HMC

With #5550, system console function is driven by the Hardware Management Console (HMC) connected to the system. The HMC is required if the following functions are desired/selected for the system:

- Attributes provided: System Console on Hardware Management Console(HMC)
- Attributes required: Hardware Management Console (HMC)
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#5557) - System Console-Ethernet No IOP

(No longer available as of May 31, 2019)

Indicates that the system console is driven by an IOP-less Ethernet LAN adapter. This LAN adapter must be dedicated to console support functions and cannot be used for any other purpose.

- Attributes provided: System Console connection through an IOP-less Ethernet LAN adapter
- Attributes required: PCI-X IOP-less Ethernet LAN Adapter
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#5708) - 10Gb FCoE PCIe Dual Port Adapter

10 Gb FCoE PCIe Dual Port Adapter (#5708) is a high-performance, 10 Gb, dual port, PCIe Converged Network Adapter (CNA) utilizing SR optics. Each port can provide NIC (Network Interface Card) traffic and Fibre Channel functions simultaneously. CCIN is 2B3B See also feature #5270 for the identical adapter except it has a low profile tail stock.

Highlights

- PCIe 2.0 adapter with x8 Gen 1
- Convergence Enhanced Ethernet (CEE) supported
- SR optical transceiver with LC connection provides up to 300m cable length
- Non-volatile error log on the adapter
- Supported with AIX and Linux and VIOS for FC and Ethernet NIC.
- Supported with IBM i under VIOS for FC and Ethernet NIC
- SAN and Network boot support for AIX, Linux
- Requires FCoCEE capable switches for full FC+Ethernet capability. Ethernet only functionality if attached to ordinary Ethernet switch.
- Utilizes existing cabling that supports 10 Gb SR
- Based on Qlogic Converged Network Adapter (CNA)
- NPIV support requires VIOS for all OS environments

Configuration maximum when used for NIC traffic (not Fibre Channel usage)

- Recommended performance Max assuming high utilization, One adapter per four active processors cores.
- Recommended connectivity Max assuming high utilization, two adapters per one physical processor core.
- Attributes provided: 10 Gb FCoE PCIe Dual Port Adapter
- Attributes required: Open PCIe slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later IBM i 7.1 or later and 7.2 or later - supported only with VIOS
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No

## (#5717) - 4-Port 10/100/1000 Base-TX PCI Express Adapter

The 4-Port 10/100/1000 Base-TX PCI Express Adapter is short/ low- profile, full duplex, four-ported Gigabit Ethernet adapter that can be configured to run any of the ports at 1000,100 or 10 Mbps data rate. This adapter interfaces to the system via a PCIe bus and connects to a network using a 4-pair CAT-5 Unshielded Twisted Pair (UTP) cable for distance of up to 100m. Each port is independent of one another and is boot capable under AIX Network install manager (NIM). The adapter conforms to the IEEE 802.3ab 1000Base-T standard. The #5717 supports jumbo frames when running at the 1000 Mbps speed.

The 4-Port 10/100/1000 Base-TX PCI Express adapter (#5717) should be considered where maximum port density is required per I/O card slot. For a suggested maximum number of adapters considering performance, see the IBM System p PCI placement guide (SA76-0090) for information about the PCIe slots on your system unit.

Limitations: The 1000 Mbps speed is not supported in Half Duplex (HDX) mode.

- Attributes provided: Four-ported Gigabit Ethernet
- Attributes required: One available PCIe card slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 or later and 7.2 or later - supported only with VIOS
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.3 with interim fix IV56366, or later

## (#5729) - PCIe2 8Gb 4-port Fibre Channel Adapter

(No longer available as of December 13, 2019)



PCIe Gen2 8 Gigabit quad port Fibre Channel Adapter is a high- performance 8x short form adapter based on the Emulex LPe12004 PCIe Host Bus Adapter (HBA). Each port provides single initiator capability over a fibre link or with NPIV, multiple initiator capability is provided. The ports have LC type connectors and utilize shortwave laser optics. The adapter operates at link speeds of 2, 4, and 8 Gbps and will automatically negotiate to the highest speed possible. LEDs on each port provide information on the status and link speed of the port.

The adapter connects to a Fibre Channel switch. Direct device attachment has not been tested and is not supported.

N\_Port ID Virtualization (NPIV) capability is supported through VIOS.

Cables are the responsibility of the customer. Use multimode fibre optic cables with short-wave lasers that adhere to the following specifications:

- OM3 - multimode 50/125 micron fibre, 2000 MHz\*km bandwidth
- OM2 - multimode 50/125 micron fibre, 500 MHz\*km bandwidth
- OM1 - multimode 62.5/125 micron fibre, 200 MHz\*km bandwidth

Because core sizes are different, OM1 cables can only be connected to other OM1 cables. For best results, OM2 cables should not be connected to OM3 cables. However, if an OM2 cable is connected to an OM3 cable, the characteristics of the OM2 cable apply to the entire length of the cables.

The following table shows the supported distances for the three different cable types at the three different link speeds.

Cable	2.125 Gbps	4.25 Gbps	8.5 Gbps
OM3	.5m - 500m	.5m - 380m	.5m - 150m
OM2	.5m - 300m	.5m - 150m	.5m - 50m
OM1	.5m - 150m	.5m - 70m	.5m - 21m

#5729 feature indicates a full high adapter. CCIN is 5729.

A Gen2 PCIe slot is required to provide the bandwidth for all four ports to operate at full speed.

Consult with your IBM representative or Business Partner for additional information relative to any third party attachment.

See also optional wrap plug feature #ECW0 which is:

- a) Required to run some diagnostic procedures and
  - b) in some cases may speed system boot when placed in empty ports as well as avoid useless messages pointing to a planned empty port.
  - Attributes provided: Four Port Fibre Channel Adapter
  - Attributes required: 1 Empty PCIe Gen2 slot
  - Minimum required: 0
  - Maximum allowed: 16 (Initial order maximum: 16)
  - OS level required:
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - AIX 6.1 and 7.1 or later supported
    - IBM i 7.1 TR8 and 7.2 or later supported through VIOS
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: KVM - supported, refer to the Software requirements section for the supported KVM levels

(#5735) - 8 Gigabit PCI Express Dual Port Fibre Channel Adapter

(No longer available as of December 13, 2019)

The 8 Gigabit PCI Express Dual Port Fibre Channel Adapter is a high-performance 8x short form adapter based on the Emulex LPe12002 PCIe Host Bus Adapter (HBA). Each port provides single initiator capability over a fibre link. The ports have LC type connectors and utilize shortwave laser optics. The adapter operates at link speeds of 2, 4, and 8 Gbps and will automatically negotiates to the highest speed possible. LEDs on each port provide information on the status and link speed of the port.

The adapter connects to a Fibre Channel switch (AIX, IBM i, Linux,VIOS). If in an IBM i environment, devices can also be directly attached.

N\_Port ID Virtualization (NPIV) capability is supported through VIOS.

Cables are the responsibility of the customer. Use multimode fibre optic cables with short-wave lasers that adhere to the following specifications:

- OM3 - multimode 50/125 micron fibre, 2000 MHz\*km bandwidth
- OM2 - multimode 50/125 micron fibre, 500 MHz\*km bandwidth
- OM1 - multimode 62.5/125 micron fibre, 200 MHz\*km bandwidth

Because core sizes are different, OM1 cables can only be connected to other OM1 cables. For best results, OM2 cables should not be connected to OM3 cables. However, if an OM2 cable is connected to an OM3 cable, the characteristics of the OM2 cable apply to the entire length of the cables.

The following table shows the supported distances for the three different cable types at the three different link speeds.

Cable	2.125 Gbps	4.25 Gbps	8.5 Gbps
OM3	.5m - 500m	.5m - 380m	.5m - 150m
OM2	.5m - 300m	.5m - 150m	.5m - 50m
OM1	.5m - 150m	.5m - 70m	.5m - 21m

#5735 feature indicates a full high adapter. #5273 feature indicates a low profile adapter which is electronically identical. CCIN is 577D. Consult with your IBM representative or Business Partner for additional information relative to any third party attachment.

See also feature #EN0F or #EN0G for a 2-port 8Gb Fibre Channel adapter based on a QLogic adapter.

See also optional wrap plug feature #ECW0 which is:

- a) Required to run some diagnostic procedures and
- b) In some cases may speed system boot when placed in empty ports as well as avoid useless messages pointing to a planned empty port.
- Attributes provided: Dual Port Fibre Channel
- Attributes required: 1 Empty PCIe slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Supports PowerKVM and VIOS. Refer to Software requirements for specific code levels supported.

## (#5744) - PCIe2 4-Port 10GbE&1GbE SR&RJ45 Adapter

(No Longer Available as of February 23, 2017)

This PCIe Gen2 Ethernet adapter provides two 10 Gb SFP+ SR optical transceiver ports and two 1 Gb RJ45 ports. This is a full high adapter.

For the 10Gb ports, LC Duplex type connectors and MMF-850nm fiber cable are used. With 62.5 micron OM1, up to 33 meter length fiber cables are supported. With 50 micron OM2, up to 82 meter fiber cable lengths are supported. With 50 micron OM3, up to 300 meter fiber cable lengths are supported.

For the 1Gb RJ45 ports, The RJ45 port, 4-pair CAT-5 Unshielded Twisted Pair (UTP) cable or higher is supported for distances of up to 100 meters is supported. In addition to 1Gb (1000 Mb) networks, 100 Mb networks are also supported, but 10Mb networks are not supported. Note #5744 and #5280 adapters are physically and electronically identical except for their low profile or full high PCI slot attribute.

### Highlights

- Implements iWARP RDMA/RDDP (Remote Direct Data Placement) which adheres to IETF (Internet Engineering Task Force) standards. (Linux and 10 Gb port Only)
- RDMA-enabled NIC (RNIC) specifically optimized for cluster computing (Linux and 10 Gb port Only)
- Full iSCSI initiator and target mode stack (Linux and 10 Gb port Only)
- iSCSI Header & Data Digest (CRC) generation & checking (Linux and 10 Gb port Only)
- PDU recovery (Linux and 10 Gb port Only)

### Attributes

- MSI-X, MSI and support of legacy pin interrupts
- 10GBASE-SR short-reach optics
- IEEE 802.3ae (10 GbE)
- IEEE 802.3ab (1 GbE)
- IEEE 802.1p priority and 802.1Q VLAN tagging
- IEEE 802.3x flow control
- Link aggregation, 802.3ad 802.3 compliance
- IEEE 802.3ad load-balancing and failover
- Ether II and 802.3 encapsulated frames
- Multiple MAC addresses per interface
- Jumbo frames up to 9.6 Kbytes
- TCP checksum offload for IPv4 and IPv6
- TCP segmentation Offload (TSO) for IPv4 and IPv6
- UDP checksum offload for IPv4 and IPv6
- IETF RDDP and RDMAC iWARP compliance (Linux and 10 Gb port Only)
- APIs: RNIC-PI, kDAPL and OpenFabrics 1.4 (Linux and 10 Gb port Only)
- Attributes provided: PCIe-V1.1 x8 10GBASE-SR short -reach optics adapter
- Attributes required: PCI Express full high slot, Fiber Cable (Optional LC-SC 62.5 micron converter cable, 50 micron LC-SC connections), LC wrap plug-d
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: KVM - supported, refer to the Software requirements section for the supported KVM levels

## (#5748) - POWER GXT145 PCI Express Graphics Accelerator

The POWER GXT145 is a versatile, low-priced 2D graphics accelerator. It can be configured to operate in either 8-bit or 24-bit color modes. This adapter supports both analog and digital monitors. The adapter requires a PCI Express slot. If attaching a device that requires a 15 pin D-Shell receptacle for a VGA connection (eg. when the graphic adapter output is routed directly to a 7316-TF3 display or indirectly through a KVM switch), order a VGA to DVI Connection Converter, feature number 4276 to accommodate the attaching device.

Limitation: Placement of this PCIe adapter is not supported in the PCIe Gen3 I/O Drawer.

- Hardware Description
  - 128-bit graphics processor
  - 8-bit indexed, 8-bit true color, or 24-bit true color
  - 32 MB SDRAM
  - x1 PCI Express interface
  - 2 DVI-I (analog/digital video) connectors
- Features Supported
  - Up to approximately 16.7 million colors
  - Rectangular clipping
  - 1 monitor connected analog at up to 2048 x 1536 resolution
  - 1 monitor connected digital at up to 1280 x 1024 resolution
  - 2nd monitor supported on secondary connector at up to 1600 x 1200 analog or 1280 x 1024 digital
  - 2nd monitor support in AIX is only in clone mode with an analog connection
- APIs Supported
  - X-Windows and Motif
- Software requirements
  - The total number of Graphics Adapters in any one partition may not exceed four.
- Attributes provided: 2D Graphics Adapter
- Attributes required: 1 PCI Express Slot
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - Red Hat Enterprise Linux 6.5, or later
  - SUSE Linux Enterprise 11, Service Pack 3, or later
  - AIX 6.1 and 7.1 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Feature #5748 adapter is not supported in the PCIe Gen3 I/O Drawer.

## (#5767) - 2-Port 10/100/1000 Base-TX Ethernet PCI Express Adapter

The IBM 2-Port 10/100/1000 Base-TX Ethernet PCI Express (PCIe) Adapter is a Full Duplex, dual ported, Gigabit Ethernet adapter designed with highly integrated components. This adapter can be configured to run each port at 10, 100, or 1000 Mbps data rates. The adapter interfaces to the system via a PCIe bus. It is PCIe x4 capable and conforms to the PCIe 1.0a standard. The adapter connects to a network using a 4-pair CAT-5 Unshielded Twisted Pair (UTP) cable for distances of up to 100m. AIX Network Install Manager (NIM) boot capability is supported with this adapter. The adapter conforms to the IEEE 802.3ab 1000Base-T standard. The adapter also supports jumbo frames when running at the 1000 Mbps speed.

A function called 'Large Send' or sometimes known as TCP Segmentation is also provided by this adapter. This function offloads the TCP segmentation operation from the AIX IP layer to the adapter for outgoing (transmit side) TCP segments. Another function known as "Checksum Offload" which offloads the TCP Checksum Operation or workload from the CPU to the adapter is also provided.

The IBM 2-Port 10/100/1000 Base-TX Ethernet PCIe Adapter (#5767) should be considered where maximum port density is required per I/O card slot. For a suggested maximum number of adapters taking performance into consideration, see the IBM System p PCI placement guide (SA76-0090) for information about the PCIe slots on your system unit.

Limitations: The 1000 Mbps speed is not supported in Half Duplex (HDX) mode.

- Attributes provided: Two full-duplex 10/100/1000Base-TX UTP connections to Gigabit Ethernet LAN(s).
- Attributes required: One available PCIe card slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later supported
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No

## (#5768) - 2-Port Gigabit Ethernet-SX PCI Express Adapter

(No Longer Available as of February 24, 2015)

The IBM 2-Port Gigabit Ethernet-SX PCI Express (PCIe) Adapter provides two 1 Gbps (1000 Base-SX) full-duplex Ethernet LAN connections. The adapter interfaces to the system via a PCIe bus. It is PCIe x4 capable and conforms to the PCIe 1.0a standard. The adapter connects to a network using a 50/62.5 micron shortwave (850 nm) multimode optical cable that conforms to the IEEE 802.3z standard. The adapter supports distances of 260m for 62.5 micron Multi Mode Fiber (MMF) and 550m for 50.0 micron MMF. AIX Network Install Manager (NIM) boot capability is supported with this adapter.

A function called 'Large Send' or sometimes known as TCP Segmentation is also provided by this adapter. This function offloads the TCP segmentation operation from the AIX IP layer to the adapter for outgoing (transmit side) TCP segments. Another function known as "Checksum Offload" which offloads the TCP Checksum Operation or workload from the CPU to the adapter is also provided.

The IBM 2-Port Gigabit Ethernet-SX PCIe Adapter (#5768) should be considered where maximum port density is required per I/O card slot. For a suggested maximum number of adapters taking performance into consideration, see the IBM System p PCI placement guide (SA76-0090) for information about the PCIe slots on your system unit.

Note: The 2-Port IBM Gigabit Ethernet-SX PCIe Adapter incorporates an LC type connector on the card. This new, smaller form factor connector is being used by the industry for the next generation of fiber optic networks. If connecting into an older, existing SC type connector network, an LC-SC 62.5 Micron Fiber Converter Cable (#2459) or LC-SC 50 Micron Fiber Converter Cable (#2456) is required.

Limitation: Half Duplex (HDX) mode is not supported.

- Attributes provided: Two full-duplex 1000Base-SX fiber connections to a Gigabit Ethernet LAN(s).
- Attributes required: One available PCIe card slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later supported
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No

## (#5769) - 10 Gigabit Ethernet-SR PCI Express Adapter

(No Longer Available as of July 14, 2017)

The 10 Gigabit Ethernet-SR PCI Express Adapter is a full-high, high performance adapter that uses a LC Duplex type connector and is capable of transferring data a distance of 300m over MMF-850nm Fiber cable. The product conforms to the IEEE, 802.3ae 10GBASE-SR specification for Ethernet transmission.

### Highlights

- Implements iWARP RDMA/RDDP (Remote Direct Data Placement) which adheres to IETF (Internet Engineering Task Force) standards. (Linux Only)
- RDMA-enabled NIC (RNIC) specifically optimized for cluster computing (Linux Only)
- Full iSCSI initiator and target mode stack (Linux Only)
  - iSCSI Header & Data Digest (CRC) generation & checking (Linux Only)
  - PDU recovery (Linux Only)

### Attributes

- MSI-X, MSI and support of legacy pin interrupts
- 10GBASE-SR short-reach optics
- IEEE 802.3ae (10 GbE)
- IEEE 802.1p priority and 802.1Q VLAN tagging
- IEEE 802.3x flow control
- Link aggregation, 802.3ad 802.3 compliance
- IEEE 802.3ad load-balancing and failover
- Ether II and 802.3 encapsulated frames
- Multiple MAC addresses per interface
- Jumbo frames up to 9.6 Kbytes
- TCP checksum offload for IPv4 and IPv6
- TCP segmentation Offload (TSO) for IPv4 and IPv6
- UDP checksum offload for IPv4 and IPv6
- Receive side scaling and packet steering
- Line rate packet filtering and attack protection
- IETF RDDB and RDMAC iWARP compliance (Linux Only)
- APIs: RNIC-PI, kDAPL and OpenFabrics 1.4 (Linux Only)
- Attributes provided: PCIe-V1.1 x8 10GBASE-SR short -reach optics adapter
- Attributes required: PCI Express slot, Fiber Cable (Optional LC-SC 62.5 micron converter cable, 50 micron LC-SC connections), LC wrap plug-d
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 or later and 7.2 or later - supported only with VIOS
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
  - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
  - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.3 with interim fix IV56366, or later

## (#5771) - SATA Slimline DVD-RAM Drive

This DVD drive reads and writes 4.7GB DVD-RAM discs. It also reads Type II (removable from cartridge) DVD-RAM discs. System boot and install functions are supported with CD-ROM, DVD and DVD-RAM media.

### Characteristics

- Supports 8cm and 12cm disk
- CD/DVD-ROM/RAM Read 24X/8X/5X
- DVD-RAM Write 5X
- Buffer Size 2MB and can not be disabled

Limitations: DVD video is not supported.

- Attributes provided: One 4.7GB SATA Slimline DVD-RAM Drive
- Attributes required: One SATA/SAS slimline (12.7mm) high media bay
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS supported. Refer to Software requirements for specific code levels supported.

## (#5772) - 10 Gigabit Ethernet-LR PCI Express Adapter

(No Longer Available as of April 23, 2017)

The 10GbE Fiber Optic Server Adapter, is 10 Gigabit Ethernet (GbE) Fiber NIC for PCI Express (PCIe) capable systems. The adapter is a high-performance, highly integrated 10 Gigabit Ethernet LAN adapters with PCIe host interface and fiber LAN connectors on the optical modules.

Feature 5772 conforms to the 802.3ae 10GBASE-LR specification for Ethernet transmissions over 1310nm single-mode fiber optic cable for distances up to 10 kilometers.

#### Highlights

- 10GBASE-LR fiber optic LAN connections
- Eight (8) lane PCIe Host Connector
- PCIe Low-Profile add-in card dimensions (68.9mm x 167.65mm)
- Uses Intel 82598EB MAC
- PCI Express bus interface 1.1 and v.2.0 (Gen 1 only)
- PCIe Hot Plug/Active PCI
- Controller EEPROM and FLASH ROM
- Status LED (Link/Activity)
- Low power PCIe Gen 1 MAC
- \*Support either MSI or MSI-X depending on system/OS support for multi-CPU and multi-core systems.
- Dynamic interrupt moderation for lower latency
- Supports 10Gb, full duplex
- Supports EtherChannel with the existing software
- Supports IEEE 802.3ad (link aggregation control protocol)
- IEEE 802.1Q VLANs
- IEEE 802.3x
- IEEE 802.1p
- Transmission Control Protocol (TCP)/User Datagram Protocol (UDP) Checksum Offloading
- Internet Protocol ver 4 (IPv4) Checksum Offloading
- Transmit Checksum Offloading with TCP Segmentation Offload (TSO)/ Large Send Offload

Note: \* Supported by SUSE Linux Enterprise Server 10 SP3 for POWER Systems, or later and Red Hat Enterprise Linux for POWER, version 5.4, or later.

- Attributes provided: One 10 Gigabit Ethernet port
- Attributes required: One x8 lane or x16 PCI Express slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#5774) - 4 Gigabit PCI Express Dual Port Fibre Channel Adapter

(No longer available as of October 19, 2018)

The 4 Gigabit Dual Port Fibre Channel Adapter is a 64-bit address/data, short form factor PCIe adapter with an LC type external fiber connector. With the use of appropriate optical fiber cabling, this adapter provides the capability for a network of high-speed local and remote located storage. The adapter will auto-negotiate for the highest data rate between adapter and an attaching device at 1 Gbps, 2 Gbps or 4 Gbps of which the device or switch is capable. Between the adapter and an attaching device or switch, the distances supported are up to: 500 meters running at 1 Gbps data rate, 300 meters running at 2 Gbps data rate, and 150 meters running at 4 Gbps data rate. When used with IBM Fibre Channel storage switches supporting long-wave optics, distances of up to 10 kilometers are capable running at either 1 Gbps, 2 Gbps, or 4 Gbps data rates.

The 4 Gigabit PCIe Dual Port Fibre Channel Adapter can be used to attach devices either directly, or by means of Fibre Channel Switches. If attaching a device or switch with a SC type fiber connector(s), use of an LC-SC 50 Micron Fiber Converter Cable (#2456) or a LC-SC 62.5 Micron Fiber Converter Cable (#2459) is required.

Refer to the following IBM storage subsystem Web page for additional supported server attachment information for IBM devices.

[http://www.ibm.com/servers/storage/product/products\\_p\\_series.html](http://www.ibm.com/servers/storage/product/products_p_series.html)

Consult with your IBM representative or Business Partner for additional information relative to any third party attachment.

See also optional wrap plug feature #ECW0 which is:

- a) Required to run some diagnostic procedures and
- b) in some cases may speed system boot when placed in empty ports as well as avoid useless messages pointing to a planned empty port.
- Attributes provided: 2 Fibre Channel
- Attributes required: 1 Empty PCIe slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#5785) - 4 Port Async EIA-232 PCIe Adapter

Connection for 4 asynchronous EIA-232 devices. Ports are programmable to support EIA-232 protocols, at a line speed of 128K bps. One connector on the rear of the adapter provides attachment for a fan-out cable (provided) which provides four EIA-232 ports.

Note #5785 and # 5277 are physically and electrically identical adapters, except for the type of PCIe slot used (full-high or low profile). Note also the 4-port #5277/5785 is functionally nearly identical to the 2-port #5289/5290 except for the number and type of connectors.

- Attributes provided: 4-Port Asynchronous EIA-232 via 4-Port DB9 DTE Fan-Out Cable 1.2 M (4 ft.), 4 x 9-pin D-Sub (Male DB-9) and 1 x 68-pin D-Sub (HD-68)
- Attributes required: 1 full high PCIe Slot
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR11, or later
  - IBM i 7.2 TR4, or later
  - IBM i 7.3, or later
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#5805) - PCIe 380MB Cache Dual - x4 3 Gb SAS RAID Adapter

(No Longer Available as of May 13, 2016)

The #5805 PCIe 380 MB Cache Dual - x4 3 Gb SAS RAID Adapter is a short, full high form factor adapter that supports the attachment of SAS disk and SAS solid state drives (SSD) using a pair of mini SAS 4x connectors. Write cache can provide an I/O performance boost even if RAID 5/6/10 is not used. From a high-level perspective, except for having a larger write cache, it is very similar to the feature 5902 PCI-X SAS adapter and provides a high-performance connection to SAS devices. Two of feature 5805 provides for mirrored write cache data and mirrored RAID parity footprints between the adapters for superior availability. Feature 5805 is installed in pairs, allowing for redundancy of the write cache. If the feature 5805 pairing is broken, then write cache is disabled. The #5805 can also be paired with a #5903 adapter.

Feature 5805 supports SAS disk drives (HDD) and SAS-bay-based SSD located in a PCIe 12X I/O Drawer or drives located in an EXP 12S Disk Drawer or EXP24S Disk Drawer. AIX/Linux formatted SAS drives can be attached, and RAID 0, RAID 5, RAID 6, and RAID 10 are supported. Similarly, IBM i RAID formatted HDD and SSD can also be attached, and RAID 5 and RAID 6 is support. AIX, IBM i and Linux also support The #5805 is electronically identical to the #5903 and both the 5903 and 5805 use CCIN number is 574E. The #5805 adapter is slightly more narrow than the #5903 due to the placement of its cache batteries.

With proper cabling and configuration, multiple wide ports are used to provide redundant paths to each dual port SAS disk or SSD.. The adapter manages SAS path redundancy and path switching should a SAS drive failure occur. The pairing of #5805 provides a high availability I/O configuration to protect against the failure of a SAS adapter. SAS X cables attach SAS disk drives in an EXP 12S and/ or EXP24S Disk Drawer. SAS #3688 cables attach SFF SAS drives in an PCIe 12X I/O Drawer. The high availability I/O configuration connection is provided via the internal wiring within the PCIe 12X I/ O drawer itself.

Limitation: 4k byte sector HDD/SSD are not supported. Only 5xx byte sector drives are supported on this generation of PCIe adapter.

Highlights:

- Supports up to 48 SAS disks, when configured with four #5886 EXP 12S Disk Drawers or two #5887/EL1S EXP24S Disk Drawer
- SAS speed = 3 Gbs
- SAS Serial SCSI Protocol (SSP) and Serial Management Protocol (SMP)
- 380 MB of non-volatile fast write cache can increase disk subsystem performance
- Dual controller supports mirrored write cache data and mirrored RAID parity footprints
- Concurrent Firmware Update
- Attributes provided: Eight physical links via two mini SAS 4x connectors
- Attributes required: Configuration always requires even pairs of #5805 (or #5903/5805). SAS Media devices are not supported. When attaching #5886 EXP12S or #5887/EL1S EXP24S at least one of the following SAS (X) cables #3661, #3662 or #3663 must be used
- Minimum required: 0
- Maximum allowed: 12 (Initial order maximum: 12)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#5887) - EXP24S SFF Gen2-bay Drawer

(No Longer Available as of March 31, 2018)

The EXP24S SFF Gen2-bay Drawer is an expansion drawer with twenty-four 2.5-inch form factor SAS bays. #5887 supports up to 24 hot-swap SFF SAS Hard Disk Drives (HDD). It uses only 2 EIA of space in a 19-inch rack. The EXP24S includes redundant AC power supplies and two power cords. The EXP24S SFF bays use Gen-2 or SFF-2 SAS bays that are not compatible with CEC SFF Gen-1 SAS bays or with #5802/ 5803 SFF SAS bays.

With AIX/Linux/VIOS, the EXP24S can be ordered with four sets of 6 bays, two sets of 12 bays or one set of 24 bays (mode 4, 2 or 1). With IBM i the EXP24S can be ordered as one set of 24 bays (mode 1).

The EXP24S SAS ports are attached to SAS controller(s) which can be a SAS PCI-X or PCIe adapter or pair of adapters. The EXP24S can also be attached to an imbedded SAS controller in a server with an imbedded SAS port. Attachment between the SAS controller and the EXP24S SAS ports is via the appropriate SAS Y or X cables.

Limitation: The mode is set at the IBM factory. The capability to change modes after manufacture is not offered.

- Attributes provided: 24 SFF SAS bays, slot filler panels are provided for empty bays when initially shipped from IBM. #5887 rails have some adjustability for depth - 25.25 to 29.875 inches.
- Attributes required:
  - Available SAS controller (PCI or imbedded server controller)
  - Power System server, POWER6 or later
  - Available 2U 19-inch rack space
  - Appropriate SAS cables for configuration mode selected
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS/KVM - supported, refer to the Software requirements for the supported level

## (#5899) - PCIe2 4-port 1GbE Adapter

This short PCIe Gen2 adapter provides four 1Gb Ethernet ports that can be configured to run at 1000, 100 or 10 Mbps. 4-pair CAT-5 Unshielded Twisted Pair (UTP) cables up to 100 meters in length are attached to the copper RJ45 connectors. Each port is independent of one another and supports full-duplex or half-duplex. 1000 Mbps speed is not supported in Half Duplex (HDX) mode.

Feature #5260 and #5899 are electronically identical and have the same CCIN of 576F. #5260 indicates a low profile tail stock while #5899 indicates a full high tail stock.

Details for the ports include: for 5260 & 5899



- AIX NIM support
  - IEEE 802.3ab (1 GbE), 802.1p priority, 802.1Q VLAN tagging, 802.3x flow control, 802.3ad load-balancing and failover,
  - Link aggregation, IEEE 802.3ad 802.3
  - Multiple MAC addresses per interface
  - MSI-X, MSI and support of legacy pin interrupts
  - Ether II and IEEE 802.3 encapsulated frames
  - Jumbo frames up to 9.6 Kbytes
  - TCP checksum offload for IPv4 and IPv6
  - TCP segmentation Offload (TSO) for IPv4 and IPv6
  - UDP checksum offload for IPv4 and IPv6
  - AIX, IBM i and Linux provide software iSCSI support through the adapter. Linux can also leverage adapter hardware support including initiator and header & data digest (CRC) generation and checking
  - Attributes provided: Four-port 1 Gb Ethernet
  - Attributes required: 1 Full High Profile PCIe slot (Gen1 or Gen2)
  - Minimum required: 0
  - Maximum allowed: 17 (Initial order maximum: 17)
  - OS level required:
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - AIX 6.1 and 7.1 or later supported
    - IBM i 7.1 TR8 and 7.2 or later supported
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Supports PowerKVM and VIOS. Refer to Software requirements for specific code levels supported.

## (#5901) - PCIe Dual-x4 SAS Adapter

(No longer available as of December 31, 2020)

The #5901 PCIe Dual-4x SAS Adapter is a low-profile short form factor adapter which supports the attachment of SAS disk, tape, and DVD using a pair of mini SAS 4x connectors. From a high level perspective, it is functionally equivalent to the #5912 PCI-X SAS adapter and provides a high-performance connection to SAS devices.

The #5901 supports external SAS tape drives such as the DAT72, DAT160, LTO-4, LTO-5, LTO-6, and LTO-7 found in the IBM tape units such as the 7226-1U3, 7214-1U2, TS2240, TS2340, TS3100, TS3200, and TS3310. Other removable media devices supported include IBM SAS/SATA DVD-ROM/RAM drives. SAS adapter- to-enclosure (AE) cables are used to attach these drives. See also feature #EJ1N.

The #5901 supports SAS SFF disk drives located in a PCIe 12X I/O Drawer or SAS disk drives located in an EXP 12S or EXP24S Disk Drawer or drives in a Power6 system CEC (split DASD backplane). AIX/ Linux formatted SAS drives are supported with RAID 0 (with mirroring) and RAID 10. IBM i formatted SAS drives are supported and data spreading and mirroring functions are provided by IBM i. RAID-5 or RAID-6 are not supported on the #5901. #5901 has zero write cache. CCIN for #5901 is 57B3.

With proper cabling and configuration, multiple wide ports are used to provide redundant paths to each dual port SAS disk . The adapter manages SAS path redundancy and path switching should a SAS drive failure occur. SAS Y cables attach SAS disk drives in an EXP12S or EXP24S Disk Drawers. SAS #3688 cables attach SFF SAS drives in an PCIe 12X I/O Drawer. With the EXP12S or EXP24S Drawer, a high availability I/O configuration can be created using a pair of #5901 adapters and SAS X cables to protect against the failure of a SAS adapter. In the PCIe 12X I/O Drawer, this function is provided via the internal wiring within the drawer itself.

Limitation: 4k byte sector HDD/SSD are not supported. Only 5xx byte sector drives are supported on this generation of PCIe adapter.

Highlights:

- Supports up to 48 SAS disks, when configured with four #5886 EXP12S Disk Drawers or two #5887/#EL1S EXP24S Disk Drawers
- Supports up to 42 disk (18 SFF disk plus up to 24 3.5-inch SAS disk) when configured with a #5802/#EL36 19-inch PCIe 12X I/O Drawer and two #5886 EXP 12S Disk Drawers or configured with a #5802/#EL36 and one #5887/#EL1S EXP24S
- Supports up to 50 disk (26 SFF disk plus up to 24 3.5-inch SAS disk) when configured with a #5803 24-inch PCIe 12X I/O Drawer and two #5886 EXP 12S Disk Drawers or configured with a #5803 and one #5887/#EL1S EXP24S
- SAS speed = 3 Gbs
- SATA speed = 1.5 Gbs
- SAS Serial SCSI Protocol (SSP), Serial ATA Tunneling Protocol (STP) and Serial Management Protocol (SMP)
- Dual controller supports mirrored RAID parity footprints
- Concurrent firmware update
- Attributes provided: Eight physical links via two mini SAS 4x connectors
- Attributes required: One PCI Express slot
- Minimum required: 0
- Maximum allowed: 12 (Initial order maximum: 12)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#5913) - PCIe2 1.8 GB Cache RAID SAS Adapter Tri-port 6 Gb

The PCIe2 1.8 GB Cache RAID SAS Adapter Tri-port 6 Gb (#5913) provides high performance HDD or SSD controller function using PCIe Gen2 technology. HDD and SSD can be either SFF or 3.5-inch drives (or both). A pair of adapters are required to provide mirrored write cache data and adapter redundancy. Integrated flash memory provides protection of the write cache without batteries in case of power failure.

The #5913 provides three Mini-SAS HD (high density) connectors for the attachment of SAS drives located in the #5887/EL1S EXP24S, #5886 EPX12S, or #5802/5803/EL36 12X PCIe I/O drawers. X, YO or AT SAS cables with HD connectors are used to attach to these drawers. A max of 3 EXP24S or 6 EXP12S can be attached. If controlling drives in a #5802/5803/EL36 the #5913 pairs must be located in that #5802/ 5803/EL36. An AA SAS cable with HD connectors is attached to the #5913 pair to communicate status and cache content information and is required unless all three ports are being used to attach I/O drawers.

The #5913 provides RAID 0, RAID 5, RAID 6 and RAID 10 for AIX and Linux and VIOS. The adapter provides RAID 5 and RAID 6 for IBM i. IBM i provides both OS mirroring and data spreading. AIX/Linux/VIOS provide OS mirroring (LVM). The adapter's CCIN is 57B5.

Limitation: 4k byte sector HDD/SSD are not supported. Only 5xx byte sector drives are supported on this generation of PCIe adapter

- Attributes provided: PCIe2 1.8 GB Cache RAID SAS Adapter
- Attributes required: One PCIe slot per #5913
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No

### (#5915) - SAS AA Cable 3m - HD 6Gb Adapter to Adapter

This 3 meter SAS cable connects a pair of SAS adapters to each other. This AA cable has two Mini-SAS HD (High Density)connectors which connect the top connectors of two #5913 1.8GB RAID SAS Adapters. The cable provides a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable can support up to 6Gb throughput.

An AA cable is always required between a pair of #5913 adapters unless all six (three pair) of ports are used to attach I/O drawers. If an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters.

- Attributes provided: high speed connection between two #5913 SAS adapters
- Attributes required: available top connectors on pair of #5913 SAS adapters
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#5916) - SAS AA Cable 6m - HD 6Gb Adapter to Adapter

This 6 meter SAS cable connects a pair of SAS adapters to each other. This AA cable has two Mini-SAS HD (High Density)connectors which connect the top connectors of two #5913 1.8GB RAID SAS Adapters. The cable provides a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable can support up to 6Gb throughput.

An AA cable is always required between a pair of #5913 adapters unless all six (three pair) of ports are used to attach I/O drawers. If an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters.

- Attributes provided: high speed connection between two #5913 SAS adapters
- Attributes required: available top connectors on pair of #5913 SAS adapters
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#5917) - SAS AA Cable 1.5m - HD 6Gb Adapter to Adapter

This 1.5 meter SAS cable connects a pair of SAS adapters to each other. This AA cable has two Mini-SAS HD (High Density)connectors which connect the top connectors of two #5913 1.8GB RAID SAS Adapters. The cable provides a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable can support up to 6Gb throughput.

An AA cable is always required between a pair of #5913 adapters unless all six (three pair) of ports are used to attach I/O drawers. If an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters.

- Attributes provided: high speed connection between two #5913 SAS adapters
- Attributes required: available top connectors on pair of #5913 SAS adapters
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#5918) - SAS AA Cable 0.6m - HD 6Gb Adapter to Adapter

This 0.6 meter SAS cable connects a pair of SAS adapters to each other. This AA cable has two Mini-SAS HD (High Density) connectors which connect the top connectors of two #5913 1.8GB RAID SAS Adapters. The cable provides a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable can support up to 6Gb throughput.

An AA cable is always required between a pair of #5913 adapters unless all six (three pair) of ports are used to attach I/O drawers. If an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters.

- Attributes provided: high speed connection between two #5913 SAS adapters
- Attributes required: available top connectors on pair of #5913 SAS adapters
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#5923) - Non-paired PCIe SAS RAID Indicator

(No longer available as of April 24, 2020)

Feature 5923 must be added for every instance of a non-paired SAS RAID adapter #5903. It identifies a specific high availability configuration supported by AIX or Linux which has one #5903 on one system and the paired #5903 located on a second system. IBM i does not support paired adapter on different servers.

- Attributes provided: SAS RAID adapter firmware disables write cache until a second SAS RAID adapter is recognized.
- Attributes required: Every #5923 requires a SAS RAID adapter (#5903) on both this server and on another server that will pair up the SAS RAID adapter and enable the onboard caches to function.
- Minimum required: 0
- Maximum allowed: 45 (Initial order maximum: 45)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#5924) - Non-paired Indicator 5913 PCIe SAS RAID Adapter

(No longer available as of April 24, 2020)

Feature 5924 must be added for every instance of a non-paired SAS RAID adapter #5913. It identifies a specific high availability configuration supported by AIX or Linux which has one #5913 on one system and the paired #5913 located on a second system. IBM i does not support paired adapter on different servers.

- Attributes provided: SAS RAID adapter firmware disables write cache until a second SAS RAID adapter is recognized.
- Attributes required: Every #5924 requires a 6Gb/s SAS RAID adapter (#5913) on both this server and on another server that will pair up the SAS RAID adapter and enable the onboard caches to function.
- Minimum required: 0
- Maximum allowed: 34 (Initial order maximum: 34)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6068) - Opt Front Door for 1.8m Rack

#6068 provides an attractive black full height rack door on the #0551 19 Inch 1.8m Rack. The door is steel, with a perforated flat front surface. The perforation pattern extends from the bottom to the top of the door to enhance ventilation and provide some visibility into the rack.

- Attributes provided: Front Door
- Attributes required: #0551 19 inch 1.8m Rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#6069) - Opt Front Door for 2.0m Rack

#6069 provides an attractive black full height rack door on the #0553 19 inch 2.0m Rack. The door is steel, with a perforated flat front surface. The perforation pattern extends from the bottom to the top of the door to enhance ventilation and provide some visibility into the rack.

- Attributes provided: Front Door
- Attributes required: #0553 19 inch 2.0 meter Rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#6248) - 1.8m Rack Acoustic Doors

#6248 provides front and rear doors for use with the #0551 19 inch 1.8m Rack. This door kit provides additional acoustic dampening for use where a quieter environment is desired. #6248 results in a larger footprint and requires additional space.

- Attributes provided: Acoustic Door Kit
- Attributes required: #0551 19 inch 1.8m Rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#6249) - 2.0m Rack Acoustic Doors

#6249 provides front and rear doors for use with the #0553 19 inch 2.0m Rack. This door kit provides additional acoustic dampening for use where a quieter environment is desired. #6249 results in a larger footprint and requires additional space.

- Attributes provided: Acoustic Door Kit
- Attributes required: #0553 19 inch 2.0 meter Rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#6263) - 1.8m Rack Trim Kit

This feature provides a decorative trim kit for the front of feature number 0551 (19 inch 1.8m Rack).

- Attributes provided: Decorative trim kit
- Attributes required: #0551 19 inch 1.8m Rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: n/a
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No
- Note: 1x#6263 per #0551

### (#6272) - 2.0m Rack Trim Kit

This feature provides a decorative trim kit for the front of feature number 0553 (19 inch 2.0m Rack).

- Attributes provided: Decorative trim kit
- Attributes required: #0553 19 inch 2.0 meter Rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: n/a
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No  
Note: 1X#6272 per #0553

#### (#6458) - Pwr Crd 4.3m 14ft to IBM PDU

Standard IBM rack power cable that goes from the system or I/O drawer to the rack power distribution unit (PDU). Cable has C13 on one end (for C14 power supply connector on system unit or I/O drawer) and C14 on the other end (for IBM PDU C13 receptacle). Note for different length C13/C14 cables see #6671 (2.7M) or #6672 (2.0M).

- Attributes provided: Power jumper cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6460) - Power Cord 4.3m (14-ft), Drawer To OEM PDU (125V, 15A)

This power cord goes from the system or I/O drawer to the rack OEM power distribution unit or wall socket outlet. Cable has C13 on one end (for C14 power supply connector on system unit or I/O drawer) and plug type #4 (NEMA 5-15) on the other end.

The following countries/regions use the #6460 power cord to power the system and/or peripheral features requiring a power cord: United States, Antigua & Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Bonaire, Calicos Islands, Canada, Cayman Islands, Colombia, Costa Rica, Cuba, Curacao, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Mexico, Micronesia, Montserrat, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, St. Kitts/Nevis, St. Martin, Taiwan, Tortola (BVI), Trinidad/Tobago, Venezuela.

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6469) - Power Cord 4.3m (14-ft), Drawer to Wall/OEM PDU (250V/15A) U.S.

This power cord goes from the system or I/O drawer to the wall or rack OEM power distribution unit. Cable has C13 on one end (for C14 power supply connector on system unit or I/O drawer) and Plug type #5 (NEMA 6-15) on the other end for wall or OEM PDU.

The following countries/regions use the #6469 power cord to power the system and/or peripheral features requiring a power cord: United States, Anguilla, Antigua & Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Bonaire, Caicos Is., Canada, Cayman Islands, Colombia, Costa Rica, Cuba, Curacao, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Japan, Micronesia, Montserrat, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, St. Marten NA, Taiwan, Tortola (BVI), Thailand, Venezuela.

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6470) - Power Cord 1.8m (6-ft), Drawer to Wall (125V/15A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #4 (NEMA 5-15). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types. 6-foot length.

The following countries/regions use the #6470 power cord to power the system and/or peripheral features requiring a power cord:

United States, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Bonaire, Calicos Islands, Canada, Cayman Islands, Colombia, Costa Rica, Cuba, Curacao, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Mexico, Micronesia, Montserrat, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, St. Kitts/Nevis, St. Martin, Taiwan, Tortola (BVI), Trinidad/Tobago, Venezuela.

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6471) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU (250V/10A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #73 (InMetro NBR 14136). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6471 power cord to power the system and/or peripheral features requiring a power cord:

##### Brazil

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6472) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU (250V/16A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #18 (CEE 7 VII). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6472 power cord to power the system and/or peripheral features requiring a power cord:

Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Austria, Belarus, Belgium, Benin, Bosnia/Herzegovina, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Conogo, Croatia, Czech Republic, Dahomey, Djibouti, Egypt, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Finland, France, French Polynesia, French Guyana, Gabon, Georgia, Germany, Greece, Guadeloupe, Guinea, Guinea-Bissau, Hungary, Iceland, Indonesia, Iran, Ivory Coast, Kazakhstan, Krygystan, Laos, Latvia, Lebanon, Lintuania, Luxembourg, Macau, Macedonia, Mali, Martinique, Mauritania, Mauritius, Mayotte, Moldova, Monaco, Mongolia, Morocco, Mozambique, Netherlands, New Caledonia, Niger, North Korea (C19 only), Norway, Poland, Portugal, Principe, Reunion, Romania, Russia, Rwanda, St. Thomas, Saudi Arabia, Senegal, Serbia, Slovenia, Somalia, South Korea (C19 only), Spain, Surinam, Sweden, Syria, Tahiti, Tajikistan, Togo, Tunesia, Turkey, Turkmenistan, Ukraine, Upper Volta, Uzbekistan, Vanuatu, Vietnam, Wallis & Futuna, Zaire, Zimbabwe.

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6473) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU (250V/10A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #19 (CEE). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6473 power cord to power the system and/or peripheral features requiring a power cord:

##### Denmark

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6474) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/13A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #23 (BS 1364A). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6474 power cord to power the system and/or peripheral features requiring a power cord:

Abu Dhabi, Bahrain, Botswana, Brunei, Channel Islands, Cyprus, Dominica, Gambia, Grenada, Grenadines, Guyana, Hong Kong, Iraq, Ireland, Jordan, Kenya, Kuwait, Liberia, Malawi, Malaysia, Malta, Myanmar, Nkigeria, Oman, Qatar, Sierra Leone, Singapore, St. Kitts, St. Lucia, Seychelles, Sudan, Tanzania, Trinidad & Tobago, United Arab Emirates, United Kingdom, Yemen, Zambia

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6475) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/16A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #32 (SII 32-1971). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6475 power cord to power the system and/or peripheral features requiring a power cord:

##### Israel

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6476) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/10A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #24 (SEV 24507). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6476 power cord to power the system and/or peripheral features requiring a power cord:

##### Lichtenstein, Switzerland

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6477) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/16A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #22 (SABS 164). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6477 power cord to power the system and/or peripheral features requiring a power cord:

##### Bangladesh, LeSotho, Maceo, Maldives, Nambia, Pakistan, Samoa, South Africa, Sri Lanka, Swaziland, Uganda.

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6478) - Power Cord 2.7 M(9-foot), To Wall/OEM PDU, (250V, 16A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #25 (CEI 23-16). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types. The following countries/regions use the #6478 power cord to power the system and/or peripheral features requiring a power cord: Chile  
Italy  
Libya

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6488) Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (125V/15A or 250V/10A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. 125V, 15A or 250V, 10A, Plug Type #2. Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6488 power cord to power the system and/or peripheral features requiring a power cord:

Argentina, Paraguay, Uruguay.

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6489) - 4.3m (14-Ft) 3PH/32A 380-415V Power Cord

#6489 is a 14-FT/4.3m 3PH/32A power cable with a Type 46 plug which distributes power from a power source to a Power Distribution Unit.

- Attributes provided: power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6491) - 4.3m (14-Ft) 1PH/63A 200-240V Power Cord

#6491 is a 14-FT/4.3m 200-240V/63A power cord with a Type 46 plug which distributes power from a power source to a Power Distribution Unit.

- Attributes provided: power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6492) - 4.3m (14-Ft) 1PH/48A 200-240V Power Cord

Feature #6492 is a 14-FT/4.3m 200-240V/48A rated power cord with a Type 46 plug which distributes power from a power source to a Power Distribution Unit.

- Attributes Provided: Power Cord PDU to wall
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6493) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/10A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #62 (GB 1053). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6493 power cord to power the system and/or peripheral features requiring a power cord:

People's Republic of China.

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6494) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/10A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #69 (IS 6538). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6494 power cord to power the system and/or peripheral features requiring a power cord:



India

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6496) - Power Cord 2.7M (9-foot), To Wall/OEM PDU, (250V, 10A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #66 (KETI). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types. The following countries/regions use the #6496 power cord to power the system and/or peripheral features requiring a power cord: North Korea South Korea

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6577) - Power Cable - Drawer to IBM PDU, 200-240V/10A

This feature permits manufacturing to select the optimum PDU power jumper cord length (1.0M, 2.0M, 2.7M or 4.3M) for rack integration. This feature is mandatory on initial order specifying factory integration with IBM racks (such as with 7014-T00 or T42 racks). Feature is not valid on initial order with non-factory integrated feature 4650. Power jumper cord has C13 on one end (for C14 power supply connector on system unit or I/O drawer) and C14 on the other end (for C13 PDU receptacle).

Note: This feature is not used for MES orders except for bulk orders by SDI clients only. See C13/C14 jumper cord features #6458 (4.3M), #6671 (2.7M), #6672 (2.0M) when not using factory integration.

- Attributes provided: One power jumper cord
  - Attributes required: At least one rack and the absence of #4650.
  - Minimum required: 0
  - Maximum allowed: 114 (Initial order maximum: 114)
  - OS level required: None
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: 1 or 2 per I/O drawer or CEC. MES orderable for SDI's only. The MES order will ship the 14 foot cable equivalent to feature number 6458.

#### (#6580) - Optional Rack Security Kit

This feature provides hardware that can be added to a rack to prevent unauthorized access. It includes keyed front and rear locks for the #0551 and #0553 rack doors. It also includes two sliding bars that mount inside the left and right rack side panels. The sliding bars are accessible when the rack rear door is open. They can be moved to a position that disables the external latches on the rack side panels, and prevents removal of the side panels.

- Attributes provided: Locking hardware for rack doors and sidepanels
- Attributes required: #0551 or #0553 19-Inch Rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#6586) - Modem Tray for 19-Inch Rack

(No Longer Available as of December 29, 2017)

This feature provides hardware for installing one or two modems in a 19-inch rack. The modem tray occupies 1U of rack space when it is mounted in the front of the rack. It provides a secure location in the rack for external modems such as the ones attached to the Hardware Management Console.

- Attributes provided: Hdw. to support two modems
- Attributes required: 19-inch rack with 1U rack space available
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#6651) - Power Cord 2.7M (9-foot), To Wall/OEM PDU, (125V, 15A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #75 (KETI). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types. The following countries/regions use the #6651 power cord to power the system and/or peripheral features requiring a power cord: Taiwan

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6653) - 4.3m (14-Ft) 3PH/16A 380-415V Power Cord

#6653 is a 14-FT/4.3m 3PH/16A power cord with a Type 46 plug which distributes power from a power source to a Power Distribution Unit.

- Attributes provided: power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6654) 4.3m (14-Ft) 1PH/24A Power Cord

Feature #6654 is a 14-FT/4.3m 200-240V/24A rated locking power cord with a Type 12 plug (NEMA L6-30P) which distributes power from a power source to a Power Distribution Unit.

- Attributes Provided: Power Cord PDU to wall
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6655) - 4.3m (14-Ft) 1PH/24A WR Power Cord

Feature #6655 is a 14-FT/4.3m 200-240V/30A rated water-resistant power cord with a Type 40 plug which distributes power from a power source to a Power Distribution Unit.

- Attributes Provided: Power Cord PDU to wall
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6656) - 4.3m (14-Ft) 1PH/32A Power Cord

#6656 is a 14-FT/4.3m 200-240V/32A power cord with a Type 46 plug which distributes power from a power source to a Power Distribution Unit.

- Attributes provided: power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6657) - 4.3m (14-Ft) 1PH/32A Power Cord

#6657 is a 14-FT/4.3m 1PH/32A power cord with a Type PDL plug which distributes power from a power source to a Power Distribution Unit.

- Attributes provided: PDU power cable
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6658) - 4.3m (14-Ft) 1PH/24A Power Cord-Korea

#6658 is a 14-FT/4.3m 200-240V/24A power cord with a Type KP plug which distributes power from a power source to a Power Distribution Unit.

- Attributes provided: PDU power cable
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6659) - Power Cord 2.7M (9-foot), To Wall/OEM PDU, (250V, 15A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #76 (KETI). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types. The following countries/regions use the #6659 power cord to power the system and/or peripheral features requiring a power cord: Taiwan

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6660) - Power Cord 4.3m (14-ft), Drawer to Wall/OEM PDU (125V/15A)

This power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #59 (NEMA 5-15). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types. 14-foot length.

This power cord meets the DENAN marking requirement in Japan.

- Attributes provided: Power Cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6665) - Power Cord 2.8m (9.2-ft), Drawer to IBM PDU, (250V/10A)

Standard IBM rack power jumper cord that goes from the system or I/O drawer to the rack power distribution unit (PDU). Cable has C13 on one end (for C14 power supply connector on system unit or I/O drawer) and C20 on the other end (for IBM PDU C19 receptacle).

Note for power jumper cord which attach to PDUs with C13 receptacles, use features such as #6577, #6458, #6671, or #6672.

- Attributes provided: Power jumper cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6667) - 4.3m (14-Ft) 3PH/32A 380-415V Power Cord-Australia

#6667 is a 14-FT/4.3m 380-45V/32A power cord with a Type PDL plug which distributes power from a power source to a Power Distribution Unit.

- Attributes provided: PDU power cable
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#6669) - Power Cord 4.3M (14-foot), Drawer to OEM PDU, (250V, 15A)

This power cord goes from the system or I/O drawer to the rack power distribution unit. Plug type #57 (NEMA 6-15). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types. 14-foot length. This power cord meets the DENAN marking requirement in Japan.

- Attributes provided: Power Cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6671) - Power Cord 2.7M (9-foot), Drawer to IBM PDU, 250V/10A

Standard IBM rack power cable that goes from the system or I/O drawer to the rack power distribution unit (PDU). Cable has C13 on one end (for C14 power supply connector on system unit or I/O drawer) and C14 on the other end (for IBM PDU C13 receptacle). Note for different length C13/C14 cables see #6458 (4.3M) or #6672 (2.0M).

- Attributes provided: Power jumper cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6672) - Power Cord 2M (6.5-foot), Drawer to IBM PDU, 250V/10A

Standard rack power cable that goes from the system or I/O drawer to the rack power distribution unit (PDU). Cable has C13 on one end (for C14 power supply connector on system unit or I/O drawer) and C14 on the other end (for IBM PDU C13 receptacle). Note for different length C13/C14 cables see #6458 (4.3M) or #6671 (2.7M).

- Attributes provided: Power jumper cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#6680) - Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/10A)

This insulated power cord goes from the system and/or peripheral features to a wall-type outlet. Plug type #6 (AS 3112-1964 NZS 198). Refer to Corporate Bulletin C-B-2-4700-009 for a description of plug types.

The following countries/regions use the #6680 power cord to power the system and/or peripheral features requiring a power cord:

Australia, Fiji Islands, Kiribati, Nauru, New Zealand, Papua New Guinea, W. Samoa.

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#7109) - Intelligent PDU+, 1 EIA Unit, Universal UTG0247 Connector

(No longer available as of April 24, 2020)

This feature is for an intelligent AC power distribution unit (PDU+) that will allow the user to monitor the amount of power being used by the devices that are plugged in to this PDU+. This AC power distribution unit provides twelve C13 power outlets. It receives power through a UTG0247 connector. It can be used for many different countries and applications by varying the PDU to Wall Power Cord, which must be ordered separately. Each PDU requires one PDU to Wall Power Cord. Supported power cords include the following features: #6489, #6491, #6492, #6653, #6654, #6655, #6656, #6657, and #6658.

Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with a Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.

- Attributes provided: Twelve C13 outlets with Power Monitoring Capability
- Attributes required: none
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both

Note: When purchased on an MES order with a feature code rack. This PDU will be mounted in the rear side pockets until all 4 side pockets on the rack have been filled. Any additional PDUs on the order will be mounted in 1 unit of EIA rack space. When purchased as an MES order for addition to a rack in the field. This PDU may not fit in the side pockets of your rack due to a hardware interference with the rack, and may require mounting in 1 unit of rack EIA space. Insure rack space is available before placing the MES order for this PDU when it is being ordered for field installation.

### (#7118) - Environmental Monitoring Probe

The Environmental Monitoring Probe (EMP) enables you to remotely monitor environmental conditions. Using a standard Web browser, you can view the ambient temperature and humidity of the remote environment, as well as the status of two additional contact devices, such as a smoke detector or open-door sensor. The temperature/humidity probe plugs into a RJ45 connector on a PDU+. The EMP can be used with any Powerware UPS equipped with a 10/100 Mb ConnectUPS Web/SNMP Card (firmware 3.01 or higher). The EMP can be located up to 20m (65.6 feet) away.

- Attributes provided: Monitoring of temperature, humidity, and status of two contacts/ sensors. A one meter cat5 Ethernet cable, double sided hook and loop fabric, often called VELCRO(R) tape, two tie-wraps, and screw with wall anchor for mounting.
  - Attributes required: None
  - Minimum required: 0
  - Maximum allowed: 9999 (Initial order maximum: 250)
  - OS level required: N/A
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Maximum support is 8x 7118 per 0553 rack and 8x 7118 per 0551 rack. Maximum of one 7118 per 7109 is supported.

### (#7188) - Power Distribution Unit

An AC Power Distribution Unit (PDU) which mounts in a 19" rack and provides twelve C13 power outlets. The #7188 has six 16A circuit breakers, with two power outlets per circuit breaker. System units and/or expansion units must use a power cord with a C14 plug to connect to the #7188.

One of the following line cords must be used to distribute power from a wall outlet to the #7188;

- #6489 - 14-Ft 3PH/32A Power Cord
- #6491 - 14-Ft 1PH/63A Power Cord
- #6492 - 14-Ft 1PH/48-60A Power Cord
- #6653 - 14-Ft 3PH/16A Power Cord
- #6654 - 14-Ft 1PH/24-30A Power Cord
- #6655 - 14-Ft 1PH/24-30A WR Power Cord
- #6656 - 14-Ft 1PH/32A Power Cord
- #6657 - 14-Ft 1PH/24A Power Cord
- #6658 - 14-Ft 1PH/24A Power Cord-Korea
- Attributes provided: Power Distribution Unit with Twelve C13 power outlets.
- Attributes required: none
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#7196) Power Distribution Unit (US) - 1 EIA Unit, Universal, Fixed Power Cord

(No longer available as of April 24, 2020)

This AC power distribution unit provides six C19 power outlets. Fixed power cord (IEC309 60A plug (3P+G). This PDU requires 3-phase electrical service.

Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with a Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.

- Attributes provided: Six C19 power outlets
- Attributes required: 3 phase electrical service
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#7802) Ethernet Cable, 15m, Hardware Management Console to System Unit

This feature provides a fifteen meter long Ethernet cable for attachment of a Hardware Management Console to the system unit.

- Attributes provided: 15M Ethernet Cable
- Attributes required: Ethernet port on Hardware Management Console
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#8143) - Linux Software Preinstall

(No longer available as of May 31, 2019)

This feature indicates that the Linux operating system is to be preinstalled on the system. Requires feature number 5000.

- Attributes provided: Linux preinstall
- Attributes required: Feature number 5000.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#8144) - Linux Software Preinstall (Business Partners)

(No longer available as of May 31, 2019)

This feature indicates that the Linux operating system is to be preinstalled on the system. Requires feature number 5000 or 7305. This feature is only available to IBM Business Partner - Solution Providers and IBM Business Partner - Systems Integrators.

- Attributes provided: Linux preinstall
- Attributes required: Feature number 5000 or 7305.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#8845) - USB Mouse

(No Longer Available as of October 31, 2017)

The optical LED USB Mouse has 2 buttons and a scroll wheel that acts as a third button. Mouse cable is 1.8 meters long. OS does not support scrolling with the wheel. Business black with red scroll wheel.

- Attributes provided: 2-Button USB Mouse w/scroll wheel that acts as 3rd button.
- Attributes required: USB attachment Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#9169) - Order Routing Indicator- System Plant

(No longer available as of May 31, 2019)

This feature will be auto-selected by the Configurator Tool when required. Use of this feature will affect the routing of the order. Selection of this indicator will direct the order to a system plant for fulfillment.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9300) - Language Group Specify - US English

(No longer available as of May 31, 2019)

English language group for nomenclature and standard publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9359) - specify mode-1 & (1)5901/5278 for EXP24S #5887/EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or EL1S) will be configured by IBM Manufacturing in Mode 1 (One group of 24 drive bays) with one PCIe 3G SAS controller (#5901 or #5278), utilizing one appropriate YO cable connecting to the I/O Adapter (IOA) ports. IBM does not provide changes to the mode setting after #5887 or EL1S is shipped.

Supported by AIX and Linux.

- Attributes provided: IOA configuration for Mode 1
- Attributes required: One YO cable (#3691/EL1T 1.5M, #3692/EL1V 3M, #3693/EL1W 6M, #3694/ EL1U 15M) and one port on a #5901/#5278
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#9360) - Specify mode-1 & (2)5901/5278 for EXP24S #5887/EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or EL1S) will be configured by IBM Manufacturing in Mode 1 (One group of 24 drive bays) with two individual PCIe 3G SAS controller (#5901 and/or #5278) utilizing two appropriate YO cables connecting to the 3G I/O Adapter (IOA) ports. IBM does not provide changes to the mode setting after #5887 or EL1S is shipped.

Supported by AIX and Linux.

- Attributes provided: IOA configurations for Mode 1 with two (#5901 #5278)
- Attributes required: Two YO cables (#3691/EL1T 1.5M, #3692/EL1V 3M, #3693/EL1W 6M, #3694/ EL1U 15M) and one port on each of two #5901/#5278s
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#9361) - Specify mode-2 & (2)5901/5278 for EXP24S #5887/EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or EL1S) will be configured by IBM Manufacturing in Mode 2 (two sets of 12 drive bays) with two PCIe 3G SAS controllers (#5901 and/or #5278) utilizing two appropriate YO cables connecting to I/O Adapter (IOA) ports. IBM does not provide changes to the mode setting after #5887 or EL1S is shipped.

Supported by AIX and Linux.

- Attributes provided: Designated IOA configurations for Mode 2
- Attributes required: Two YO cables (#3691/EL1T 1.5M, #3692/EL1V 3M, #3693/EL1W 6M, #3694/ EL1U 15M) and one port on each of two #5901/#5278s
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#9365) - Specify mode-4 & (4)5901/5278 for EXP24S #5887/EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or EL1S) will be configured by IBM Manufacturing in Mode 4 (four groups of 6 drive bays) with four PCIe 3G SAS controllers (#5901 and/or #5278) utilizing two appropriate dual X cables connecting to I/O Adapters (IOA) ports. IBM does not provide changes to the mode setting after #5887 or EL1S is shipped.

Supported by AIX and Linux.

- Attributes provided: IOA configurations for Mode 4
- Attributes required: Two dual X cables (#3661/EL22 1.5M, #3662/EL23 3M, #3663//EL21 15M) and four #5901/#5278s dedicated to the single #5887 or #EL1S.
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#9366) - Specify mode-2 & (4)5901/5278 for EXP24S #5887/EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or EL1S) will be configured by IBM Manufacturing in Mode 2 (two sets of up to 12 drive bays) with four PCIe 3G SAS controllers (#5901 and/or #5278) utilizing two appropriate dual X cables connecting to I/O Adapters (IOA) ports. IBM does not provide changes to the mode setting after #5887 or EL1S is shipped.

Supported by AIX and Linux.

- Attributes provided: IOA configurations for Mode 2
- Attributes required: Two dual X cables (##3661/EL22 1.5M, #3662/EL23 3M, #3663//EL21 15M) and four #5901/#5278s dedicated to the single #5887 or #EL1S.
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#9367) - Specify mode-1 & (2)5903/5805 for EXP24S #5887/EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or EL1S) will be configured by IBM Manufacturing in Mode 1 (One group of 1-24 drive bays) with a pair of PCIe 3G SAS RAID controller (either pair #5903 or 5805 or combination of both) utilizing two appropriate YO cable connecting to the 3G I/O Adapter (IOA) ports. This specify only impacts IBM's initial shipment of the EXP24S. IBM does not provide changes to the mode setting after #5887 or EL1S is shipped.



- Attributes provided: IOA configurations for Mode 1
- Attributes required: Two YO cables (#3691/EL1T 1.5M, #3692/EL1V 3M, #3693/EL1W 6M, #3694/ EL1U 15M) and one port on each of two #5903/#5805s
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#9368) - Specify mode-2 & (4)5903/5805 for EXP24S #5887/EL1S

Feature indicates that EXP24S SFF Gen2-bay Drawer(#5887 or EL1S) will be configured by IBM Manufacturing in Mode 2 (two sets of 12 drive bays) with two pair of PCIe 3G SAS RAID controller (either pair #5903 or 5805 or combination of both) utilizing two appropriate X cable connecting to the I/ O Adapters (IOA). IBM does not provide changes to the mode setting after #5887 or EL1S is shipped.

Supported by AIX and Linux.

- Attributes provided: IOA configurations for Mode 2
- Attributes required: Two dual X cables (#3661/EL22 1.5M, #3662/EL23 3M, #3663//EL21 15M) and four #5903/#5805s dedicated to the single #5887 or #EL1S".
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i - not supported
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#9385) - Specify mode-1 & (2) 5913 for EXP24S #5887/EL1S

(No longer available as of December 31, 2020)

Specify feature 9385 (Specify mode-1 & (2 )5913 for EXP24S #5887or #EL1S) directs manufacturing to configure SFF drawer to Mode 1 (one group of 24 SFF bays) and two pair of PCIe2 1.8GB Cache RAID SAS Adapter Tri-port 6Gb (#5913). Select two YO cable #3450/EL25 1.5m, #3451/EL29 3m, #3452/EL28 6m, #3453/EL26 10m) and one AA cable (#5915/EL2C 3m, #5916/EL2D 6m, #5917/EL2B 1.5m) and AIX, IBM i or Linux. Include one interconnecting 6Gb AA cable (3M #3681 or 6M #3682) between paired SAS adapters. IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped.

- Attributes provided: Configuration #5887/EL1S Mode 1 with two #5913 adapters
- Attributes required: Two YO cables (#3450/EL25 1.5M, #3451/EL29 3M, #3452/EL28 6M, #3453/ EL26 10M) and one port on each of two #5913s. If fewer than 3 ports on each of the #5913s are used, an AA cable (#5915/EL2C 3M, #5916/ EL2D 6M, #5917/EL2B 1.5M, #5918/EL2A 0.6M) is required to connect the pair of #5913s

- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

## (#9386) - Specify mode-2 & (4) 5913 for EXP24S #5887/EL1S

(No longer available as of December 31, 2020)

Specify feature 9386 (Specify mode-2 & (4) 5913 for EXP24S #5887 or #EL1S) directs manufacturing to configure SFF drawer to mode 2 (two sets of 12 SFF bays) and four PCIe2 1.8GB Cache RAID SAS Adapter Tri-port 6Gb. Select #5913 and two appropriate length X cable (#3454/EL1Z 3m, #3456/EL1Y 10m). Include AIX, or Linux and select two AA cables (3M #3681 or 6M #3682) between paired SAS adapters. IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped.

Supported by AIX and Linux.

- Attributes provided: Configure #5887/EL1S in Mode 2
- Attributes required: Two dual X cables (#3454/EL1Z 3M, #3455/EL20 6M, #3456/EL1Y 10M), two AA cables (#5915/EL2C 3M, #5916/EL2D 6M, #5917/EL2B 1.5M, #5918/EL2A 0.6M) and one port on each of four #5913s dedicated to the single #5887/EL1S.
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i - not supported
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

## (#9387) - Specify mode-1 & CEC SAS port for EXP24 #5887/EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2 Drawer (#5887 or EL1S) will be configured by IBM Manufacturing in Mode 1 (One group of 24 drive bays) with the two internal 6G SAS ports on the rear of the system unit. Dual IOA high performance/function storage backplane provides the two SAS ports.

Two YO cables connect the EXP24S to the SAS ports. Use the cable length appropriate to the configuration and select from features such as #ECBT, #ECBU, #ECBV or #ECBW.

IBM does not provide changes to the mode setting after #5887 or EL1S is shipped.

- Attributes provided: Mode 1 configuration define to IBM Manufacturing
- Attributes required: Dual IOA Storage Backplane, two SAS ports on rear of server, two Y0 cables, EXP24S drawer in mode1
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#9440) - New AIX License Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of cores licensed to run AIX.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9441) - New IBM i License Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of cores licensed to run IBM i.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9442) - New Red Hat License Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of cores licensed to run Red Hat Linux.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9443) - New SUSE License Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of cores licensed to run SUSE Linux.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9444) - Other AIX License Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of existing AIX licenses transferred from another server.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#9445) - Other Linux License Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of existing Linux licenses transferred from another server.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#9446) - 3rd Party Linux License Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of cores licensed to run 3rd party Linux.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#9447) - VIOS Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of cores licensed to run VIOS (Virtual I/O Server).

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#9449) - Other License Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of other cores licensed.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

#### (#9450) - Ubuntu Linux License Core Counter

(No longer available as of May 31, 2019)

This feature is used to count the number of cores licensed to run Ubuntu Linux.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9461) - Month Indicator

(No longer available as of May 31, 2019)

This month indicator is used to create a date stamp to enable CFR splitting and rejoining in order to circumvent the AAS maximum limitation of 30 systems entered on any one order. The quantity ordered for this feature is generated by eConfig.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 12 (Initial order maximum: 12)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9462) - Day Indicator

(No longer available as of May 31, 2019)

This day indicator is used to create a date stamp to enable CFR splitting and rejoining in order to circumvent the AAS maximum limitation of 30 systems entered on any one order. The quantity ordered for this feature is generated by eConfig.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 31 (Initial order maximum: 31)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9463) - Hour Indicator

(No longer available as of May 31, 2019)

This hour indicator is used to create a time stamp to enable CFR splitting and rejoining in order to circumvent the AAS maximum limitation of 30 systems entered on any one order. The quantity ordered for this feature is generated by eConfig.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9464) - Minute Indicator

(No longer available as of May 31, 2019)

This hour indicator is used to create a time stamp to enable CFR splitting and rejoining in order to circumvent the AAS maximum limitation of 30 systems entered on any one order. The quantity ordered for this feature is generated by eConfig.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 60 (Initial order maximum: 60)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9465) - Qty Indicator

(No longer available as of May 31, 2019)

This quantity indicator is used to specify the remaining, or N-1 quantity of CFR entities that need to be accumulated for rejoining. The quantity ordered for this feature is generated by eConfig. and is equal to N-1, where 'N' equals the total quantity of CFRs being rejoined.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9466) - Countable Member Indicator

(No longer available as of May 31, 2019)

This administrative indicator used to identify each CFR associated with a date/time stamp that is eligible for splitting and rejoining. The quantity ordered for this feature is generated by eConfig.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9700) - Language Group Specify - Dutch

(No longer available as of May 31, 2019)

Dutch language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9703) - Language Group Specify - French

(No longer available as of May 31, 2019)

French language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9704) - Language Group Specify - German

(No longer available as of May 31, 2019)

German language group for Nomenclature and Standard Publications.

- Attributes provided: Language specify
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9705) - Language Group Specify - Polish

(No longer available as of May 31, 2019)

Polish language group for Nomenclature and Standard Publications.

- Attributes provided: Language specify
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9706) - Language Group Specify - Norwegian

(No longer available as of May 31, 2019)

Norwegian language group for Nomenclature and Standard Publications.

- Attributes provided: Language specify
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9707) - Language Group Specify - Portuguese

(No longer available as of May 31, 2019)

Portuguese language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9708) - Language Group Specify - Spanish

(No longer available as of May 31, 2019)

Spanish language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9711) - Language Group Specify - Italian

(No longer available as of May 31, 2019)

Italian language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9712) - Language Group Specify - Canadian French

(No longer available as of May 31, 2019)

Canadian French language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9714) - Language Group Specify - Japanese

(No longer available as of May 31, 2019)

Japanese language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9715) - Language Group Specify - Traditional Chinese (Taiwan)

(No longer available as of May 31, 2019)

Traditional Chinese language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9716) - Language Group Specify - Korean

(No longer available as of May 31, 2019)

Korean language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9718) - Language Group Specify - Turkish

(No longer available as of May 31, 2019)

Turkish language group for nomenclature and publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9719) - Language Group Specify - Hungarian

(No longer available as of May 31, 2019)

Hungarian language group for Nomenclature and Standard Publications.



- Attributes provided: none
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9720) - Language Group Specify - Slovakian

(No longer available as of May 31, 2019)

Slovakian language group for Nomenclature and Standard Publications.

- Attributes provided: none
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9721) - Language Group Specify - Russian

(No longer available as of May 31, 2019)

Russian language group for nomenclature and standard publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9722) - Language Group Specify - Simplified Chinese (PRC)

(No longer available as of May 31, 2019)

Simplified Chinese language group for nomenclature and standard publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9724) - Language Group Specify - Czech

(No longer available as of May 31, 2019)

Czech language group for nomenclature and standard publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9725) - Language Group Specify -- Romanian

(No longer available as of May 31, 2019)

Romanian language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9726) - Language Group Specify - Croatian

(No longer available as of May 31, 2019)

Croatian language group for Nomenclature and Standard Publications.

- Attributes provided: Language specify
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9727) - Language Group Specify -- Slovenian

(No longer available as of May 31, 2019)

Slovenian language group for Nomenclature and Standard Publications.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9728) - Language Group Specify - Brazilian Portuguese

(No longer available as of May 31, 2019)

Brazilian Portuguese language group for Nomenclature and Standard Publications.

- Attributes provided: Language specify
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#9729) - Language Group Specify - Thai

(No longer available as of May 31, 2019)

Thai language group for Nomenclature and Standard Publications.

- Attributes provided: Language specify
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#B0LG) - ServicePac Not Selected

(No Longer Available as of February 24, 2016)

ServicePac services not selected for this configuration

- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#B0LH) - Service Renewal Requested

(No Longer Available as of February 24, 2016)

Service renewal requested upon expiration

- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#B0UQ) - SP WSU 3Y 24x7 SD

ServicePac Warranty Service Upgrade 3 YR 24x7 Same Day ORT 6hrCL/ 4hrPD

- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#B0VH) - SP HDR/MR POWER 3Y

ServicePac for Hard Drive or Media Retention for Power 3 years

- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EBA5) - HVDC PDU Horizontal Mounting

(No Longer Available as of May 13, 2016)

Specify feature communicates to IBM Manufacturing that a HVDC DPU such as feature #EPAA or feature #EPAE should be horizontally mounted vs vertically mounted. PDU uses 1U rack space when horizontally mounted, but makes accessing power cords much easier than in a side pocket.

- Attributes provided: Manufacturing communication information
- Attributes required: HVDC PDU
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#EB27) - QSFP+ 40GBase-SR Transceiver

IBM QSFP+ optical transceiver required for 40 Gbs ports which are not using copper QSFP+ transceiver.

- Attributes provided: QSFP+ transceiver for 40 Gbs ports.
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB2B) - 1m (3.3-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)

QSFP+ cable is used for 40Gb-to-40Gb Ethernet connectivity. Clients can use this QSFP+ Direct Attach Cable for Ethernet connectivity. This copper cable has QSFP+ transceivers already attached to each end.

- Attributes provided: 1m QSFP+ to QSFP+ Cable
- Attributes required: QSFP/QSFP+ ports
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB2H) - 3m (9.8-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)

QSFP+ cable is used for 40Gb-to-40Gb Ethernet connectivity. Clients can use this QSFP+ Direct Attach Cable for Ethernet connectivity. This copper cable has QSFP+ transceivers already attached to each end.

- Attributes provided: 3m QSFP+ to QSFP+ Cable
- Attributes required: QSFP/QSFP+ ports
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB2J) - 10m (30.3-ft), IBM Passive QSFP+ MTP Optical Cable

QSFP+ cable is used for 40Gb-to-40Gb Ethernet connectivity. Clients can use this QSFP+ Direct Attach Cable for Ethernet connectivity.

- Attributes provided: 10m QSFP+ to QSFP+ Cable
- Attributes required: QSFP/QSFP+ ports with optical transceivers
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB2K) - 30m (90.3-ft), IBM Passive QSFP+ MTP Optical Cable

QSFP+ cable is used for 40Gb-to-40Gb Ethernet connectivity. Clients can use this QSFP+ Direct Attach Cable for Ethernet connectivity.

- Attributes provided: 30m QSFP+ to QSFP+ Cable
- Attributes required: QSFP/QSFP+ ports with optical transceivers
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB2L) - AC Power Supply - 900W

One 100 - 127V or 200 - 240V, 900 watt AC power supply.

The power supply is configured in a one plus one or two plus two configuration to provide redundancy. Supported in rack and tower models.

To be operational, a minimum power supply in the CEC base enclosure is required. If there is a power supply failure, any of the power supplies can be exchanged without interrupting the operation of the system.

This power supply is not supported on all models.

- Attributes provided: AC Power Supply.
- Attributes required: None.
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: N/A
- Return parts MES: No

### (#EB2M) - AC Power Supply - 1400W for System Unit (200-240 VAC)

One 200 - 400V, 1400 watt AC power supply.

The power supply is configured in a one plus one or two plus two configuration to provide redundancy. Supported in rack models only.

To be operational, a minimum power supply in the CEC base enclosure is required. If there is a power supply failure, any of the power supplies can be exchanged without interrupting the operation of the system.

This power supply is not supported on all models.

- Attributes provided: AC Power Supply.
- Attributes required: Supported on Rack model only. Requires input voltage of 200 - 240 VAC.
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB2N) - DC Power Supply - 1400W (180-400V)

(No longer available as of October 19, 2018)

One 180 - 400V, 1400 watt DC power supply.

The power supply is configured in a one plus one or two plus two configuration to provide redundancy. Supported in rack models only.

To be operational, a minimum power supply in the CEC base enclosure is required. If there is a power supply failure, any of the power supplies can be exchanged without interrupting the operation of the system.

This power supply is not supported on all models.

- Attributes provided: DC Power Supply.
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB3Z) - Lift tool based on GenieLift GL-8 (standard)

This feature delivers the Low-Cost Lift Tool (based on GenieLift GL-8 (standard)) for IBM servers.

Feature #EB3Z is a feature that is available on multiple server types (POWER S812L, S822L, S824L, S814, S824, S812, S822, E850C, E850, E880C, E870C, E880, and E870, also the rack models 7965-S42, 7014-T00, and 7014-T42). Failure to have at least one Lift tool available in a location may result in delayed or prolonged maintenance times.

A lift tool raises and lowers servers and I/O drawers so they can be placed into or removed from standard 19-inch racks. It allows heavier equipment to be handled more safely by fewer people. Lift tool feature EB3Z has a hand crank to lift and position up to 181 kg (400 lbs). The lift tool feature EB3Z operating length and width are 88.3 cm x 62.9 cm (34 3/4 x 24 3/4 in). It has rollers which allow it to be moved to different racks in the data center.

- Attributes provided: Lift Tool
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB40) - 0.5M FDR IB / 40GbE Copper Cable QSFP

0.5 meter length copper twinax cable, also called a DAC (Direct Attached Copper) cable. The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a passive Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) copper cable transceiver.

Cables are available in various lengths: 0.5M = #EB40, 1M = #EB41, .3M = #EB43, 5M = #EB45 (longer lengths may not be supported for all uses)

See also optical fiber cables for longer lengths such as #EB4A through #EB4G.

- Attributes provided: Copper twinax cable with QSFP+ transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB41) - 1M FDR IB / 40GbE Copper Cable QSFP

1 meter length copper twinax cable, also called a DAC (Direct Attached Copper) cable. The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a passive Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) copper cable transceiver.

Cables are available in various lengths: 0.5M = #EB40, 1M = #EB41, .3M = #EB43, 5M = #EB45 (longer lengths may not be supported for all uses)

See also optical fiber cables for longer lengths such as #EB4A through #EB4G.

- Attributes provided: Copper twinax cable with QSFP+ transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB42) - 2M FDR IB / 40GbE Copper Cable QSFP

2 meter length copper twinax cable, also called a DAC (Direct Attached Copper) cable. The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a passive Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) copper cable transceiver.

Cables are available in various lengths: 0.5M = #EB40, 1M = #EB41, .3M = #EB43, 5M = #EB45 (longer lengths may not be supported for all uses)

See also optical fiber cables for longer lengths such as #EB4A through #EB4G.

- Attributes provided: Copper twinax cable with QSFP+ transceivers
  - Attributes required: None
  - Minimum required: 0
  - Maximum allowed: 9999 (Initial order maximum: 250)
  - OS level required: None
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Only used with Solution machine type 5146

## (#EB4A) - 3M FDR IB / 40GbE Optical Cable SFP

3 meter length optical fiber cable also called an AOC (Active Optical Cable). The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) optical cable transceiver.

Cables are available in various lengths: 3m = #EB4A, 5M = #EB4B,

See also copper twinax cables for shorter lengths such as #EB40 through #EB45.

- Attributes provided: Optical fiber cable with QSFP+ transceivers
  - Attributes required: None
  - Minimum required: 0
  - Maximum allowed: 9999 (Initial order maximum: 250)
  - OS level required: None
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Only used with Solution machine type 5146

## (#EB4B) - 5M FDR IB / 40GbE Optical Cable QSFP

5 meter length optical fiber cable also called an AOC (Active Optical Cable). The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) optical cable transceiver.

Cables are available in various lengths: 3m = #EB4A, 5M = #EB4B,

See also copper twinax cables for shorter lengths such as #EB40 through #EB45.

- Attributes provided: Optical fiber cable with QSFP+ transceivers
  - Attributes required: None
  - Minimum required: 0
  - Maximum allowed: 9999 (Initial order maximum: 250)
  - OS level required: None
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: Does not apply
- Note: Only used with Solution machine type 5146

## (#EB4C) - 10M FDR IB / 40GbE Optical Cable QSFP

10 meter length optical fiber cable also called an AOC (Active Optical Cable). The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) optical cable transceiver.

Cables are available in various lengths: 3m = #EB4A, 5M = #EB4B,

See also copper twinax cables for shorter lengths such as #EB40 through #EB45.

- Attributes provided: Optical fiber cable with QSFP+ transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Only used with Solution machine type 5146

## (#EB4D) - 15M FDR IB / 40GbE Optical Cable QSFP

15 meter length optical fiber cable also called an AOC (Active Optical Cable). The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) optical cable transceiver.

Cables are available in various lengths: 3m = #EB4A, 5M = #EB4B,

See also copper twinax cables for shorter lengths such as #EB40 through #EB45.

- Attributes provided: Optical fiber cable with QSFP+ transceivers
- Attributes required: none
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Only used with Solution machine type 5146

## (#EB4E) - 20M FDR IB / 40GbE Optical Cable QSFP

20 meter length optical fiber cable also called an AOC (Active Optical Cable). The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) optical cable transceiver.

Cables are available in various lengths: 3m = #EB4A, 5M = #EB4B,

See also copper twinax cables for shorter lengths such as #EB40 through #EB45.

- Attributes provided: Optical fiber cable with QSFP+ transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Only used with Solution machine type 5146

## (#EB4F) - 30M FDR IB / 40GbE Optical Cable QSFP

30 meter length optical fiber cable also called an AOC (Active Optical Cable). The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) optical cable transceiver.

Cables are available in various lengths: 3m = #EB4A, 5M = #EB4B,

See also copper twinax cables for shorter lengths such as #EB40 through #EB45.

- Attributes provided: Optical fiber cable with QSFP+ transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Only used with Solution machine type 5146

## (#EB4G) - 50M FDR IB / 40GbE Optical Cable QSFP

(No longer available as of December 31, 2020)

50 meter length optical fiber cable also called an AOC (Active Optical Cable). The cable can be used for either FDR InfiniBand (IB) or for 40Gb Ethernet adapters or switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP/QFSP+) optical cable transceiver.

Cables are available in various lengths: 3m = #EB4A, 5M = #EB4B,

See also copper twinax cables for shorter lengths such as #EB40 through #EB45.

- Attributes provided: Optical fiber cable with QSFP+ transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Only used with Solution machine type 5146

### (#EB4Z) - Service wedge shelf tool kit for EB3Z

This feature provides a separate tool kit to replace the flat shelf with a wedge/angle shelf at the client site.

Note: EB4Z wedge shelf is IBM SSR use only (due to safety labels/ instructions/certifications only for IBM and not filed for clients). A client can order feature EB4Z to ensure the tool is conveniently located on site in case an IBM SSR needed to use it and do not want to wait for the SSR to locate and bring in an EB4Z or to schedule additional personnel to manually handle server installation/removal from the rack.

Client is free to use EB3Z (without EB4Z) for their normal work.

- Attributes provided: Wedge/angle shelf
- Attributes required: Feature EB3Z
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: No
- Return parts MES: No

### (#EB50) - 0.5M EDR IB Copper Cable QSFP28

(No longer available as of January 18, 2019)

0.5 meter length copper twinax cable, also called a DAC (Direct Attached Copper) cable. The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a passive Quad (4-channel) Small Form-Factor Pluggable (QSFP28) copper cable transceiver. Cable can also be used for FDR IB (56Gb).

Cables are available in various lengths: 0.5M = #EB50, 1M = #EB51, 2M = #EB52, 1.5M = #EB54 See also optical fiber cables for longer lengths such as #EB5A through #EB5H.

- Attributes provided: Copper twinax cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB51) - 1.0M EDR IB Copper Cable QSFP28

1.0 meter length copper twinax cable, also called a DAC (Direct Attached Copper) cable. The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a passive Quad (4-channel) Small Form-Factor Pluggable (QSFP28) copper cable transceiver. Cable can also be used for FDR IB (56Gb).

Cables are available in various lengths: 0.5M = #EB50, 1M = #EB51, 2M = #EB52, 1.5M = #EB54 See also optical fiber cables for longer lengths such as #EB5A through #EB5H.

- Attributes provided: Copper twinax cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB52) - 2.0M EDR IB Copper Cable QSFP28

2.0 meter length copper twinax cable, also called a DAC (Direct Attached Copper) cable. The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a passive Quad (4-channel) Small Form-Factor Pluggable (QSFP28) copper cable transceiver. Cable can also be used for FDR IB (56Gb).

Cables are available in various lengths: 0.5M = #EB50, 1M = #EB51, 2M = #EB52, 1.5M = #EB54 See also optical fiber cables for longer lengths such as #EB5A through #EB5H.



- Attributes provided: Copper twinax cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB54) - 1.5M EDR IB Copper Cable QSFP28

1.5 meter length copper twinax cable, also called a DAC (Direct Attached Copper) cable. The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a passive Quad (4-channel) Small Form-Factor Pluggable (QSFP28) copper cable transceiver. Cable can also be used for FDR IB (56Gb).

Cables are available in various lengths: 0.5M = #EB50, 1M = #EB51, 2M = #EB52, 1.5M = #EB54 See also optical fiber cables for longer lengths such as #EB5A through #EB5H.

- Attributes provided: Copper twinax cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB59) - 100Gb Optical Transceiver QSFP28

One optical transceiver for 100Gb Ethernet adapter such as #EC3L or #EC3M using QSFP28. Does not include cable.

See also AOC fiber cables which include QSFP28 transceivers EB5R - EB5Y.

- Attributes provided: Optical Transceiver QSFP28 100Gb.
- Attributes required: Port on adapter with QSFP28 socket.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB5A) - 3M EDR IB Optical Cable QSFP28

3 meter length optical fiber cable, also called an AOC (Active Optical Cable). The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP28) optical cable transceiver.

Cables are available in various lengths: 3m = #EB5A, 5M = #EB5B, 10M = #EB5C, 15M = #EB5D, 20M = #EB5E, 30M = #EB5F, and 50M = #EB5G, 100M = #EB5H. See also copper twinax cables for shorter lengths such as #EB50 through #EB54.

Limitation: Adapter and switch must have been manufactured by Mellanox to use this cable. Cable is not supported for FDR IB (56Gb).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB5B) - 5M EDR IB Optical Cable QSFP28

5 meter length optical fiber cable, also called an AOC (Active Optical Cable). The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP28) optical cable transceiver.

Cables are available in various lengths: 3m = #EB5A, 5M = #EB5B, 10M = #EB5C, 15M = #EB5D, 20M = #EB5E, 30M = #EB5F, and 50M = #EB5G, 100M = #EB5H. See also copper twinax cables for shorter lengths such as #EB50 through #EB54.

Limitation: Adapter and switch must have been manufactured by Mellanox to use this cable. Cable is not supported for FDR IB (56Gb).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5C) - 10M EDR IB Optical Cable QSFP28

10 meter length optical fiber cable, also called an AOC (Active Optical Cable). The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP28) optical cable transceiver.

Cables are available in various lengths: 3m = #EB5A, 5M = #EB5B, 10M = #EB5C, 15M = #EB5D, 20M = #EB5E, 30M = #EB5F, and 50M = #EB5G, 100M = #EB5H. See also copper twinax cables for shorter lengths such as #EB50 through #EB54.

Limitation: Adapter and switch must have been manufactured by Mellanox to use this cable. Cable is not supported for FDR IB (56Gb).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5D) - 15M EDR IB Optical Cable QSFP28

15 meter length optical fiber cable, also called an AOC (Active Optical Cable). The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP28) optical cable transceiver.

Cables are available in various lengths: 3m = #EB5A, 5M = #EB5B, 10M = #EB5C, 15M = #EB5D, 20M = #EB5E, 30M = #EB5F, and 50M = #EB5G, 100M = #EB5H. See also copper twinax cables for shorter lengths such as #EB50 through #EB54.

Limitation: Adapter and switch must have been manufactured by Mellanox to use this cable. Cable is not supported for FDR IB (56Gb).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5E) - 20M EDR IB Optical Cable QSFP28

20 meter length optical fiber cable, also called an AOC (Active Optical Cable). The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP28) optical cable transceiver.

Cables are available in various lengths: 3m = #EB5A, 5M = #EB5B, 10M = #EB5C, 15M = #EB5D, 20M = #EB5E, 30M = #EB5F, and 50M = #EB5G, 100M = #EB5H. See also copper twinax cables for shorter lengths such as #EB50 through #EB54.

Limitation: Adapter and switch must have been manufactured by Mellanox to use this cable. Cable is not supported for FDR IB (56Gb).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5F) - 30M EDR IB Optical Cable QSFP28

30 meter length optical fiber cable, also called an AOC (Active Optical Cable). The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP28) optical cable transceiver.

Cables are available in various lengths: 3m = #EB5A, 5M = #EB5B, 10M = #EB5C, 15M = #EB5D, 20M = #EB5E, 30M = #EB5F, and 50M = #EB5G, 100M = #EB5H. See also copper twinax cables for shorter lengths such as #EB50 through #EB54.

Limitation: Adapter and switch must have been manufactured by Mellanox to use this cable. Cable is not supported for FDR IB (56Gb).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5G) - 50M EDR IB Optical Cable QSFP28

50 meter length optical fiber cable, also called an AOC (Active Optical Cable). The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP28) optical cable transceiver.

Cables are available in various lengths: 3m = #EB5A, 5M = #EB5B, 10M = #EB5C, 15M = #EB5D, 20M = #EB5E, 30M = #EB5F, and 50M = #EB5G, 100M = #EB5H. See also copper twinax cables for shorter lengths such as #EB50 through #EB54.

Limitation: Adapter and switch must have been manufactured by Mellanox to use this cable. Cable is not supported for FDR IB (56Gb).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5H) - 100M EDR IB Optical Cable QSFP28

100 meter length optical fiber cable, also called an AOC (Active Optical Cable). The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP28) optical cable transceiver.

Cables are available in various lengths: 3m = #EB5A, 5M = #EB5B, 10M = #EB5C, 15M = #EB5D, 20M = #EB5E, 30M = #EB5F, and 50M = #EB5G, 100M = #EB5H. See also copper twinax cables for shorter lengths such as #EB50 through #EB54.

Limitation: Adapter and switch must have been manufactured by Mellanox to use this cable. Cable is not supported for FDR IB (56Gb).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5J) - 0.5M 100GbE Copper Cable QSFP28

0.5 meter length passive copper cable with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches. Copper cable is also called "copper twinax" or "DAC" (Direct Attach Copper).

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EB5M (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Copper cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5K) - 1.0M 100GbE Copper Cable QSFP28

1.0 meter length passive copper cable with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches. Copper cable is also called "copper twinax" or "DAC" (Direct Attach Copper).

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EB5M (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Copper cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5L) - 1.5M 100GbE Copper Cable QSFP28

1.5 meter length passive copper cable with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches. Copper cable is also called "copper twinax" or "DAC" (Direct Attach Copper).

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EB5M (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Copper cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB5M) - 2.0M 100GbE Copper Cable QSFP28

2.0 meter length passive copper cable with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches. Copper cable is also called "copper twinax" or "DAC" (Direct Attach Copper).

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EB5M (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Copper cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB5N) - 25M EDR IB Optical Cable QSFP28

(No longer available as of December 31, 2020)

25 meter length optical fiber cable, also called an AOC (Active Optical Cable). The cable can be used for either 100Gb EDR InfiniBand (IB) adapters or IB switches. Built onto each end of the cable is a active Quad (4-channel) Small Form-Factor Pluggable (QSFP28) optical cable transceiver.

Cables are available in various lengths: 3m = #EB5A, 5M = #EB5B, 10M = #EB5C, 15M = #EB5D, 20M = #EB5E, 25M = #EB5N, 30M = #EB5F, and 50M = #EB5G, 100M = #EB5H. See also copper twinax cables for shorter lengths such as #EB50 through #EB54.

Limitation: Adapter and switch must have been manufactured by Mellanox to use this cable. Cable is not supported for FDR IB (56Gb).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB5R) - 3M 100GbE Optical Cable QSFP28 (AOC)

3 meter length Active Optical fiber Cable (AOC) with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches.

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EJM (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB5S) - 5M 100GbE Optical Cable QSFP28 (AOC)

5 meter length Active Optical fiber Cable (AOC) with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches.

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EJM (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EB5T) - 10M 100GbE Optical Cable QSFP28 (AOC)

10 meter length Active Optical fiber Cable (AOC) with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches.

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EJM (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5U) - 15M 100GbE Optical Cable QSFP28 (AOC)

15 meter length Active Optical fiber Cable (AOC) with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches.

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EJM (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5V) - 20M 100GbE Optical Cable QSFP28 (AOC)

20 meter length Active Optical fiber Cable (AOC) with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches.

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EJM (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5W) - 30M 100GbE Optical Cable QSFP28 (AOC)

30 meter length Active Optical fiber Cable (AOC) with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches.

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EJM (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5X) - 50M 100GbE Optical Cable QSFP28 (AOC)

50 meter length Active Optical fiber Cable (AOC) with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches.

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EJM (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB5Y) - 100M 100GbE Optical Cable QSFP28 (AOC)

100 meter length Active Optical fiber Cable (AOC) with QSFP28 transceivers on each end. The cable used for 100Gb Ethernet adapters or switches.

Cables are available in various lengths. See shorter passive copper cables #EB5J - #EJM (0.5M - 2.0M) or see active optical fiber cables #EJ5R - #EJ5Y (3M - 100M).

- Attributes provided: Optical fiber cable with QSFP28 transceivers
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EB72) - IBM i 7.2 Indicator

(No longer available as of April 30, 2020)

This feature is used to indicate the correct level of code when IBM i is specified.

- Attributes provided: IBM i 7.2 Indicator
- Attributes required: IBM i operating system
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EB73) - IBM i 7.3 Indicator

This feature is used to indicate the correct level of code when IBM i is specified.

- Attributes provided: IBM i 7.3 Indicator
- Attributes required: IBM i operating system
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.3 supported
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EB74) - IBM i 7.4 Indicator

This feature is used to indicate the correct level of code when IBM i is specified.

- Attributes provided: IBM i 7.4 Indicator
- Attributes required: IBM i operating system
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.4 supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#EBC0) - Blockchain on Power

(No longer available as of May 31, 2019)

This indicates tracking feature on Power servers.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#EC01) - Rack Front Door (Black)

(No longer available as of December 31, 2020)

This feature provides a front door in flat black color with an IBM logo for the 7953-94X rack. A front door such as #EC01 is required on the 7953-94X. The door is the full width of the rack and the hinges and lockplate can be moved from side to side allowing the door to be opened on the left or on the right. IBM ships rack with the handle on the right and hinges on the left viewed facing the front of the rack. The door comes with a lock which is keyed the same as the rear door or side panels. Uniquely keyed locks can be obtained by the client directly from Southco, the vendor from whom IBM purchased the lock.

- Attributes provided: Front Door with lock
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#EC02) - Rack Rear Door

(No longer available as of December 31, 2020)

This feature provides a rear door in flat black color for the 7953-94X rack. Either feature number EC02 or feature EC05 is required on the 7953-94X. The door is the full width of the rack and the hinges and lockplate can be moved from side to side allowing the door to be opened on the left or on the right. IBM ships rack with the handle on the right and hinges on the left viewed facing the rear of the rack. The front doors, rear doors and side panels come with a lock which is keyed the same as the front door or side panels. Uniquely keyed locks can be obtained by the client directly from Southco, the vendor from whom IBM purchased the lock.

- Attributes provided: Rear Door with lock
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#EC03) - Rack Side Cover

(No longer available as of December 31, 2020)

This feature provides two side panels in black color for the 7953-94X rack. Each side panel can cover either the left or the right side of the rack. These side covers are optional but recommended for optimal airflow through a rack and for physical security. The front door, rear doors and side panels come with a lock which is keyed the same as the front door or side panels. Uniquely keyed locks can be obtained by the client directly from Southco, the vendor from whom IBM purchased the lock.

- Attributes provided: Left and Right side panels for 7953 rack.
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#EC04) - Rack Suite Attachment Kit

(No longer available as of December 31, 2020)

This feature provides the attachment hardware to allow two IBM PureFlex System 42U Racks with or without side panels to be bolted together in a continuous suite. Order one EC04 feature for each 42U rack attached to the starting rack. For example, in a three-rack suite, order two EC04 features. When multiple racks are joined in this way without internal side panels, cables can be more easily run between racks without having to exit the continuous rack enclosure. With the side panels installed optimum thermal efficiencies are gained. If the optional rear door heat exchanger is chosen, side panels must remain on racks in the suite. Side panels should be used on the leftmost and rightmost racks of the suite.

- Attributes provided: Hardware and trim to attach two racks
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#EC07) - Slim Rear Acoustic Door

Slim rear acoustic door for use on the 7014-T42 or server feature #0553 2. 0M racks. Depth of this acoustic door is only about 113 mm (4.45 inches).

Physically #EC07 and #EC08 are identical, but have two feature codes to assist IBM sales configurator logic. #EC07 designates a rear door and #EC08 designates a front door.

- Attributes provided: Rear Acoustic door
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#EC08) - Slim Front Acoustic Door

Slim front acoustic door for use on the 7014-T42 or server feature #0553 2.0M racks. Depth of this acoustic door is only about 113 mm (4.45 inches).

Physically #EC07 and #EC08 are identical, but have two feature codes to assist IBM sales configurator logic. #EC07 designates a rear door and #EC08 designates a front door.

- Attributes provided: Acoustic front door
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#EC15) - Rear Door Heat Exchanger for 2.0 Meter Slim Rack

(No longer available as of December 31, 2020)

This feature indicates that the rear door heat exchanger (1164-95X) is ordered for the 7953-94Y rack. Either feature EC02 or feature EC05 is required on the 7953-94Y.

- Attributes provided: RDHX
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#EC28) - PCIe2 2-Port 10GbE RoCE SFP+ Adapter

(No Longer Available as of January 20, 2017)

This PCIe Gen2 adapter provides two 10 Gb copper SFP+ ports and supports the IBTA RoCE standard. RoCE is Remote Direct Memory Access (RDMA) over Converged Ethernet. The adapter can support significantly greater bandwidth with low latency. It minimizes CPU overhead by more efficiently using memory access. This offloads the CPU from I/O networking tasks, improving performance and scalability.

Active Copper twinax cables up to 5 meter in length are supported such as provided by feature #EN01, #EN02 or #EN03. Note that SFP+ twinax copper is NOT AS/400 5250 twinax or CX4 or 10 GBASE-T. Active cables differ from passive cables.

Feature code #EC27 and #EC28 have identical electronics and function and CCIN (EC27), but have different tail stocks. #EC27 is low profile and #EC28 is full high. Compared to Feature #EC29/EC30, the #EC27/EC28 have identical application capability and differ electronically only in that #EC27/EC28 have a SFP+ copper interface and a different CCIN where the #EC29/EC30 have an SFP+ SR optical interface.

#### LIMITATIONS:

- AIX NIM and Linux Network Install are not supported
- This adapter supports RoCE and NIC functions but not concurrently on same adapters.

Note: As of 3/12/2013 This feature is not available in the following EMEA countries, Bahrain, Comoros, Djibouti, Iraq, Kuwait, Lebanon, Libya, Malaysia, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Tunisia and United Arab Emirates which includes IBM Middle East - Dubai and Abu Dhabi and Yemen.

- Attributes provided: Dual-port 10GbE Adapter with RoCE capability
  - Attributes required: Available GEN2 PCIe Slot
  - Minimum required: 0
  - Maximum allowed: 16 (Initial order maximum: 16)
  - OS level required:
    - Red Hat Enterprise Linux 6.5 for POWER, or later
    - Red Hat Enterprise Linux 7 for POWER, or later
    - SUSE Linux Enterprise Server 11, Service Pack 3, or later
    - IBM i - supported only with VIOS
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
    - These additional AIX levels are supported in an LPAR using virtualized I/O only:
      - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
      - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
      - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
      - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
      - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
      - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: VIOS is supported for the ethernet capability.

### (#EC2A) - CAPI Activation



This activation feature enables the use of the Coherent Accelerator Processor Interface (CAPI) technology capabilities on POWER8 processor-based Power Systems using industry accelerator technologies. This can increase performance through faster computational efficiency and by requiring fewer resources to accomplish tasks through direct integration of workload accelerator(s) in the system. When using this optional feature (#EC2A) one is required per server. The CAPI activation feature is generic and can be used with separately provided CAPI application or hardware from IBM or OEM.

- Attributes provided: activation/enablement
- Attributes required: None for enablement, but use of CAPI will also require CAPI-aware hardware and applications
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: One per socket not to exceed two

## (#EC2J) - PCIe2 2-port 10GbE SFN6122F Adapter

(No Longer Available as of January 20, 2017)

This PCIe Gen2 2-port 10Gb Ethernet adapter is manufactured by SolarFlare and supports their OpenOnload(R) application accelerator. The adapter is supported by Linux and can be used by user-provided applications written to leverage its interfaces.

This PCIe Gen2 adapter provides two 10 Gb copper SFP+ ports. Active Copper twinax cables up to 5 meter in length are supported such as provided by feature #EN01, #EN02 or #EN03. #EN01/EN02/EN03 cables include transceivers for SFP+ ports. Note that SFP+ twinax copper is NOT AS/400 5250 twinax or CX4 or 10 GBASE-T. Active cables differ from passive cables

#EC2G and #EC2J are electronically identical adapters, but #EC2G indicates a low profile tail stock and #EC2J indicates a full high tail stock.

See also #EC2H and #EC2K which is also manufactured by SolarFlare, but does not support the OpenOnload capability.

- Attributes provided: PCIe Gen2 adapter with 2 10Gb Ethernet ports which supports Solarflare OpenOnload
- Attributes required: Available full high PCIe2 slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EC2N) - PCIe3 2-port 10GbE NIC&RoCE SR Adapter

(No longer available as of December 31, 2020)

This PCIe Gen3 adapter provides two 10 Gb SR optical fiber ports. The adapter supports both NIC and IBTA RoCE standards. RoCE is Remote Direct Memory Access (RDMA) over Converged Ethernet. Using RoCE, the adapter can support significantly greater bandwidth with low latency and minimize CPU overhead by more efficiently using memory access. This offloads the CPU from I/O networking tasks, improving performance and scalability.

The adapter includes two pre-installed Optical Transceivers in the adapter. LC connectors connect to standard 10Gb SR optical cabling and provide up to 300m cable length.

Feature code #EC2M and #EC2N have identical electronics and function and CCIN (57BE), but have different tail stocks. #EC2M is low profile and #EC2N is full high. Compared to EC37/EC38, the EC2M/ EC2N have identical application capability, but different cabling (optical fiber vs copper twinax). The EC2M/EC2N is based on the Mellanox ConnectX-3 Pro ASIC and is newer technology than previous features EC29/EC30.

LIMITATION: This adapter supports RoCE and NIC functions but not concurrently on same adapter.

Details for the ports include:

- AIX NIM and Linux Network Install are supported.
- IBTA RoCE v2 support.
- IEEE 802.3ae (10Gb Ethernet), IEEE 802.3ad (Link Aggregation & Failover), IEEE 802.3az (Energy Efficient Ethernet), IEEE 802.1Q/P (VLAN Tagging), IEEE 802.10au (Congestion Notification), IEEE 802.1Qbg, IEEE 802.3Qaz D0.2 (ETS), IEEE 802.1Qbb D1.0 (PFC), IEEE 1588v2 (PTP)

- Jumbo frame support up to 9.6KB
- VXLAN and NVGRE Overlay Network offload support
- TCP/UDP/IP stateless offload
- TCP checksum offload
- TCP segmentation offload
- UDP checksum offload
- MSI-X, MSI and support of legacy pin interrupt
- Attributes provided: 2-port 10Gb Ethernet Adapter with NIC and/or RoCE capability
- Attributes required: PCIe Gen3 or Gen2 slot
- Minimum required: 0
- Maximum allowed: 17 (Initial order maximum: 17)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level and service pack 5 and APAR IV68443 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 5 and APAR IV68444 or later
  - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 7 or later (planned availability 9/30/2015)
  - AIX Version 6.1 with the 6100-08 Technology Level and service Pack 7 or later (planned availability 9/30/2015)
  - IBM i 7.1 TR8 or later supported only with VIOS. Only virtual ethernet NIC.
  - IBM i 7.2 or later supported only with VIOS. Only virtual ethernet NIC.
  - Red Hat Enterprise Linux 8 for Power, or later, with Mellanox OFED 4.6, or later
  - Red Hat Enterprise Linux 6.6, or later
  - Red Hat Enterprise Linux 7.1, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.51 or later. VIOS supports NIC capability only.

## (#EC30) - PCIe2 2-Port 10GbE RoCE SR Adapter

(No Longer Available as of January 20, 2017)

This PCIe Gen2 adapter provides two 10 Gb SR optical ports and supports the IBTA RoCE standard. RoCE is Remote Direct Memory Access (RDMA) over Converged Ethernet. The adapter can support significantly greater bandwidth with low latency. It minimizes CPU overhead by more efficiently using memory access. This offloads the CPU from I/O networking tasks, improving performance and scalability.

The adapter includes a pre-installed Optical Transceiver in the adapter. LC connectors connect to standard 10Gb SR optical cabling and provide up to 300m cable length.

Feature code #EC29 and #EC30 have identical electronics and function and CCIN (EC29), but have different tail stocks. #EC29 is low profile and #EC30 is full high. Compared to Feature #EC27/EC28, the #EC29/EC30 have identical application capability and differ electronically only in that #EC27/EC28 have a SFP+ copper interface and a different CCIN where the #EC29/EC30 have an SFP+ SR optical interface.

- Attributes provided: Dual-port 10GbE Adapter with RoCE capability
- Attributes required:
  - Available GEN2 PCIe Slot
  - Firmware Level 740 or greater
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i is not supported
  - Refer to Software requirements for specific O/S levels supported
- LIMITATIONS:
  - AIX NIM and Linux Network Install are not supported
  - This adapter supports RoCE and NIC functions but not concurrently on same adapters.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: As of 3/12/2013 This feature is not available in the following EMEA countries, Bahrain, Comoros, Djibouti, Iraq, Kuwait, Lebanon, Libya, Malaysia, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Tunisia and United Arab Emirates which includes IBM Middle East - Dubai and Abu Dhabi and Yemen.  
Note: VIOS is supported for the ethernet capability.

## (#EC33) - PCIe3 2-port 56Gb FDR IB Adapter x16

(No longer available as of April 24, 2020)

The PCIe Gen3 full high x16 2-port Infiniband FDR adapter provides high speed connectivity with other servers or IB switches. Each port maximum of 56Gb assumes no other system and/or switch bottlenecks are present. The x16 adapter allows full bandwidth in a PCIe Gen3 slot. This adapter is sourced from Mellanox Corporation. CCIN is 2CE7.

The two 56Gb ports have QSFP+ connections which support industry standard FDR cables, either FDR DAC cables or FDR optical. One adapter can support either or both types of cable. The user can choose to cable up just one port if they desire.

The #EC32 and EC33 adapters are electronically and physically identical except they have different tail stocks to support different height PCIe slots.

Limitation: This adapter does not fit in a x8 PCIe slot.

Limitation: Not supported by VIOS

- Attributes provided: 2-Port 56Gb FDR Adapter
- Attributes required: full high x16 PCIe Gen3 slot
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - AIX - not supported
  - IBM i - not supported
  - Red Hat Enterprise Linux 6.6, or later
  - Red Hat Enterprise Linux 7.1, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EC38) - PCIe3 2-port 10GbE NIC&RoCE SFP+ Copper Adapter

(No longer available as of April 24, 2020)

This PCIe Gen3 adapter provides two 10 Gb SFP+ ports for copper twinax cabling/transceivers. The adapter supports both NIC and IBTA RoCE standards. RoCE is Remote Direct Memory Access (RDMA) over Converged Ethernet. Using RoCE, the adapter can support significantly greater bandwidth with low latency and minimize CPU overhead by more efficiently using memory access. This offloads the CPU from I/O networking tasks, improving performance and scalability.

Active Copper twinax cables up to 5 meter in length are supported such as provided by feature #EN01, #EN02 or #EN03. These cables also include copper transceivers. Active cables differ from passive cables.

Feature code #EC37 and #EC38 have identical electronics and function and CCIN (57BC), but have different tail stocks. #EC37 is low profile and #EC38 is full high. Compared to EC2M/EC2N, the EC37/ EC38 have identical application capability, but different cabling (optical fiber vs copper twinax). The EC37/EC38 is based on the Mellanox ConnectX-3 Pro ASIC and is newer technology than previous features EC27/EC28.

LIMITATION: This adapter supports RoCE and NIC functions but not concurrently on same adapter.

Details for the ports include:

- AIX NIM and Linux Network Install are supported.
  - IBTA RoCE v2 support.
  - IEEE 802.3ae (10Gb Ethernet), IEEE 802.3ad (Link Aggregation & Failover), IEEE 802.3az (Energy Efficient Ethernet), IEEE 802.1Q/P (VLAN Tagging), IEEE 802.10au (Congestion Notification), IEEE 802.1Qbg, IEEE 802.3Qaz D0.2 (ETS), IEEE 802.1Qbb D1.0 (PFC), IEEE 1588v2 (PTP)
  - Jumbo frame support up to 9.6KB
  - VXLAN and NVGRE Overlay Network offload support
  - TCP/UDP/IP stateless offload
  - TCP checksum offload
  - TCP segmentation offload
  - UDP checksum offload
  - MSI-X, MSI and support of legacy pin interrupt
  - Attributes provided: 2-port 10Gb Ethernet Adapter with NIC and/or RoCE capability
  - Attributes required: PCIe Gen3 or Gen2 slot
  - Minimum required: 0
  - Maximum allowed: 17 (Initial order maximum: 17)
  - OS level required:
    - AIX Version 6.1 with the 6100-09 Technology Level and service pack 5 and APAR IV68443 or later
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 5 and APAR IV68444 or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 7 or later (planned availability 9/30/2015)
    - AIX Version 6.1 with the 6100-08 Technology Level and service Pack 7 or later (planned availability 9/30/2015)
    - IBM i 7.1 TR8 or later supported only with VIOS. Only virtual ethernet NIC.
    - IBM i 7.2 or later supported only with VIOS. Only virtual ethernet NIC.
    - Red Hat Enterprise Linux 8 for Power, or later, with Mellanox OFED 4.6, or later
    - Red Hat Enterprise Linux 6.6, or later
    - Red Hat Enterprise Linux 7.1, big endian, or later
    - Red Hat Enterprise Linux 7.1, little endian, or later
    - SUSE Linux Enterprise Server 12, or later
    - Ubuntu 15.04, or later
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: VIOS 2.2.3.51 or later. VIOS supports NIC capability only.

## (#EC3B) - PCIe3 2-Port 40GbE NIC RoCE QSFP+ Adapter

(No longer available as of December 31, 2020)

PCIe Gen3 adapter provides two 40 Gb Ethernet QSFP+ ports. NIC and IBTA RoCE protocols are supported.

RoCE is Remote Direct Memory Access (RDMA) over Converged Ethernet. RoCE can support significantly greater bandwidth with low latency and minimize CPU overhead by more efficiently using memory access. This offloads the CPU from I/O networking tasks, improving performance and scalability.

The #EC3A/EC3B adapter does not include transceivers. Shorter distance copper cables include transceivers on the end of the QSFP+ cable (see #EB2B (1m), #EB2H (3m), #ECBN (5m)). For longer distance use two optical SR transceiver (two #EB27). QSFP+ optical cables to be used with the #EB27 transceiver are #EB2J (10m) or #EB2K (30m). Do not mix copper and optical on the same adapter.

Feature code #EC3A and #EC3B have identical electronics and function and the same CCIN (57BD), but they have different tail stocks. #EC3A is low profile and #EC3B is full height.

AIX NIM and Linux Network Install are supported.

- Attributes provided: 2-Port 40GbE NIC and RoCE (no transceiver)
- Attributes required: PCIe Gen2 or Gen3 slot (Gen3 preferred). Two Transceivers; QSFP+ cabling
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i - supported only through VIOS
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EC3F) - PCIe3 2-port 100Gb EDR IB Adapter x16

(No longer available as of April 24, 2020)

The PCIe Gen3 x16 2-port InfiniBand EDR adapter provides high speed connectivity with other servers or IB switches. Each port maximum of 100Gb assumes no other system and/or switch bottlenecks are present. A PCIe Gen3 x16 PCIe slot is required. This adapter is sourced from Mellanox Corporation based on ConnectX-4 technology. The adapter supports the InfiniBand Trade Association (IBTA) specification version 2. The two 100Gb ports have QSFP+ connections which support EDR cables, either EDR DAC or EDR optical. One adapter can support either or both types of cable. The user can choose to cable up just one port if they desire. Transceivers are included in the cables. IBM cable features EB50-EB54 (copper shorter distance) and #EB5A-EB5H (optical longer distance) are supported or their copper or optical Mellanox equivalents are supported. Other cables are not supported. #EC3E and #EC3F adapters are electronically and functionally identical with the same CCIN of 2CEA. #EC3E has a low profile tailstock bracket. #EC3F has a full high tailstock bracket. See also #EC3T and #EC3U for a 1-port version of this adapter. Limitation: Adapter does not fit in x8 PCIe slot. Adapter is not supported in a PCIe Gen3 I/O drawer.

Limitation: Not supported by VIOS

- Attributes provided: EDR InfiniBand PCIe Adapter
  - Attributes required: available x16 PCIe Gen3 slot
  - Minimum required: 0
  - Maximum allowed: 2 (Initial order maximum: 2)
  - OS level required:
    - IBM i not supported
    - Red Hat Enterprise Linux 8 for Power, or later, with Mellanox OFED 4.6, or later
    - Red Hat Enterprise Linux 7.2, little endian, or later, with Mellanox OFED 3.2, or later
    - Red Hat Enterprise Linux 7.2, big endian, or later, with Mellanox OFED 3.2, or later
    - Ubuntu 14.04.4, or later, with Mellanox OFED 3.2, or later
    - SUSE Linux Enterprise Server 11, Service Pack 4, or later, with Mellanox OFED 3.2, or later
    - SUSE Linux Enterprise Server 12, Service Pack 1, or later, with Mellanox OFED 3.2, or later
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Limitation: Only supported for rack configuration.

## (#EC3M) - PCIe3 2-port 100GbE (NIC&RoCE) QSFP28 Adapter x16

(No longer available as of December 31, 2020)

This PCIe Gen3 Ethernet x16 adapter provides two 100 Gb QSFP28 ports. The adapter supports both NIC and IBTA RoCE standards. RoCE is Remote Direct Memory Access (RDMA) over Converged Ethernet. Using RoCE, the adapter can support significantly greater bandwidth with low latency and minimize CPU overhead by more efficiently using memory access. This offloads the CPU from I/O networking tasks, improving performance and scalability.

IBM offers either passive copper twinax cables up to 2 meter in length or active optical cables up to 100 meters in length. See features #EB5J - #EB5M for a 0.5M, 1.0M, 1.5M and 2.0M copper cable. See features #EB5R - #EB5Y for a 3M, 5M, 10M, 15M, 20M, 30M, 50M or 100M active optical cable. Transceivers are included on each end of these QSFP28 cables. Alternatively to the above supported cables, you may chose to order an IBM qualified and supported QSFP28 optical transceiver (feature #EB59) to put into the adapter and provide your own 100GE optical cabling with your own QSP28 optical transceiver for the other end.

Either one or both of the adapter's two QSP28 ports can be populated. When two ports are filled, both can have copper cables, both can have optical cables, or one can be copper and one can be optical.

Feature code #EC3L and #EC3M have identical electronics and function and CCIN (2CEC), but have different tail stock brackets. #EC3L is low profile and #EC3M is full high. The adapter is based on a Mellanox ConnectX-4 adapter which uses a ConnectX-4 EN Network Controller. Attributes :

- PCI Express 3.0 (up to 8GT/s) x16
  - PCIe Gen 3.0 compliant, 1.1 and 2.0 compatible
  - RDMA over Converged Ethernet (RoCE)
  - NIC and RoCE are concurrently supported
  - RoCE supported on Linux and AIX (7.2 and later)
  - NIC supported on all OSes
  - TCP/UDP/IP stateless offload
  - LSO, LRO, checksum offload
  - NIM boot support - Backward compatible with 40Gb Ethernet when using compatible cables/transceivers.
  - Attributes provided: 2-port 100Gb Ethernet Adapter
  - Attributes required: x16 PCIe Gen3 slot
  - Minimum required: 0
  - Maximum allowed: 2 (Initial order maximum: 2)
  - OS level required:
    - AIX Version 7.2 with the 7200-01 Technology Level or later
    - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 3 and APAR IV88680 or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 8 and APAR IV88679 or later
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 8 or later (planned availability 1/27/2017)
    - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 3 or later (planned availability 1/27/2017)
    - IBM i 7.3 TR4, or later
    - IBM i 7.4, or later
    - AIX 7.2 with the 7200-01 Technology level or later supports both Ethernet and RoCE capability. AIX 6.1, 7.1 and VIOS support Ethernet capability only.
    - On POWER8, this adapter does not support network boot nor network install for IBM i. IBM i native supports the NIC function. IBM i 7.4 adds support for dedicated ROCE, which is used only by IBM Db2 Mirror for i. 'IBM i dedicated ROCE' requires system FW 860.60 or later.
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Assignment to the VIOS requires VIOS 2.2.5.10 or later. VIOS supports NIC capability only.  
 Note: On POWER8, this adapter does not support network boot nor network install for IBM i.

## (#EC3U) - PCIe3 1-port 100Gb EDR IB Adapter x16

(No longer available as of April 24, 2020)

The PCIe Gen3 x16 1-port InfiniBand EDR adapter provides high speed connectivity with other servers or IB switches. The port's maximum of 100Gb assumes no other system and/or switch bottlenecks are present. A PCIe Gen3 x16 PCIe slot is required. This adapter is sourced from Mellanox Corporation based on ConnectX-4 technology. The adapter supports the InfiniBand Trade Association (IBTA) specification version 2. The 100Gb port has a QSFP+ connection which supports EDR cables, either EDR DAC or EDR optical. Transceivers are included in the cables. IBM cable features EB50-EB54 (copper shorter distance) and #EB5A-EB5H (optical longer distance) are supported or their copper or optical Mellanox equivalents are supported. Other cables are not supported. #EC3T and #EC3U adapters are electronically and functionally identical with the same CCIN of 2CEB. #EC3U has a full high tailstock bracket. See also #EC3E and #EC3F for a 2-port version of this adapter. Limitation: Adapter does not fit in x8 PCIe slot. Adapter is not supported in a PCIe Gen3 I/O drawer.

Limitation: Not supported by VIOS

- Attributes provided: EDR InfiniBand PCIe Adapter
  - Attributes required: available x16 PCIe Gen3 slot
  - Minimum required: 0
  - Maximum allowed: 2 (Initial order maximum: 2)
  - OS level required:
    - IBM i not supported
    - Red Hat Enterprise Linux 8 for Power, or later, with Mellanox OFED 4.6, or later
    - Red Hat Enterprise Linux 7.2, little endian, or later, with Mellanox OFED 3.2, or later
    - Red Hat Enterprise Linux 7.2, big endian, or later, with Mellanox OFED 3.2, or later
    - Ubuntu 14.04.4, or later, with Mellanox OFED 3.2, or later
    - SUSE Linux Enterprise Server 11, Service Pack 4, or later, with Mellanox OFED 3.2, or later
    - SUSE Linux Enterprise Server 12, Service Pack 1, or later, with Mellanox OFED 3.2, or later
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Limitation: Only supported for rack configuration.

## (#EC42) - PCIe2 3D Graphics Adapter x1

(No Longer Available as of December 29, 2017)

(No Longer Available as of March 28, 2017)

Note: Feature EC42 is withdrawn only in the following European countries: Iceland, Liechtenstein, Norway, Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom. and Switzerland.

There are two identical 3D adapters EC41 with a low profile tail stock and EC42 with full high tail stock.

When using graphic adapter for Partition Firmware Console to select an install or boot device use #3632 display or rack mount 7316-TF4 display. Withdrawn display #3644 or withdrawn rack mount 7316-TF3 display may also be used.

Limit of one adapter per LPAR.

Limitation: Placement of this PCIe adapter is not supported in the PCIe Gen3 I/O Drawer.

- Attributes provided: Graphics adapter with DMS-59 Dual DVI cable
- Attributes required: one available full height PCIe2 slot
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - AIX - not supported
  - IBM i - not supported
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 7, for POWER, or later
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Feature #EC42 adapter is not supported in the PCIe Gen3 I/O Drawer.

## (#EC46) - PCIe2 4-Port USB 3.0 Adapter

(No longer available as of December 31, 2020)

The PCIe Gen2 x8 short 4-port USB 3.0 adapter provides support for USB devices. In applications that require the use of an USB extension cable for keyboards, use one #4256 per port. The #EC45 and #EC46 USB adapters are electronically identical with the same 58F9 CCIN. They differ physically in their tailstock. #EC45 is low profile and #EC46 is full high.

- Attributes provided: Connectivity with USB 2.0 - 3.0 capable devices
- Attributes required: One available full height PCIe slot.
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: KVM - supported, refer to the Software requirements section for the supported KVM levels

## (#EC55) - PCIe3 1.6TB NVMe Flash Adapter

(No longer available as of August 7, 2020)

This feature ships 1.6 TB of low write latency, nonvolatile flash memory on a PCIe Gen3 adapter. Adapter uses NVMe (Non-Volatile Memory express) which is a high performance software interface to read/write this flash memory. Adapter physically is half length x4 adapter which can be used in either a x8 or x16 PCIe Gen3 slot in the system unit. Compared to SAS/SATA SSD the NVMe adapter can provide significantly more read or write IOPS and significantly larger throughput (GB/sec). CCIN is 58CB. Adapter card is designed for read intensive workloads with light write activity. Approximately 8,760 TB of data can be written over the life of the adapter, but depending on the nature of the workload may be somewhat larger. After the warranty period, if the maximum write capability is achieved, the adapter's replacement is not covered under IBM maintenance. For high value applications where the content in the adapter must be protected, using additional NVMe Flash adapter(s) with OS mirroring or software RAID is recommended. #EC54 and #EC55 are identical cards except that the tailstock bracket is different. #EC54 fits a low profile PCIe slot. #EC55 fits a full high PCIe slot. See also #EC56/EC57 for a card with more memory. Limitations: Not supported in PCIe Gen3 I/O drawer. Data protection not implemented in the card and protection provided by OS mirroring or software RAID.

- Attributes provided: 1.6 TB of low latency flash memory
- Attributes required: PCIe Gen3 slot in system unit
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - IBM i not supported
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 7.2, big endian, or later, with all available maintenance updates
  - Red Hat Enterprise Linux 7.2, little endian, or later, with all available maintenance updates
  - SUSE Linux Enterprise Server 11, Service Pack 4, or later, with all available maintenance updates
  - Ubuntu Server 16.04, or later

The nvme-cli tool is available for download for RHEL and SLES from the IBM Power Tools repository:

<http://www14.software.ibm.com/support/customer/sa/sf/l/opdiags/home.html>

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Limitation: Only supported for rack configuration.

## (#EC57) - PCIe3 3.2TB NVMe Flash Adapter

(No longer available as of August 7, 2020)

This feature ships 3.2 TB of write low latency, nonvolatile flash memory on a PCIe Gen3 adapter. Adapter uses NVMe (Non-Volatile Memory express) which is a high performance software interface to read/write this flash memory. Adapter physically is half length x4 adapter which can be used in either a x8 or x16 PCIe Gen3 slot in the system unit. Compared to SAS/SATA SSD the NVMe adapter can provide significantly more read or write IOPS and significantly larger throughput (GB/sec). CCIN is 58CC. Adapter card is designed for read intensive workloads with light write activity. Approximately 17,500 TB of data can be written over the life of the adapter, but depending on the nature of the workload may be somewhat larger. After the warranty period, if the maximum write capability is achieved, the adapter's replacement is not covered under IBM maintenance. For high value applications where the content in the adapter must be protected, using additional NVMe Flash adapter(s) with OS mirroring or software RAID is recommended. #EC56 and #EC57 are identical cards except that the tailstock bracket is different. #EC56 fits a low profile PCIe slot. #EC57 fits a full high PCIe slot. See also #EC54/EC55 for a card with less memory. Limitations: Not supported in PCIe Gen3 I/O drawer. Data protection not implemented in the card and protection provided by OS mirroring or software RAID.

- Attributes provided: 3.2 TB of low latency flash memory
- Attributes required: PCIe Gen3 slot in system unit
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - IBM i not supported
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 7.2, big endian, or later, with all available maintenance updates
  - Red Hat Enterprise Linux 7.2, little endian, or later, with all available maintenance updates
  - SUSE Linux Enterprise Server 11, Service Pack 4, or later, with all available maintenance updates
  - Ubuntu Server 16.04, or later

The nvme-cli tool is available for download for RHEL and SLES from the IBM Power Tools repository:

<http://www14.software.ibm.com/support/customercare/sa/sf/lopdiags/home.html>

- Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Limitations: Only supported for rack configuration.

### (#ECBJ) - SAS X Cable 3m - HD Narrow 6Gb 2-Adapters to Enclosure

This 3 meter SAS cable connects two PCIe2 SAS adapters or two PCIe3 SAS adapters to a SAS I/O enclosure. This X cable has four connectors, two Mini-SAS HD (High Density) Narrow connector and two Mini SAS connectors. The Mini-SAS HD Narrow connectors attach to two SAS adapters such as two #EJ0J or two #EJ0L or two #5913. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapter can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

This cable is almost identical to the #3454 3m SAS X cable, except #ECBJ connectors for the SAS adapters are more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Attributes provided: Connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS I/O drawer with Mini-SAS connectors or between PCIe2 SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini-SAS connectors.
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECBK) - SAS X Cable 6m - HD Narrow 6Gb 2-Adapters to Enclosure

This 3 meter SAS cable connects two PCIe2 SAS adapters or two PCIe3 SAS adapters to a SAS I/O enclosure. This X cable has four connectors, two Mini-SAS HD (High Density) Narrow connector and two Mini SAS connectors. The Mini-SAS HD Narrow connectors attach to two SAS adapters such as two #EJ0J or two #EJ0L or two #5913. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapter can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

This cable is almost identical to the #3454 3m SAS X cable, except #ECBJ connectors for the SAS adapters are more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

This 6 meter SAS cable connects two SAS adapters to a SAS I/O enclosure. This X cable has four connectors, two Mini-SAS HD (High Density) connector and two Mini SAS connectors. The Mini-SAS HD connectors attaches to two SAS adapters such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapters can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

- Limitation: When this cable is ordered with a system in a rack specifying IBM Plant integration, IBM Manufacturing will ship SAS cables longer than 3 meters in a separate box and not attempt to place the cable in the rack.
- Attributes provided: Connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS I/O drawer with Mini-SAS connectors or between PCIe2 SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini-SAS connectors.
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ECBL) - SAS X Cable 10m - HD Narrow 6Gb 2-Adapters to Enclosure

(No longer available as of December 31, 2020)

This 3 meter SAS cable connects two PCIe2 SAS adapters or two PCIe3 SAS adapters to a SAS I/O enclosure. This X cable has four connectors, two Mini-SAS HD (High Density) Narrow connector and two Mini SAS connectors. The Mini-SAS HD Narrow connectors attach to two SAS adapters such as two #EJ0J or two #EJ0L or two #5913. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapter can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

This cable is almost identical to the #3454 3m SAS X cable, except #ECBJ connectors for the SAS adapters are more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Limitation: When this cable is ordered with a system in a rack specifying IBM Plant integration, IBM Manufacturing will ship SAS cables longer than 3 meters in a separate box and not attempt to place the cable in the rack.
- Attributes provided: Connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS I/O drawer with Mini-SAS connectors or between PCIe2 SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini-SAS connectors.
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ECBM) - SAS X Cable 15m - HD Narrow 3Gb 2-Adapters to Enclosure

This 15 meter SAS cable connects two PCIe2 SAS adapters or two PCIe3 SAS adapters to a SAS I/O enclosure. This X cable has four connectors, two Mini-SAS HD (High Density) Narrow connector and two Mini SAS connectors. The Mini-SAS HD Narrow connectors attach to two SAS adapters such as two #EJ0J or two #EJ0L or two #5913. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapter can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

This cable is almost identical to the #3458 15m SAS X cable, except #ECBM connectors for the SAS adapters are more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Limitation: When this cable is ordered with a system in a rack specifying IBM Plant integration, IBM Manufacturing will ship SAS cables longer than 3 meters in a separate box and not attempt to place the cable in the rack.
- Attributes provided: Connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS I/O drawer with Mini-SAS connectors or between PCIe2 SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini-SAS connectors.
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ECBN) - 5m (16.4-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)

(No longer available as of January 18, 2019)

QSFP+ cable is used for 40Gb-to-40Gb Ethernet connectivity. clients can use this QSFP+ Direct Attach Cable for Ethernet connectivity. This copper cable has QSFP+ transceivers already attached to each end.

- Attributes provided: 5m QSFP+ to QSFP+ Cable
- Attributes required: QSFP/QSFP+ ports
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ECBT) - SAS YO Cable 1.5m - HD Narrow 6Gb Adapter to Enclosure

This 1.5 meter SAS cable connects a PCIe2 SAS adapter or a PCIe3 SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density) Narrow connector and two Mini SAS connectors. The Mini-SAS HD Narrow connector attaches to a SAS adapter such as the #EJ0J or #EJ0L or #5913. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable.

This cable is almost identical to the #3450 1.5m SAS YO cable, except the #ECBT connector for the SAS adapters is more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Attributes provided: Connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS I/O drawer with Mini-SAS connectors or between PCIe2 SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini-SAS connectors.



- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECBU) - SAS YO Cable 3m - HD Narrow 6Gb Adapter to Enclosure

This 3 meter SAS cable connects a PCIe2 SAS adapter or a PCIe3 SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density) Narrow connector and two Mini SAS connectors. The Mini-SAS HD Narrow connector attaches to a SAS adapter such as the #EJ0J or #EJ0L or #5913. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable.

This cable is almost identical to the #3451 3m SAS YO cable, except the #ECBU connector for the SAS adapters is more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Attributes provided: Connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS I/O drawer with Mini-SAS connectors or between PCIe2 SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini-SAS connectors.
- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECBV) - SAS YO Cable 6m - HD Narrow 6Gb Adapter to Enclosure

This 6 meter SAS cable connects a PCIe2 SAS adapter or a PCIe3 SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density) Narrow connector and two Mini SAS connectors. The Mini-SAS HD Narrow connector attaches to a SAS adapter such as the #EJ0J or #EJ0L or #5913. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable.

This cable is almost identical to the #3452 6m SAS YO cable, except the #ECBV connector for the SAS adapters is more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Limitation: When this cable is ordered with a system in a rack specifying IBM Plant integration, IBM Manufacturing will ship SAS cables longer than 3 meters in a separate box and not attempt to place the cable in the rack.
- Attributes provided: Connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS I/O drawer with Mini-SAS connectors or between PCIe2 SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini-SAS connectors.
- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECBW) - SAS YO Cable 10m - HD Narrow 6Gb Adapter to Enclosure

This 10 meter SAS cable connects a PCIe2 SAS adapter or a PCIe3 SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density) Narrow connector and two Mini SAS connectors. The Mini-SAS HD Narrow connector attaches to a SAS adapter such as the #EJ0J or #EJ0L or #5913. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5886 EXP12S or #5887 EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable.

This cable is almost identical to the #3453 10m SAS YO cable, except the #ECBW connector for the SAS adapters is more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Limitation: When this cable is ordered with a system in a rack specifying IBM Plant integration, IBM Manufacturing will ship SAS cables longer than 3 meters in a separate box and not attempt to place the cable in the rack.
- Attributes provided: Connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS I/O drawer with Mini-SAS connectors or between PCIe2 SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini-SAS connectors.
- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECBX) - SAS YO Cable 15m - HD Narrow 3Gb Adapter to Enclosure

This 15 meter SAS cable connects a PCIe2 SAS adapter or a PCIe3 SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density) Narrow connector and two Mini SAS connectors. The Mini-SAS HD Narrow connector attaches to a SAS adapter such as the #EJ0J or #EJ0L or #5913. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5887 EXP24S SAS I/O drawer. This cable can support up to 3Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable.

This cable is almost identical to the #3457 15m SAS YO cable, except the #ECBX connector for the SAS adapters is more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Limitation:
  - Does not support 6Gb throughput.
  - When this cable is ordered with a system in a rack specifying IBM Plant integration, IBM Manufacturing will ship SAS cables longer than 3 meters in a separate box and not attempt to place the cable in the rack.
- Attributes provided: Connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS I/O drawer with Mini-SAS connectors or between PCIe2 SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini-SAS connectors.
- Attributes required: available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECBY) - SAS AE1 Cable 4m - HD Narrow 6Gb Adapter to Enclosure

This 4 meter SAS cable connects a PCIe3 SAS adapter to a SAS tape drive. The tape drive is probably in an I/O enclosure such as a bridge box or 1U media enclosure or tape library. This AE cable has two connectors, one Mini-SAS HD (High Density) Narrow connector and one Mini-SAS connectors. The Mini-SAS HD Narrow connector attaches to a SAS adapter such as the #EJ0X. The Mini-SAS connector attaches to a SAS tape drive enclosure. This cable can support up to 6Gb throughput.

Use #ECBY when ordering the cable as a feature code on a Power System. Alternatively the same cable can be ordered using feature code #5507 of the IBM tape enclosure.

- Attributes provided: connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS tape drive with Mini-SAS connectors
- Attributes Required: Available connectors on SAS controller such as #EJ0X, #EJ10 or #EJ11 and an available SAS tape drive.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECBZ) - SAS YE1 Cable 3m - HD Narrow 6Gb Adapter to Enclosure

This 3 meter SAS cable connects a PCIe3 SAS adapter to one or two SAS tape drives. The tape drive(s) is probably in an I/O enclosure such as a bridge box or 1U media enclosure or tape library. This YO cable has three connectors, one Mini-SAS HD (High Density) Narrow connector and two Mini-SAS connectors. The Mini-SAS HD Narrow connector attaches to a SAS adapter such as the #EJ0X. Each Mini-SAS connector attaches to a different SAS tape drive enclosure. This cable can support up to 6Gb throughput.

Use #ECBZ when ordering the cable as a feature code on a Power System. Alternatively the same cable can be ordered using feature code #5509 of the IBM tape enclosure.

- Attributes provided: connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and one or two SAS tape drives with Mini-SAS connectors.
- Attributes required: Available connectors on SAS controller such as #EJ0X, #EJ10 or #EJ11 for use with an available SAS tape drive.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECC0) - SAS AA Cable 0.6m - HD Narrow 6Gb Adapter to Adapter

This 0.6m SAS cable connects a pair of PCIe SAS adapters with write cache to each other. The pair can be two PCIe3 SAS adapters or can be two PCIe2 SAS adapters. This AA cable has two Mini-SAS HD (High Density) Narrow connectors which connect the top connectors of the two PCIe adapters providing a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable can support up to 6Gb throughput.

Two AA cables are always required between a pair of PCIe3 SAS adapters with write cache such as #EJ0L unless six (three pair) of ports or unless eight (four pair) are used to attach I/O drawers. One AA cable is always required between a pair of PCIe2 SAS adapters with write cache (pair of #5913 or a pair of #ESA3) unless all six (three pair) of ports are used to attach I/O drawers. If an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters. p.This cable is almost identical to the #5918 0.6m SAS AA cable, except #ECC0 connectors for the SAS adapters are more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Attributes provided: high speed connection between two PCIe2 or two PCIe3 SAS adapters with write cache
- Attributes required: available top connectors on pair of PCIe2 or PCIe3 SAS adapters with write cache
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECC2) - SAS AA Cable 1.5m - HD Narrow 6Gb Adapter to Adapter

This 1.5m SAS cable connects a pair of PCIe SAS adapters with write cache to each other. The pair can be two PCIe3 SAS adapters or can be two PCIe2 SAS adapters. This AA cable has two Mini-SAS HD (High Density) Narrow connectors which connect the top connectors of the two PCIe adapters providing a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable can support up to 6Gb throughput.

Two AA cables are always required between a pair of PCIe3 SAS adapters with write cache such as #EJ0L unless six (three pair) of ports or unless eight (four pair) are used to attach I/O drawers. One AA cable is always required between a pair of PCIe2 SAS adapters with write cache (pair of #5913 or a pair of #ESA3) unless all six (three pair) of ports are used to attach I/O drawers. If an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters. p.This cable is almost identical to the #5917 1.5m SAS AA cable, except #ECC2 connectors for the SAS adapters are more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Attributes provided: high speed connection between two PCIe2 or two PCIe3 SAS adapters with write cache
- Attributes required: available top connectors on pair of PCIe2 or PCIe3 SAS adapters with write cache
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECC3) - SAS AA Cable 3m - HD Narrow 6Gb Adapter to Adapter

This 3m SAS cable connects a pair of PCIe SAS adapters with write cache to each other. The pair can be two PCIe3 SAS adapters or can be two PCIe2 SAS adapters. This AA cable has two Mini-SAS HD (High Density) Narrow connectors which connect the top connectors of the two PCIe adapters providing a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable can support up to 6Gb throughput.

Two AA cables are always required between a pair of PCIe3 SAS adapters with write cache such as #EJ0L unless six (three pair) of ports or unless eight (four pair) are used to attach I/O drawers. One AA cable is always required between a pair of PCIe2 SAS adapters with write cache (pair of #5913 or a pair of #ESA3) unless all six (three pair) of ports are used to attach I/O drawers. If an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters. p.This cable is almost identical to the #5915 3m SAS AA cable, except #ECC3 connectors for the SAS adapters are more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Attributes provided: high speed connection between two PCIe2 or two PCIe3 SAS adapters with write cache
- Attributes required: available top connectors on pair of PCIe2 or PCIe3 SAS adapters with write cache
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECC4) - SAS AA Cable 6m - HD Narrow 6Gb Adapter to Adapter

(No longer available as of December 31, 2020)

This 6m SAS cable connects a pair of PCIe SAS adapters with write cache to each other. The pair can be two PCIe3 SAS adapters or can be two PCIe2 SAS adapters. This AA cable has two Mini-SAS HD (High Density) Narrow connectors which connect the top connectors of the two PCIe adapters providing a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable can support up to 6Gb throughput.

Two AA cables are always required between a pair of PCIe3 SAS adapters with write cache such as #EJ0L unless six (three pair) of ports or unless eight (four pair) are used to attach I/O drawers. One AA cable is always required between a pair of PCIe2 SAS adapters with write cache (pair of #5913 or a pair of #ESA3) unless all six (three pair) of ports are used to attach I/O drawers. If an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters. p.This cable is almost identical to the #5916 6m SAS AA cable, except #ECC4 connectors for the SAS adapters are more narrow allowing it to fit onto the newer PCIe3 SAS adapters.

- Attributes provided: high speed connection between two PCIe2 or two PCIe3 SAS adapters with write cache
- Attributes required: available top connectors on pair of PCIe2 or PCIe3 SAS adapters with write cache
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECC7) - 3M Optical Cable Pair for PCIe3 Expansion Drawer

The 3.0 meter active optical cable (AOC) pair connects a PCIe3 module in the PCIe Gen3 I/O Expansion Drawer to a PCIe3 Optical Converter Adapter in the system unit. There are two identical cables in the cable pair, each with two CXP connectors. One of the cables attaches to the top CXP port of the PCIe3 module and to the top CXP port of the PCIe3 Optical Converter Adapter. The other cable attaches to the bottom CXP ports. See also other AOC cable length options such as the feature #ECC8 (10 meter).

- Attributes provided: Pair of 3 meter active optical cables
- Attributes required: CXP ports on a PCIe3 Optical Cable Adapter and on a PCIe3 module in a PCIe Gen3 Expansion Drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Only used with Solution machine type 5146

### (#ECC8) - 10M Optical Cable Pair for PCIe3 Expansion Drawer

The 10.0 meter active optical cable (AOC) pair connects a PCIe3 module in the PCIe Gen3 I/O Expansion Drawer to a PCIe3 Optical Converter Adapter in the system unit. There are two identical cables in the cable pair, each with two CXP connectors. One of the cables attaches to the top CXP port of the PCIe3 module and to the top CXP port of the PCIe3 Optical Converter Adapter. The other cable attaches to the bottom CXP ports. See also other AOC cable length options such as the feature #ECC6 (2 meter). The 10 meter length is suggested for cabling to a different rack.

- Attributes provided: Pair of 10 meter active optical cables
- Attributes required: CXP ports on a PCIe3 Optical Cable Adapter (#EJ07) and on a PCIe3 module such as a #EMXF in a PCIe Gen3 Expansion Drawer (#EMX0)
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Only used with Solution machine type 5146

### (#ECCF) - System Port Converter Cable for UPS

Converter cable allows a serial cable attached to a Uninterruptible Power Supply (UPS) to connect to a USB port on the server's service processor card. Cable's connectors are USB (Male) and 9 PIN D SHELL (Female) and the cable's length is about 1.6m (60 inches). The UPS can provide power status information over the cable to IBM i.

- Attributes provided: Converter Cable
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECCS) - 3M Copper CXP Cable Pair for PCIe3 Expansion Drawer

This 3.0 meter cable pair connects a PCIe3 fan-out module in the PCIe Gen3 I/O Expansion Drawer to a PCIe3 Optical Converter Adapter in the system unit. There are two identical copper cables in the cable pair, each with two CXP connectors. One of the cables attaches to the top CXP port of the PCIe3 fan-out module and to the top CXP port of the PCIe3 Optical Converter Adapter. The other cable attaches to the bottom CXP ports.

"Optical" Converter Adapter features were named when only optical cables were announced and copper cables were not planned. The output of the adapter is a CXP interface which can also be used for this copper cable pair.

See also optical AOC cables features for cables which are much thinner and can be longer such as the feature #ECC8 (10 meter) cable, but are more costly.

Limitation: Can not mix copper and optical cables on the same PCIe Gen3 I/O drawer. Both fan-out modules use copper cables or both use optical cables.

- Attributes provided: Pair of 3 meter CXP copper cables
- Attributes required:
  - CXP ports on a PCIe3 Optical Cable Adapter (#EJ05 or #EJ08) and on a PCIe3 module such as a #EMXF or EMXG /ELMF or ELMG in a PCIe Gen3 Expansion Drawer (#EMX0/ ELMX).
  - Firmware level 8.40 or later.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECDJ) - 3.0M SAS X12 Cable (Two Adapter to Enclosure)

This 3 meter SAS cable connects two SAS adapters to a SAS I/O enclosure. This X cable has four Mini-SAS HD (High Density) connectors. Two of connectors attach to two SAS adapters such as in the PCIe3 SAS Adapter. The other two connectors attach to one SAS I/O Enclosure such as the EXP12SX (#ESLL/#ELLL) or EXP24SX (#ESLS/ #ELLS). This cable is designed for high speed (DHS) to support up to 12Gb throughput if the adapter has that capability. Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapters can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC. Limitation: This cable can not be used the EXP24S I/O drawer (#5887 or# EL1S) which uses Mini-SAS connectors which are not HD.

- Attributes provided: connection between two SAS adapters with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS HD connectors
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECDK) - 4.5M SAS X12 Active Optical Cable (Two Adapter to Enclosure)

This 4.5 meter SAS cable connects two SAS adapters to a SAS I/O enclosure. This X cable has four Mini-SAS HD (High Density) connectors. Two of connectors attach to two SAS adapters such as in the PCIe3 SAS Adapter. The other two connectors attach to one SAS I/ O Enclosure such as the EXP12SX (#ESLL/#ELLL ) or EXP24SX (#ESLS/ #ELLS). This cable is designed for high speed (DHS) to support up to 12Gb throughput if the adapter has that capability.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/ O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapter can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

Limitation: This cable can not be used with the EXP24S I/O drawer (#5887 or# EL1S) which uses Mini-SAS connectors which are not HD.

Note: AOC cables require minimum level of SAS Adapter firmware. Refer to the latest prerequisites at

[http://www-912.ibm.com/e\\_dir/eServerPrereq.nsf](http://www-912.ibm.com/e_dir/eServerPrereq.nsf)

- Attributes provided: Connection between two SAS adapters with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS HD connectors
- Attributes required: Available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECDL) - 10M SAS X12 Active Optical Cable (Two Adapter to Enclosure)

This 10 meter SAS cable connects two SAS adapters to a SAS I/O enclosure. This X cable has four Mini-SAS HD (High Density) connectors. Two of connectors attach to two SAS adapters such as in the PCIe3 SAS Adapter. The other two connectors attach to one SAS I/ O Enclosure such as the EXP12SX (#ESLL/#ELLL ) or EXP24SX (#ESLS/ #ELLS). This cable is designed for high speed (DHS) to support up to 12Gb throughput if the adapter has that capability.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/ O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapter can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

Limitation: This cable can not be used with the EXP24S I/O drawer (#5887 or# EL1S) which uses Mini-SAS connectors which are not HD.

Note: AOC cables require minimum level of SAS Adapter firmware. Refer to the latest prerequisites at

[http://www-912.ibm.com/e\\_dir/eServerPrereq.nsf](http://www-912.ibm.com/e_dir/eServerPrereq.nsf)

- Attributes provided: Connection between two SAS adapters with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS HD connectors
- Attributes required: Available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECDT) - 1.5M SAS YO12 Cable (Adapter to Enclosure)

This 1.5 meter SAS cable connects one SAS adapter to a SAS I/O enclosure. This YO cable has three Mini-SAS HD (High Density) connectors. One of connectors attach to a SAS adapter such as in the PCIe3 SAS Adapter. The other two connectors attach to one SAS I/O Enclosure such as the EXP12SX (#ESLL/#ELLL ) or EXP24SX (#ESLS/ #ELLS). This cable is designed for high speed (DHS) to support up to 12Gb throughput if the adapter has that capability. Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/ O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapters can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC. Limitation: This cable can not be used the EXP24S I/O drawer (#5887 or# EL1S) which uses Mini-SAS connectors which are not HD.

- Attributes provided: connection between a SAS adapters with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS HD connectors
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECDU) - 3.0M SAS YO12 Cable (Adapter to Enclosure)

This 3 meter SAS cable connects one SAS adapter to a SAS I/O enclosure. This YO cable has three Mini-SAS HD (High Density) connectors. One of connectors attach to a SAS adapter such as in the PCIe3 SAS Adapter. The other two connectors attach to one SAS I/O Enclosure such as the EXP12SX (#ESLL/#ELLL ) or EXP24SX (#ESLS/ #ELLS). This cable is designed for high speed (DHS) to support up to 12Gb throughput if the adapter has that capability. Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/ O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapters can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC. Limitation: This cable can not be used the EXP24S I/O drawer (#5887 or# EL1S) which uses Mini-SAS connectors which are not HD.

- Attributes provided: connection between a SAS adapters with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS HD connectors
- Attributes required: available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECDV) - 4.5M SAS YO12 Active Optical Cable (Adapter to Enclosure)

This 4.5 meter SAS cable connects one SAS adapter to a SAS I/O enclosure. This YO cable has three Mini-SAS HD (High Density) connectors. One of connectors attach to a SAS adapter such as in the PCIe3 SAS Adapter. The other two connectors attach to one SAS I/O Enclosure such as the EXP12SX (#ESLL/#ELL ) or EXP24SX (#ESLS/ #ELLS). This cable is designed for high speed (DHS) to support up to 12Gb throughput if the adapter has that capability.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/ O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapter can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

Limitation: This cable can not be used with the EXP24S I/O drawer (#5887 or# EL1S) which uses Mini-SAS connectors which are not HD.

Note: AOC cables require minimum level of SAS Adapter firmware. Refer to the latest prerequisites at

[http://www-912.ibm.com/e\\_dir/eServerPrereq.nsf](http://www-912.ibm.com/e_dir/eServerPrereq.nsf)

- Attributes provided: Connection between a SAS adapters with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS HD connectors
- Attributes required: Available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECDW) - 10M SAS YO12 Active Optical Cable (Adapter to Enclosure)

This 10 meter SAS cable connects one SAS adapter to a SAS I/O enclosure. This YO cable has three Mini-SAS HD (High Density) connectors. One of connectors attach to a SAS adapter such as in the PCIe3 SAS Adapter. The other two connectors attach to one SAS I/O Enclosure such as the EXP12SX (#ESLL/#ELL ) or EXP24SX (#ESLS/ #ELLS). This cable is designed for high speed (DHS) to support up to 12Gb throughput if the adapter has that capability.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the I/ O drawer. See SAS cabling documentation for the length of each leg of the cable. The SAS adapters can be in the same or in different PCIe I/O drawers. Or one adapter can be in a supported Power System CEC and the other adapter can be in a PCIe I/O drawer. Or both adapters can be in a supported Power System CEC.

Limitation: This cable can not be used with the EXP24S I/O drawer (#5887 or# EL1S) which uses Mini-SAS connectors which are not HD.

Note: AOC cables require minimum level of SAS Adapter firmware. Refer to the latest prerequisites at

[http://www-912.ibm.com/e\\_dir/eServerPrereq.nsf](http://www-912.ibm.com/e_dir/eServerPrereq.nsf)

- Attributes provided: Connection between a SAS adapters with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS HD connectors
- Attributes required: Available connectors on SAS controllers and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECE0) - 0.6M SAS AA12 Cable (Adapter to Adapter)

This 0.6 meter SAS cable connects a pair of SAS adapters to each other. This AA cable has two Mini-SAS HD (High Density) connectors which connect the top connectors of two PCIe3 SAS adapters with write cachce such as #EJ0L or #EJ14. The cable provides a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable is designed for high speed to support up to 12Gb throughput. Note EJ0L/EJ14 support 6Gb. Two AA cable is always required between a pair of PCIe3 SAS adapters with write cache when just one or two I/O drawers are attached. One AA cables is required if three I/O drawers are attached. If four drawers are attached or if an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth. AA cables are not used with SAS adapters with no write cache. Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters. The 6Gb version of this cable is feature #5918. #5918 and #ECE0 can be mixed on the same PCIe3 adapter pair.

- Attributes provided: connection between two SAS adapters with Mini-SAS HD connectors
- Attributes required: available connectors on SAS controllers
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECE3) - 3.0M SAS AA12 Cable

This 3.0 meter SAS cable has two Mini-SAS HD (High Density) connectors, and is designed for high speed to support up to 12Gb throughput. This is a straight cable (in contrast with X or YO cables) that has two distinct uses:

- For Elastic Storage Server (ESS) solutions that have a 5147-024 I/O drawer, this cable is used to attach the 5147-024 to its controller.
- For POWER Servers with #5887, #EL1S, #ESLS, #ESLL, #ELLS, or #ELLL I/O drawers driven by paired PCIe controllers with write cache such as #EJ0L or #EJ14, this cable is used to connect the top connectors of the paired controllers. The cable provides a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card.

Note that X or YO cables are always used to attach I/O drawers #5887, #EL1S, #ESLS, #ESLL, #ELLS, or #ELLL to controllers on POWER Servers. Straight cables (such as #ECE3) are not allowed to directly attach to I/O drawers on POWER Servers.

Two AA cables are always required between a pair of PCIe3 SAS adapters with write cache when just one or two I/O drawers are attached. One AA cable is required if three I/O drawers are attached. If four drawers are attached or if an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth. On POWER Servers, AA cables are not used with SAS adapters with no write cache. Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters. The 6Gb version of this cable is feature #5915. #5915 and #ECE3 can be mixed on the same PCIe3 adapter pair.

- Attributes provided: For ESS solutions, connection between a SAS controller and one 5174-024 I/O drawer. For POWER Systems, connection between two paired SAS controllers with write cache and Mini-SAS HD connectors.
- Attributes required: For ESS solutions, a 5147-024 I/O drawer and appropriate controller. For POWER Systems, available connectors on SAS controllers.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECE4) - 4.5M SAS AA12 Active Optical Cable (Adapter to Adapter)

This 4.5 meter SAS cable connects a pair of SAS adapters to each other. This AA cable has two Mini-SAS HD (High Density) connectors which connect the top connectors of two PCIe3 SAS adapters with write cache such as #EJ0L or #EJ14. The cable provides a high performance path of all the dual controller communication including mirroring the write cache and status awareness of each card. This cable is designed for high speed to support up to 12Gb throughput. Note EJ0L/EJ14 support 6Gb.

Two AA cables are always required between a pair of PCIe3 SAS adapters with write cache when just one or two I/O drawers are attached. One AA cable is required if three I/O drawers are attached. If four drawers are attached or if an AA cable fails or is disconnected, then the information it was carrying is then sent over the cables attached to the I/O drawers, sharing their bandwidth. AA cables are not used with SAS adapters with no write cache.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the two adapters. Note: AOC cables require minimum level of SAS Adapter firmware. Refer to the latest prerequisites at

[http://www-912.ibm.com/e\\_dir/eServerPrereq.nsf](http://www-912.ibm.com/e_dir/eServerPrereq.nsf)

- Attributes provided: Connection between two SAS adapters with Mini-SAS HD connectors
- Attributes required: Available connectors on SAS controllers
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECJ5) - 4.3m (14-Ft) PDU to Wall 3PH/24A 200-240V Delta-wired Power Cord

This power cord feature ECJ5 contains an Amphenol type of connector and only supported on PDUs ECJK or ECJL, and ECJP or ECJQ.

ECJ5 has a 4-pin IEC 60309 style plug, 430P9W. It contains three line conductors and a protective earth, but no neutral. ECJ5 is supported in countries that use a delta electrical distribution. ECJ5 is not supported in China, Hong Kong, and other countries that use a wye electrical distribution.

- Attributes provided: Power cord
- Attributes required: PDU features ECJK or ECJL, and ECJP or ECJQ.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ECJ7) - 4.3m (14-Ft) PDU to Wall 3PH/48A 200-240V Delta-wired Power Cord

This power cord feature ECJ7 contains an Amphenol type of connector and only supported on PDUs ECJK or ECJL, and ECJP or ECJQ.

ECJ7 has a 4-pin IEC 60309 style plug, 460P9W. It contains three line conductors and a protective earth, but no neutral. ECJ7 is supported in countries that use a delta electrical distribution. ECJ7 is not supported in China, Hong Kong, and other countries that use a wye electrical distribution.

- Attributes provided: Power cord
- Attributes required: PDU features ECJK or ECJL, and ECJP or ECJQ.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ECJJ) - High Function 9xC19 Single-Phase or Three-Phase Wye PDU plus

This is an intelligent, switched 200-240 volt single-phase or 380-415/220-240 volt three-phase wye AC Power Distribution Unit (PDU) plus with nine C19 receptacles on the front of the PDU. The PDU is mounted on the rear of the rack making the nine C19 receptacles easily accessible. Each receptacle has a 20 amp circuit breaker. Depending on country wiring standards the PDU is single-phase or three-phase wye. Three-phase wye-wired connectors have 5-pins and use three line conductors, a neutral, and a protective earth. The input is 380-415 volt line-to-line and the output is 220-240 volt line-to-neutral for three-phase wye PDUs.

See three-phase #ECJK/ECJL for countries which do not use wye wiring.

The PDU can be mounted vertically in rack side pockets or it can be mounted horizontally. If mounted horizontally, it uses 1 EIA (1U) of rack space. See feature #EPH for horizontal mounting hardware.

Device power cords with a C20 plug connect to C19 PDU receptacles and are ordered separately. One country-specific wall line cord is also ordered separately and attaches to a UTG524-7 connector on the front of the PDU. Supported line cords include features #6489, #6491, #6492, #6653, #6654, #6655, #6656, #6657, #6658, and #6667.

Two RJ45 ports on the front of the PDU enable the client to monitor each receptacle's electrical power usage and to remotely switch any receptacle on or off. The PDU is shipped with a generic PDU password and IBM strongly urges clients to change it upon installation.

There are also three C13 receptacles on the rear of the PDU positioned toward the middle of the rack. These are generally not easily accessed and therefore IBM does not generally recommend their use.

#ECJG and #ECJJ are identical PDUs. Up to one lower price #ECJG can be ordered with a new 7014-T42/T00 rack in place of a no-charge #9188 PDU.

For comparison, this is most similar to the earlier generation #EPTJ PDU.

- Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with an Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.
- Attributes provided: Nine C19 PDU plus - switched, power monitoring
- Attributes required: PDU wall line cord and space in 19-inch rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ECJL) - High Function 9xC19 PDU plus 3-Phase Delta

This is an intelligent, switched 200-240 volt 3-phase delta AC Power Distribution Unit (PDU) plus with nine C19 receptacles on the front of the PDU. The PDU is mounted on the rear of the rack making the nine C19 receptacles easily accessible. Each receptacle has a 20 amp circuit breaker. Three-phase delta-wired connectors have 4-pins and use three line conductors and a protective earth. The input is 200-240 volt line-to-line and the output is 200-240 volt line-to-line for three-phase delta PDUs.

The PDU can be mounted vertically in rack side pockets or it can be mounted horizontally. If mounted horizontally, it uses 1 EIA (1U) of rack space. See feature #EPH for horizontal mounting hardware.

Device power cords with a C20 plug connect to C19 PDU receptacles and are ordered separately. One wall line cord is also ordered separately and attaches to the Amphenol inlet connector. Supported line cords include features #ECJ5 and #ECJ7.

Two RJ45 ports on the front of the PDU enable the client to monitor each receptacle's electrical power usage and to remotely switch any receptacle on or off. The PDU is shipped with a generic PDU password and IBM strongly urges clients to change it upon installation.

There are also three C13 receptacles on the rear of the PDU positioned toward the middle of the rack. These are generally not easily accessed and therefore IBM does not generally recommend their use.

#ECJK and #ECJL are identical PDUs. Up to one lower price #ECJK can be ordered with a new 7014-T42/T00 rack in place of a no-charge #9188 PDU.

For comparison, this is most similar to the earlier generation #EPTL PDU.

Not supported in China, Hong Kong, and other countries that use a wye electrical distribution.

- Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with an Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.
- Attributes provided: Nine C19 PDU plus - switched, power monitoring
- Attributes required: space in rack, 3-phase 208V AC delta electrical service
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ECJN) - High Function 12xC13 Single-Phase or Three-Phase Wye PDU plus

This is an intelligent, switched 200-240 volt single-phase or 380-415/220-240 volt three-phase wye AC Power Distribution Unit (PDU) plus with twelve C13 receptacles on the front of the PDU. The PDU is mounted on the rear of the rack making the twelve C13 receptacles easily accessible. Each receptacle has a 20 amp circuit breaker. Depending on country wiring standards the PDU is single-phase or three-phase wye. Three-phase wye-wired connectors have 5-pins and use three line conductors, a neutral, and a protective earth. The input is 380-415 volt line-to-line and the output is 220-240 volt line-to-neutral for three-phase wye PDUs.

See three-phase #ECJP/ECJQ for countries which do not use wye wiring.

The PDU can be mounted vertically in rack side pockets or it can be mounted horizontally. If mounted horizontally, it uses 1 EIA (1U) of rack space. See feature #EPH for horizontal mounting hardware.

Device power cords with a C14 plug connect to C13 PDU receptacles and are ordered separately. One country-specific wall line cord is also ordered separately and attaches to a UTG524-7 connector on the front of the PDU. Supported line cords include features #6489, #6491, #6492, #6653, #6654, #6655, #6656, #6657, #6658, and #6667.

Two RJ45 ports on the front of the PDU enable the client to monitor each receptacle's electrical power usage and to remotely switch any receptacle on or off. The PDU is shipped with a generic PDU password and IBM strongly urges clients to change it upon installation.



Feature #ECJM and #ECJN are identical PDUs. Up to one lower price #ECJM can be ordered with a new 7014-T42/T00 rack in place of a no- charge #9188 PDU.

For comparison, this is most similar to the earlier generation #EPTN PDU.

- Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with an Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.
- Attributes provided: Twelve C13 PDU plus - switched, power monitoring
- Attributes required: PDU wall line cord and space in 19-inch rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ECJQ) - High Function 12xC13 PDU plus 3-Phase Delta

This is an intelligent, switched 200-240 volt 3-phase delta AC Power Distribution Unit (PDU) plus with twelve C13 receptacles on the front of the PDU. The PDU is mounted on the rear of the rack making the twelve C13 receptacles easily accessible. Each receptacle has a 20 amp circuit breaker. Three-phase delta-wired connectors have 4-pins and use three line conductors and a protective earth. The input is 200-240 volt line-to-line and the output is 200-240 volt line-to-line for three-phase delta PDUs.

The PDU can be mounted vertically in rack side pockets or it can be mounted horizontally. If mounted horizontally, it uses 1 EIA (1U) of rack space. See feature #EPTH for horizontal mounting hardware.

Device power cords with a C20 plug connect to C19 PDU receptacles and are ordered separately. One wall line cord is also ordered separately and attaches to the Amphenol inlet connector. Supported line cords include features #ECJ5 and #ECJ7.

Two RJ45 ports on the front of the PDU enable the client to monitor each receptacle's electrical power usage and to remotely switch any receptacle on or off. The PDU is shipped with a generic PDU password and IBM strongly urges clients to change it upon installation.

#ECJP and #ECJQ are identical PDUs. Up to one lower price #ECJP can be ordered with a new 7014-T42/T00 rack in place of a no-charge #9188 PDU.

For comparison, this is most similar to the earlier generation #EPTP PDU.

Not supported in China, Hong Kong, and other countries that use a wye electrical distribution.

- Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with an Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.
- Attributes provided: Twelve C13 PDU plus - switched, power monitoring
- Attributes required: space in rack, 3-phase 208V AC delta electrical service
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ECP0) - Cloud Private Solution

(No longer available as of May 31, 2019)

This feature indicates that it is a Cloud Private Solution.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES:

## (#ECR0) - 2.0 Meter Slim Rack

Provides a 19-inch, 2.0 meter high rack with 42 EIA units of total space for installing rack mounted CECs and/or expansion units. The ECR0 rack does not come equipped with a standard front door, rear door or side covers. The following features are required for every #ECR0 rack:

- 1x #ECRF (high-end appearance front door ) or ECRM (Basic Front Door)
- 1x #ECRG (Rear Door)
- 2x ECRJ (Side Covers)

The following optional feature is also offered for the ECR0 rack.

- ECRK - Rack Rear Extension

Up to four vertically mounted Power Distribution Units (PDU) are supported and every vertically mounted PDU requires #ELC0. Each PDU beyond four will consume 1U of rack space.

- Attributes provided: 19 inch, 2.0M, 42 EIA Rack
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required:
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

Note: One of feature #ECRF, and one of feature #ECRG and two of feature #ECRJ are required per one #ECR0 ordered.

### (#ECRF) - Rack Front Door High-End appearance

This feature provides a front door in High-End appearance with an IBM logo for the S42 rack. A front door such as #ECRF is recommended on the S42 rack. A front door is required on ECR0 rack. IBM ships rack with the handle on the right and hinges on the left viewed facing the front of the rack.

The door comes with a lock which is keyed the same as the rear door or side panels. Uniquely keyed locks can be obtained by the client directly from Southco, the vendor from whom IBM purchased the lock.

- Attributes provided: Front Door with lock
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ECRG) - Rack Rear Door Black

This feature provides a rear door in flat black color for the S42 rack. Feature number ECRF and ECR0 rack and ECRG are recommended on the S42 rack. A front and rear door is required on the ECR0 rack.

The door is the full width of the rack and the hinges and lockplate can be moved from side to side allowing the door to be opened on the left or on the right. IBM ships rack with the handle on the right and hinges on the left viewed facing the rear of the rack.

The front doors, rear doors and side panels come with a lock which is keyed the same as the front door or side panels. Uniquely keyed locks can be obtained by the client directly from Southco, the vendor from whom IBM purchased the lock.

- Attributes provided: Rear Door with lock
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ECRJ) - Rack Side Cover

This feature provides one side panels in black color for the S42 or feature #ECR0 rack. Each side panel can cover either the left or the right side of the rack. These side covers are optional but recommended on S42 rack. 2x ECRJ are required on every ECR0 for optimal airflow through a rack and for physical security.

The front door, rear doors and side panels come with a lock which is keyed the same as the front door or side panels. Uniquely keyed locks can be obtained by the client directly from Southco, the vendor from whom IBM purchased the lock.

- Attributes provided: One side panel for rack.
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ECRK) - Rack Rear Extension 5-In

- Attributes provided: Rack Rear Extension
- Attributes required: Maximum one per feature #ECR0 rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ECRM) - Rack Front Door for Rack (Black/Flat)

- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required:
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ECSC) - Custom Service Specify, Shenzhen, China

Having #ECSC on the order, will cause the order to be routed to Shenzhen and the machine to be internally routed to the CSC build area.

- Attributes provided: Customization
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECSF) - Custom Service Specify, Montpellier, France

Having #ECSF on the order, will cause the order to be routed to France and the machine to be internally routed to the CSC build area.

- Attributes provided: Customization
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECSM) - Custom Service Specify, Mexico

Having #ECSM on the order, will cause the order to be routed to Mexico and the machine to be internally routed to the CSC build area.

- Attributes provided: Customization
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ECSP) - Custom Service Specify, Poughkeepsie, USA

Having #ECSP on the order, will cause the order to be routed to Poughkeepsie, USA and the machine to be internally routed to the CSC build area.

- Attributes provided: Customization
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#ECSS) - Integrated Solution Packing

(No longer available as of May 31, 2019)

This is a routing indicator for Solution packing.

- Attributes provided: Routing instruction for manufacturing
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#ECW0) - Optical Wrap Plug

A wrap plug is a small connector designed to perform a diagnostic test called a loopback test. This wrap plug is inserted into a SR optical port on a PCIe Fibre Channel adapter or a SR or LR optical port on a PCIe Ethernet adapter

This is a multi-mode LC fiber optic wrap plug with an inside/ outside optics diameter of 50/125. Its IBM part number as of early 2016 is 12R9314. An earlier equivalent function IBM part number which is no longer shipped is 11P3847.

It is strongly recommended that Fibre Channel adapters (HBAs) fill any empty adapter ports with a wrap plug. There is no technical issue leaving a port empty. However, filling all ports with a cable to a device/switch or with a wrap plug can speed the booting/IPLing of a partition and can avoid error messages uselessly pointing to a planned empty port.

There is no technical issue leaving an Ethernet port empty. Whether an Ethernet port is empty or contains a wrap plug should not impact boot/IPL time or impact empty-port messages.

- Attributes provided: Wrap plug
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EHCE) - IBM Cognos Business Intelligence

(No Longer Available as of December 29, 2017)

Routing indicator for IBM Cognos Business Intelligence on Power Solution.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - IBM i - not supported
  - Red Hat Enterprise Linux 6.5, or laterRefer to Program Product Software requirements for specific O/S levels supported.
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

## (#EHDS) - InfoSphere Information Server (IIS) / Data Stage

(No Longer Available as of December 29, 2017)

Routing indicator for InfoSphere Information Server (IIS) / Data Stage on Power Solution.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - IBM i - not supported
  - Red Hat Enterprise Linux 6.5, or laterRefer to Program Product Software requirements for specific O/S levels supported.
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

## (#EHKV) - SAP HANA TRACKING FEATURE

(No longer available as of May 31, 2019)

SAP HANA tracking feature that defines manufacturing routing.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: N/A
- Return parts MES: Does not apply

## (#EHR1) - Boot Drive / Load Source in EXP12SX Specify (in #ESLL or #ELLL)

Indicates that boot drive (disks or SSDs) are placed in an EXP12SX SAS Storage Enclosure

- Attributes provided: Boot drive location specify
- Attributes required: Available SAS bay and supported disk/SSD
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EHR2) - Boot Drive / Load Source in EXP24SX Specify (in #ESLS or #ELLS)

Indicates that boot drive or load source (disks or SSDs) are placed in an EXP24SX SAS Storage Enclosure

- Attributes provided: Boot drive / load source location specify
- Attributes required: Available SAS bay and supported disk/SSD
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EHS2) - SSD Placement Indicator - #ESLS/#ELLS

This is an IBM internal automatic generated SSD specify indicator for placement and it is not selectable.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EHSS) - SPSS Modeler Server Gold

(No Longer Available as of December 29, 2017)

This feature specifies a SPSS on Power Solution. The solution will be integrated at the Customer Solution Center.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - IBM i - not supported
  - Red Hat Enterprise Linux for POWER 6.5, or later
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#EJ08) - PCIe3 Optical Cable Adapter for PCIe3 Expansion Drawer

(No longer available as of December 31, 2020)

PCIe3 x16 adapter provides two CXP ports for the attachment of two active optical CXP cables (AOC) or two CXP copper cables. One adapter supports the attachment of one PCIe3 fan-out module in a PCIe Gen3 I/O Expansion Drawer. CCIN is 2CE2

EJ08 is similar to EJ05 and EJ07, but has different packaging and different CCIN.

- Attributes provided: PCIe3 adapter with two CXP ports to attach two active optical cables or two CXP copper cables.
- Attributes required: PCIe3 x16 slot in system pair of CXP cables (one cable pair feature such as #ECC7 or #ECCS). Copper cables require Firmware 8.40 or later.

- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR10 or later
  - IBM i 7.2 TR2 or later
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 6.6, or later
  - Red Hat Enterprise Linux 7.1, for Power, big endian, or later
  - Red Hat Enterprise Linux 7.1, for Power, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EJ0J) - PCIe3 RAID SAS Adapter Quad-port 6 Gb x8

The PCIe3 RAID SAS Adapter is a high performance SSD/HDD controller using PCIe Gen3 x8 technology. The adapter does not have write cache and thus pairing with another PCIe3 RAID SAS Adapter (#EJ0J or #EJ0M) is optional. Pairing can provide controller redundancy and enhance performance. There are no batteries in the adapter to maintain. adapter to maintain.

The adapter provides four Mini-SAS HD (high density) narrow connectors for the attachment of SAS drives located in the EXP24S, EXP12SX or EXP24SX storage enclosures or #5802/5803/EL36 12X PCIe I/O drawers. X, YO or AT SAS cables with HD narrow connectors are used to attach to these drawers. A max of 4 EXP24S/EXP12SX/EXP24SX can be attached. A maximum of 48 SSD can be attached and a maximum of 96 HDD can be attached per adapter or per adapter pair.

The adapter provides RAID 0, RAID 5, RAID 6 and RAID 10 for AIX and Linux and VIOS. The adapter provides RAID 5 and RAID 6 for all levels of IBM i and also provides RAID 10 for later levels of IBM i. IBM i provides both OS mirroring and data spreading. AIX/Linux/VIOS provide OS mirroring (LVM).

Features #EJ0J and #EJ0M are electronically identical with the same CCIN of 57B4. #EJ0J has a full-high tailstock bracket and air baffle. #EJ0M has a low profile tailstock bracket. #EJ10/#EJ11 are identical with #EJ0J/#EJ0M, but have different feature codes to identify their use as tape/DVD controllers to IBM configurator tools instead of disk/SSD controllers.

Both 5xx and 4k byte sector HDD/SSD are supported for POWER8 servers. 5xx byte sector HDD/SSD are supported for earlier generation servers. 5xx and 4k drives cannot be mixed in the same array..

### Limitations:

- HDD/SSD workloads which are performance sensitive to WRITES should use the #EJ14 or #EJ0L controller which provides write cache.
  - HDD and SSD cannot be mixed on the same SAS port, but can be mixed on the same adapter.
  - #5886 3.5-inch SAS Storage Drawer is not supported.
  - 177 GB SSD are not supported.
  - Running SAS bays for both a #5887 EXP24S I/O drawer and a 12X-attached #5802/5803 I/O drawer on the same adapter or adapter pair is not supported. Note mixing EXP24S or EXP12SX or EXP24SX is supported.
  - If controlling drives in a #5802/5803/EL36 as a single controller, the #EJ0J must be located in that #5802/5803/EL36. If controlling drives in a #5802/5803/EL36 as a pair of controllers, at least one of the SAS adapter pairs must be located in that #5802/5803/EL36.
  - Tape/DVD cannot be mixed with disk/SSD on the same adapter.
  - Attributes provided: full high PCIe3 four port x8 SAS RAID adapter with no write cache and optional pairing.
  - Attributes required: One PCIe slot per adapter and Mini-SAS HD narrow connector SAS cables such as #ECBJ-ECBL, #ECBT-ECBV, #ECCO-ECC4 or 12 Gb cables such as #ECDJ, ECDT or #ECDU.
  - Minimum required: 0
  - Maximum allowed: 12 (Initial order maximum: 12)
  - OS level required:
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - AIX 6.1 and 7.1 or later supported
    - IBM i 7.1 TR8 and 7.2 or later supported
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Supports PowerKVM and VIOS. Refer to Software requirements for specific code levels supported.

## (#EJ0L) - PCIe3 12 GB Cache RAID SAS Adapter Quad-port 6 Gb x8

The PCIe3 12 GB Cache RAID SAS Adapter provides high performance HDD and/or SSD controller function using PCIe Gen3 technology. A pair of adapters are required to provide mirrored write cache data and adapter redundancy. Integrated flash memory provides protection of the write cache without batteries in case of power failure. Effectively up to 12 GB of write cache is provided using compression of 4 GB of physical cache.

The adapter provides four Mini-SAS HD (high density) narrow connectors for the attachment of SAS drives located in the SAS EXP24S or EXP12SX or EXP24SX storage enclosures or #5802/5803/EL36 12X PCIe I/O drawers. X, YO or AT SAS cables with HD narrow connectors are used to attach to these drawers. A max of 4 EXP24S/EXP12SX/EXP24SX can be attached with a maximum of 96 HDD or a maximum of 48 SSD. Two AA SAS cable with HD narrow connectors are attached to the #EJ0L pair to communicate status and cache content information and are required unless three or four ports are being used to attach HDD/SSD.

The #EJ0L provides RAID 0, RAID 5, RAID 6 and RAID 10 for AIX and Linux and VIOS. The adapter provides RAID 5 and RAID 6 for all levels of IBM i and also provides RAID 10 for later levels of IBM i. IBM i provides both OS mirroring and data spreading. AIX/Linux/VIOS provide OS mirroring (LVM). This adapter can also support the Easy Tier function (RAID 52T, 62T or 102T) for AIX and Linux. The adapter's CCIN is 57CE.

Both 5xx and 4k byte sector HDD/SSD are supported for POWER8 servers. 5xx byte sector HDD/SSD are supported for earlier generation servers. 5xx and 4k drives cannot be mixed in the same array.

### Limitations:

- HDD and SSD cannot be mixed on the same SAS port, but can be mixed on the same adapter.
  - #5886 3.5-inch SAS I/O Drawer is not supported.
  - 177 GB SSD are not supported.
  - Running SAS bays for both a #5887 EXP24S I/O drawer and a 12X-attached #5802/5803 I/O drawer on the same adapter pair is not supported. Note mixing EXP24S or EXP12SX or EXP24SX is supported.
  - If controlling drives in a #5802/5803/EL36 at least one of the #EJ0L pairs must be located in that #5802/5803/EL36.
  - Attributes provided: full high PCIe3 four port x8 adapter with up to 12 GB write cache.
  - Attributes required: One PCIe slot per adapter and Mini-SAS HD narrow connector SAS cables such as #ECBJ-ECBL, #ECBT-ECBV, #ECCO-ECC4 or 12 Gb cables such as ECDT or #ECDU.
  - Minimum required: 0
  - Maximum allowed: 12 (Initial order maximum: 12)
  - OS level required:
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - AIX 6.1 and 7.1 or later supported
    - IBM i 7.1 TR8 and 7.2 or later supported
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Easy Tier function requires:
- AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 with APAR IV56367 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3 with APAR IV56366 or later
  - VIOS 2.2.3.3 with interim fix IV56366 or later

## (#EJ0N) - Storage Backplane 12 SFF-3 Bays/DVD Bay

(No longer available as of December 31, 2020)

Storage backplane with integrated SAS controller for SAS bays and DVD in the system unit. SAS bays are 2.5-inch or Small Form Factor (SFF) and used drives mounted on a carrier/tray specific to the system unit (SFF-3).

The high performance SAS controller provides RAID-0, RAID-5, RAID-6 and RAID-10 support for either HDD or SSD. JBOD support for HDD is also supported. Controller has no write cache.

For split backplane capability add #EJ0S feature. For write cache performance use #EJ0P Backplane instead of this backplane.

Both 5xx and 4k byte sector HDD/SSD are supported. 5xx and 4k drives can not be mixed in the same array.

- Attributes provided: Storage backplane with one integrated SAS adapter with no cache running 12 SFF-3 SAS bays in the system unit and one DVD bay in the system unit
- Attributes required: Server without #EJ0P backplane
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: No
- Return parts MES: No

## (#EJ0P) Storage Backplane 18 SFF-3 Bays/eight 1.8-inch SSD bays/DVD Bay/Dual IOA with Write Cache

(No longer available as of December 31, 2020)

Storage backplane with dual integrated SAS controllers with write cache. High performance controllers run SFF-3 SAS bays, eight 1.8-inch SSD cage bays, and DVD bay in the system unit. Dual controllers (also called dual I/O adapters or paired controllers) and their write cache are placed in integrated slots and do not use PCIe slots. Write cache augments controller's high performance for workloads with writes, especially for HDD. 1.8 GB physical write cache is leveraged with compression to provide up to 7.2 GB cache capacity. The write cache contents are protected against power loss with flash memory and super capacitors removing the need for battery maintenance.

The high performance SAS controllers provide RAID-0, RAID-5, RAID-6 and RAID-10 support. Patented Active/Active configurations with at least two arrays is supported.

Easy Tier function is supported so the dual controllers can automatically move hot data to attached SSD and cold data to attached HDD for AIX/Linux/VIOS environments.

Small Form Factor (SFF) or 2.5-inch drives are mounted on a carrier/tray specific to the system unit (SFF-3). The backplane has 18 SFF-3 bays.

This backplane also enables two SAS ports (#EJ0Z) on the rear of the system unit support the attachment of one EXP24S I/O drawer in mode1 holding HDD or SSD.

Note that #EJ0Z is an optional feature with #EJ0P and one x8 PCIe slot is used by EJ0Z.

The #EJTM SSD cage is a required co-requisite feature on the 2-socket 4U server 8286-42A, but is not available on the 1-socket 4U server 8286-41A.

Note this backplane doesn't support split backplane. For split backplane use #EJ0N + #EJ0S backplane features.

Both 5xx and 4k byte sector HDD/SSD are supported. 5xx and 4k drives can not be mixed in the same array.

- Attributes provided: Storage backplane with a pair of integrated SAS adapters with write cache running up to four things: a) a set of 18 SFF-3 SAS bays in the system unit; b) one DVD bay in the system unit; c) two SAS ports on the rear of the system unit to connect a single #5887; d) 1.8-inch SSD bays in system unit of 2 socket server
- Attributes required: Server without #EJ0N backplane
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: No
- Return parts MES: No

## (#EJ0S) - Split #EJ0N to 6+6 SFF-3 Bays: Add 2nd SAS Controller

(No longer available as of December 31, 2020)

This feature modifies the base Storage backplane cabling and adds a second, high performance SAS controller. The existing 12 SFF-3 SAS bays are cabled to be split into two sets of six bays, each with one SAS controller. Both SAS controllers are located in integrated slots and do not use a PCIe slot.

The high performance SAS controllers each provides RAID-0, RAID-5, RAID-6 and RAID-10 support. JBOD support for HDD is also supported. There is no write cache on either controller.

Both 5xx and 4k byte sector HDD/SSD are supported. 5xx and 4k drives can not be mixed in the same array.

- Attributes provided: A second integrated SAS adapter with no cache and internal cables to provide two sets of six SFF-3 bays in the system unit
- Attributes required: #EJ0N backplane
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: No
- Return parts MES: No

## (#EJ0Z) - SAS Ports/Cabling for Dual IOA BackPlane

Two SAS ports on the rear of the 4U server and SAS cables inside the server to the dual IOA SAS controllers in the higher performance storage backplane. An EXP24S SAS storage drawer can be attached to SAS ports using a pair of SAS-mini HD Narrow YO cables. YO cables must be 3m or shorter. If shorter remember the cable management arm needs about 1 meter. Note that the SAS ports are physically located in the same space as one of the PCIE x8 slots and reduce the total number of PCIe adapter which can be used in the 4U server.

- Attributes provided: Two SAS ports, Internal SAS cables
- Attributes required: 4U POWER8 server with high performance storage backplane such as EJ0P. Available PCIe slot.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EJ10) - PCIe3 SAS Tape/DVD Adapter Quad-port 6Gb x8

The PCIe3 SAS Adapter is a high performance SAS tape controller using PCIe Gen3 x8 technology. The adapter supports external SAS tape drives such as the LTO-5, LTO-6, LTO-7, and LTO-8 found in the IBM 7226-1U3 Multimedia drawers, or tape units such as the TS2250, TS2260, TS2270, and TS2280 single External Tape Drive, TS2900, TS3100, TS3200, and TS3310. Other removable media devices supported include IBM SAS/SATA DVD RAM drive features available on the IBM 7226-1U3 Storage Enclosure. The adapter provides four Mini-SAS HD (high density) connectors to which AE1 SAS cables such as #ECBY and/or YE1 SAS Cables such as #ECBZ with HD narrow connectors can be attached. A max of 4 tape drives per adapter can be attached using four AE1 cables. A max of 8 tape drives can be attached using four YE1 cables.

#EJ10 (full high) and #EJ11 (low profile) are electronically the same adapter with the same 57B4 CCIN, but differ in that their tailstocks fit different size PCIe slots.

#EJ0J and #EJ10 are the same adapter with the same 57B4 CCIN, but have different feature code numbers to indicate different usage to IBM configurator tools.

#EJ10 runs SAS LTO-5 or later drives and DVD. Support of both tape/DVD and HDD/SSD on the same adapter is not supported.

Note: The original #EJ0X adapter does not support DVD but also has the same CCIN.

Note: Adapter uses a Mini-SAS HD narrow connector and AE1 #ECBZ or YE1 #ECBY SAS cable.

Limitation: LTO-4 or earlier drives are not supported.



- Attributes provided: full high PCIe3 four port x8 SAS adapter
- Attributes required: One PCIe slot per adapter
- Minimum required: 0
- Maximum allowed: 12 (Initial order maximum: 12)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Supports PowerKVM and VIOS. Refer to Software requirements for specific code levels supported.

## (#EJ12) - PCIe3 FPGA Accelerator Adapter

(No longer available as of April 24, 2020)

This PCIe Gen3 FPGA (Field Programmable Gate Array) adapter acts as a co-processor for the POWER8 processor chip handling specialized, repetitive function extremely efficiently. The GZIP application maximum bandwidth is a PCIe Gen2 interface bandwidth.

#EJ12 and #EJ13 are electronically identical with the same CCIN of 59AB. #EJ12 has full high tail stock and #EJ13 has a low profile tail stock.

- Attributes required: PCIe Gen3 x16 slot
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
  - OS level required:
    - AIX 6.1 and 7.1 or later supported
    - IBM i - not supported
    - Red Hat Enterprise Linux 7.1, Little Endian, for Power, or later
    - Red Hat Enterprise Linux 7.1, Big Endian, for Power, or later

Note: VIOS not supported.

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

Note: One per processor feature.

## (#EJ14) - PCIe3 12GB Cache RAID PLUS SAS Adapter Quad-port 6Gb x8

The PCIe3 12 GB Cache RAID PLUS SAS Adapter provides high performance HDD and/or SSD controller function using PCIe Gen3 technology. A pair of #EJ14 adapters are required to provide mirrored write cache data and adapter redundancy. Integrated flash memory provides protection of the write cache without batteries in case of power failure. Effectively up to 12 GB of write cache is provided using compression of 4 GB of physical cache.

The #EJ14 provides four Mini-SAS HD (high density) narrow connectors for the attachment of SAS drives located in the SAS EXP24S, EXP12SX, or EXP24SX storage enclosures X, YO or AT SAS cables with HD narrow connectors are used to attach to these drawers. A max of 4 EXP24S can be attached with a maximum of 96 HDD or a maximum of 72 SSD per pair of #EJ14. If more than 48 SSD are attached, no HDD can be attached. A mix of EXP24S, EXP12SX or EXP24SX is supported on the same adapter pair.

Two AA SAS cable with HD narrow connectors are attached to the #E14L pair to communicate status and cache content information and are required unless three or four ports are being used to attach HDD/SSD.

Feature #EJ14 provides RAID 0, RAID 5, RAID 6, and RAID 10, RAID 5T2, RAID 6T2, and RAID 10T2 for AIX and Linux and VIOS. Two tier arrays (5T2, 6T2 and 10T2) combine both HDD and SSD into a single array with Easy Tier functionality. AIX/Linux/VIOS can also provide OS mirroring (LVM).

On systems that support IBM i, the adapter provides RAID 5 and RAID 6 for IBM i. RAID 10 is supported by IBM i 7.2. IBM i provides both OS mirroring and data spreading.

This adapter is very similar to the #EJ0L SAS adapter, but #EJ14 uses a second CPU chip in the card to provide more IOPS capacity and can attach more SSD. The #EJ14 adapter's CCIN is 57B1.

Both 5xx and 4k byte sector HDD/SSD are supported. 5xx and 4k drives cannot be mixed in the same array.

Limitations:

- Not supported on POWER7/POWER7+ servers.
- HDD and SSD cannot be mixed on the same SAS port, but can be mixed on the same adapter
- Attributes provided: full high PCIe3 four port x8 adapter with up to 12 GB write cache.
- Attributes required: One PCIe slot per adapter and Mini-SAS HD narrow connector SAS cables such as #ECBJ-ECBL, #ECBT-ECBV, #ECCO-ECC4 or 12 Gb cables such as ECDD or #ECDU.

- Minimum required: 12
- Maximum allowed: 12 (Initial order maximum: 12)
- OS level required:
  - AIX version 7.2 with the 7200-00 Technology Level and Service Pack 2, or later
  - AIX version 7.1 with the 7100-04 Technology Level and Service Pack 2, or later
  - AIX version 7.1 with the 7100-03 Technology Level and Service Pack 7, or later (planned availability September 8, 2016)
  - AIX version 6.1 with the 6100-09 Technology Level and Service Pack 7, or later
  - IBM i 7.2 TR4 and IBM i 7.3 or later
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 7.2, little endian, or later
  - Red Hat Enterprise Linux 7.2, big endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 4, or later
  - SUSE Linux Enterprise Server 12, Service Pack 1, or later
  - Ubuntu 16.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Assignment to the VIOS requires VIOS 2.2.4.20 or later

## (#EJ17) - PCIe3 CAPI FlashSystem Accelerator Adapter

(No longer available as of April 24, 2020)

PCIe adapter with accelerator FPGA for low latency connection using CAPI (Coherent Accelerator Processor Interface). The adapter has two 8Gb optical SR fiber connections for attachment to FlashSystem Drawer.

Adapter must be placed in a x16 slot in the system unit which is CAPI enabled. The server must have CAPI enablement feature.

Features #EJ17 and #EJ18 are electronically identical, but have different tailstock brackets. #EJ17 is full high and #EJ18 is low profile.

Limitation: Concurrent add, remove or replacement of this adapter is not supported.

- Attributes provided: CAPI enabled FPGA
- Attributes required: One x16 CAPI enabled PCIe3 Slot
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- Limitation: Concurrent add, remove or replacement of this adapter is not supported.
- OS level required:
  - AIX 7.2 or later supported
  - IBM i - not supported
  - Linux - not supported
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EJ1P) - PCIe1 SAS Tape/DVD Dual-port 3Gb x8 Adapter

(No longer available as of December 31, 2020)

This is a PCIe Gen1 short x8 form factor adapter. It supports the attachment of SAS tape and DVD using a pair of mini SAS 4x connectors. The PCIe1 can be used for external tape drives which are not supported on the newer and faster 4-port 6Gb PCIe3 adapter (see feature code #EJ10/EJ11/EL60). The adapter supports external SAS tape drives such as the DAT72, DAT160, LTO-4, LTO-5, LTO-6, and LTO-7 found in the IBM multimedia drawers such as the 7226-1U3 or 7214-1U2 or tape units such as the TS2240, TS2340, TS3100, TS3200, and TS3310. Other removable media devices supported include IBM SAS/SATA DVD-ROM/RAM drives.

SAS adapter-to-enclosure (AE) 3Gb cables with mini-SAS connectors are used to attach these drives. See feature codes #3684 (3 meter) and #3685 (6 meter). The same AE cables can often alternatively be ordered under the tape enclosure or multimedia drawer.

Feature EJ1P and EJ1N are electrically and functionally identical with the same CCIN of 57B3. EJ1P has a full-high tailstock bracket and EJ1N has a low profile tailstock bracket. Feature EJ1P/EJ1N is the same adapter as #5901/5278 but designates to IBM configurator tools that the usage will be tape/DVD and will not be used for disk.

- Attributes provided: Two mini SAS 4x connectors
- Attributes required: One PCIe slot
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - IBM i supported
  - AIX Version 6.1, or later
  - AIX Version 7.1, or later
  - AIX Version 7.2, or later
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 6.5, or later
  - Red Hat Enterprise Linux 7, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise 11.3, or later
  - SUSE Linux Enterprise 12, or later
  - Ubuntu not supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS supported

## (#EJ27) - PCIe Crypto Coprocessor No BSC 4765-001

(No Longer Available as of January 20, 2017)

Secure-key adapter provides both cryptographic coprocessor and cryptographic accelerator functions in a single PCIe card. The adapter is well suited to applications requiring high-speed, security- sensitive, RSA acceleration, cryptographic operations for data encryption and digital signing, secure management, and use of cryptographic keys, or custom cryptographic applications. It provides secure storage of cryptographic keys in a tamper-resistant hardware security module designed to meet FIPS 140-2 level 4 security requirements. The adapter is a PCIe 4x full height - short card.

#EJ27, #EJ28 and #EJ29 are all feature codes representing the same physical card with the same CCIN of 4765, but different feature codes are used to indicate if a blind swap cassette is used and its type. #EJ27 indicates no blind swap cassette. #EJ28 indicates a Gen 3 blind swap cassette. #EJ29 indicates a Gen 4 blind swap cassette.

#EJ27, EJ28 and EJ29 are identical to #4807, #4808 and #4809 adapters which were manufactured after 2012, but different from #4807, #4808 and #4809 adapters manufactured prior to 2012.

Other IBM PCIe Cryptographic Coprocessor adapter highlights

- Integrated Dual processors that operate in parallel for higher reliability
- Supports IBM Common Cryptographic Architecture or PKCS#11 standard
- Ability to configure adapter as coprocessor or accelerator
- Support for smart card applications using Europay, MasterCard and Visa
- Cryptographic key generation and random number generation
- PIN processing - generation, verification, translation
- Encrypt/Dectrypt using AES and DES keys

Please refer to the following URL for the latest firmware and software update

- Attributes provided: Cryptographic Coprocessor and Accelerator Functions
- Attributes required: One full-high PCIe slot which does not use a blind swap cassette
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - IBM 7.1, or later
  - Linux - not supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EJ28) - PCIe Crypto Coprocessor Gen3 BSC 4765-001

(No Longer Available as of January 20, 2017)

Secure-key adapter provides both cryptographic coprocessor and cryptographic accelerator functions in a single PCIe card. The adapter is well suited to applications requiring high-speed, security- sensitive, RSA acceleration, cryptographic operations for data encryption and digital signing, secure management, and use of cryptographic keys, or custom cryptographic applications. It provides secure storage of cryptographic keys in a tamper-resistant hardware security module designed to meet FIPS 140-2 level 4 security requirements. The adapter is a PCIe 4x full height - short card.

#EJ27, #EJ28 and #EJ29 are all feature codes representing the same physical card with the same CCIN of 4765, but different feature codes are used to indicate if a blind swap cassette is used and its type. #EJ27 indicates no blind swap cassette. #EJ28 indicates a Gen 3 blind swap cassette. #EJ29 indicates a Gen 4 blind swap cassette. 2

#EJ27, EJ28 and EJ29 are identical to #4807, #4808 and #4809 adapters which were manufactured after 2012, but different from #4807, #4808 and #4809 adapters manufactured prior to 2012.

Other IBM PCIe Cryptographic Coprocessor adapter highlights

- Integrated Dual processors that operate in parallel for higher reliability
- Supports IBM Common Cryptographic Architecture or PKCS#11 standard
- Ability to configure adapter as coprocessor or accelerator
- Support for smart card applications using Europay, MasterCard and Visa
- Cryptographic key generation and random number generation
- PIN processing - generation, verification, translation
- Encrypt/Decrypt using AES and DES keys

Please refer to the following URL for the latest firmware and software updates.

<http://www-03.ibm.com/security/cryptocards/>

- Attributes provided: Cryptographic Coprocessor and Accelerator Functions
- Attributes required: One full-high PCIe slot using a gen3 blind swap cassette such as found in an EM0X Gen3 I/O drawer or #5802/5803/5873/5877 12X-attached I/O drawer
- Minimum required: 0
- Maximum allowed: 10 (Initial order maximum: 10)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR10 or later and IBM i 7.2 TR2 or later
  - Linux - not supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJ32) - PCIe3 Crypto Coprocessor no BSC 4767

Secure-key adapter provides both cryptographic coprocessor and cryptographic accelerator functions in a single PCIe card. The adapter is well suited to applications requiring high-speed, security- sensitive, RSA acceleration, cryptographic operations for data encryption and digital signing, secure management, and use of cryptographic keys, or custom cryptographic applications. It provides secure storage of cryptographic keys in a tamper-resistant hardware security module designed to meet FIPS 140-2 level 4 security requirements. The adapter is a PCIe Gen 3 x4 full height - short card. The adapter runs in dedicated mode only (no PowerVM virtualization).

#EJ32 and #EJ33 are both feature codes representing the same physical card with the same CCIN of 4767. Different feature codes are used to indicate if a blind swap cassette is used and its type. #EJ32 indicates no blind swap cassette. #EJ33 indicates a Gen 3 blind swap cassette.

IBM PCIe Cryptographic Coprocessor adapter highlights

- Integrated Dual processors that operate in parallel for higher reliability, often 2x performance improvement over prior generation crypto cards
- Uses newer level Power Processor (PPC) processor than previous generation cards
- Supports IBM Common Cryptographic Architecture (CCA 5.3) and PKCS#11 standard
- Ability to configure adapter as coprocessor or accelerator
- Support for smart card applications using Europay, MasterCard and Visa
- Cryptographic key generation and random number generation
- PIN processing - generation, verification, translation
- Encrypt/Decrypt using AES and DES keys

Please refer to the following URL for the latest firmware and software updates <http://www-03.ibm.com/security/cryptocards/>

- Attributes provided: Cryptographic Coprocessor and Accelerator Functions
- Attributes required: One full-high PCIe Gen3 slot which doesn't use a blind swap cassette
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 3 and APAR IV88680 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 8 and APAR IV88679 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 8 or later (planned availability 1/27/2017)
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 3 or later (planned availability 1/27/2017)
  - IBM i 7.2 TR5, or later
  - IBM i 7.3 TR1, or later
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 7.2, little endian, or later
  - Ubuntu 16.04.01, or later

Linux software support can be downloaded from the following location:

<http://www-03.ibm.com/security/cryptocards/pciacc2/or dersoftware.shtml>

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJ33) - PCIe3 Crypto Coprocessor BSC-Gen3 4767

(No longer available as of December 31, 2020)

Secure-key adapter provides both cryptographic coprocessor and cryptographic accelerator functions in a single PCIe card. The adapter is well suited to applications requiring high-speed, security- sensitive, RSA acceleration, cryptographic operations for data encryption and digital signing, secure management, and use of cryptographic keys, or custom cryptographic applications. It provides secure storage of cryptographic keys in a tamper-resistant hardware security module designed to meet FIPS 140-2 level 4 security requirements. The adapter is a PCIe Gen 3 x4 full height - short card. The adapter runs in dedicated mode only (no PowerVM virtualization).

#EJ32 and #EJ33 are both feature codes representing the same physical card with the same CCIN of 4767. Different feature codes are used to indicate if a blind swap cassette is used and its type. #EJ32 indicates no blind swap cassette. #EJ33 indicates a Gen 3 blind swap cassette.

#### IBM PCIe Cryptographic Coprocessor adapter highlights

- Integrated Dual processors that operate in parallel for higher reliability, often 2x performance improvement over prior generation crypto cards
- Uses newer level Power Processor (PPC) processor than previous generation cards
- Supports IBM Common Cryptographic Architecture (CCA 5.3) and PKCS#11 standard
- Ability to configure adapter as coprocessor or accelerator
- Support for smart card applications using Europay, MasterCard and Visa
- Cryptographic key generation and random number generation
- PIN processing - generation, verification, translation
- Encrypt/Decrypt using AES and DES keys

Please refer to the following URL for the latest firmware and software updates <http://www-03.ibm.com/security/cryptocards/>

- Attributes provided: Cryptographic Coprocessor and Accelerator Functions
- Attributes required: One full-high PCIe Gen3 slot which uses a blind swap cassette
- Minimum required: 0
- Maximum allowed: 10 (Initial order maximum: 10)
- OS level required:
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 3 and APAR IV88680 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 8 and APAR IV88679 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 8 or later (planned availability 1/27/2017)
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 3 or later (planned availability 1/27/2017)
  - IBM i 7.2 TR5, or later
  - IBM i 7.3 TR1, or later
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 7.2, little endian, or later
  - Ubuntu 16.04.01, or later

Linux software support can be downloaded from the following location:

<http://www-03.ibm.com/security/cryptocards/pciecc2/or dersoftware.shtml>

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJPJ) - Specify mode-2 (1)5901/5278 for EXP24 #5887 or #EL1S

(No longer available as of December 31, 2020)

Feature indicates that one EXP24 SFF Gen2-bay Drawer (#5887 or #EL1S) will be configured to Mode 2 (two groups of 12 drive bays) with only one group of 12 drive bays enabled by connecting to one PCIe 3G SAS controller (5901/5278) using one appropriate YO cable. IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped."

- Attributes provided: Designated #5887 or #EL1S configuration in Mode 2 with 12 drive bays enabled
- Attributes required: One YO cable (#3691/#EL1Z 1.5M, #3692/#EL20 3M, #3693/#EL1W 6M, #3694/#EL1U 15M) and one (5901/5278) dedicated to the single #5887 or #EL1S
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJPK) - Specify mode-2 (2)5901/5278 for EXP24 #5887 or #EL1S

(No longer available as of December 31, 2020)

Feature indicates that one EXP24 SFF Gen2-bay Drawer (#5887 or #EL1S) will be configured to Mode 2 (two groups of 12 drive bays) with only one group of 12 drive bays enabled by connecting to two PCIe 3G SAS controllers (5901/5278) using one appropriate X cable. IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped.

- Attributes provided: Designated #5887 or #EL1S configuration in Mode 2 with 12 drive bays enabled
- Attributes required: One dual X cable (#3661/#EL22 1 1.5M, #3662/#EL23 3M, #3663/#EL21 15M) and two (5901/5278) dedicated to the single #5887 or #EL1S

- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJPL) - Specify mode-4 (1)5901/5278 for EXP24 #5887 or #EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or #EL1S) will be configured to Mode 4 (four groups of 6 drive bays) with only one group of 6 drive bays enabled by connecting to one PCIe 3G SAS controller (5901/5278) using one appropriate X cable connecting to only one adapter port. IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped.

- Attributes provided: Designated #5887 or #EL1S configuration in Mode 4 with 6 drive bays enabled
- Attributes required: One dual X cable (#3661/#EL22 1 1.5M, #3662/#EL23 3M, #3663/#EL21 15M) and one (5901/5278) dedicated to the single #5887 or #EL1S
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJPM) - Specify mode-4 (2)5901/5278 for EXP24 #5887 or #EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or #EL1S) will be configured to Mode 4 (four groups of 6 drive bays) with two groups of 6 drive bays enabled by connecting to two PCIe 3G SAS controllers (5901/5278) using one appropriate X cable connecting to only one adapter port on each controller. IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped.

- Attributes provided: Designated #5887 or #EL1S configuration in Mode 4 with 12 drive bays enabled
- Attributes required: One dual X cable (#3661/#EL22 1 1.5M, #3662/#EL23 3M, #3663/#EL21 15M) and two (5901/5278) dedicated to the single #5887 or #EL1S
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJPN) - Specify mode-4 (3)5901/5278 for EXP24 #5887 or #EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or #EL1S) will be configured to Mode 4 (four groups of 6 drive bays) with three groups of 6 drive bays enabled by connecting to three PCIe 3G SAS controllers (5901/5278) using two appropriate X cables connecting to only one adapter port on each controller. IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped.

- Attributes provided: Designated #5887 or #EL1S configuration in Mode 4 with 18 drive bays enabled
- Attributes required: Two dual X cables (#3661/#EL22 1 1.5M, #3662/#EL23 3M, #3663/#EL21 15M) and three (5901/5278) dedicated to the single #5887 or #EL1S
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJPR) - Specify mode-2 (2)5903/5805 for EXP24 #5887 or #EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or #EL1S) will be configured to Mode 2 (two groups of 12 drive bays) with only one group of 12 drive bays enabled by connecting to one pair of PCIe 3G SAS RAID controllers (5903/5805) using one appropriate X cable. IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped.

- Attributes provided: Designated #5887 or #EL1S configuration in Mode 2 with 12 drive bays enabled.
- Attributes required: One dual X cable #3661/#EL22 1 1.5M, #3662/#EL23 3M, #3663/#EL21 15M) and two (5903/5805) dedicated to the single #5887 or #EL1S
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJPT) - Specify mode-2 (2)5913 for EXP24 #5887 or #EL1S

(No longer available as of December 31, 2020)

Feature indicates that EXP24S SFF Gen2-bay Drawer (#5887 or #EL1S) will be configured to Mode 2 (two groups of 12 drive bays) with only one group of 12 drive bays enabled by connecting to one pair of PCIe2 1.8GB Cache RAID SAS Adapter Tri-port 6Gb controllers (5913) using one appropriate 6G X cable. IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped.

- Attributes provided: Designated #5887 or #EL1S configuration in Mode 2 with 12 drive bays enabled.
- Attributes required: One 6G dual X cable (#3454/#EL1Z 3M, #3455/#EL20 6M, #3456/#EL1Y 10M) and one pair 5913 dedicated to the single #5887 or #EL1S.
- Minimum required: 0
- Maximum allowed: 3 (Initial order maximum: 3)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i - not supported
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJR1) - Specify Mode-1 & (1)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 1 and be using one PCIe3 RAID SAS adapter (#EJ0J/EJ0M/EL3B ) and one 6G YO SAS Cable.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, one PCIe3 RAID SAS adapter, one SAS YO cable
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJR2) - Specify Mode-1 & (2)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 1 and be using two (one pair) PCIe3 RAID SAS adapters (#EJ0J/EJ0M/EL3B) and two 6G YO SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe3 RAID SAS adapters, two SAS YO cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJR3) Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (2) X for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using two (one pair) RAID PCIe3 SAS adapters (#EJ0J/EJ0M/EL3B) and two 6G X SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe3 RAID SAS adapters, two SAS X cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJR4) - Specify Mode-2 & (4)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using four (two pair) PCIe3 RAID SAS adapters (#EJ0J/EJ0M/EL3B) and two 6G X SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, four PCIe3 RAID SAS adapters, two SAS X cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJR5) - Specify Mode-4 & (4)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 4 and be using four (unpaired) PCIe3 RAID SAS adapters (#EJ0J/EJ0M/EL3B) and two 6G X SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, four PCIe3 RAID SAS adapters, two SAS X cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJR6) Specify Mode-2 & (1)EJ0J/EJ0M/EL3B & (2) YO for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)



This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using one PCIe3 RAID SAS adapter (#EJ0J/EJ0M/EL3B) and two 6G YO SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawe, one PCIe3 RAID SAS adapter,two SAS YO cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJR7) Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (2) YO for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using two (nonpaired) PCIe3 RAID SAS adapters (#EJ0J/EJ0M/EL3B) and two 6G YO SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe3 RAID SAS adapters, two SAS YO cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJRA) Specify Mode-2 & (1)EJ0J/EJ0M/EL3B & (1) YO for EXP24S (#5887/EI1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using one PCIe3 RAID SAS adapter (#EJ0J/EJ0M/EL3B) and one 6G YO SAS Cables. This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP24S. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJR7.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, one PCIe3 RAID SAS Adapter, one 6G YO SAS cable
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

#### (#EJRB) Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (1) X for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using two PCIe3 RAID SAS adapters (#EJ0J/EJ0M/EL3B) and one 6G X SAS Cable.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP24S. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJR4.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe3 RAID SAS Adapters, one 6G X SAS cable
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJRC) - Specify Mode-4 & (1)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 4 and be using one PCIe3 RAID SAS adapter (#EJ0J/EJ0M/EL3B) and one 6G X SAS Cables. One leg of the X cable is left unattached at the adapter end.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP24S. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJR5, #EJRD or #EJRE.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, one PCIe3 RAID SAS Adapter, one 6G X SAS cable
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJRD) - Specify Mode-4 & (2)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 4 and be using two (nonpaired) PCIe RAID SAS adapters (#EJ0J/EJ0M/EL3B) and one 6G X SAS Cables.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP24S. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJR5 or #EJRE.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe3 RAID SAS Adapters, one 6G X SAS cable
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJRE) - Specify Mode-4 & (3)EJ0J/EJ0M/EL3B for EXP24S (#5888/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 4 and be using three (nonpaired) PCIe3 RAID SAS adapter (#EJ0J/EJ0M/EL3B) and two 6G X SAS Cables. One leg of one X cable is left unattached at the adapter end.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP24S. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJR5.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, three PCIe3 RAID SAS Adapters, two 6G X SAS cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJRF) - Specify Mode-1 & (2)EJ14 for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 1 and be using two PCIe3 12GB Cache RAID PLUS SAS Adapter Quad-port 6Gb x8 (#EJ14) and two 6G YO SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer in mode1, two PCIe3 #EJ14, two SAS YO cables
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required: IBM i supported, refer to #EJ14 for IBM i levels
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJRG) Specify Mode-2 & (2)EJ14 & (2) X for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using two PCIe3 12GB Cache RAID PLUS SAS Adapter Quad-port 6Gb x8 (#EJ14) and two 6G X SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer in mode 2, two PCIe3 #EJ14, two SAS X cables
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - IBM i - not supported.
  - Refer to #EJ14
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJRH) Specify Mode-2 & (2)EJ14 & (1) X for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using two PCIe3 12GB Cache RAID PLUS SAS Adapter Quad-port 6Gb x8 (#EJ14) and one 6G X SAS Cable.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP24S. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer in mode2, two PCIe3 #EJ14, one SAS X cable
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - IBM i - not supported.
  - Refer to #EJ14
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJRJ) - Specify Mode-2 & (4)EJ14 for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using four PCIe3 12GB Cache RAID PLUS SAS Adapter Quad-port 6Gb x8 (#EJ14) and two 6G X SAS Cable.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer in mode2, four PCIe3 #EJ14, two SAS X cables
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - IBM i not supported
  - Refer to #EJ14
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJRL) - Non-paired Indicator EJ14 PCIe SAS RAID+ Adapter

Feature EJRL must be added for every instance of a non-paired SAS RAID adapter #EJ14. It identifies a specific high availability configuration supported by AIX or Linux which has one #EJ14 on one system and the paired #EJ14 located on a second system. IBM i does not support paired adapter on different servers.

SAS RAID adapter firmware disables write cache until a second SAS RAID adapter is recognized as its pair. This specify indicates the pairing will not be on just one server.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: Only one #EJ14 on a server and its pair on a different server.
- Minimum required: 0
- Maximum allowed: 12 (Initial order maximum: 12)
- OS level required: Refer to #EJ14
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJRP) - Specify Mode-1 & (2)EJ0L for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 1 and be using two PCIe3 12GB Cache RAID SAS adapters (#EJ0L) and two 6G YO SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe3 12GB Cache SAS RAID adapters, two SAS YO cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJRR) - Specify mode-2 & (4) EJ0L for EXP24S #5887/EL1S

(No longer available as of December 31, 2020)

Specify feature EJRR (Specify mode-2 & (4) JEJ0L for EXP24S #5887 or #EL1S) directs manufacturing to configure SFF drawer to mode 2 (two sets of 12 SFF bays) and four PCIe2 12GB Cache RAID SAS Adapter Quad-port 6Gb. Select #EJ0L and two appropriate length HD narrow X cable (#ECBJ -#ECBM). Include two AA cables (#ECCO - #ECC4) between each pair of SAS adapters (total of 4 AA cables). Note: IBM does not provide changes to the mode setting after #5887 or #EL1S is shipped.

- Attributes provided: Configure #5887/EL1S in Mode 2
- Attributes required: Two dual X cables, four AA cables and one port on each of four #EJ0Ls dedicated to the single #5887/EL1S.
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

### (#EJRS) Specify Mode-2 & (2)EJ0L & (2) X for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using two PCIe3 12GB RAID SAS adapters (#EJ0L) and two 6G X SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe3 12GB Cache SAS RAID adapters, two SAS X cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

## (#EJRT) Specify Mode-2 & (2)EJ0L & (1) X for EXP24S (#5887/EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using two 12GB Cache RAID SAS adapters (#EJ0L ) and one 6G X SAS Cable.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP24S. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe3 12GB Cache SAS RAID adapters, one SAS X cable
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 24)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Does not apply

## (#EJRU) - Non-paired Indicator EJ0L PCIe SAS RAID Adapter

Feature EJRU must be added for every instance of a non-paired SAS RAID adapter #EJ0L. It identifies a specific high availability configuration supported by AIX or Linux which has one #EJ0L on one system and the paired #EJ0L located on a second system. IBM i does not support paired adapter on different servers.

- Attributes provided: SAS RAID adapter firmware disables write cache until a second SAS RAID adapter is recognized.
- Attributes required: Every #EJ0L requires a 6Gb/s SAS RAID adapter (#EJ0L) on both this server and on another server that will pair up the SAS RAID adapter and enable the onboard caches to function.
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EJS1) - Non-paired Indicator ESA3 PCIe SAS RAID Adapter

Feature EJS1 must be added for every instance of a non-paired SAS RAID adapter #ESA3. It identifies a specific high availability configuration supported by AIX or Linux which has one #ESA3 on one system and the paired #ESA3 located on a second system. IBM i does not support paired adapter on different servers.

SAS RAID adapter firmware disables write cache until a second SAS RAID adapter is recognized.

Every #EJS1 requires a 6Gb/s SAS RAID adapter (#ESA3) on both this server and on another server that will pair up the SAS RAID adapter and enable the onboard caches to function.

### Limitation

- Cannot be used with #5913
- Cannot be used with #5924
- Attributes provided: SAS RAID adapter firmware disables write cache until a second SAS RAID adapter is recognized.
- Attributes required: Every #ESA3 requires a 6Gb/s SAS RAID adapter CR (#ESA3) on both this server and on another server that will pair up the SAS RAID adapter and enable the onboard caches to function.
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#EJS2) - Specify Mode-2 & (2)ESA3 for EXP24S (#5887/#EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using two (one pair) of PCIe2 1.8GB RAID SAS adapter (#ESA3 ) and one X SAS Cable.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP24S. If additional adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJS4.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe2 1.8GB Cache RAID SAS Adapters, one X SAS cable
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 0)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i - not supported
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: Does not apply

### (#EJS3) - Specify Mode-1 & (2)ESA3 for EXP24S (#5887/#EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 1 and be using two (one pair) of PCIe2 1.8GB RAID SAS adapter (#ESA3) and two YO SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, two PCIe2 1.8GB Cache RAID SAS Adapters, two SAS YO cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 0)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later supported
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: Does not apply

### (#EJS4) - Specify Mode-2 & (4)ESA3 for EXP24S (#5887/#EL1S)

(No longer available as of December 31, 2020)

This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24S SFF Gen2-bay Drawer (#5887/#EL1S) should be configured in Mode 2 and be using four (two pairs) of PCIe2 1.8GB RAID SAS adapters (#ESA3) and two X SAS Cables.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: EXP24S Drawer, four PCIe2 1.8GB Cache SAS RAID Adapters, two SAS X cables
- Minimum required: 0
- Maximum allowed: 24 (Initial order maximum: 0)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i - not supported
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: Does not apply

### (#EJT8) - Front Bezel for 12-Bay BackPlane

(No longer available as of December 31, 2020)

Front bezel with IBM logo for 4U rack mounted system with #EJ0N Storage Backplane and its 12 SAS bays. Rails are ordered separately using #EJTN feature.

- Attributes provided: Bezel
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJT9) - Front Bezel for 18-Bay BackPlane

(No longer available as of December 31, 2020)

Front bezel with IBM logo for 4U rack mounted system with #EJ0P Storage Backplane and its 18 SAS bays. Rails are ordered separately using #EJTN feature.

Limitation: The 1.8 inch SSD cage (#EJTM) is not supported on the 8286-41A server.

- Attributes provided: Bezel
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJTA) - Front OEM Bezel for 12-Bay BackPlane

Front bezel with no IBM logo for 4U rack mounted system with #EJ0N Storage Backplane and its 12 SAS bays. Rails are ordered separately using #EJTN feature.

- Attributes provided: Bezel
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJTB) - Front OEM Bezel for 18-Bay BackPlane

Front bezel with no IBM logo for 4U rack mounted system with #EJ0P Storage Backplane and its 18 SAS bays. Rails are ordered separately using #EJTN feature.

Limitation: The 1.8 inch SSD cage (#EJTM) is not supported on the 8286-41A server.

- Attributes provided: Bezel
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJTG) - Front Door and Covers for 12-Bay Backplane

(No longer available as of January 17, 2020)

Front door and covers for a tower configuration to be used with a 12-bay Storage backplane (#EJ0N). Covers on the top/side/bottom. The door has an IBM logo

- Attributes provided: Tower covers and front door
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJTH) - Front Door and Covers for 18-Bay Backplane

(No longer available as of December 31, 2020)

Front door and covers for a tower configuration to be used with a 18-bay Storage backplane (#EJ0P). Covers on the top/side/bottom. The door has an IBM logo

- Attributes provided: Tower covers and front door
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJTJ) - Front OEM Door and Covers for 12-Bay Backplane

(No longer available as of January 17, 2020)

Front door and covers for a tower configuration to be used with a 12-bay Storage backplane (#EJ0N). Covers on the top/side/bottom. The door has no IBM logo

- Attributes provided: Tower covers and front door
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJTK) - Front OEM Door and Covers for 18-Bay Backplane

(No longer available as of January 17, 2020)

Front door and covers for a tower configuration to be used with a 18-bay Storage backplane (#EJ0P). Covers on the top/side/bottom. The door has no IBM logo

- Attributes provided: Tower covers and front door
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJTN) - Rack-mount Rail Kit

(No longer available as of December 31, 2020)

This feature provides a rack rail kit used to install a rack-mount 4U 1-socket system (8286-41A) in an IBM or OEM 19-inch rack. This feature is not used on a 4U 2-socket system (8286-42A). Rails adjust from approximately 24 to 31 inches in depth.

A bezel feature appropriate for the storage backplane should be separately ordered.



- Attributes provided: Rails
- Attributes required: 4U system
- Minimum required: 0
- Maximum allowed: 250 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJV0) - Specify Mode-1 & CEC SAS Ports & (2)YO12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 1 (one group of 12 drive bays). It will be connected to the two SAS ports on the rear of the system unit run by the integrated SAS controllers of the high performance/function storage backplane.

Two YO12 cables connect the SAS Storage Enclosure to the systems SAS ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, Integrated SAS controllers and SAS cables as indicated in description
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJV1) - Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 1 (one group of 12 drive bays). It will be connected to one #EJ0J/#EL59/#EJ0M/ #EL36 PCIe3 RAID SAS adapter.

One YO12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJV2) - Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 1 (one group of 12 drive bays). It will be connected to two (one pair) #EJ0J/ #EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJV3) - Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to two (one pair) #EJ0J/#EL59/ #EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJV4) - Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to four (two pair) #EJ0J/ #EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJV5) - Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 4 (four groups of 3 drive bays). It will be connected to four (unpaired) #EJ0J/#EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJV6) - Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to one #EJ0J/#EL59/#EJ0M/ #EL36 PCIe3 RAID SAS adapter.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJV7) - Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to two (nonpaired) #EJ0J/ #EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBT, #ECBU, #ECBV or#ECBW.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJVA) - Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to one #EJ0J/#EL59/#EJ0M/ #EL36 PCIe3 RAID SAS adapter.

One YO12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBT, #ECBU, #ECBV or#ECBW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJV7.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJVB) - Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to two (one pair) #EJ0J/#EL59/ #EJ0M/#EL36 PCIe3 RAID SAS adapters.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJV4.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJVC) - Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 4 (four groups of 3 drive bays). It will be connected to one #EJ0J/#EL59/ #EJ0M/#EL36 PCIe3 RAID SAS adapter.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL. One leg of the X12 cable is left unattached at the adapter end.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJV5, #EJVD or #EJVE. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP12SX Drawer (#ESLL/ELLL) should be configured in Mode 4 and be using one PCIe3 RAID SAS adapter (#EJ0J/EL59/EJ0M/EL3B) and one X12 SAS Cables. One leg of the X cable is left unattached at the adapter end. This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP12SX. If adapters/ cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJV5, #EJVD or #EJVE.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJVD) - Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 4 (four groups of 3 drive bays). It will be connected to Two (nonpaired) #EJ0J/#EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJV5 or #EJVE.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJVE) - Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 4 (four groups of 3 drive bays). It will be connected to Three (nonpaired) #EJ0J/#EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL. One leg of one of the two X12 cables is left unattached at the adapter end.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJV5.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJVF) - Specify Mode-1 & (2)EJ14 & (2)YO12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 1 (one group of 12 drive bays). It will be connected to two #EJ14 PCIe3 RAID SAS adapters.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJVG) - Specify Mode-2 & (2)EJ14 & (2)X12 for EXP12SX #ESLL/ELLL

(No Longer Available as of January 24, 2017)

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to two #EJ14 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJVH) - Specify Mode-2 & (2)EJ14 & (1)X12 for EXP12SX #ESLL/ELLL

(No Longer Available as of January 24, 2017)

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to two #EJ14 PCIe3 RAID SAS adapters.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJVG.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJVJ) - Specify Mode-2 & (4)EJ14 & (2)X12 for EXP12SX #ESLL/ELLL

(No Longer Available as of January 24, 2017)

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to four #EJ14 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EJVP) - Specify Mode-1 & (2)EJ0L & (2)YO12 for EXP12SX #ESLL/ELLL

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 1 (one group of 12 drive bays). It will be connected to two #EJ0L PCIe3 RAID SAS adapters.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EJVR) - Specify Mode-2 & (4)EJ0L & (2)X12 for EXP12SX #ESLL/ELLL

(No Longer Available as of January 24, 2017)

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to four #EJ0L PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EJVS) - Specify Mode-2 & (2)EJ0L & (2)X12 for EXP12SX #ESLL/ELLL

(No Longer Available as of January 24, 2017)

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to two #EJ0L PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EJVT) - Specify Mode-2 & (2)EJ0L & (1)X12 for EXP12SX #ESLL/ELLL

(No Longer Available as of January 24, 2017)

Feature indicates that EXP12SX SAS Storage Enclosure (#ESLL or #ELLL) will be configured by IBM Manufacturing in Mode 2 (two groups of 6 drive bays). It will be connected to two #EJ0L PCIe3 RAID SAS adapters.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJVG.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: Refer to #ESLL or #ELLL to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJW0) - Specify Mode-1 & CEC SAS Ports & (2)YO12 for EXP24SX #ESLS/ELS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 1 (one group of 24 drive bays). It will be connected to the two SAS ports on the rear of the system unit run by the integrated SAS controllers of the high performance/function storage backplane.

Two YO12 cables connect the SAS Storage Enclosure to the systems SAS ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, Integrated SAS controllers and SAS cables as indicated in description
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i - supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJW1) - Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 1 (one group of 24 drive bays). It will be connected to one #EJ0J/#EL59/#EJ0M/ #EL36 PCIe3 RAID SAS adapter.

One YO12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EJW2) - Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 1 (one group of 24 drive bays). It will be connected to two (one pair) #EJ0J/ #EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJW3) - Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to two (one pair) #EJ0J/ #EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJW4) - Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to four (two pair) #EJ0J/ #EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJW5) - Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 4 (four groups of 6 drive bays). It will be connected to four (unpaired) #EJ0J/#EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.



- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJW6) - Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to one #EJ0J/#EL59/#EJ0M/ #EL36 PCIe3 RAID SAS adapter.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJW7) - Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to two (nonpaired) #EJ0J/ #EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBT, #ECBU, #ECBV or #ECBW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWA) - Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to one #EJ0J/#EL59/#EJ0M/ #EL36 PCIe3 RAID SAS adapter.

One YO12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBT, #ECBU, #ECBV or #ECBW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJW7.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWB) - Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to two (one pair) #EJ0J/ #EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJW4.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWC) - Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 4 (four groups of 6 drive bays). It will be connected to one #EJ0J/#EL59/ #EJ0M/#EL36 PCIe3 RAID SAS adapter.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL. One leg of the X12 cable is left unattached at the adapter end.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJW5, #EJWD or #EJWE. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing that in this configuration one EXP24SX Drawer (#ESLS/ELLS) should be configured in Mode 4 and be using one PCIe3 RAID SAS adapter (#EJ0J/EL59/EJ0M/ EL3B) and one X12 SAS Cables. One leg of the X cable is left unattached at the adapter end. This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the EXP24SX. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJW5, #EJWD or #EJWE.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWD) - Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 4 (four groups of 6 drive bays). It will be connected to Two (nonpaired) #EJ0J/#EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or#ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJW5 or #EJWE.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWE) - Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 4 (four groups of 6 drive bays). It will be connected to Three (nonpaired) #EJ0J/#EL59/#EJ0M/#EL36 PCIe3 RAID SAS adapters.

Two X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL. One leg of one of the two X12 cables is left unattached at the adapter end.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJW5.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWF) - Specify Mode-1 & (2)EJ14 & (2)YO12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 1 (one group of 24 drive bays). It will be connected to two #EJ14 PCIe3 RAID SAS adapters.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWG) - Specify Mode-2 & (2)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to two #EJ14 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWH) - Specify Mode-2 & (2)EJ14 & (1)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to two #EJ14 PCIe3 RAID SAS adapters.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJWG.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWJ) - Specify Mode-2 & (4)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to four #EJ14 PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWP) - Specify Mode-1 & (2)EJ0L & (2)YO12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 1 (one group of 24 drive bays). It will be connected to two #EJ0L PCIe3 RAID SAS adapters.

Two YO12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECDT, #ECDU, #ECDV or #ECDW.

One specify feature should ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWR) - Specify Mode-2 & (4)EJ0L & (2)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to four #EJ0L PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWS) - Specify Mode-2 & (2)EJ0L & (2)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to two #EJ0L PCIe3 RAID SAS adapters.

Two X12 cables connect the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This specify feature indicates a full set of adapters plus SAS cables is used for the enclosure. A different specify feature code is used to indicate a "partial" configuration with a subset of adapters and cables is used.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EJWT) - Specify Mode-2 & (2)EJ0L & (1)X12 for EXP24SX #ESLS/ELLS

Feature indicates that EXP24SX SAS Storage Enclosure (#ESLS or #ELLS) will be configured by IBM Manufacturing in Mode 2 (two groups of 12 drive bays). It will be connected to two #EJ0L PCIe3 RAID SAS adapters.

One X12 cable connects the SAS Storage Enclosure to the SAS adapter ports. Use the cable length appropriate to the configuration and select from features such as #ECBJ, #ECBK or #ECBL.

One specify feature should be ordered with each SAS Storage Enclosure. This feature does not order or ship any hardware, but indicates to IBM config tools and to IBM Manufacturing the combination of enclosure mode, SAS adapter and SAS cable type which will be used.

This indicates a "partial" configuration where there are not enough adapters/cables to run all the SAS bays in the SAS Storage Enclosure. If adapters/cables are MES added later to support the rest of the SAS bays, then this specify code should be removed and the appropriate specify feature added to help IBM config tools understand the expanded usage, probably specify feature #EJWG.

- Attributes provided: Communicate configuration information to IBM Manufacturing
- Attributes required: SAS Storage Enclosure, PCIe3 RAID SAS adapter(s) and SAS cable(s) as indicated in description
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - IBM i - not supported
  - Refer to #ESLS or #ELLS to find the supported O/S levels.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EK51) - Full Width Keyboard -- USB, US English, #103P

(No Longer Available as of October 31, 2017)

This feature provides a USB attached US English #103P business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EK52) - Full Width Keyboard -- USB, French, #189

(No Longer Available as of October 31, 2017)

This feature provides a USB attached French #189 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EK53) - Full Width Keyboard -- USB, Italian, #142

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Italian #142 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EK54) - Full Width Keyboard -- USB, German/Austrian, #129

(No Longer Available as of October 31, 2017)

This feature provides a USB attached German/Austrian #129 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EK55) - Full Width Keyboard -- USB, UK English, #166P

(No Longer Available as of October 31, 2017)

This feature provides a USB attached UK English #166 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK56) - Full Width Keyboard -- USB, Spanish, #172

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Spanish #172 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK57) - Full Width Keyboard -- USB, Japanese, #194

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Japanese #194P business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK58) - Full Width Keyboard -- USB, Brazilian Portuguese, #275

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Brazilian Portuguese #275 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK59) - Full Width Keyboard -- USB, Hungarian, #208

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Hungarian #208 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK60) - Full Width Keyboard -- USB, Korean, #413

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Korean #413 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK61) - Full Width Keyboard -- USB, Chinese, #467

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Chinese #467 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK62) - Full Width Keyboard -- USB, French Canadian, #445

(No Longer Available as of October 31, 2017)

This feature provides a USB attached French Canadian #445 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK64) - Full Width Keyboard -- USB, Belgian/UK, #120

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Belgian/UK #120 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK65) - Full Width Keyboard -- USB, Swedish/Finnish, #153

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Swedish/Finnish #153 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK66) - Full Width Keyboard -- USB, Danish, #159

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Danish #159 business black quiet touch keyboard.



- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK67) - Full Width Keyboard -- USB, Bulgarian, #442

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Bulgarian #442 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK68) - Full Width Keyboard -- USB, Swiss/French/German, #150

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Swiss, French/German #150 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK69) - Full Width Keyboard -- USB, Norwegian,#155

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Norwegian #155 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK70) - Full Width Keyboard -- USB, Dutch, #143

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Dutch #143 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK71) - Full Width Keyboard -- USB, Portuguese, #163

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Portuguese #163 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK72) - Full Width Keyboard -- USB, Greek, #319

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Greek #319 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK73) - Full Width Keyboard -- USB, Hebrew, #212

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Hebrew #212 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK74) - Full Width Keyboard -- USB, Polish, #214

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Polish #214 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK75) - Full Width Keyboard -- USB, Slovakian, #245

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Slovakian #245 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK76) - Full Width Keyboard -- USB, Czech, #243

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Czech #243 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK77) - Full Width Keyboard -- USB, Turkish, #179

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Turkish #179 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK78) - Full Width Keyboard -- USB, LA Spanish, #171

(No Longer Available as of October 31, 2017)

This feature provides a USB attached LA Spanish #171 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK79) - Full Width Keyboard -- USB, Arabic, #253

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Arabic #253 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK80) - Full Width Keyboard -- USB, Thai, #191

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Thai #191 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK81) - Full Width Keyboard -- USB, Russian, #443

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Russian #443 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK82) - Full Width Keyboard -- USB, Slovenian, #234

(No Longer Available as of October 31, 2017)

This feature provides a USB attached Slovenian #234 business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EK83) - Full Width Keyboard -- USB, US English Euro, #103P

(No Longer Available as of October 31, 2017)

This feature provides a USB attached US English EURO #103P business black quiet touch keyboard.

- Attributes provided: Keyboard
- Attributes required: USB Port
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELC0) - PDU Access Cord 0.38m

This 0.38 meter (14 inch) cord is used with a vertically mounted PDU (Power Distribution Unit) such as a #7188 or #7109 when the PDU is located in a 7953-94Y or #ER05 Slim Rack. One end of this power cord connects to the PDU. The other end of this cord connects to the power cord running to the wall outlet or electrical power source.

One PDU Access Cord is required per vertically mounted PDU. Without a PDU Access Cord, inserting and removing the wall outlet power cord into the PDU can be very difficult in the narrow side pockets of the Slim Rack. A PDU Access Cord is not required for PDUs in wider racks such as the 7014-T42 or #0553.

- Attributes provided: Power cord
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ELC5) - Power Cable - Drawer to IBM PDU (250V/10A)

This feature permits manufacturing to select the optimum PDU power jumper cord length (2.8M or 4.3M) for rack integration. This feature is mandatory for servers that use power supplies with C14 inlets that are going to be factory integrated with IBM racks (such as with 7014-T00 or T42 racks) that contains C19 PDU types.

Feature is not valid on initial order with non-factory integrated feature 4650. Power jumper cord has C13 on one end (for C14 power supply connector on system unit or I/O drawer) and C20 on the other end (for IBM PDU C19 receptacle). MES orders of FC #ELC5 will ship 4.3m length. If MES customers want 2.8m length should order #6665.

- Attributes provided: Power jumper cord (2.8m or 4.3m)
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELPM) - Trial PowerVM Live Partition Mobility for POWER8 and below

Clients on PowerVM Standard edition

This feature will enable a customer to evaluate Live Partition Mobility at no-charge for 60 days, or use it to migrate workloads to a new server. At the conclusion of the trial period clients have the option to place an upgrade order for permanent PowerVM Enterprise Edition to maintain continuity.

At the end of the trial period (60 days), the client's system will automatically return to PowerVM Standard Edition. Live Partition Mobility, available only with PowerVM Enterprise Edition, allows for the movement of a running partition from one Power System server to another with no application downtime, resulting in better system utilization, improved application availability, and energy savings. With Live Partition Mobility, planned application downtime due to regular server maintenance can be a thing of the past.

- Attributes provided: A 60-day trial version of PowerVM Enterprise Edition.
- Attributes required: PowerVM Standard Edition and FW 7.3.0, or later.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: n/a
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELS4) #ESD4 Load Source Specify (571GB 10K RPM SAS SFF-3 for IBM i)

This specify code indicates that a #ESD4 Solid State Drive is being used as the Load Source.

- Attributes provided: Load source specify
- Attributes required: #ESD4
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELS8) #ESD8 Load Source Specify (1.1TB 10K RPM SAS SFF-3 for IBM i)

This specify code indicates that a #ESD8 Solid State Drive is being used as the Load Source.

- Attributes provided: Load source specify
- Attributes required: #ESD8
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELS9) - #ES1A Load Source Specify (387GB SSD SFF-2)

This specify code indicates that a #ES1A Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES11
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSA) #ESDA Load Source Specify (283GB 15K RPM SAS SFF-3 for IBM i)

This specify code indicates that a #ESDA Solid State Drive is being used as the Load Source.

- Attributes provided: Load source specify
- Attributes required: #ESDA
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSE) - #ESDE Load Source Specify (571GB 15k RPM SFF-3 )

This specify code indicates that a #ESDE disk drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ESDE
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSH) - #ES0H Load Source Specify (775GB SSD SFF-2)

This specify code indicates that a #ES0H Disk Unit is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES0H
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSM) - #ES0M Load Source Specify (387GB SFF-3 SSD for IBM i)

This specify code indicates that a #ES0M SSD is being used as the Load Source.

- Attributes provided: Load source specify
- Attributes required: #ES0M
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSP) - #ES0P Load Source Specify (775GB SFF-3 SSD for IBM i)

This specify code indicates that a #ES0P SSD is being used as the Load Source.

- Attributes provided: Load Source Specify
- Attributes required: #ES0P
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSN) - #ESDN Load Source Specify (571GB 15K RPM SFF-2 )

This specify code indicates that a #ESDN disk drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ESDN
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: IBM i - refer to feature #ESDN
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSR) - #ES0R Load Source Specify (387GB SSD SFF-2 4K)

This specify code indicates that a #ES0R SSD is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES0R
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELST) - #ES0T Load Source Specify (775GB SSD SFF-2 4K)

This specify code indicates that a #ES0T SSD is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES0T
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSV) - #ES0V Load Source Specify (387GB SSD SFF-3 4k)

This specify code indicates that a #ES0V SSD is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES0V
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSX) - #ES0X Load Source Specify (775GB SSD SFF-3 4k)

This specify code indicates that a #ES0X SSD is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES0X
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSS) - #ESDS Load Source Specify (283GB 10k SAS SFF3 for IBM i)

This specify code indicates that a #ESDS disk is being used as the Load Source.

- Attributes provided: Load Source Specify
- Attributes required: #ESDS
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELSU) - #ESDU Load Source Specify (139GB 15k SAS SFF3 for IBM i)

This specify code indicates that a #ESDU disk is being used as the Load Source.

- Attributes provided: Load Source Specify
- Attributes required: #ESDU
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELT0) - #ESFU Load Source Specify (1.7TB HDD SFF-3)

This specify code indicates that a #ESFU disk drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ESFU
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: IBM i 7.2 TR2 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELT1) - #ES81 Load Source Specify (1.9TB SFF-2 SSD)

This specify code indicates that a #ES81 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES81
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Refer to #ES81
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELT2) - #ESF2 Load Source Specify (1.1TB HDD SFF-2)

This specify code indicates that a #ESF2 disk drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ESF2
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: IBM i 7.1 TR10 and 7.2 TR2 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELT4) - #ESF4 Load Source Specify (571GB HDD SFF-3)

This specify code indicates that a #ESF4 disk drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ESF4
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: Refer to #ESF4
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELT6) - #ES86 Load Source Specify (387GB SFF-2 SSD 4k for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES86 solid state drive (SSD) is used as the Load Source.



- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES86
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: Refer to feature #ES86
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELT8) - #ESF8 Load Source Specify (1.1TB HDD SFF-3)

This specify code indicates that a #ESF8 disk drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ESF8
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: Refer to #ESF8
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELT9) - #ES79 Load Source Specify (387GB SFF-2 SSD 5xx for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES79 solid state drive (SSD) is used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES79
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: Refer to #ES79
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTA) #ESFA Load Source Specify (283GB 15K RPM SAS SFF-3 4K Block - 4224)

This specify code indicates that a #ESFA Solid State Drive is being used as the Load Source.

- Attributes provided: Load source specify
- Attributes required: #ESFA
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTD) - #ES8D Load Source Specify (775GB SFF-2 SSD 4k for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES8D solid state drive (SSD) is used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES8D
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: Refer to #ES8D
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTE) #ESFE Load Source Specify (571GB 15K RPM SAS SFF-3 4K Block - 4224)

This specify code indicates that a #ESFE Solid State Drive is being used as the Load Source.

- Attributes provided: Load source specify
- Attributes required: #ESFE
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTF) - #ES7F Load Source Specify (775GB SFF-2 SSD 5xx for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES7F solid state drive (SSD) is used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES7F
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: Refer to #ES7F
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTG) - #ES8G Load Source Specify (1.55TB SFF-2 SSD 4k for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES8G solid state drive (SSD) is used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES8G
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Refer to #ES8G
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTK) - #ES8K Load Source Specify (1.9TB SFF-3 SSD)

This specify code indicates that a #ES8K Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES8K
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Refer to #ES8K
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTL) - #ES7L Load Source Specify (387GB SFF-3 SSD 5xx for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES7L solid state drive (SSD) is used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES7L
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Refer to #ES7L
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTN) #ESFN Load Source Specify (571GB 15K RPM SAS SFF-2 4K Block - 4224)

This specify code indicates that a #ESFN Solid State Drive is being used as the Load Source.

- Attributes provided: Load source specify
- Attributes required: #ESFN
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTP) - #ES8P Load Source Specify (387GB SFF-3 SSD 4k for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES8P solid state drive (SSD) is used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES8P
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Refer to #ES8P
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTQ) - #ES7Q Load Source Specify (775GB SFF-3 SSD 5xx for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES7Q solid state drive (SSD) is used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES7Q
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Refer to #ES7Q
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTR) - #ES8R Load Source Specify (775GB SFF-3 SSD 4k for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES8R solid state drive (SSD) is used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES8R
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Refer to #ES8R
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTS) - #ESFS Load Source Specify (1.7TB HDD SFF-2)

This specify code indicates that a #ESF5 disk drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ESFS
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: IBM i 7.2 TR2 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTU) - #ESEU Load Source Specify (571GB HDD SFF-2)

This specify code indicates that a #ESEU disk drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ESEU
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: IBM i 7.1 TR10 and 7.2 TR2 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTW) - #ES8W Load Source Specify (1.55TB SFF-3 SSD 4k for IBM i)

(No longer available as of January 18, 2019)

Specify code indicates a #ES8W solid state drive (SSD) is used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: #ES8W
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Refer to #ES8W
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELTY) #ESEY Load Source Specify (283GB 15K RPM SAS SFF-2 4K Block - 4224)

This specify code indicates that a #ESEY Solid State Drive is being used as the Load Source.

- Attributes provided: Load source specify
- Attributes required: #ESEY
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELUJ) - #ESNJ Load Source Specify (283GB HDD SFF-3)

This specify code indicates that a #ESNJ Hard Disk Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESNJ
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: see feature ESNJ
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELUL) - #ESNL Load Source Specify (283GB HDD SFF-2)

This specify code indicates that a #ESNL Hard Disk Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESNL
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: see feature ESNL
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELUN) - #ESNN Load Source Specify (571GB HDD SFF-3)

This specify code indicates that a #ESNN Hard Disk Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESNN
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: see feature ESNN
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELUQ) - #ESNQ Load Source Specify (571GB HDD SFF-2)

This specify code indicates that a #ESNQ Hard Disk Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESNQ
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: see feature ESNQ
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZ1) - ES91 Load Source Specify (387GB SSD SFF-3)

(No longer available as of December 31, 2020)

This specify code indicates that a #ES91 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ES91
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ES91
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ELZ2) - #ESE2 Load Source Specify (3.72TB SSD SFF-3)

(No longer available as of January 18, 2019)

This specify code indicates that a #ESE2 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESE2
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: see feature ESE2
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZ3) - #ES93 Load Source Specify (1.86TB SSD SFF-3)

(No longer available as of January 18, 2019)

This specify code indicates that a #ES93 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ES93
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: feature ES93
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZ4) - #ES84 Load Source Specify (931GB SSD SFF-3)

(No longer available as of January 18, 2019)

This specify code indicates that a #ES84 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ES84
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: see feature ES84
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZ5) - ES95 Load Source Specify (387GB SSD SFF-2)

(No longer available as of December 31, 2020)

This specify code indicates that a #ES95 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ES95
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ES95
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ELZ6) - #ESG6 Load Source Specify (387GB SSD SFF-2)

(No longer available as of December 31, 2020)

This specify code indicates that a #ESG6 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESG6
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZ7) - #ES97 Load Source Specify (1.86TB SSD SFF-2)

(No longer available as of January 18, 2019)

This specify code indicates that a #ES97 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ES97
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: see feature ES97
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZ8) - #ESE8 Load Source Specify (3.72TB SSD SFF-2)

(No longer available as of January 18, 2019)

This specify code indicates that a #ESE8 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESE8
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: see feature ESE8
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZ9) - #ESM9 Load Source Specify (3.72 TB SSD 4k SFF-2)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESM9 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESM9
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: See feature ESM9
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZA) - #ESGA Load Source Specify (387GB SSD SFF-3)

This specify code indicates that a #ESGA Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESGA
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZB) - ESNB Load Source Specify (775GB SSD SFF-2)

(No longer available as of December 31, 2020)

This specify code indicates that a #ESNB Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESNB
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESNB
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ELZC) - #ESGC Load Source Specify (387GB SSD SFF-2)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESGC Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESGC
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZD) - ESND Load Source Specify (775GB SSD SFF-3)

(No longer available as of December 31, 2020)

This specify code indicates that a #ESND Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESND
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESND
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ELZE) - #ESGE Load Source Specify (387GB SSD SFF-3)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESGE Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESGE
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ELZF) - ESNF Load Source Specify (1.55TB SSD SFF-2)

(No longer available as of December 31, 2020)

This specify code indicates that a #ESNF Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESNF
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESNF
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ELZG) - #ESGG Load Source Specify (775GB SSD SFF-2)

(No longer available as of December 31, 2020)

This specify code indicates that a #ESGG Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESGG
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ELZH) - ESNH Load Source Specify (1.55TB SSD SFF-3)

(No longer available as of December 31, 2020)

This specify code indicates that a #ESNH Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESNH
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESNH
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ELZJ) - #ESGJ Load Source Specify (775GB SSD SFF-3)

This specify code indicates that a #ESGJ Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESGJ
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ELZK) - #ESHK Load Source Specify (931 GB SSD 4k SFF-2)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESHK Solid State Drive is being used as the Load Source.



- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESHK
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: See feature ESHK
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZL) - #ESGL Load Source Specify (775GB SSD SFF-2)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESGL Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESGL
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZM) - #ESHM Load Source Specify (1.86 TB SSD 4k SFF-2)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESHM Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESHM
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: See feature ESHM
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZN) - #ESGN Load Source Specify (775GB SSD SFF-3)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESGN Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESGN
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZQ) - #ESGQ Load Source Specify (1.55TB SSD SFF-2)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESGQ Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESGQ
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZR) - #ESMR Load Source Specify (3.72 TB SSD 4k SFF-3)

(No longer available as of August 30, 2019)

This specify code indicates that a ESMR Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESMR
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: See feature ESMR
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZS) - #ESGS Load Source Specify (1.55TB SSD SFF-3)

This specify code indicates that a #ESGS Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ESGS
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZT) - #ESHT Load Source Specify (931 GB SSD 4k SFF-3)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESHT Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESHT
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: See feature ESHT
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZV) - #ESHV Load Source Specify (1.86 TB SSD 4k SFF-3)

(No longer available as of August 30, 2019)

This specify code indicates that a #ESHV Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESHV
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: See feature ESHV
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ELZZ) - #ES8Z Load Source Specify (931GB SSD SFF-2)

(No longer available as of January 18, 2019)

This specify code indicates that a #ES8Z Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature #ES8Z
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: see feature ES8Z
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EM8B) - 16 GB DDR3 Memory

(No longer available as of December 13, 2019)

16GB DIMM, 1600MHZ, 4GBIT DDR3 DRAM

- Attributes provided: 16GB of system memory.
- Attributes required: The 8286 model 41A initial order can be with a single memory feature. MES memory upgrades must pair the first memory feature and pair additional memory features. The 8286 model 42A memory features must be ordered in pairs. Each DIMM within a DIMM pair must be of the same capacity. The 42A requires 32GB of memory.

- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No  
Note: A single memory feature can be ordered.

### (#EM8C) - 32 GB DDR3 Memory

(No longer available as of December 13, 2019)

32GB DIMM, 1600MHZ, 4GBIT DDR3 DRAM

- Attributes provided: 32GB of system memory.
- Attributes required:  
The 8286 model 41A initial order can be with a single memory feature. MES memory upgrades must pair the first memory feature and pair additional memory features. The 8286 model 42A memory features must be ordered in pairs. Each DIMM within a DIMM pair must be of the same capacity. The 42A requires 32GB of memory.
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No  
Note: A single memory feature can be ordered.

### (#EM8D) - 64 GB DDR3 Memory

(No longer available as of January 17, 2020)

64GB DIMM, 1600MHZ, 4GBIT DDR3 DRAM

- Attributes provided: 64GB of system memory.
- Attributes required: The 8286 model 41A initial order can be with a single memory feature. MES memory upgrades must pair the first memory feature and pair additional memory features. The 8286 model 42A memory features must be ordered in pairs. Each DIMM within a DIMM pair must be of the same capacity. The 42A requires 32GB of memory.
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No  
Note: A single memory feature can be ordered.

### (#EM8E) - 128GB DDR3 Memory

(No longer available as of January 17, 2020)

Provides 128GB CDIMM.

- Attributes provided:  
Provides 128GB of system memory using 1600 MHz DDR3 memory.
- Attributes required: The 8286 model 41A memory features must be ordered in pairs. Each DIMM within a DIMM pair must be of the same capacity. 128 GB DIMM pairs can be mixed with other size pairs, and MES orders can be placed for just one pair of 128 GB DIMMs. The strong recommendation of at least four DIMMs (two DIMM features) per socket remains.

- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#EM91) - 16 GB DDR4 Memory

(No longer available as of January 17, 2020)

16 GB DIMM, 1600MHZ, 4GBIT DDR4 DRAM

Limitations:

- DDR4 memory can not be mixed on the same server with DDR3 memory.
- Memory plugged in pairs (two identical feature codes). See server definition for any single CDIMM configuration exceptions for very entry 1-socket servers.
- firmware 860 or later
- Attributes provided: One CDIMM
- Attributes required: One CDIMM slot and firmware 860 or later
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1, or later supported
  - IBM i 7.1 TR8 and 7.2, or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EM92) - 32 GB DDR4 Memory

32 GB DIMM, 1600MHZ, 4GBIT DDR4 DRAM

Limitations:

- DDR4 memory can not be mixed on the same server with DDR3 memory.
- Memory plugged in pairs (two identical feature codes). See server definition for any single CDIMM configuration exceptions for very entry 1-socket servers.
- firmware 860 or later
- Attributes provided: One CDIMM
- Attributes required: One CDIMM slot and firmware 860 or later
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1, or later supported
  - IBM i 7.1 TR8 and 7.2, or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EM93) - 64 GB DDR4 Memory

64 GB DIMM, 1600MHZ, 4GBIT DDR4 DRAM

Limitations:

- DDR4 memory can not be mixed on the same server with DDR3 memory.
- Memory plugged in pairs (two identical feature codes). See server definition for any single CDIMM configuration exceptions for very entry 1-socket servers.
- firmware 860 or later
- Attributes provided: One CDIMM
- Attributes required: One CDIMM slot and firmware 860 or later
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1, or later supported
  - IBM i 7.1 TR8 and 7.2, or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EM94) - 128 GB DDR4 Memory

128 GB DIMM, 1600MHZ, 4GBIT DDR4 DRAM

Limitations:

- DDR4 memory can not be mixed on the same server with DDR3 memory.
- Memory plugged in pairs (two identical feature codes). See server definition for any single CDIMM configuration exceptions for very entry 1-socket servers.
- firmware 860 or later
- Attributes provided: One CDIMM
- Attributes required: One CDIMM slot and firmware 860 or later
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1, or later supported
  - IBM i 7.1 TR8 and 7.2, or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EMX0) - PCIe Gen3 I/O Expansion Drawer

This 19-inch, 4U (4 EIA) enclosure provides PCIe Gen3 slots outside of the system unit. It has two module bays. One 6-Slot Fanout Module (#EMXF or EMXG) placed in each module bay. Two 6-slot modules provide a total of 12 PCIe Gen3 slots. Each fanout module is connected to a PCIe3 Optical Cable Adapter located in the system unit over an active optical cable (AOC) pair.

The PCIe Gen3 I/O Expansion Drawer has two redundant, hotplug power supplies. Each power supply has its own separately ordered power cord. The two power cords plug into a Power supply conduit which connects to the power supply. The single-phase AC power supply is rated at 1030 Watt and can use 100-120V or 200-240V. If using 100- 120V, then the maximum is 950 Watt. It's recommended the power supply connect to a PDU in the rack. Power Systems PDUs are designed for 200-240V electrical source.

The drawer has fixed rails which can accommodate racks with depths from 27.5 inches to 30.5 inches.

Limitations:

- #EMX0 has a cable management bracket located at the rear of the drawer which swings up to provide service access to the PCIe adapters. 2U (2 EIA) of space is required to swing up the bracket. Thus the drawer can not be placed in the very top 2U of a rack.
- There is a power cord access consideration with vertically mounted PDUs on the right hand side of the rack when viewed from the rear of the rack. The #EMX0 cable management bracket makes accessing some of the PDU outlets located at the same rack height as the #EMX0 drawer more challenging. Using a horizontally mounted PDU or locating the PDU or #EMX0 at a different vertical location is recommended.
- Attributes provided: 19-inch 4U (4 EIA) PCIe Gen3 I/O Expansion Drawer
- Attributes required: One or two PCIe Optical Cable Adapters (#EJ07/#EJ05/#EJ08), one or two PCIe3 fanout modules (#EMXF), one or two CXP cable pairs (such as #ECC6 or #ECC8 or #ECCS), one power supply conduit (such as #EMXA).

- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR10 or later, IBM i 7.2 TR2, or later
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 6.6, or later
  - Red Hat Enterprise Linux 7.1, for Power, big endian, or later
  - Red Hat Enterprise Linux 7.1, for Power, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 14.04.3, or later
  - Ubuntu 16.04, or later
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EMXA) - AC Power Supply Conduit for PCIe3 Expansion Drawer

Provides two 320-C14 inlet electrical connections for two separately ordered AC power cords with C13 connector plugs. Conduit provides electrical power connection between two power supplies located in the front of a PCIe Gen3 I/O Expansion Drawer (#EMX0) and two power cords which connect on the rear of the PCIe Gen3 I/O Expansion Drawer.

- Attributes provided: Two AC Power Supply connections
- Attributes required: PCIe Gen3 I/O Expansion Drawer and two AC power cords
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EMXB) - DC Power Supply Conduit for PCIe3 Expansion Drawer

(No longer available as of October 19, 2018)

Provides two DC inlet electrical connections for two separately ordered DC power cords. Conduit provides electrical power connection between two power supplies located in the front of a PCIe Gen3 I/O Expansion Drawer (#EMX0) and two power cords which connect on the rear of the PCIe Gen3 I/O Expansion Drawer.

- Attributes provided: Two DC power supply connections
- Attributes required: PCIe Gen3 I/O Expansion Drawer and two DC power cords
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EMXF) - PCIe3 6-Slot Fanout Module for PCIe3 Expansion Drawer

(No Longer Available as of December 29, 2017)

PCIe3 fanout module for PCIe Gen3 I/O Expansion Drawer. Provides six PCIe Gen3 full high, full length slots (two x16 and four x8). The PCIe slots are hot plug.

The module has two CXP ports which are connected two CXP ports on a PCIe Optical Cable Adapter #EJ05 or #EJ07 or #EJ08 depending on the server selected. A pair of active optical CXP cables (AOC) or a pair of CXP copper cables are used for this connection. The top CXP port of the fanout module is cabled to the top CXP port of the PCIe3 Optical Cable Adapter. The bottom CXP port of the fanout module is cabled to the bottom CXP port of the same PCIe3 Optical Cable Adapter.

- Attributes provided: PCIe3 6-slot fanout module for PCIe Gen3 I/O Expansion Drawer
- Attributes required: Available bay in PCIe Gen3 I/O Expansion Drawer. Firmware 8.40 or later for copper CXP cables.
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - AIX - supported
  - IBM i 7.1 TR10 or later, IBM i 7.2 TR2 or later
  - Linux -supported
  - Refer to the Software requirements for the OS levels
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EMXG) - PCIe3 6-Slot Fanout Module for PCIe3 Expansion Drawer

(No longer available as of December 31, 2020)

PCIe3 fanout module for PCIe Gen3 I/O Expansion Drawer. Provides six PCIe Gen3 full high, full length slots (two x16 and four x8). The PCIe slots are hot plug. With firmware 8.4 or later, the fanout module supports concurrent maintenance, though obviously while off-line all its PCIe slots are also off-line. Blind swap cassettes (BSC) are used for the PCIe slots. The BSC are interchangeable with the #5802/5877/5803/5873 12X PCIe I/O Drawer BSC.

The module has two CXP ports which are connected two CXP ports on a PCIe Optical Cable Adapter #EJ05 or #EJ07 or #EJ08 depending on the server selected. A pair of active optical CXP cables (AOC) or a pair of CXP copper cables are used for this connection. The top CXP port of the fanout module is cabled to the top CXP port of the PCIe3 Optical Cable Adapter. The bottom CXP port of the fanout module is cabled to the bottom CXP port of the same PCIe3 Optical Cable Adapter.

EMXG is a follow-on to the original EMXF fanout module. EMXG and EMXF are functionally identical but EMXG implements a small physical change to enable a larger set of potential PCIe adapters to be housed. EMXG and EMXF can be intermixed in the same drawer. There is no difference in firmware or software prerequisites for the EMXF and EMXG. EMXG and for EMXF use the same BSC.

- Attributes provided: PCIe3 6-slot fanout module for PCIe Gen3 I/O Expansion Drawer
- Attributes required: Available bay in PCIe Gen3 I/O Expansion Drawer. Firmware 8.40 or later for copper CXP cables.
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - Linux -supported
  - AIX - supported
  - IBM i 7.1 TR10, 7.2 TR2, and 7.3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EN01) - 1m (3.3-ft), 10GbE'Net Cable SFP+ Act Twinax Copper

1m (3.3-ft) copper active twinax Ethernet cable which supports Ethernet data transfer rates up to 10 Gb/s. The cable has a copper twinax transceiver on each end which is placed in an SFP+ port of an adapter and/or a switch. This cabling option can be a cost effective alternative to optical cable for short reach link high-speed connection.

- Attributes provided: 10Gb/s copper active twinax Ethernet cable
- Attributes required: One available SFP+ 10Gb/s Ethernet Port
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EN02) - 3m (9.8-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper

3m (9.8-ft) copper active twinax Ethernet cable which supports Ethernet data transfer rates up to 10 Gb/s. The cable has a copper twinax transceiver on each end which is placed in an SFP+ port of an adapter and/or a switch. This cabling option can be a cost effective alternative to optical cable for short reach link high-speed connection.

- Attributes provided: 10Gb/s copper active twinax Ethernet cable
- Attributes required: One available SFP+ 10Gb/s Ethernet Port
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EN03) - 5m (16.4-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper

5m (16.4-ft) copper active twinax Ethernet cable which supports Ethernet data transfer rates up to 10 Gb/s. The cable has a copper twinax transceiver on each end which is placed in an SFP+ port of an adapter and/or a switch. This cabling option can be a cost effective alternative to optical cable for short reach link high-speed connection.

- Attributes provided: 10Gb/s copper active twinax Ethernet cable
- Attributes required: One available SFP+ 10Gb/s Ethernet Port
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#EN0A) - PCIe3 16Gb 2-port Fibre Channel Adapter

PCIe Gen3 16 Gigabit dual-port Fibre Channel (FC) Adapter is a high-performance 8x short form adapter based on the Emulex LPe16002B PCIe Host Bus Adapter (HBA). The adapter provides two ports of 16 Gb Fibre Channel capability using SR optics. Each port can provide up to 16 Gb Fibre Channel functions simultaneously. The adapter was initially announced as PCIe Gen2, but upgrades to the adapter firmware and introduction of POWER8 servers have enabled PCIe Gen3.

Each port provides single initiator capability over a fibre link or with NPIV, multiple initiator capability is provided. The ports are SFP+ and include an optical SR transceiver. The ports have LC type connectors and utilize shortwave laser optics. The adapter operates at link speeds of 4, 8 and 16 Gbps and will automatically negotiate to the highest speed possible. LEDs on each port provide information on the status and link speed of the port.

The adapter connects to a Fibre Channel switch at 4Gb, 8Gb or 16Gb. It can directly attach to a device without a switch at 16Gb. Attachment without a switch is not supported at 4Gb or 8Gb.

N\_Port ID Virtualization (NPIV) capability is supported through VIOS.

Feature #EN0A and #EN0B are electronically identical. They differ physically only that EN0A has a tail stock for full high PCIe slots and #EN0B has a tail stock for low profile PCIe slots. CCIN is 577F for both features.

Cables are the responsibility of the customer. Use multimode fibre optic cables with short-wave lasers that adhere to the following specifications:

```
OM4 - multimode 50/125 micron fibre, 4700 MHz*km bandwidth
OM3 - multimode 50/125 micron fibre, 2000 MHz*km bandwidth
OM2 - multimode 50/125 micron fibre, 500 MHz*km bandwidth
OM1 - multimode 62.5/125 micron fibre, 200 MHz*km bandwidth
```

The maximum cable lengths at the three different link speeds are:

Cable	4 Gbps	8 Gbps	16 Gbps
OM4	400m	190m	125m
OM3	380m	150m	100m
OM2	150m	50m	35m
OM1	70m	21m	15m

See also optional wrap plug feature #ECW0 which is:

- a) Required to run some diagnostic procedures and
  - b) in some cases may speed system boot when placed in empty ports as well as avoid useless messages pointing to a planned empty port.
  - Attributes provided: Two 16Gb FC ports (with LC connectors)
  - Attributes required: Available PCIe Gen2 slot in supported server
  - Minimum required: 0
  - Maximum allowed: 16 (Initial order maximum: 16)
  - OS level required:
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - AIX 6.1 and 7.1 or later supported
    - IBM i 7.1 TR8 and 7.2 or later supported (with or without VIOS)
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Supports PowerKVM and VIOS. Refer to Software requirements for specific code levels supported.

(#EN0G) - PCIe2 8Gb 2-Port Fibre Channel Adapter

(No longer available as of May 12, 2020)

This feature ships a two-port, 8 Gb PCIe Gen2 Fibre Channel Adapter based on the QLogic QLE2562 Host Bus Adapter (HBA). Each port provides single initiator capability over a fibre link. The ports have LC type connectors and utilize shortwave laser optics. The adapter operates at link speeds of 2, 4, and 8 Gbps and will automatically negotiates to the highest speed possible. LEDs on each port provide information on the status and link speed of the port. The adapter connects to a Fibre Channel switch or can directly attach to a Fibre Channel port on a supported storage unit. N\_Port ID Virtualization (NPIV) capability is supported through VIOS. Cables are the responsibility of the customer. Use multimode fibre optic cables with short-wave lasers that adhere to the following specifications:

- OM3 - multimode 50/125 micron fibre, 2000 MHz\*km bandwidth
- OM2 - multimode 50/125 micron fibre, 500 MHz\*km bandwidth
- OM1 - multimode 62.5/125 micron fibre, 200 MHz\*km bandwidth

Because core sizes are different, OM1 cables can only be connected to other OM1 cables. For best results, OM2 cables should not be connected to OM3 cables. However, if an OM2 cable is connected to an OM3 cable, the characteristics of the OM2 cable apply to the entire length of the cables. The following table shows the supported distances for the three different cable types at the three different link speeds.



Cable	2.125 Gbps	4.25 Gbps	8.5 Gbps
OM3	.5m - 500m	.5m - 380m	.5m - 150m
OM2	.5m - 300m	.5m - 150m	.5m - 50m
OM1	.5m - 150m	.5m - 70m	.5m - 21m

#EN0F and #EN0F are electronically identical with the same CCIN of 578D. #EN0F has a low profile tailstock bracket. #EN0G has a full high tailstock bracket.

See also feature #5273 or #5735 for a 2-port 8Gb Fibre Channel adapter based on an Emulex adapter.

See also optional wrap plug feature #ECW0 which is a) required to run some diagnostic procedures and b) in some cases may speed system boot when placed in empty ports.

See also optional wrap plug feature #ECW0 which is: a) Required to run some diagnostic procedures and b) In some cases may speed system boot when placed in empty ports as well as avoid useless messages pointing to a planned empty port.

- Attributes provided: Dual port Fibre Channel adapter
- Attributes required: Full High PCIe slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 7.2, little endian, or later
  - Red Hat Enterprise Linux 7.2, big endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 4, or later
  - SUSE Linux Enterprise Server 12, Service Pack 1, or later
  - Ubuntu 16.04, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2
  - AIX version 7.1 with the 7100-03 Technology Level and Service Pack 7 (planned availability September 8, 2016)
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7
  - IBM i supported only with VIOS
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Assignment to the VIOS requires VIOS 2.2.4.2 or later

## (#EN0H) - PCIe3 4-port (10Gb FCoE & 1GbE) SR&RJ45

(No longer available as of December 31, 2020)

This PCIe Gen3 Converged Network Adapter (CNA) supports both Ethernet NIC (Network Interface Card) and Fibre Channel over Ethernet (FCoE). The adapter provides two 10 Gb SR optical ports and two 1 Gb RJ45 ports in a PCIe 8x short form adapter. The 10Gb ports have CNA functionality. The 1Gb ports have Ethernet capability. The adapter was initially announced as PCIe Gen2, but upgrades to the adapter firmware and introduction of POWER8 servers have enabled PCIe Gen3.

Limitation: Fibre Channel over Ethernet (FCoE) function is not supported in POWER9 servers.

NPIV capability is provided through VIOS

The 10Gb ports are SFP+ and include an optical SR transceiver. The ports have LC Duplex type connectors and utilize shortwave laser optics and MMF-850nm fiber cabling. With 62.5 micron OM1, up to 33 meter length fiber cables are supported. With 50 micron OM2, up to 82 meter fiber cable lengths are supported. With 50 micron OM3 or OM4, up to 300 meter fiber cable lengths are supported. Note that an FCoE switch is required for any FCoE traffic.

For the 1Gb RJ45 ports, 4-pair CAT-5 Unshielded Twisted Pair (UTP) cable or higher is supported for distances of up to 100 meters. In addition to 1Gb (1000 Mb) networks, 100 Mb networks are also supported, but 10Mb networks are not supported.

#EN0H and #EN0J adapters are electronically identical. They are physically identical except #EN0H has a tail stock for full high PCIe slots and #EN0J has a tail stock for low profile slots. The CCIN is 2B93 for both features.

Details for the ports include:

- AIX NIM support
- IEEE 802.3ae (10 GbE), 802.3ab (1 GbE), 802.1p priority, 802.1Q VLAN tagging, 802.3x flow control, 802.3ad load-balancing and failover,
- Link aggregation, IEEE 802.3ad 802.3
- Multiple MAC addresses per interface
- MSI-X, MSI and support of legacy pin interrupts
- Ether II and IEEE 802.3 encapsulated frames
- Jumbo frames up to 9.6 Kbytes
- TCP checksum offload for IPv4 and IPv6
- TCP segmentation Offload (TSO) for IPv4 and IPv6
- UDP checksum offload for IPv4 and IPv6
- AIX, IBM i and Linux provide software iSCSI support through the adapter. Linux can also leverage adapter hardware support including initiator and header & data digest (CRC) generation and checking

- Attributes provided: Four ports - two 10Gb CNA and two 1Gb E
- Attributes required: PCIe Gen2 slot
- Minimum required: 0
- Maximum allowed: 17(Initial order maximum: 17)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 or later supported only with VIOS
  - IBM i 7.2 or later supported only with VIOS
  - IBM i 7.1 TR10, or later supported with only with VIOS or SRIOV, Note: An HMC is required to setup the adapter for SR-IOV. Only Ethernet NIC is supported with SRIOV.
  - IBM i 7.2 TR 2 or later supported only with VIOS or SRIOV, Note: An HMC is required to setup the adapter for SR-IOV. Only Ethernet NIC is supported with SRIOV.
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Supports PowerKVM and VIOS. Refer to Software requirements for specific code levels supported.

## (#EN0K) - PCIe3 4-port (10Gb FCoE & 1GbE) SFP+Copper&RJ45

(No longer available as of December 31, 2020)

This PCIe Gen3 Converged Network Adapter (CNA) supports both Ethernet NIC (Network Interface Card) and Fibre Channel over Ethernet (FCoE). The adapter provides two 10 Gb ports for active copper twinax cables and two 1 Gb RJ45 ports in a PCIe 8x short form adapter. The 10Gb ports have CNA (both NIC and FCoE) functionality. The 1Gb ports have Ethernet capability. The adapter was initially announced as PCIe Gen2, but upgrades to the adapter firmware and introduction of POWER8 servers have enabled PCIe Gen3.

Limitation: Fibre Channel over Ethernet (FCoE) function is not supported in POWER9 servers.

NPIV capability is provided through VIOS

SR-IOV capability for the NIC function is supported on specific servers with the appropriate firmware and OS level for any of the four ports.

The 10Gb ports are SFP+ and do not include a transceiver. Active Copper twinax cables up to 5 meter in length are supported such as provided by feature #EN01, #EN02 or #EN03. A transceiver is included with these cables. Note that SFP+ twinax copper is NOT AS/400 5250 twinax or CX4 or 10 GBase-T. Active cables differ from passive cables. Note that an FCoE switch is required for any FCoE traffic.

For the 1Gb RJ45 ports, 4-pair CAT-5 Unshielded Twisted Pair (UTP) cable or higher is supported for distances of up to 100 meters. In addition to 1Gb (1000 Mb) networks, 100 Mb networks are also supported, but 10Mb networks are not supported.

#EN0K and #EN0L adapters are electronically identical. They are physically identical except #EN0K has a tail stock for full high PCIe slots and #EN0L has a tail stock for low profile slots. The CCIN is 2CC1 for both features.

#EN0K/EN0L are very similar to the #EN0H/#EN0J adapters except the #EN0H/EN0K use SR optical cabling and has a different CCIN.

Details for the ports include:

- AIX NIM support
- IEEE 802.3ae (10 GbE), 802.3ab (1 GbE), 802.1p priority, 802.1Q VLAN tagging, 802.3x flow control, 802.3ad load-balancing and failover,
- Link aggregation, IEEE 802.3ad 802.3
- Multiple MAC addresses per interface
- MSI-X, MSI and support of legacy pin interrupts
- Ether II and IEEE 802.3 encapsulated frames
- Jumbo frames up to 9.6 Kbytes
- TCP checksum offload for IPv4 and IPv6
- TCP segmentation Offload (TSO) for IPv4 and IPv6
- UDP checksum offload for IPv4 and IPv6
- AIX and Linux provide software iSCSI support through the adapter. Linux can also leverage adapter hardware support including initiator and header & data digest (CRC) generation and checking
- Attributes provided: Four ports - two 10Gb CNA and two 1Gb E
- Attributes required: PCIe Gen2 or Gen3 slot
- Minimum required: 0
- Maximum allowed: 17(Initial order maximum: 17)
- OS level required:
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later - supported only with VIOS
  - IBM i 7.1 TR10, or later supported with only with VIOS or SRIOV, Note - An HMC is required to setup the adapter for SR-IOV. Only Ethernet NIC is supported with SRIOV
  - IBM i 7.2 TR 2 or later supported only with VIOS or SRIOV, Note - An HMC is required to setup the adapter for SR-IOV. Only Ethernet NIC is supported with SRIOV

- AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
- AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
- These additional AIX levels are supported in an LPAR using virtualized I/O only:
- AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
- AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
- AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
- AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
- AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
- AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.3 with interim fix IV56366, or later.

## (#EN0M) - PCIe3 4-port(10Gb FCoE & 1GbE) LR&RJ45 Adapter

(No Longer Available as of April 23, 2017)

This PCIe Gen3 Converged Network Adapter (CNA) supports both Ethernet NIC (Network Interface Card) and Fibre Channel over Ethernet (FCoE). The adapter provides two 10 Gb LR optical ports and two 1 Gb RJ45 ports in a PCIe 8x short form adapter. The 10Gb ports have CNA functionality. The 1Gb ports have Ethernet capability. NPIV capability is provided through VIOS. The adapter was initially announced as PCIe Gen2, but upgrades to the adapter firmware and introduction of POWER8 servers have enabled PCIe Gen3.

Limitation: Fibre Channel over Ethernet (FCoE) function is not supported in POWER9 servers.

The 10Gb ports are SFP+ and include an optical LR transceiver. The ports have LC Duplex type connectors and utilize longwave laser optics and 1310nm fiber cabling. With 9 micron OS1, up to 10 kilometer length fiber cables are supported. Priority Flow Control (PFC) and Fibre Channel over Ethernet (FCoE) are only supported for distances of 300 meters or less. Note that an FCoE switch is required for any FCoE traffic.

For the 1Gb RJ45 ports, 4-pair CAT-5 Unshielded Twisted Pair (UTP) cable or higher is supported for distances of up to 100 meters. In addition to 1Gb (1000 Mb) networks, 100 Mb networks are also supported, but 10Mb networks are not supported.

#EN0M and #EN0N adapters are electronically identical. They are physically identical except #EN0M has a tail stock for full high PCIe slots and #EN0N has a tail stock for low profile slots. The CCIN is 2CC0 for both features.

Details for the ports include:

- AIX NIM support
- IEEE 802.3ae (10 GbE), 802.3ab (1 GbE), 802.1p priority, 802.1Q VLAN tagging, 802.3x flow control, 802.3ad load-balancing and failover,
- Link aggregation, IEEE 802.3ad 802.3
- Multiple MAC addresses per interface
- MSI-X, MSI and support of legacy pin interrupts
- Ether II and IEEE 802.3 encapsulated frames
- Jumbo frames up to 9.6 Kbytes
- TCP checksum offload for IPv4 and IPv6
- TCP segmentation Offload (TSO) for IPv4 and IPv6
- UDP checksum offload for IPv4 and IPv6
- AIX, IBM i and Linux provide software iSCSI support through the adapter. Linux can also leverage adapter hardware support including initiator and header & data digest (CRC) generation and checking
- Attributes provided: Four ports - two 10Gb CNA and two 1Gb E
- Attributes required: PCIe Gen2 or Gen3 slot - full high
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later - supported only with VIOS
  - IBM i 7.1 TR10, or later supported with only with VIOS or SRIOV, Note - An HMC is required to setup the adapter for SR-IOV. Only Ethernet NIC is supported with SRIOV
  - IBM i 7.2 TR 2 or later supported only with VIOS or SRIOV, Note - An HMC is required to setup the adapter for SR-IOV. Only Ethernet NIC is supported with SRIOV
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
  - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
  - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.3 with interim fix IV56366, or later

## (#EN0S) - PCIe2 4-Port (10Gb+1GbE) SR+RJ45 Adapter

PCIe Gen2 x8 short Ethernet adapter supports Ethernet NIC (Network Interface Card) traffic. The adapter provides two 10 Gb SR optical ports and two 1 Gb RJ45 ports in a PCIe 8x short form adapter.

The 10Gb ports are SFP+ and include optical SR transceivers. The ports have LC Duplex type connectors and utilize shortwave laser optics and MMF-850nm fiber cabling. With 62.5 micron OM1, up to 33 meter length fiber cables are supported. With 50 micron OM2, up to 82 meter fiber cable lengths are supported. With 50 micron OM3 or OM4, up to 300 meter fiber cable lengths are supported.

For the 1Gb RJ45 ports, 4-pair CAT-5 Unshielded Twisted Pair (UTP) cable or higher is supported for distances of up to 100 meters. In addition to 1Gb (1000 Mb) networks, 100 Mb networks are also supported, but 10Mb networks are not supported.

#EN0S and #EN0T adapters are electronically identical. They are physically identical except #EN0S has a tail stock for full high PCIe slots and #EN0T has a tail stock for low profile slots. The CCIN is 2CC3 for both features.

Details for the ports include:

- AIX NIM and LINUX NETWORK INSTALL are supported.
  - IEEE 802.3an (10GBASE-T), IEEE 802.3ab (1000BASE-T GbE), IEEEu (100BASE-T), 802.1p priority, 802.1Q VLAN tagging, 802.3x flow control, 802.3ad load-balancing and failover,
  - Link aggregation, IEEE 802.3ad 802.3
  - Multiple MAC addresses/promiscuous mode (for PowerVM/VIOS) per interface
  - Message Signalling Interrupt MSI-X, MSI and support of legacy pin interrupts
  - Ether II and IEEE 802.3 encapsulated frames
  - Jumbo frames up to 9.6 Kbytes
  - TCP checksum offload for IPv4 and IPv6
  - TCP segmentation Offload (TSO) RSS (Receive Side Scaling) support for IPv4, IPv6 and UDP for IPv4 and IPv6
  - UDP checksum offload for IPv4 and IPv6
  - AIX, IBM i and Linux provide software iSCSI support through the adapter.
  - Attributes provided: Four ports - two 10Gb and two 1Gb E
  - Attributes required: PCIe Gen2 or Gen3 slot - full high
  - Minimum required: 0
  - Maximum allowed: 17(Initial order maximum: 17)
  - OS level required:
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - AIX 6.1 and 7.1 or later supported
    - IBM i - not supported (use VIOS)
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Supports PowerKVM and VIOS. Refer to Software requirements for specific code levels supported.

## (#EN0U) - PCIe2 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter

PCIe Gen2 x8 short Ethernet adapter supports Ethernet NIC (Network Interface Card) traffic. The adapter provides two 10 Gb twinax copper ports and two 1 Gb RJ45 ports in a PCIe 8x short form adapter.

The 10Gb ports are SFP+ and do not include a transceiver. Active Copper twinax cables up to 5 meter in length are supported such as provided by feature #EN01, #EN02 or #EN03. A transceiver is included with these cables. Note that SFP+ twinax copper is NOT AS/400 5250 twinax or CX4 or 10 GBase-T. Active cables differ from passive cables.

For the 1Gb RJ45 ports, 4-pair CAT-5 Unshielded Twisted Pair (UTP) cable or higher is supported for distances of up to 100 meters. In addition to 1Gb (1000 Mb) networks, 100 Mb networks are also supported, but 10Mb networks are not supported.

#EN0U and #EN0V adapters are electronically identical. They are physically identical except #EN0U has a tail stock for full high PCIe slots and #EN0V has a tail stock for low profile slots. The CCIN is 2CC3 for both features.

Details for the ports include:

- AIX NIM and LINUX NETWORK INSTALL are supported.
- IEEE 802.3ae (10 GbE), IEEE 802.3ab (1000BASE-T GbE), 100BASE-T IEEEu, 802.1p priority, 802.1Q VLAN tagging, 802.3x flow control, 802.3ad load-balancing and failover,

- Link aggregation, IEEE 802.3ad 802.3
  - Multiple MAC addresses/promiscuous mode (for PowerVM/VIOS) per interface
  - Message Signalling Interrupt MSI-X, MSI and support of legacy pin interrupts
  - Ether II and IEEE 802.3 encapsulated frames
  - Jumbo frames up to 9.6 Kbytes
  - TCP checksum offload for IPv4 and IPv6
  - TCP segmentation Offload (TSO) for IPv4 and IPv6
  - UDP checksum offload for IPv4 and IPv6
  - AIX, IBM i and Linux provide software iSCSI support through the adapter.
  - Attributes provided: Four ports - two 10Gb and two 1Gb E
  - Attributes required: PCIe Gen2 or Gen3 slot - full high
  - Minimum required: 0
  - Maximum allowed: 17(Initial order maximum: 17)
  - OS level required:
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - AIX 6.1 and 7.1 or later supported
    - IBM i - not supported (use VIOS)
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Supports PowerKVM and VIOS. Refer to Software requirements for specific code levels supported.

## (#EN0W) - PCIe2 2-port 10/1GbE BaseT RJ45 Adapter

PCIe Gen2 short x8 adapter which provides two 10G-BaseT ports. The ports are RJ45. The ports default to auto negotiate the highest speed either 10Gb (10GBaseT), 1Gb (1000BaseT) or 100Mb (100BaseT) full duplex. Each RJ45 port's configuration is independent of the other. The adapter supports Ethernet NIC (Network Interface Card) traffic.

The RJ45 ports use 4-pair CAT-6A cabling for distances of up to 100 meters or CAT-6 cabling for distances up to 37 meters. CAT5 cabling is not tested and is not supported.

#EN0W and #EN0X are electronically identical with the same CCIN of 2CC4. #EN0W has a full high tail stock and #EN0X has a low profile tail stock.

Details for the ports include:

- AIX NIM and LINUX NETWORK INSTALL are supported.
  - IEEE 802.3an (10GBASE-T), IEEE 802.3ab (1000BASE-T GbE), IEEEu (100BASE-T), 802.1p priority, 802.1Q VLAN tagging, 802.3x flow control, 802.3ad load-balancing and failover,
  - Link aggregation, IEEE 802.3ad 802.3
  - Multiple MAC addresses / promiscuous mode (for PowerVM/VIOS) per interface
  - Message Signalling Interrupt (MSI-X, MSI) support of legacy pin interrupts
  - Ether II and IEEE 802.3 encapsulated frames
  - Jumbo frames up to 9.6 Kbytes
  - TCP checksum offload for IPv4 and IPv6
  - TCP segmentation Offload (TSO)
  - RSS (Receive Side Scaling) support for IPv4, IPv6 and UDP.
  - UDP checksum offload for IPv4 and IPv6
  - AIX, IBM i, and Linux provide software iSCSI support through the the adapter.
  - Attributes provided: Two 10G-BaseT ports
  - Attributes required: PCIe Gen2 or Gen3 slot - full high
  - Minimum required: 0
  - Maximum allowed: 17(Initial order maximum: 17)
  - OS level required:
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - AIX 6.1 and 7.1 or later supported
    - IBM i - not supported (use VIOS)
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Supports PowerKVM and VIOS. Refer to Software requirements for specific code levels supported.

## (#EN12) - PCIe2 8Gb 4-port Fibre Channel Adapter

(No longer available as of May 12, 2020)

PCIe Gen2 8 Gigabit quad port Fibre Channel Adapter is a high- performance 8x short form Host Bus Adapter (HBA). Each port provides single initiator capability over a fiber link or with NPIV, multiple initiator capability is provided. The ports have LC type connectors and use shortwave laser optics. The adapter operates at link speeds of 2, 4, and 8 Gbps and will automatically negotiate to the highest speed possible. LEDs on each port provide information on the status and link speed of the port. This adapter is based on the QLogic QLE2564 PCIe Host Bus Adapter (HBA).

The adapter connects to a Fibre Channel switch. Direct device attachment has not been tested and is not supported.

N\_Port ID Virtualization (NPIV) capability is supported through VIOS.

Cables are the responsibility of the customer. Use multimode fibre optic cables with short-wave lasers that adhere to the following specifications: OM3 - multimode 50/125 micron fibre, 2000 MHz\*km bandwidth

OM2 - multimode 50/125 micron fibre, 500 MHz\*km bandwidth  
OM1 - multimode 62.5/125 micron fibre, 200 MHz\*km bandwidth

Because core sizes are different, OM1 cables can only be connected to other OM1 cables. For best results, OM2 cables should not be connected to OM3 cables. However, if an OM2 cable is connected to an OM3 cable, the characteristics of the OM2 cable apply to the entire length of the cables.

The following table shows the supported distances for the three different cable types at the three different link speeds. Cable |

	2.125 Gbps	4.25 Gbps	8.5 Gbps
OM3	.5m - 500m	.5m - 380m	.5m - 150m
OM2	.5m - 300m	.5m - 150m	.5m - 50m
OM1	.5m - 150m	.5m - 70m	.5m - 21m

The EN12 and EN0Y adapters are electronically and functionally identical with the same CCIN of EN0Y. # EN12 indicates a full high tailstock bracket. #EN0Y indicates a low profile tailstock bracket.

Consult with your IBM representative or Business Partner for additional information relative to any third party attachment.

See also optional wrap plug feature #ECW0 which is:

- a) Required to run some diagnostic procedures and
- b) in some cases may speed system boot when placed in empty ports as well as avoid useless messages pointing to a planned empty port.
- Attributes provided: 4-port 8Gb Fibre Channel Adapter
- Attributes required: Available PCIe Gen3 slot
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux Server 6.7, or later
  - Red Hat Enterprise Linux Server 7.1, big endian, for Power, or later
  - Red Hat Enterprise Linux Server 7.1, little endian, for Power, or later
  - SUSE Linux Enterprise Server 11, Service Pack 4, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu Server 15.10, or later
  - Ubuntu Server 14.04.3, or later
  - AIX 6.1 and 7.1 or later supported
  - IBM i supported only with VIOS
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EN13) - PCIe 1-port Bisync Adapter

(No Longer Available as of May 13, 2016)

The #EN13 is a full high PCIe adapter which provides 1 RVX port for Bisync capability. This RVX port is labeled "Port 1". Its CCIN = 576C Bisync functionality identical to #2893 PCIe adapter is provided.

Select one of the following cables to attach to port 1 (RVX port):

- #0348 - V.24/EIA232 20-Ft PCI Cable
- #0353 - V.35 20-Ft PCI Cable
- #0359 - X.21 20-Ft PCI Cable

### Limitations

- The #2893 does not support the remote ring indicate function.
- There is a second port on the card with an integrated modem, but Bisync is not supported on this port (labeled "Port 0").
- Attributes provided: One full-high PCIe adapter with 1 port for Bisync communications
- Attributes required: PCIe full high slot, external modem, cable for the modem.
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - IBM i 7.1TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EN15) - PCIe3 4-port 10GbE SR Adapter

This PCIe Gen3 supports Ethernet NIC (Network Interface Card) traffic and also supports SR-IOV capability. The adapter provides four 10 Gb SR optical ports in a PCIe 8x short form adapter. SR-IOV capability for the NIC function is supported with the appropriate firmware and OS level for any of the four ports. Enabling SR-IOV function requires an HMC.

The four 10Gb ports are SFP+ and include four optical SR transceivers. The ports have LC Duplex type connectors and utilize shortwave laser optics and MMF-850nm fiber cabling. With 62.5 micron OM1, up to 33 meter length fiber cables are supported. With 50 micron OM2, up to 82 meter fiber cable lengths are supported. With 50 micron OM3 or OM4, up to 300 meter fiber cable lengths are supported. p.#EN15 and #EN16 adapters are electronically identical. They are physically identical except #EN15 has a tail stock for full high PCIe slots and #EN16 has a tail stock allowing it to fit in a Power E870/E880 system node PCIe slot. The CCIN is 2CE3 for both features.

Details for the ports include:

- AIX NIM support
- IEEE 802.3ae (10 GbE), 802.1p priority, 802.1Q VLAN tagging, 802.3x flow control, 802.3ad load-balancing and failover,
- Link aggregation, IEEE 802.3ad 802.3
- Multiple MAC addresses per interface
- MSI-X, MSI and support of legacy pin interrupts
- Ether II and IEEE 802.3 encapsulated frames
- TCP checksum offload for IPv4 and IPv6
- TCP segmentation Offload (TSO) for IPv4 and IPv6
- UDP checksum offload for IPv4 and IPv6
- AIX, IBM i and Linux provide software iSCSI support through the adapter. Linux can also leverage adapter hardware support including initiator and header & data digest (CRC) generation and checking
- Attributes provided: Four 10GbE ports
- Attributes required: full high PCIe Gen3 slot
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level and service pack 5 and APAR IV68443 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 5 and APAR IV68444 or later
  - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-08 Technology Level and service Pack 7 or later
  - IBM i 7.1 TR10 or later
  - IBM i 7.2 TR2 or later
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 6.6, or later
  - Red Hat Enterprise Linux 7.1, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 4, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
  - Ubuntu Server 14.04.03, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.51 or later.

## (#EN17) - PCIe3 4-port 10GbE SFP+ Copper Adapter

(No longer available as of December 31, 2020)

This PCIe Gen3 supports Ethernet NIC (Network Interface Card) traffic and also supports SR-IOV capability. The adapter provides four 10GbE SFP+ ports into which copper twinax transceivers will be placed. It is a PCIe 8x short form adapter. SR-IOV capability for the NIC function is supported with the appropriate firmware and OS level for any of the four ports. Enabling SR-IOV function requires an HMC.

The 10Gb ports are SFP+ and do not include a transceiver. Active Copper twinax cables up to 5 meter in length are supported such as provided by feature #EN01, #EN02 or #EN03. A transceiver is included with these cables. Note that SFP+ twinax copper is NOT AS/400 5250 twinax or CX4 or 10 GBase-T. Active cables differ from passive cables. p.#EN17 and #EN18 adapters are electronically identical. They are physically identical except #EN17 has a tail stock for full high PCIe slots and #EN18 has a tail stock allowing it to fit in a Power E870/E880 system node PCIe slot. The CCIN is 2CE4 for both features.

Details for the ports include:

- AIX NIM support
- IEEE 802.3ae (10 GbE), 802.1p priority, 802.1Q VLAN tagging, 802.3x flow control, 802.3ad load-balancing and failover,
- Link aggregation, IEEE 802.3ad 802.3
- Multiple MAC addresses per interface
- MSI-X, MSI and support of legacy pin interrupts
- Ether II and IEEE 802.3 encapsulated frames
- TCP checksum offload for IPv4 and IPv6
- TCP segmentation Offload (TSO) for IPv4 and IPv6
- UDP checksum offload for IPv4 and IPv6
- AIX, IBM i and Linux provide software iSCSI support through the adapter. Linux can also leverage adapter hardware support including initiator and header & data digest (CRC) generation and checking

- Attributes provided: Four 10GbE ports
- Attributes required: full high PCIe Gen3 slot
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level and service pack 5 and APAR IV68443 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 5 and APAR IV68444 or later
  - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 7 or later (planned availability 9/30/2015)
  - AIX Version 6.1 with the 6100-08 Technology Level and service Pack 7 or later (planned availability 9/30/2015)
  - IBM i 7.1 TR10 or later
  - IBM i 7.2 TR2 or later
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 6.6, or later
  - Red Hat Enterprise Linux 7.1, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.51 or later.

## (#EN27) - 2 Port Async EIA-232 PCIe Adapter

(No Longer Available as of March 11, 2016)

Adapter provides connection for 2 asynchronous EIA-232 devices. Ports are programmable to support EIA-232 protocols, at a line speed of 128K bps. Two RJ45 connections are located on the rear of the adapter. To attach to devices using a 9-pin (DB9) connection, use an RJ45-to-DB9 converter. For convenience, one converter is included with this feature. One converter for each connector needing a DB9 connector is needed.

The converter cable shipped with the feature is a 10-pin RJ-45 approximately 30 cm or 1 foot in length. 10-pin is often used for DCE devices like modems. DTE devices may be able to use fewer pin connections. Multiple RJ-45 pin out options are used and sold across the industry. The #3930 feature provides an 8-pin RJ45-to-DB9 converter cable. If an addition 10-pin RJ45-to-DB9 connector like the cable provided with the adapter is desired, it is commonly available from multiple sources and identified as a serial cable with a Digi part number 76000239. It is also possible to look up the cable's pin out specifications and build your own cables.

Note #EN27 and # EN28 are physically and electrically identical adapters, except for the type of PCIe slot used (full-high or low profile).

- Attributes provided: 2-Port Asynchronous EIA-232 via 2x RJ45 connectors, one RJ45-to-DB9 converter cable..
- Attributes required: 1 full high PCIe Slot
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - Red Hat Enterprise Linux 8 for Power, or later
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - IBM i 7.1 with TR8 or later
  - IBM i 7.2 or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EN29) - 2 Port Async EIA-232 PCIe Adapter

Adapter provides connection for 2 asynchronous EIA-232 devices. Ports are programmable to support EIA-232 protocols, at a line speed of 128K bps. Two RJ45 connections are located on the rear of the adapter. To attach to devices using a 9-pin (DB9) connection, use an RJ45-to-DB9 converter. For convenience, one converter is included with this feature. One converter for each connector needing a DB9 connector is needed.

The converter cable shipped with the feature is a 10-pin RJ-45 approximately 30 cm or 1 foot in length. 10-pin is often used for DCE devices like modems. DTE devices may be able to use fewer pin connections. Multiple RJ-45 pin out options are used and sold across the industry. The #3930 feature provides an 8-pin RJ45-to-DB9 converter cable. If an addition 10-pin RJ45-to-DB9 connector like the cable provided with the adapter is desired, it is commonly available from multiple sources and identified as a serial cable with a Digi part number 76000239. It is also possible to look up the cable's pin out specifications and build your own cables.

This adapter is functionally and electronically equivalent to #EN27 and is functionally equivalent to the earlier #5289 Async adapters.



- Attributes provided: 2-Port Asynchronous EIA-232 via 2x RJ45 connectors, one RJ45-to-DB9 converter cable.
- Attributes required: 1 full high PCIe Slot
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - AIX - Not supported
  - IBM i 7.1 or later
  - IBM i 7.2 or later
  - IBM i 7.3 or later
  - Linux - Not supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPAA) - HVDC PDU - 90A 6xOutlet

(No longer available as of July 23, 2019)

Feature ships a high voltage dc (HVDC) Power Distribution Unit (PDU) with six customer-usable Rong Feng RF-203P outlets. Each outlet is rated at up to 10 amp and has its own circuit breaker. The PDU is most typically used for 380 volt configurations, but is rated for 240-380 volt. The PDU is rated for 90 amps. The PDU comes with a permanently attached 4.3 m (14 ft) line cord which is un-terminated (no plug) which must be directly wired into a HVDC power source.

The PDU can be either vertically mounted in rack side pockets or horizontally mounted. Using the feature #EBA5 mounting specify communicates to IBM manufacturing it should be horizontally mounted. If horizontally mounted, the PDU uses 1U rack space and makes accessing power cords much easier.

Use HVDC power cords ordered with the server or I/O drawer to plug into the PDU RF-203P outlets. See HVDC power cord features #EPAD or #EPAC.

If ordering this PDU with a 7014-T00 or 7014-T42 rack which is being shipped from IBM at the same time, see PDU feature #EPAF (HVDC PDU - 90A 6xOutlet Alternate Base).

Limitation:

- Not supported in North America
- IBM Manufacturing does not factory integrate AC and DC PDUs in the same rack
- Customers mixing AC and DC in the same rack must carefully follow power wiring guidelines
- Attributes provided: HVDC PDU
- Attributes required: HVDC power supplies and power cords on the server or I/O drawer
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#EPAC) - Auto Selected HVDC Power Cord

(No longer available as of May 31, 2019)

This feature ships a high voltage dc (HVDC) power cord which is 1.0M, 1.5M or 2.5M in length. The specific length will be selected by IBM Manufacturing when the system is being manufactured. Cord is connected to an HVDC PDU and to a HVDC power supply in a server or I/ O drawer. Cord has two Rong Feng RF-203P plugs, one at each end. Cord is 3 connector 1.3 mm2 gauge or 16 AWG and is rated for 10 amp and 192-400 volt dc Order one feature #EPAC for each HVDC power supply in the server or I/O drawer.

See feature #EPAD to specify a 2.5 meter (8 foot) HVDC cable and not have IBM Manufacturing select a length. There are no feature codes to specify a 1.0M or 1.5M cord.

- Attributes provided: HVDC power cord
- Attributes required: HVDC power supply
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: No

## (#EPAD) - 2.5 Meter HVDC Power Cord

(No longer available as of January 17, 2020)

2.5 meter (8 foot) high voltage dc (HVDC) power cord. Cord is connected to an HVDC PDU and to a HVDC power supply in a server or I/ O drawer. Cord has two Rong Feng RF-203P plugs, one at each end. Cord is 3 conductor, 1.3 mm2 gauge or 16 AWG and is rated for 10 amp and 192-400 volt dc For other length HVDC power cords, see feature #EPAC.

- Attributes provided: HVDC power cord
- Attributes required: HVDC power supply
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPH) - Horizontal PDU Mounting Hardware

This feature ships the hardware required to properly horizontally mount one #EPTG/EPTJ, #EPTK/EPTL, #EPTM/EPTN or #EPTP/EPTQ PDU in a 1U 19-inch rack. A 1U blank panel for the front of the rack for air-flow control is included.

Without this hardware, the PDU can be mounted vertically in the rack's side pockets, but can only be poorly mounted horizontally. The front end of the PDU will be firmly attached to the rear of the rack. But the front of the PDU will be unsupported toward the middle of the rack. Without this hardware, the unsupported end of the PDU will rest on the hardware mounted immediately below it. If that underlying hardware is removed from the rack there is no support for the PDU.

Important Note: This feature code is typically used for an MES order and not for an original order of a new rack with #EPTn PDUs. As part of factory integration, IBM Manufacturing automatically adds this hardware without a feature code and at no additional charge when its #EPTn PDU placement logic calls for horizontally mounted PDUs. Use this feature code when (1) converting an existing vertically mounted #EPTn PDU to horizontal mounting or (2) separately ordering a #EPTn PDU for horizontal field installation.

- Attributes provided: mounting hardware
- Attributes required: High Function PDU (#EPT\*) and space in 19-inch rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPTJ) - High Function 9xC19 PDU

(No longer available as of April 24, 2020)

Switched, Monitoring

This is an intelligent, switched 200-240 volt AC Power Distribution Unit (PDU) with nine C19 receptacles on the front of the PDU. The PDU is mounted on the rear of the rack making the nine C19 receptacles easily accessible. Each receptacle has a 20 amp circuit breaker. Depending on country wiring standards the PDU is single-phase or three-phase wye. See three-phase #EPTK/EPTL for countries which do not use wye wiring.

The PDU can be mounted vertically in rack side pockets or it can be mounted horizontally. If mounted horizontally, it uses 1 EIA (1U) of rack space. See feature #EPH for horizontal mounting hardware.

Device power cords with a C20 plug connect to C19 PDU receptacles and are ordered separately. One country-specific wall line cord is also ordered separately and attaches to a UTG524-7 connector on the front of the PDU. Supported line cords include features #6489, #6491, #6492, #6653, #6654, #6655, #6656, #6657, #6658, and #6667.

Two RJ45 ports on the front of the PDU enable the client to monitor each receptacle's electrical power usage and to remotely switch any receptacle on or off. The PDU is shipped with a generic PDU password and IBM strongly urges clients to change it upon installation.

There are also three C13 receptacles on the rear of the PDU positioned toward the middle of the rack. These are generally not easily accessed and therefore IBM does not generally recommend their use.

#EPTG and #EPTJ are identical PDUs. Up to one lower price #EPTG can be ordered with a new 7014-T42/T00 rack in place of a no-charge #9188 PDU.

For comparison, this is most similar to the earlier generation #7189 PDU

Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with a Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.

- Attributes provided: Nine C19 PDU - switched, power monitoring
- Attributes required: PDU wall line cord & space in 19-inch rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPTL) - High Function 9xC19 PDU 3-Phase

(No longer available as of April 24, 2020)

Switched, Monitoring

This is an intelligent, switched 208 volt 3-phase AC Power Distribution Unit (PDU) with nine C19 receptacles on the front of the PDU. The PDU is mounted on the rear of the rack making the nine C19 receptacles easily accessible. Each receptacle has a 20 amp circuit breaker.

The PDU can be mounted vertically in rack side pockets or it can be mounted horizontally. If mounted horizontally, it uses 1 EIA (1U) of rack space. See feature #EPH for horizontal mounting hardware.

Device power cords with a C20 plug connect to C19 PDU receptacles and are ordered separately. One wall line cord is provided with the PDU (no separate feature code) and has a IEC60309 60A plug (3P+G). The PDU supports up to 48 amps.

Two RJ45 ports on the front of the PDU enable the client to monitor each receptacle's electrical power usage and to remotely switch any receptacle on or off. The PDU is shipped with a generic PDU password and IBM strongly urges clients to change it upon installation.

There are also three C13 receptacles on the rear of the PDU positioned toward the middle of the rack. These are generally not easily accessed and therefore IBM does not generally recommend their use.

#EPTK and #EPTL are identical PDUs. Up to one lower price #EPTK can be ordered with a new 7014-T42/T00 rack in place of a no-charge #9188 PDU.

For comparison, this is most similar to the earlier generation #7196 PDU

Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with a Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.

- Attributes provided: Nine C19 PDU - switched, power monitoring
- Attributes required: space in rack, 3-phase 208V AC delta electrical service
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPTN) - High Function 12xC13 PDU

(No longer available as of April 24, 2020)

Switched, Monitoring

This is an intelligent, switched 200-240 volt AC Power Distribution Unit (PDU) with twelve C13 receptacles on the front of the PDU. The PDU is mounted on the rear of the rack making the twelve C13 receptacles easily accessible. Each receptacle has a 20 amp circuit breaker. Depending on country wiring standards the PDU is single-phase or three-phase wye. See three-phase #EPTK/EPTL for countries which do not use wye wiring.

The PDU can be mounted vertically in rack side pockets or it can be mounted horizontally. If mounted horizontally, it uses 1 EIA (1U) of rack space. See feature #EPTH for horizontal mounting hardware.

Device power cords with a C14 plug connect to C13 PDU receptacles and are ordered separately. One country-specific wall line cord is also ordered separately and attaches to a UTG524-7 connector on the front of the PDU. Supported line cords include features #6489, #6491, #6492, #6653, #6654, #6655, #6656, #6657, #6658, and #6667.

Two RJ45 ports on the front of the PDU enable the client to monitor each receptacle's electrical power usage and to remotely switch any receptacle on or off. The PDU is shipped with a generic PDU password and IBM strongly urges clients to change it upon installation.

#EPTM and #EPTN are identical PDUs. Up to one lower price #EPTM can be ordered with a new 7014-T42/T00 rack in place of a no-charge #9188 PDU.

For comparison, this is most similar to the earlier generation #7109 PDU

Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with a Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.

- Attributes provided: Twelve C13 PDU - switched, power monitoring
- Attributes required: PDU wall line cord & space in 19-inch rack
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPTQ) - High Function 12xC13 PDU 3-Phase

(No longer available as of April 24, 2020)

Switched, Monitoring

This is an intelligent, switched 208 volt 3-phase AC Power Distribution Unit (PDU) with twelve C13 receptacles on the front of the PDU. The PDU is mounted on the rear of the rack making the twelve C13 receptacles easily accessible. Each receptacle has a 20 amp circuit breaker.

The PDU can be mounted vertically in rack side pockets or it can be mounted horizontally. If mounted horizontally, it uses 1 EIA (1U) of rack space. See feature #EPTH for horizontal mounting hardware.

Device power cords with a C14 plug connect to C13 PDU receptacles and are ordered separately. One wall line cord is provided with the PDU (no separate feature code) and has a IEC60309 60A plug (3P+G). The PDU supports up to 48 amps.

Two RJ45 ports on the front of the PDU enable the client to monitor each receptacle's electrical power usage and to remotely switch any receptacle on or off. The PDU is shipped with a generic PDU password and IBM strongly urges clients to change it upon installation.

#EPTP and #EPTQ are identical PDUs. Up to one lower price #EPTP can be ordered with a new 7014-T42/T00 rack in place of a no-charge #9188 PDU.

For comparison, this is most similar to the earlier generation #7196 PDU, but offers C13 receptacles

Limitation: Some configurations of the Elastic Storage Server (ESS) are delivered with a Intelligent PDU. At this time, the intelligent management capabilities of this PDU are not configured or used by the ESS system. If the ESS Customer would like to use this capability, it is the Customers responsibility to configure this PDU. In any case the ethernet port on the Intelligent PDU must not be connected to the ESS Management switch.

- Attributes provided: Twelve C13 PDU - switched, power monitoring
- Attributes required: space in rack, 3-phase 208V AC delta electrical service
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPX0) - 6-core 3.02 GHz POWER8 Processor Card

6-core 3.026 GHz POWER8 processor card.

Limitation: Power S814 module can use either two 900W or two 1400W power supplies if in a rack config. If in a tower config, then two 900W power supplies are used.

- Attributes provided: 6-core processor card.
- Attributes required: One processor card slot.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: No
- Return parts MES: No

### (#EPX6) - 8-core 3.72 GHz POWER8 Processor Card

8-core 3.724 GHz POWER8 processor card. This processor card is only available with the rack configuration.

Limitations: Power S814 module is always located in a rack config and uses two 1400W power supplies.

- Attributes provided: 8-core processor card.
- Attributes required: One processor card slot.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: No
- Return parts MES: No

### (#EPXK) - 4-Core 3.02 GHz POWER8 Processor Card

4-core 3.02 GHz POWER8 processor card.

Limitation: Power S814 module can use either two 900W or two 1400W power supplies if in a rack config. If in a tower config, then two 900W power supplies are used.

- Attributes provided: 4-core processor card
  - Attributes required: One processor card slot
  - Minimum required: 0
  - Maximum allowed: 1 (Initial order maximum: 1)
  - OS level required:
    - Linux - supported
    - AIX 6.1 or later
    - AIX 7.1 or later
    - IBM i 7.1 with TR8, or later; 7.2, or later
    - IBM i 7.2 or Later
    - Red Hat Enterprise 6.5, or later
    - Red Hat Enterprise 7, or later
    - SUSE Linux Enterprise Server 11 Service Pack 3, or later
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: No
  - Return parts MES: No
- 
- Only One, two or four 16 GB 1600 MHz DDR3 DIMM are supported.
  - Attachment of an EXP24S storage drawer is not supported. Only the 10 SFF storage bays in the CEC are supported.

### (#EPY0) - One Processor Core Activation for #EPX0

Entitlement for one processor core activation

- Attributes provided: Processor core activation for #EPX0.
- Attributes required: Feature #EPX0.
- Minimum required: 0
- Maximum allowed: 6 (Initial order maximum: 6)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPY6) - One Processor Core activation for #EPX6

Entitlement for one processor core activation

- Attributes provided: Processor core activation for #EPX6.
- Attributes required: Feature #EPX6.
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPYK) - One Processor Core Activation for #EPXK

Entitlement for one processor core activation.

- Attributes provided: One Processor core activation for #EPXK
- Attributes required: Feature EPXK
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - Linux - supported
  - AIX - supported
  - IBM i 7.1 with TR8, or later; 7.2, or later
  - IBM i 7.2 or later
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

Feature #EPZ0 is not available in People's Republic of China, Hong Kong S.A.R. of the PRC, Marco S.A.R. of the PRC and Taiwan.

## (#EPZ0) - One Zero-Priced Processor Core Activation for #EPX0

Entitlement for one processor core activation

- Attributes provided: Zero priced processor core activation for #EPX0.
- Attributes required: Feature #EPX0 and #4927 IBM i Solution Edition
- Minimum required: 0
- Maximum allowed: 5 (Initial order maximum: 5)
- OS level required:
  - AIX - not supported
  - Linux - not supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

Feature #EPZ6 is not available in People's Republic of China, Hong Kong S.A.R. of the PRC, Marco S.A.R. of the PRC and Taiwan.

## (#EPZ6) - One Zero-Priced Processor Core Activation for #EPX6

Entitlement for one processor core activation

- Attributes provided: Zero priced processor core activation for #EPX6.
- Attributes required: Feature #EPX6 and #4927 IBM i Solution Edition
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EPZK) - One Zero-Priced Processor core Activation for #EPXK

Entitlement for one processor core activation

- Attributes provided: Zero priced processor core activation for #EPXK
- Attributes required: Feature EPXK and #4928 IBM i Solutions Edition
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - AIX - not supported
  - Linux - not supported
  - IBM i 7.1 or later
  - IBM i 7.2 or later
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

Note: Feature #EPZK is not available in People's Republic of China, Hong Kong S.A.R. of the PRC, Marco S.A.R. of the PRC and Taiwan.

## (#EQ02) Quantity 150 of #3452 SAS YO Cable 6m HD 6Gb Adapter to Enclosure

(No longer available as of December 31, 2020)

This feature provides 150 cables of feature 3452 which is a 6 meter SAS cable that connects a SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density)connector and two Mini SAS connectors. The Mini-SAS HD connector attaches to a SAS adapter such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5887/EL1S EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the SAS I/O drawer.

- Attributes provided: connection between SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors.
- Attributes required: Available connectors on SAS controller and SAS I/O drawer.
- Minimum required: 0
- Maximum allowed: 3 (Initial order maximum: 3)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EQ03) Quantity 150 of #3453 SAS YO Cable 10m - HD 6Gb Adapter to Enclosure

This feature provides 150 10 meter SAS cables that connects a SAS adapter to a SAS I/O enclosure. This YO cable has three connectors, one Mini-SAS HD (High Density)connector and two Mini SAS connectors. The Mini-SAS HD connector attaches to a SAS adapter such as the #5913 1.8GB RAID SAS Adapter. Both Mini SAS connectors attach to the same I/O drawer (enclosure) such as a #5887/EL1S EXP24S SAS I/O drawer. This cable can support up to 6Gb throughput.

Multiple cable length feature codes are available. Choose the cable length that best matches the distance between the adapter and the SAS I/O drawer.

- Attributes provided: connection between SAS adapter with Mini-SAS HD connectors and a SAS I/O drawer with Mini SAS connectors
- Attributes required: Available connectors on SAS controller and SAS I/O drawer
- Minimum required: 0
- Maximum allowed: 3 (Initial order maximum: 3)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EQ0C) - Quantity of 150 #ES0C

This feature ships a quantity of 150 #ES0C disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity of 150 #ES0C
- Attributes required: See Feature ES0C
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No

#### (#EQ0D) - Quantity of 150 #ES0D

This feature ships a quantity of 150 #ES0D disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity of 150 #ES0D
- Attributes required: See feature ES0D
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No

#### (#EQ0G) - Quantity 150 of #ES0G (775GB SSD SFF-2)

(No Longer Available as of August 31, 2017)

This feature ships a quantity of 150 #ES0G disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity of 150 #ES0G
- Attributes required: See Feature ES0G
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ0H) - Quantity 150 of #ES0H (775GB SSD SFF-2)

(No Longer Available as of August 31, 2017)

This feature ships a quantity of 150 #ES0H disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity of 150 #ES0H
- Attributes required: See feature ES0H
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ0Q) - Quantity 150 of #ES0Q 387GB SFF-2 4k SSD (AIX/Linux)

(No Longer Available as of August 31, 2017)

This feature ships a quantity 150 of #ES0Q SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity of 150 #ES0Q
- Attributes required: See #ES0Q
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - AIX - supported
  - Linux - supported
  - See feature ES0Q for OS level
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ0R) - Quantity 150 of #ES0R 387GB SFF-2 4k SSD (IBM i)

(No Longer Available as of August 31, 2017)

This feature ships a quantity 150 of #ES0R SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: Quantity of 150 #ES0R
- Attributes required: See #ES0R
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - Linux not supported
  - AIX not supported
  - IBM i 7.1 TR9 and 7.2 TR1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ0S) - Quantity 150 of #ES0S 775GB SFF-2 4k SSD (AIX/Linux)

(No Longer Available as of August 31, 2017)

This feature ships a quantity 150 of #ES0S SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: Quantity of 150 #ES0S
- Attributes required: See #ES0S
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - Linux supported
  - AIX 6.1 and 7.1 or later supported
  - IBM i not supported
  - Refer feature ES0S for O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ0T) - Quantity 150 of #ES0T 775GB SFF-2 4k SSD (IBM i)

(No Longer Available as of August 31, 2017)

This feature ships a quantity 150 of #ES0T SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: Quantity of 150 #ES0T
- Attributes required: See #ES0T
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - Linux not supported
  - AIX not supported
  - IBM i 7.1 TR9 and 7.2 TR1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ19) - Quantity 150 of #ES19 (387GB SSD SFF-2)

(No Longer Available as of August 31, 2017)

This feature ships a quantity of 150 #ES19 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records



- Attributes provided: Quantity of 150 #ES19
- Attributes required: See Feature ES19
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ1A) - Quantity 150 of #ES1A (387GB SSD SFF-2)

(No Longer Available as of August 31, 2017)

This feature ships a quantity of 150 #ES1A disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity of 150 #ES1A
- Attributes required: See feature ES1A
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ38) - Quantity 150 of #1738 (856GB SFF-2 disk)

(No Longer Available as of January 20, 2017)

This feature ships a quantity of 150 #1738 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: see feature #1738
- Attributes required: see feature #1738
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ52) - Quantity 150 of #1752 (900GB SFF-2 disk)

(No Longer Available as of January 20, 2017)

This feature ships a quantity of 150 #1752 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: see feature #1752
- Attributes required: see feature #1752
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ62) - Quantity 150 of #ES62 3.86-4.0 TB 7200 rpm 4k LFF-1 Disk

This feature ships a quantity of 150 #ES62 drives. The configurator may either generate this feature or allow users to select this feature as they would any other single drive feature. This feature remains on the inventory records.

- Attributes provided: 150 enterprise nearline drives
- Attributes required: 150 open LFF (3.5-inch) bays in EXP12SX Storage Enclosure
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ64) - Quantity 150 of #ES64 7.72-8.0 TB 7200 rpm 4k LFF-1 Disk

This feature ships a quantity of 150 #ES64 drives. The configurator may either generate this feature or allow users to select this feature as they would any other single drive feature. This feature remains on the inventory records.

- Attributes provided: 150 enterprise nearline drives
- Attributes required: 150 open LFF (3.5-inch) bays in EXP12SX Storage Enclosure
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ78) - Quantity 150 of #ES78 387GB SFF-2 SSD 5xx

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES78 solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES78
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES78
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ79) - Quantity 150 of #ES79 387GB SFF-2 SSD 5xx

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES79 solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES79
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES79
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ7E) - Quantity 150 of #ES7E 775GB SFF-2 SSD 5xx

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES7E solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES7E
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES7E
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ7F) - Quantity 150 of #ES7F 775GB SFF-2 SSD 5xx

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES7F solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES7F
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES7F
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ80) - Quantity 150 of #ES80 1.9TB SFF-2 SSD 4k

(No longer available as of January 23, 2018.)

This feature ships a quantity of 150 #ES80 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: see feature #ES80
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - See #ES80 for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ81) - Quantity 150 of ES81 1.9TB SFF-2 SSD 4k

(No longer available as of January 23, 2018.)

This feature ships a quantity of 150 #ES81 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: see feature #ES81
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - Refer to #ES81
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ85) - Quantity 150 of #ES85 387GB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES85 solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES85
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES85
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ86) - Quantity 150 of #ES86 387GB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES86 solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES86
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES86
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ8C) - Quantity 150 of #ES8C 775GB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES8C solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES8C
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES8C
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ8D) - Quantity 150 of #ES8D 775GB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES8D solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES8D
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES8D
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ8F) - Quantity 150 of #ES8F 1.55TB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES8F solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES8F
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES8F
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ8G) - Quantity 150 of #ES8G 1.55TB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES8G solid state drives (SSDs). The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: Ships 150 SSDs
- Attributes required: See feat #ES8G
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: Refer to feature #ES8G
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ8Y) - Quantity 150 of #ES8Y 931GB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES8Y SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ES8Y
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ES8Y
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ8Z) - Quantity 150 of ES8Z 931GB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES8Z SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ES8Z
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ES8Z
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ96) - Quantity 150 of ES96 1.86TB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES96 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ES96
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ES96
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQ97) - Quantity 150 of ES97 1.86TB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ES97 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ES97
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ES97
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQD2) - Quantity 150 of #ESD2 (1.1TB 10k SFF-2)

(No longer available as of April 24, 2020)

This feature ships a quantity of 150 #ESD2 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature #ESD2
- Attributes required: 150 SFF-2 SAS bays in EXP24S drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQD3) - Quantity 150 of #ESD3 (1.2TB 10k SFF-2)

This feature ships a quantity of 150 #ESD3 1.2TB SAS 10K SFF-2 disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESD3
- Attributes required: 150 SFF-2 SAS bays in EXP24S drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EQDN) - Quantity 150 of #ESDN (571GB 15K RPM SAS SFF-2 for IBM i)

(No longer available as of December 31, 2020)

This feature ships a quantity 150 of #ESDN drive. The configurator may either generate this feature or allow users to select this feature as they would any other single disk drive feature. This feature remains on the inventory records.

- Attributes provided: Quantity 150 of #ESDN
- Attributes required: See #ESDN
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - IBM i - supported refer to #ESDN
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EQDP) Quantity 150 of #ESDP (600GB 15K RPM SAS SFF-2 for AIX/LINUX)

(No longer available as of December 31, 2020)

This feature ships a quantity 150 of #ESDP drive. The configurator may either generate this feature or allow users to select this feature as they would any other single disk drive feature. This feature remains on the inventory records.

- Attributes provided: Quantity 150 of #ESDP
- Attributes required: See #ESDP
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EQE7) - Quantity 150 of #ESE7 3.72TB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ESE7 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESE7
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ESE7
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EQE8) - Quantity 150 of ESE8 3.72TB SFF-2 SSD 4k

(No longer available as of January 18, 2019)

This feature ships a quantity of 150 #ESE8 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESE8
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ESE8
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EQUEU) - Quantity 150 of #ESEU (571GB 10k SFF-2)

This feature ships a quantity of 150 #ESEU 571GB 10K RPM 4K SAS SFF-2, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESEU
- Attributes required: 150 SFF-2 SAS bays in EXP24S drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQEV) - Quantity 150 of #ESEV (600GB 10k SFF-2)

This feature ships a quantity of 150 #ESEV, 600GB 10K RPM 4K SAS SFF-2 Disk, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESEV
- Attributes required: 150 SFF-2 SAS bays in EXP24S drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - Red Hat Enterprise Linux 6.5, or later
  - Red Hat Enterprise Linux 7, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQEY) - Quantity 150 of #ESEY (283 GB SFF-2)

This feature ships a quantity 150 of #ESEY disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity 150 of #ESEY
- Attributes required: See #ESEY
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQEZ) - Quantity 150 of #ESEZ (300GB SFF-2)

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #ESEZ disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity of 150 #ESEZ
- Attributes required: See #ESEZ
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQF2) - Quantity 150 of #ESF2 (1.1TB 10k SFF-2)

This feature ships a quantity of 150 #ESF2 1.14TB 10K RPM 4K SAS SFF-2, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESF2
- Attributes required: 150 SFF-2 SAS bays in EXP24S drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQF3) - Quantity 150 of #ESF3 (1.2TB 10k SFF-2)

This feature ships a quantity of 150 #ESF3, 1.2TB 10K RPM 4K SAS SFF-2 Disk, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESF3
- Attributes required: 150 SFF-2 SAS bays in EXP24S drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - Red Hat Enterprise Linux 6.5, or later
  - Red Hat Enterprise Linux 7, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQFN) - Quantity 150 of #ESFN (571GB SFF-2)

(No longer available as of April 24, 2020)

This feature ships a quantity 150 of #ESFN disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity 150 of #ESFN
- Attributes required: See #ESFN
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQFP) - Quantity 150 of #ESFP (600GB SFF-2)

(No longer available as of April 24, 2020)

This feature ships a quantity 150 of #ESFP disk units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records

- Attributes provided: Quantity 150 of #ESFP
- Attributes required: See #ESFP
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQFS) - Quantity 150 of #ESFS (1.7TB 10k SFF-2)

This feature ships a quantity of 150 #ESFS 1.71TB 10K RPM 4K SAS SFF-2, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.



- Attributes provided: See feature#ESFS
- Attributes required: 150 SFF-2 SAS bays in EXP24S drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQFT) - Quantity 150 of #ESFT (1.8TB 10k SFF-2)

This feature ships a quantity of 150 #ESFT 1.8TB 10K RPM 4K SAS SFF-2, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESFT
- Attributes required: 150 SFF-2 SAS bays in EXP24S drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
  - Red Hat Enterprise Linux 6.5, or later
  - Red Hat Enterprise Linux 7, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQG5) - Quantity 150 of #ESG5 (387GB SAS 5xx)

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESG5 387 GB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESG5
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQG6) - Quantity 150 of #ESG6 (387GB SAS 5xx)

(No longer available as of April 24, 2020)

This feature ships a quantity of 150 #ESG6 387GB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESG6
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQGB) - Quantity 150 of #ESGB (387GB SAS 4k)

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESGB 387 GB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESGB
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQGC) - Quantity 150 of #ESGC (387GB SAS 4k)

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESGC 387 GB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESGC
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQGF) - Quantity 150 of #ESGF (775GB SAS 5xx)

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESGF 775 GB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESGF
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQGG) - Quantity 150 of #ESGG (775GB SAS 5xx)

(No longer available as of April 24, 2020)

This feature ships a quantity of 150 #ESGG 775 GB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESGG
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQGK) - Quantity 150 of #ESGK (775GB SAS 4k)

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESGK 775 GB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESGK
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EQGL) - Quantity 150 of #ESGL (775GB SAS 4k)

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESGL 775 GB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESGL
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQGP) - Quantity 150 of #ESGP (1.55TB SAS 4k)

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESGP 1.55 TB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESGP
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EQGQ) - Quantity 150 of #ESGQ (1.55TB SAS 4k)

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESGQ 1.55 TB, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

- Attributes provided: See feature#ESGQ
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ER05) - 42U Slim Rack

(No longer available as of January 17, 2020)

Provides a 19-inch, 2.0 meter high rack with 42 EIA units of total space for installing rack mounted CECs and/or expansion units. The 600mm wide rack fits within a data center's 24" floor tiles and provides better thermal and cable management capabilities. The ER05 rack does not come equipped with a standard front door, rear door or side covers. The following features are required on the #ER05:

- #EC01 front door
- #EC02 rear door or #EC15 Rear Door Heat Exchanger (RDHX) indicator

The following optional features are offered on the ER05 rack.

- EC03 - Rack Side Cover Kit. Note: If EC15 (rear door heat exchanger) is ordered with ER05 then EC03 is required.
- EC04 - Rack Suite attachment Kit

Power Distribution Units (PDU) on the rack are optional. Each PDU consumes one of six vertical mounting bays and every vertically mounted PDU requires #ELC0. Each PDU beyond six will consume 1U of rack space.

- Attributes provided: 19 inch, 2.0M, 42 EIA Rack
- Attributes required: #EC01 front door, #EC02 rear door or #EC05 #EC15 RDHX indicator
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ER94) - Quantity 150 of ES94 387GB SAS 4k

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #ES94 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ES94
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ES94
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ER95) - Quantity 150 of ES95 387GB SAS 4k

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #ES95 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ES95
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ES95
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ERF1) RFID Tags for Servers, Compute Nodes, Chassis, Racks, and HMCs

(No longer available as of May 31, 2019)

The specify feature attaches one Radio Frequency Identification Device (RFID) tag to a Server CEC, rack, HMC, compute node, or chassis enclosure. This can be used with MTM (machine type model) rack such as a 7953-94X or 7014-T42, not a feature code rack such as a #0553. It applies to newly shipped MTM servers, racks, HMCs, compute nodes, and chassis enclosures, not MES orders with one exception. POWER5 CECs being upgraded to a POWER6 CEC or POWER6 CECs being upgraded to a POWER7 CEC can order this feature. The RFID tag meets the Financial Services Technology Consortium (FSTC) specifications for IT Data Center Asset Tracking.

- Attributes provided: RFIDs
- Attributes required: Server CEC, Compute Node, Chassis, MTM Rack, or HMC
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

## (#ERG0) - Rear rack extension

Extends the rear of a 2.0M enterprise rack (#0553) eight inches or 20.3 cm. The extra depth provides extra space for cable management helping to keep the center of the rack more open for airflow and access to the rear of the equipment mounted in the rack. This rear extension does not increase or decrease the rack's 42 EIA (42U) vertical size. The extension does increase the floor footprint.

- Attributes provided: Adds eight inches or 20.3 cm to the rear of a 2.0M rack.
- Attributes required: 42U 2m enterprise rack such as #0553
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ERGV) - Quantity 150 of ESGV 387GB SSD 4k

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #ESGV SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESGV
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESGV
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ERGZ) - Quantity 150 of ESGZ 775GB SSD 4k

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #ESGZ SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESGZ
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESGZ
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ERHJ) - Quantity 150 of #ESHJ 931 GB SSD 4k SFF-2

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESHJ SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESHJ
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: See feature ESHJ
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ERHK) - Quantity 150 of #ESHK 931 GB SSD 4k SFF-2

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESHK SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESHK
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ESHK
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ERHL) - Quantity 150 of #ESHL 1.86 TB SSD 4k SFF-2

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESHL SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESHL
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: See feature ESHL
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ERHM) - Quantity 150 of #ESHM 1.86 TB SSD 4k SFF-2

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESHM SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESHM
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ESHM
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ERJ0) - Quantity 150 of ESJ0 931GB SAS 4k

This feature ships a quantity of 150 #ESJ0 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESJ0
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESJ0
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ERJ1) - Quantity 150 of ESJ1 931GB SAS 4k

This feature ships a quantity of 150 #ESJ1 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESJ1
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESJ1
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ERJ2) - Quantity 150 of ESJ2 1.86TB SAS 4k

This feature ships a quantity of 150 #ESJ2 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESJ2
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESJ2
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ERJ3) - Quantity 150 of ESJ3 1.86TB SAS 4k

This feature ships a quantity of 150 #ESJ3 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESJ3
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESJ3
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ERJ4) - Quantity 150 of ESJ4 3.72TB SAS 4k

This feature ships a quantity of 150 #ESJ4 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESJ4
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESJ4
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ERJ5) - Quantity 150 of ESJ5 3.72TB SAS 4k

This feature ships a quantity of 150 #ESJ5 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESJ5
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESJ5
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESL9) - ESB9 Load Source Specify (387GB SSD SFF-3)

This specify code indicates that a #ESB9 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESB9
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESB9
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESLB) - ESBB Load Source Specify (387GB SSD SFF-2)

This specify code indicates that a #ESBB Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESBB
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESBB
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESLF) - ESBF Load Source Specify (775GB SSD SFF-3)

This specify code indicates that a #ESBF Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESBF
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESBF
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESLH) - ESBH Load Source Specify (775GB SSD SFF-2)

This specify code indicates that a #ESBH Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESBH
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESBH
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESLK) - ESBK Load Source Specify (1.55TB SSD SFF-3)

This specify code indicates that a #ESBK Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESBK
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESBK
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESLM) - ESBM Load Source Specify (1.55TB SSD SFF-2)

This specify code indicates that a #ESBM Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESBM
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature ESBM
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ERM8) - Quantity 150 of #ESM8 3.72 TB SSD 4k SFF-2

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESM8 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESM8
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ESM8
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ERM9) - Quantity 150 of #ESM9 3.72 TB SSD 4k SFF-2

(No longer available as of August 30, 2019)

This feature ships a quantity of 150 #ESM9 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESM9
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: see feature ESM9
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ERNA) - Quantity 150 of ESNA 775GB SSD 4k

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #ESNA SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESNA
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESNA
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ERNB) - Quantity 150 of ESNB 775GB SSD 4k

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #ESNB SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESNB
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESNB
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ERNE) - Quantity 150 of ESNE 1.55TB SSD 4k

(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #ESNE SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESNE
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESNE
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ERNF) - Quantity 150 of ESNF 1.55TB SSD 4k



(No longer available as of December 31, 2020)

This feature ships a quantity of 150 #ESNF SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESNF
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESNF
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ES0C) - 387GB SFF-2 SSD for AIX/Linux with eMLC

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. The drive is supported in SFF-2 SAS bays in the #5887 I/O drawer. CCIN is 58B9..

ES0C and ES0D are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES0C indicates usage by AIX, Linux or VIOS. ES0D indicates usage by IBM i.

Limitation: Cannot be used in #5802/#5803 I/O drawers or in system unit SFF SAS bays due to physical difference in Gen1 and Gen2 carriers. Also drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 387GB SFF-2 SSD formatted with 528 byte formatting
- Attributes required: One SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 168 (Initial order maximum: 0)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No

#### (#ES0D) - 387GB SFF-2 SSD for IBM i with eMLC

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. The drive is supported in SFF-2 SAS bays in the #5887 I/O drawer. CCIN is 58B9.

ES0C and ES0D are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES0C indicates usage by AIX, Linux or VIOS. ES0D indicates usage by IBM i.

Limitation: Cannot be used in #5802/#5803 I/O drawers or in system unit SFF SAS bays due to physical difference in Gen1 and Gen2 carriers. Also drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 387GB SFF-2 SSD formatted with 528 byte formatting
- Attributes required: One SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 168 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No

#### (#ES0G) - 775GB SFF-2 SSD for AIX/Linux

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. The drive is supported in SFF-2 SAS bays in the #5887 I/O drawer. CCIN is TBD.

ES0G and ES0H are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES0G indicates usage by AIX, Linux or VIOS. ES0H indicates usage by IBM i.

Limitation: Cannot be used in #5802/#5803 I/O drawers or in system unit SFF-1 SAS bays due to physical difference in Gen1 and Gen2 carriers. Also drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 775GB SFF-2 SSD formatted with 528 byte sectors
- Attributes required: One SFF-2 SAS bay in EXP24S drawer
- Minimum required: 0
- Maximum allowed: 168 (Initial order maximum: 168)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0H) - 775GB SFF-2 SSD for IBM i

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. The drive is supported in SFF-2 SAS bays in the #5887 I/O drawer. CCIN is TBD.

ES0G and ES0H are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES0G indicates usage by AIX, Linux or VIOS. ES0H indicates usage by IBM i.

Limitation: Cannot be used in #5802/#5803 I/O drawers or in system unit SFF-1 SAS bays due to physical difference in Gen1 and Gen2 carriers. Also drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 775GB SFF-2 SSD formatted with 528 byte sectors
- Attributes required: One SFF-2 SAS bay in EXP24S drawer
- Minimum required: 0
- Maximum allowed: 168 (Initial order maximum: 168)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0L) - 387GB SFF-3 SSD for AIX/Linux

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. Enterprise Multi-Level Cell (eMLC) flash memory technology is used to provide extremely reliable, cost effective SSD storage. The drive is supported in SFF Gen3 SAS bays (SFF-3) in the POWER8 system unit. CCIN is 59E6.

ES0L and ES0M are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES0L indicates usage by AIX, Linux or VIOS. #ES0M indicates usage by IBM i.

Limitation: Cannot be used in #5887 EXP24S Gen2 I/O drawer due to physical difference in the tray/carrier. 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 387 GB SSD in a SFF Gen3 carrier
- Attributes required: One SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0M) - 387GB SFF-3 SSD for IBM i

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. Enterprise Multi-Level Cell (eMLC) flash memory technology is used to provide extremely reliable, cost effective SSD storage. The drive is supported in SFF Gen3 SAS bays (SFF-3) in the POWER8 system unit. CCIN is 59E6.

ES0L and ES0M are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES0L indicates usage by AIX, Linux or VIOS. #ES0M indicates usage by IBM i.

Limitation: Cannot be used in #5887 EXP24S Gen2 I/O drawer due to physical difference in the tray/carrier. 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 387 GB SSD in a SFF Gen3 carrier
- Attributes required: One SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0N) - 775GB SFF-3 SSD for AIX/Linux

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 528 byte sectors. Enterprise Multi-Level Cell (eMLC) flash memory technology is used to provide extremely reliable, cost effective SSD storage. The drive is supported in SFF Gen3 SAS bays (SFF-3) in the POWER8 system unit. CCIN is 59EA.

#ES0N and #ES0P are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES0N indicates usage by AIX, Linux or VIOS. #ES0P indicates usage by IBM i.

Limitation: Cannot be used in #5887 EXP24S Gen2 I/O drawer due to physical difference in the tray/carrier. 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 387 GB SSD in a SFF Gen3 carrier
- Attributes required: One SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0P) - 775GB SFF-3 SSD for IBM i

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 528 byte sectors. Enterprise Multi-Level Cell (eMLC) flash memory technology is used to provide extremely reliable, cost effective SSD storage. The drive is supported in SFF Gen3 SAS bays (SFF-3) in the POWER8 system unit. CCIN is 59EA.

#ES0N and #ES0P are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES0N indicates usage by AIX, Linux or VIOS. #ES0P indicates usage by IBM i.

Limitation: Cannot be used in #5887 EXP24S Gen2 I/O drawer due to physical difference in the tray/carrier. 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 387 GB SSD in a SFF Gen3 carrier
- Attributes required: One SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0Q) - 387GB SFF-2 4K SSD for AIX/Linux

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 3875GB capacity formatted with 4K byte sectors (4224 bytes). The drive is supported in Gen2 SAS bays (SFF-2) provided in an EXP24S drawer (#5887).

#ES0Q (for AIX/Linux/VIOS) and #ES0R (for IBM i) are identical and have the same CCINI, but have different feature numbers to help IBM configuration tools understand their planned usage.

Limitations: This drive can not be placed in the same array with a drive formatted with 528 byte sectors. Also JBOD mode (4096 byte sectors) is not supported.

- Attributes provided: 4K byte formatted 387GB SFF Gen2 SSD eMLC
- Attributes required: Available GEN2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Linux supported
  - AIX 6.1 and 7.1 or later supported
  - IBM i not supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0R) - 387GB SFF-2 4k SSD for IBM i

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 3875GB capacity formatted with 4K byte sectors (4224 bytes). The drive is supported in Gen2 SAS bays (SFF-2) provided in an EXP24S drawer (#5887).

#ES0Q (for AIX/Linux/VIOS) and #ES0R (for IBM i) are identical and have the same CCIN, but have different feature numbers to help IBM configuration tools understand their planned usage.

Limitations: This drive can not be placed in the same array with a drive formatted with 528 byte sectors. Also JBOD mode (4096 byte sectors) is not supported.

- Attributes provided: 4K byte formatted 387GB SFF Gen2 SSD eMLC
- Attributes required: One GEN2 SFF SAS disk drive bay slot
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Linux not supported
  - AIX not supported
  - IBM i 7.1 TR9 and 7.2 TR1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0S) - 775GB SFF-2 4k SSD for AIX/Linux

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 7755GB capacity formatted with 4K byte sectors (4224 bytes). The drive is supported in Gen2 SAS bays (SFF-2) provided in an EXP24S drawer (#5887).

#ES0S (for AIX/Linux/VIOS) and #ES0T (for IBM i) are identical and have the same CCIN, but have different feature numbers to help IBM configuration tools understand their planned usage.

Limitations: This drive can not be placed in the same array with a drive formatted with 528 byte sectors. Also JBOD mode (4096 byte sectors) is not supported.

- Attributes provided: 4K byte formatted 775GB SFF Gen2 SSD eMLC
- Attributes required: Available SFF GEN2 bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Linux supported
  - AIX 6.1 and 7.1 or later supported
  - IBM i not supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0T) - 775GB SFF-2 4k SSD for IBM i

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 7755GB capacity formatted with 4K byte sectors (4224 bytes). The drive is supported in Gen2 SAS bays (SFF-2) provided in an EXP24S drawer (#5887).

#ES0S (for AIX/Linux/VIOS) and #ES0T (for IBM i) are identical and have the same CCIN, but have different feature numbers to help IBM configuration tools understand their planned usage.

Limitations: This drive can not be placed in the same array with a drive formatted with 528 byte sectors. Also JBOD mode (4096 byte sectors) is not supported.

- Attributes provided: 4K byte formatted 775GB SFF Gen2 SSD eMLC
- Attributes required: One GEN2 SFF SAS disk drive bay slot
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Linux not supported
  - AIX not supported
  - IBM i 7.1 TR9 and 7.2 TR1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ES0U) - 387GB SFF-3 4k SSD AIX/Linux

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387GB capacity formatted with 4K byte sectors (4224 bytes). The drive is supported in Gen3 SAS bays (SFF-3) provided in a POWER8 system unit.

#ES0U (for AIX/Linux/VIOS) and #ES0V (for IBM i) are identical and have the same CCIN, but have different feature numbers to help IBM configuration tools understand their planned usage.

Limitations: This drive can not be placed in the same array with a drive formatted with 528 byte sectors. Also JBOD mode (4096 byte sectors) is not supported.

- Attributes provided: 4K byte formatted 387GB SFF Gen3 SSD eMLC
- Attributes required: Available SAS Gen3 bay in POWER8 system unit
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ES0V) - 387GB SFF-3 4k SSD for IBM i

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387GB capacity formatted with 4K byte sectors (4224 bytes). The drive is supported in Gen3 SAS bays (SFF-3) provided in a POWER8 system unit.

#ES0U (for AIX/Linux/VIOS) and #ES0V (for IBM i) are identical and have the same CCIN, but have different feature numbers to help IBM configuration tools understand their planned usage.

Limitations: This drive can not be placed in the same array with a drive formatted with 528 byte sectors. Also JBOD mode (4096 byte sectors) is not supported.

- Attributes provided: 4K byte formatted 387GB SFF Gen3 SSD eMLC
- Attributes required: Available SAS Gen3 bay in POWER8 system unit
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR9 and 7.2 TR1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ES0W) - 775GB SFF-3 4k SSD for AIX/Linux

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775GB capacity formatted with 4K byte sectors (4224 bytes). The drive is supported in Gen3 SAS bays (SFF-3) provided in a POWER8 system unit.

#ES0W (for AIX/Linux/VIOS) and #ES0X (for IBM i) are identical and have the same CCIN, but have different feature numbers to help IBM configuration tools understand their planned usage.

Limitations: This drive can not be placed in the same array with a drive formatted with 528 byte sectors. Also JBOD mode (4096 byte sectors) is not supported.

- Attributes provided: 4K byte formatted 775GB SFF Gen3 SSD eMLC
- Attributes required: Available SAS Gen3 bay in POWER8 system unit
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Linux supported
  - AIX 6.1 and 7.1 or later supported
  - IBM i not supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES0X) - 775GB SFF-3 4k SSD for IBM i

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775GB capacity formatted with 4K byte sectors (4224 bytes). The drive is supported in Gen3 SAS bays (SFF-3) provided in a POWER8 system unit.

#ES0W (for AIX/Linux/VIOS) and #ES0X (for IBM i) are identical and have the same CCIN, but have different feature numbers to help IBM configuration tools understand their planned usage.

Limitations: This drive can not be placed in the same array with a drive formatted with 528 byte sectors. Also JBOD mode (4096 byte sectors) is not supported.

- Attributes provided: 4K byte formatted 775GB SFF Gen3 SSD eMLC
- Attributes required: Available SAS Gen3 bay in POWER8 system unit
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR9
  - IBM i 7.2 TR1 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES19) - 387GB SFF-2 SSD for AIX/Linux

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. The drive is supported in SFF-2 SAS bays in the #5887 EXP24S I/O drawer. CCIN is 58B9.

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. The drive is supported in SFF SAS bays in the #5802/#5803/#EL36 I/O drawers or in system unit SFF-1 SAS bays. CCIN is 58B8.

#ES19 and #ES1A are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES19 indicates usage by AIX, Linux or VIOS. #ES1A indicates usage by IBM i.

#ES19/ES1A and the earlier ES0C/ES0D are all 387GB SSD and can be mixed in the same array.

Limitation: Cannot be used in #5802/5803/EL36 I/O drawers or in a system unit SFF-1 SAS bay due to physical difference in Gen1 and Gen2 carriers. Also drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 387GB SFF-2 SSD formatted with 528 byte sectors
- Attributes required: One SFF-2 SAS bay in EXP24S drawer
- Minimum required: 0
- Maximum allowed: 168 (Initial order maximum: 168)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES1A) - 387GB SFF-2 SSD for IBM i

(No Longer Available as of August 31, 2017)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. The drive is supported in SFF-2 SAS bays in the #5887 EXP24S I/O drawer. CCIN is 58B9.

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 528 byte sectors. The drive is supported in SFF SAS bays in the #5802/#5803/#EL36 I/O drawers or in system unit SFF-1 SAS bays. CCIN is 58B8.

#ES19 and #ES1A are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES19 indicates usage by AIX, Linux or VIOS. #ES1A indicates usage by IBM i.

#ES19/ES1A and the earlier ES0C/ES0D are all 387GB SSD and can be mixed in the same array.

Limitation: Cannot be used in #5802/5803/EL36 I/O drawers or in a system unit SFF-1 SAS bay due to physical difference in Gen1 and Gen2 carriers. Also drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported

- Attributes provided: 387GB SFF-2 SSD formatted with 528 byte sectors
- Attributes required: One SFF-2 SAS bay in EXP24S drawer
- Minimum required: 0
- Maximum allowed: 168 (Initial order maximum: 168)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES62) - 3.86-4.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)

3.86 TB 3.5-inch (Large Form Factor (LFF)) 7200 rpm SAS disk drive on Gen-1 carrier/tray. Supported in LFF-1 SAS bays such as found in EXP12SX Storage Enclosure. CCIN is 5B1D.

IBM Manufacturing ships the drive formatted with 4224 byte sectors for additional data integrity protection which results in 3.86 TB capacity. The drive can be reformatted to 4096 byte sectors by the client which results in 4 TB capacity, but with less protection. NOTE: Reformatting large, 7200 rpm drives takes very significant time.

Limitation: Can not be in the same array as a 10k or 15k rpm drive

- Attributes provided: One enterprise nearline drive.
- Attributes required: One LFF (3.5-inch) bay in EXP12SX Storage Enclosure
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i not supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES64) - 7.72-8.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)

7.72 TB 3.5-inch (Large Form Factor (LFF)) 7200 rpm SAS disk drive on Gen-1 carrier/tray. Supported in LFF-1 SAS bays such as found in EXP12SX Storage Enclosure. CCIN is 5B1F.

IBM Manufacturing ships the drive formatted with 4224 byte sectors for additional data integrity protection which results in 7.72 TB capacity. The drive can be reformatted to 4096 byte sectors by the client which results in 8 TB capacity, but with less protection. NOTE: Reformatting large, 7200 rpm drives takes very significant time.

Limitation: Can not be in the same array as a 10k or 15k rpm drive.

- Attributes provided: One enterprise nearline drive.
- Attributes required: One LFF (3.5-inch) bay in EXP12SX Storage Enclosure
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i not supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES78) - 387GB SFF-2 SSD 5xx eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays. CCIN is 5B16

ES78 and ES79 are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES78 indicates usage by AIX, Linux or VIOS. ES79 indicates usage by IBM i.

Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in #5887 EXP24S or #ESLS EXP24SX drawers (SFF-2). It does not fit in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) or POWER8 system units (SFF-3) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).

- Attributes provided: one 387GB SFF-2 5xx SSD.
- Attributes required: one SFF-2 SAS bay.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX supported
 Linux OS levels (native or supported under PowerVM):
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Ubuntu Server
 Bare Metal and PowerKVM environments not supported on server

- Refer to Software Requirements for specific O/S levels supported

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES79) - 387GB SFF-2 SSD 5xx eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays. CCIN is 5B16

- ES78 and ES79 are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES78 indicates usage by AIX, Linux or VIOS. ES79 indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in #5887/#EL1S EXP24S drawers (SFF-2). It does not fit in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) or POWER8 system units (SFF-3) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).
- Attributes provided: one 387GB SFF-2 5xx SSD
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR11 or later
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES7E) - 775GB SFF-2 SSD 5xx eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays. CCIN is 5B17

ES7E and ES7F are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES7E indicates usage by AIX, Linux or VIOS. ES7F indicates usage by IBM i.

Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in #5887 EXP24S or #ESLS EXP24SX drawers (SFF-2). It does not fit in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) or POWER8 system units (SFF-3) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).

- Attributes provided: one 775GB SFF-2 5xx SSD.
- Attributes required: one SFF-2 SAS bay.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX supported
 Linux OS levels (native or supported under PowerVM):
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Ubuntu Server
 Bare Metal and PowerKVM environments not supported on server
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES7F) - 775GB SFF-2 SSD 5xx eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays. CCIN is 5B17

- ES7E and ES7F are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES7E indicates usage by AIX, Linux or VIOS. ES7F indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in #5887/#EL1S EXP24S drawers (SFF-2). It does not fit in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) or POWER8 system units (SFF-3) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).



- Attributes provided: one 775GB SFF-2 5xx SSD
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR11 or later
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES7K) - 387GB SFF-3 SSD 5xx eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. CCIN is 5B19

- ES7K and ES7L are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES7K indicates usage by AIX, Linux or VIOS. ES7L indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).
- Attributes provided: one 387GB SFF-3 5xx SSD
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX supported
 Linux OS levels (native or supported under PowerVM):
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Ubuntu Server
 Bare Metal and PowerKVM environments not supported on server
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES7L) - 387GB SFF-3 SSD 5xx eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. CCIN is 5B19

- ES7K and ES7L are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES7K indicates usage by AIX, Linux or VIOS. ES7L indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).
- Attributes provided: one 387GB SFF-3 5xx SSD
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR11 or later
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES7P) - 775GB SFF-3 SSD 5xx eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. CCIN is 5B1A

- ES7P and ES7Q are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES7P indicates usage by AIX, Linux or VIOS. ES7Q indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).

- Attributes provided: one 775GB SFF-3 5xx SSD
  - Attributes required: one SFF-3 SAS bay
  - Minimum required: 0
  - Maximum allowed: 18 (Initial order maximum: 18)
  - OS level required:
    - AIX supported
- Linux OS levels (native or supported under PowerVM):

- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- Ubuntu Server

Bare Metal and PowerKVM environments not supported on server

- Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES7Q) - 775GB SFF-3 SSD 5xx eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. CCIN is 5B1A

- ES7P and ES7Q are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES7P indicates usage by AIX, Linux or VIOS. ES7Q indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).
- Attributes provided: one 775GB SFF-3 5xx SSD
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR11 or later
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES80) - 1.9TB Read Intensive SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of January 23, 2018.)

1.9 TB SAS 2.5-inch (SFF) read intensive solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24S. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors. CCIN is 5B21. Actual capacity is 1.86 TB but is rounded up for convenience.

Drive is designed for read intensive workloads with light write activity. Approximately 3,394 TB of data can be written over the life of the drive, but depending on the nature of the workload may be somewhat larger. After the warranty period, if the maximum write capability is achieved, the drive's replacement is not covered under IBM maintenance.

#ES80 and #ES81 are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES80 indicates usage by AIX, Linux or VIOS. #ES81 indicates usage by IBM i.

Limitations: The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.

- Attributes provided: 1.9 TB Read Intensive SSD
- Attributes required: Open SFF-2 SAS bay in an EXP24S controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2
  - AIX version 7.1 with the 7100-03 Technology Level and Service Pack 7 (planned availability September 8, 2016)
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7
  - Red Hat Enterprise Linux 7.2, little endian, or later
  - Red Hat Enterprise Linux 7.2, big endian, or later
  - SUSE Enterprise Linux 11, Service Pack 4, or later
  - SUSE Enterprise Linux 12, Service Pack 1, or later
  - Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the IBM Power Tool Repository:  
<http://www14.software.ibm.com/support/customer/care/sa/sf/lopdiags/home.html>

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: AIX - Assignment to the VIOS requires VIOS 2.2.4.2 or later.

## (#ES81) - 1.9TB Read Intensive SAS 4k SFF-2 SSD for IBM i

(No longer available as of January 23, 2018.)

1.9 TB SAS 2.5-inch (SFF) read intensive solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24S. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors. CCIN is 5B21. Actual capacity is 1.86 TB but is rounded up for convenience.

Drive is designed for read intensive workloads with light write activity. Approximately 3,394 TB of data can be written over the life of the drive, but depending on the nature of the workload may be somewhat larger. After the warranty period, if the maximum write capability is achieved, the drive's replacement is not covered under IBM maintenance.

#ES80 and #ES81 are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES80 indicates usage by AIX, Linux or VIOS. #ES81 indicates usage by IBM i.

Limitations: The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.

- Attributes provided: 1.9 TB Read Intensive SSD
- Attributes required: Open SFF-2 SAS bay in an EXP24S controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.3 or later
  - IBM i 7.2 TR4 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES83) - 931GB Mainstream SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of January 18, 2019)

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes Written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ES83 and #ES84 are physically identical drives with the same 5B28 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ES83 indicates usage by AIX, Linux or VIOS. #ES84 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitations:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70, or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the IBM Power Tool Repository:  
<http://www14.software.ibm.com/support/customer/sa/sf/lopdiags/home.html>

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES84) - 931GB Mainstream SAS 4k SFF-3 SSD for IBM i

(No longer available as of January 18, 2019)

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes Written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ES83 and #ES84 are physically identical drives with the same 5B28 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ES83 indicates usage by AIX, Linux or VIOS. #ES84 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitations:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES85) - 387GB SFF-2 SSD 4k eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays.

CCIN is 5B10.

ES85 and ES86 are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES85 indicates usage by AIX, Linux or VIOS. ES86 indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in #5887/#EL1S EXP24S drawers (SFF-2)
- It does not fit in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) or POWER8 system units (SFF-3) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array.
- 4k drives cannot be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level Service Pack 3, or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 or later
  - AIX Version 7.1 with the 7100-04 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level or later

Linux OS levels (native or supported under PowerVM):

- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- Ubuntu Server

Bare Metal and PowerKVM environments not supported on server

- Refer to Software Requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: attachment to the VIOS requires VIOS 2.2.3.3 or later, VIOS 2.2.4.0 or later

## (#ES86) - 387GB SFF-2 SSD 4k eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays. CCIN is 5B10

- ES85 and ES86 are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES85 indicates usage by AIX, Linux or VIOS. ES86 indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in #5887/#EL1S EXP24S drawers (SFF-2). It does not fit in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) or POWER8 system units (SFF-3) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).
- Attributes provided: one 387GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR11 or later
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES8C) - 775GB SFF-2 SSD 4k eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays.

CCIN is 5B11.

ES8C and ES8D are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8C indicates usage by AIX, Linux or VIOS. ES8D indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in #5887/#EL1S EXP24S drawers (SFF-2). It does not fit in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) or POWER8 system units (SFF-3) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives cannot be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level Service Pack 3, or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 or later
  - AIX Version 7.1 with the 7100-04 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level or later

Linux OS levels (native or supported under PowerVM):

- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- Ubuntu Server

Bare Metal and PowerKVM environments not supported on server

- Refer to Software Requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Attachment to the VIOS requires VIOS 2.2.3.3 or later, VIOS 2.2.4.0 or later

## (#ES8D) - 775GB SFF-2 SSD 4k eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays. CCIN is 5B11

- ES8C and ES8D are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8C indicates usage by AIX, Linux or VIOS. ES8D indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in #5887/#EL1S EXP24S drawers (SFF-2). It does not fit in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) or POWER8 system units (SFF-3) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).
- Attributes provided: one 775GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR11 or later
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES8F) - 1.55TB SFF-2 SSD 4k eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 1.55TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) I/O drawer.

CCIN is 5B12.

ES8G and ES8F are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8F indicates usage by AIX, Linux or VIOS. ES8G indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in the EXP24S drawers (SFF-2 SAS bays). It cannot be used in POWER8 system units (SFF-3) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported.
- 4k drives cannot be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55TB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level Service Pack 3, or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 or later
  - AIX Version 7.1 with the 7100-04 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level or later

Linux OS levels (native or supported under PowerVM):

- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- Ubuntu Server

Bare Metal and PowerKVM environments not supported on server

- Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

Note: Attachment to the VIOS requires VIOS 2.2.3.3 or later, VIOS 2.2.4.0 or later

## (#ES8G) - 1.55TB SFF-2 SSD 4k eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) I/O drawer. CCIN is 5B12

- ES8G and ES8F are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8F indicates usage by AIX, Linux or VIOS. ES8G indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in the EXP24S drawer (SFF-2 SAS bays). It cannot be used in POWER8 system units (SFF-3) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

- Attributes provided: one 1.55TB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES8J) - 1.9TB Read Intensive SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of January 23, 2018.)

1.9 TB SAS 2.5-inch (SFF) read intensive solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray to fit in a POWER8 system unit. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors. CCIN is 5B20. Actual capacity is 1.86 TB but is rounded up for convenience.

Drive is designed for read intensive workloads with light write activity. Approximately 3,394 TB of data can be written over the life of the drive, but depending on the nature of the workload may be somewhat larger. After the warranty period, if the maximum write capability is achieved, the drive's replacement is not covered under IBM maintenance.

#ES8J and #ES8K are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES8J indicates usage by AIX, Linux or VIOS. #ES8K indicates usage by IBM i.

Limitations: The drive is mounted on a SFF-3 carrier/tray and does not physically fit into an expansion unit such as the EXP24S's SFF-2 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array.

- Attributes provided: 1.9 TB Read Intensive SSD
- Attributes required: Open SFF-3 SAS bay in a POWER8 system unit and controlled by the internal SAS control unit.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2
  - AIX version 7.1 with the 7100-03 Technology Level and Service Pack 7 (planned availability September 8, 2016)
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7
  - Red Hat Enterprise Linux 7.2, little endian, or later
  - Red Hat Enterprise Linux 7.2, big endian, or later
  - SUSE Enterprise Linux 11, Service Pack 4, or later
  - SUSE Enterprise Linux 12, Service Pack 1, or later
  - Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the IBM Power Tool Repository:  
[http://www14.software.ibm.com/support/customercare/sa\\_s/f/lopdiags/home.html](http://www14.software.ibm.com/support/customercare/sa_s/f/lopdiags/home.html)

- Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: AIX - Assignment to the VIOS requires VIOS 2.2.4.2 or later.

## (#ES8K) - 1.9TB Read Intensive SAS 4k SFF-3 SSD for IBM i

(No longer available as of January 23, 2018.)

1.9 TB SAS 2.5-inch (SFF) read intensive solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray to fit in a POWER8 system unit. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors. CCIN is 5B20. Actual capacity is 1.86 TB but is rounded up for convenience.

Drive is designed for read intensive workloads with light write activity. Approximately 3,394 TB of data can be written over the life of the drive, but depending on the nature of the workload may be somewhat larger. After the warranty period, if the maximum write capability is achieved, the drive's replacement is not covered under IBM maintenance.

#ES8J and #ES8K are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. #ES8J indicates usage by AIX, Linux or VIOS. #ES8K indicates usage by IBM i.

Limitations: The drive is mounted on a SFF-3 carrier/tray and does not physically fit into an expansion unit such as the EXP24S's SFF-2 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array.

- Attributes provided: 1.9 TB Read Intensive SSD
- Attributes required: Open SFF-3 SAS bay in a POWER8 system unit and controlled by the internal SAS control unit.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.3 or later
  - IBM i 7.2 TR4 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES8N) - 387GB SFF-3 SSD 4k eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays.

CCIN is 5B13.

ES8N and ES8P are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8N indicates usage by AIX, Linux or VIOS. ES8P indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3).
- It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array.
- 4k drives cannot be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level Service Pack 3, or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 or later
  - AIX Version 7.1 with the 7100-04 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level or later

Linux OS levels (native or supported under PowerVM):

- Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Ubuntu Server
- Bare Metal and PowerKVM environments not supported on server
- Refer to Software Requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No

Note: Attachment to the VIOS requires VIOS 2.2.3.3 or later, VIOS 2.2.4.0 or later

## (#ES8P) - 387GB SFF-3 SSD 4k eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. CCIN is 5B13

- ES8N and ES8P are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8N indicates usage by AIX, Linux or VIOS. ES8P indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives cannot be reformatted to 5xx drives (or vice versa).
- Attributes provided: one 387GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR11 or later
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES8Q) - 775GB SFF-3 SSD 4k eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays.

CCIN is 5B14.

ES8Q and ES8R are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8Q indicates usage by AIX, Linux or VIOS. ES8R indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3)
- It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array.



- 4K drives cannot be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775GB SFF-3 4k SSD
  - Attributes required: one SFF-3 SAS bay
  - Minimum required: 0
  - Maximum allowed: 18 (Initial order maximum: 18)
  - OS level required:
    - AIX Version 6.1 with the 6100-09 Technology Level Service Pack 3, or later
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 or later
    - AIX Version 7.1 with the 7100-04 Technology Level or later
    - AIX Version 7.2 with the 7200-00 Technology Level or later
  - Linux OS levels (native or supported under PowerVM):
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - Ubuntu Server
  - Bare Metal and PowerKVM environments not supported on server
    - Refer to Software Requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Attachment to the VIOS requires VIOS 2.2.3.3 or later, VIOS 2.2.4.0 or later

### (#ES8R) - 775GB SFF-3 SSD 4k eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. CCIN is 5B14

- ES8Q and ES8R are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8Q indicates usage by AIX, Linux or VIOS. ES8R indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array.
- Attributes provided: one 775GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR11 or later
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ES8V) - 1.55TB SFF-3 SSD 4k eMLC4 for AIX/Linux

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays.

CCIN is 5B15.

ES8V and ES8W are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8V indicates usage by AIX, Linux or VIOS. ES8W indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3)
- It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array.
- 4k drives cannot be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure

compatibility with 4K byte sector drives.

- Attributes provided: one 1.55TB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level Service Pack 3, or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 or later
  - AIX Version 7.1 with the 7100-04 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level or later

Linux OS levels (native or supported under PowerVM):

- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- Ubuntu Server

Bare Metal and PowerKVM environments not supported on server

- Refer to Software Requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Attachment to the VIOS requires VIOS 2.2.3.3 or later, VIOS 2.2.4.0 or later

## (#ES8W) - 1.55TB SFF-3 SSD 4k eMLC4 for IBM i

(No longer available as of January 18, 2019)

This SFF (2.5") SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. CCIN is 5B15

- ES8V and ES8W are physically identical drives which have different feature codes to help the IBM configuration tools understand how the SSD is used. ES8V indicates usage by AIX, Linux or VIOS. ES8W indicates usage by IBM i.
- Limitation: Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. Note 4k and 5xx byte sector drives cannot be mixed in the same array. 4k drives can not be reformatted to 5xx drives (or vice versa).
- Attributes provided: one 1.55TB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR4 or later
  - IBM i 7.3 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES8Y) - 931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of January 18, 2019)

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes Written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ES8Y and #ES8Z are physically identical drives with the same 5B29 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ES8Y indicates usage by AIX, Linux or VIOS. #ES8Z indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitations:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.

- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70, or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the IBM Power Tool Repository:

[http://www14.software.ibm.com/support/customer/care/sa\\_sff/lopdiaags/home.html](http://www14.software.ibm.com/support/customer/care/sa_sff/lopdiaags/home.html)

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES8Z) - 931GB Mainstream SAS 4k SFF-2 SSD for IBM i

(No longer available as of January 18, 2019)

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes Written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ES8Y and #ES8Z are physically identical drives with the same 5B29 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ES8Y indicates usage by AIX, Linux or VIOS. #ES8Z indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitations:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES90) - 387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ES90 and #ES91 are physically identical drives with the same CCIN of 5B13. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ES90 indicates usage by AIX, Linux or VIOS. Feature ES91 indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector

SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller

## (#ES91) - 387GB Enterprise SAS 4k SFF-3 SSD for IBM i

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ES90 and #ES91 are physically identical drives with the same CCIN of 5B13. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ES90 indicates usage by AIX, Linux or VIOS. Feature ES91 indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2, TR7
  - IBM i 7.3, TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ES92) - 1.86TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of January 18, 2019)

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ES92 and #ES93 are physically identical drives with the same 5B20 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ES92 indicates usage by AIX, Linux or VIOS. #ES93 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitations:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

- Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70, or later.
- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the IBM Power Tool Repository:  
<http://www14.software.ibm.com/support/customer/sa/sf/lopdiags/home.html>

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES93) - 1.86TB Mainstream SAS 4k SFF-3 SSD for IBM i

(No longer available as of January 18, 2019)

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes Written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ES92 and #ES93 are physically identical drives with the same 5B20 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ES92 indicates usage by AIX, Linux or VIOS. #ES93 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitations:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES94) - 387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ES94 and #ES95 are physically identical drives with the same CCIN of 5B10. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ES94 indicates usage by AIX, Linux or VIOS. Feature ES95 indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ES95) - 387GB Enterprise SAS 4k SFF-2 SSD for IBM i

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ES94 and #ES95 are physically identical drives with the same CCIN of 5B10. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ES94 indicates usage by AIX, Linux or VIOS. Feature ES95 indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ES96) - 1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of January 18, 2019)

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DDPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes Written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

#ES96 and #ES97 are physically identical drives with the same 5B21 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ES96 indicates usage by AIX, Linux or VIOS. #ES97 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitations:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70, or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the IBM Power Tool Repository:

<http://www14.software.ibm.com/support/customer/sa/sf/loddiags/home.html>

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ES97) - 1.86TB Mainstream SAS 4k SFF-2 SSD for IBM i

(No longer available as of January 18, 2019)

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes Written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

#ES96 and #ES97 are physically identical drives with the same 5B21 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ES96 indicates usage by AIX, Linux or VIOS. #ES97 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitations:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESA3) - PCIe2 1.8GB Cache RAID SAS Adapter Tri-port 6Gb CR

The PCIe2 1.8 GB Cache RAID SAS Adapter Tri-port 6 Gb provides high performance HDD or SSD controller function using PCIe Gen2 technology. HDD and SSD can be either SFF or 3.5-inch drives (or both). A pair of #ESA3 adapters are required to provide mirrored write cache data and adapter redundancy. Integrated flash memory provides protection of the write cache without batteries in case of power failure.

The #ESA3 provides three Mini-SAS HD (high density) connectors for the attachment of SAS drives located in the #5887 EXP24S, #5886 EXP12S, or #5802 12X PCIe I/O drawers. X, YO or AT SAS cables with HD connectors are used to attach to these drawers. A max of 3 EXP24S or 6 EXP12S can be attached. If controlling drives in a #5802, at least one of #ESA3 pair must be located in that #5802. If not controlling drives in a #5802, the adapters can be placed in any PCIe slot which supports their use and the PCIe slots can be in different enclosures. An AA SAS cable with HD connectors is attached to the #ESA3 pair to communicate status and cache content information and is required unless all three ports are being used to attach I/O drawers.

The #ESA3 provides RAID 0, RAID 5, RAID 6 and RAID 10 for AIX and Linux and VIOS. The adapter provides RAID 5 and RAID 6 for IBM i. IBM i provides both OS mirroring and data spreading. AIX/Linux/VIOS provide OS mirroring (LVM). The CCIN = 57BB for this adapter.

#ESA3 is a refreshed version of the #5913 PCIe2 adapter offering the same function and performance, but with lower energy consumption.

Limitations:

- Cannot be paired with feature 5913
- Cannot be used with non-paired feature 5924
- 4k byte sector HDD/SSD are not supported. Only 5xx byte sector drives are supported on this generation of PCIe adapter
- Attributes provided: PCIe2 1.8 GB Cache RAID SAS Adapter
- Attributes required: One PCIe slot per adapter and Mini-SAS HD connector SAS cables
- Minimum required: 0
- Maximum allowed: 16 (Initial order maximum: 16)
- OS level required:
  - Red Hat Enterprise Linux 6.5 for POWER, or later
  - Red Hat Enterprise Linux 7 for POWER, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - IBM i 7.1 TR8 and 7.2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
  - These additional AIX levels are supported in an LPAR using virtualized I/O only:
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 6, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 1, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 6, or later
- Initial Order/MES/Both/Supported: Supported
- CSU: Yes
- Return parts MES: No

### (#ESB0) - 387GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESB0 CCIN is 5B19. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESB0 indicates usage by AIX, Linux or VIOS.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 5xx SSD
- Attributes required: SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESB2) - 387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESB2 CCIN is 5B16. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESB2 indicates usage by AIX, Linux or VIOS.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure



compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 5xx SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESB4) - 775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Feature #ESB4 CCIN is 5B1A. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESB4 indicates usage by AIX, Linux or VIOS.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 5xx SSD
- Attributes required: SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESB6) - 775GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESGZ CCIN is 5B17. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESGZ indicates usage by AIX, Linux or VIOS.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 5xx SSD
- Attributes required: SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESB8) - 387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESB8 and #ESB9 are physically identical drives with the same CCIN of 5B13. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESB8 indicates usage by AIX, Linux or VIOS. Feature ESB9 indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24SX drawers (SFF-2) or in #5802/ #5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESB9) - 387GB Enterprise SAS 4k SFF-3 SSD for IBM i

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESB8 and #ESB9 are physically identical drives with the same CCIN of 5B13. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESB8 indicates usage by AIX, Linux or VIOS. Feature ESB9 indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24SX drawers (SFF-2) or in #5802/ #5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. The 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBA) - 387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBA and #ESBB are physically identical drives with the same CCIN of 5B10. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBA indicates usage by AIX, Linux or VIOS. Feature ESBB indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure

compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBB) - 387GB Enterprise SAS 4k SFF-2 SSD for IBM i

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBA and #ESBB are physically identical drives with the same CCIN of 5B10. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBA indicates usage by AIX, Linux or VIOS. Feature ESBB indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. The 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBE) - 775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBE and #ESBF are physically identical drives with the same CCIN of 5B14. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBE indicates usage by AIX, Linux or VIOS. Feature ESBF indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24SX drawers (SFF-2) or in #5802/ #5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBF) - 775GB Enterprise SAS 4k SFF-3 SSD for IBM i

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBE and #ESBF are physically identical drives with the same CCIN of 5B14. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBE indicates usage by AIX, Linux or VIOS. Feature ESBF indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24SX drawers (SFF-2) or in #5802/ #5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. The 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBG) - 775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBG and #ESBH are physically identical drives with the same CCIN of 5B11. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBG indicates usage by AIX, Linux or VIOS. Feature ESBH indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBH) - 775GB Enterprise SAS 4k SFF-2 SSD for IBM i

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBG and #ESBH are physically identical drives with the same CCIN of 5B11. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBG indicates usage by AIX, Linux or VIOS. Feature ESBH indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. The 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with

4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBJ) - 1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBJ and #ESBK are physically identical drives with the same CCIN of 5B15. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBK indicates usage by AIX, Linux or VIOS. Feature ESBK indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24SX drawers (SFF-2) or in #5802/ #5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBK) - 1.55TB Enterprise SAS 4k SFF-3 SSD for IBM i

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBJ and #ESBK are physically identical drives with the same CCIN of 5B15. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBK indicates usage by AIX, Linux or VIOS. Feature ESBK indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24SX drawers (SFF-2) or in #5802/ #5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. The 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBL) - 1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBL and #ESBM are physically identical drives with the same CCIN of 5B12. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBL indicates usage by AIX, Linux or VIOS. Feature ESBM indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
  - IBM i requires VIOS
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESBM) - 1.55TB Enterprise SAS 4k SFF-2 SSD for IBM i

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

IBM solid state device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense.

Features #ESBL and #ESBM are physically identical drives with the same CCIN of 5B12. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESBL indicates usage by AIX, Linux or VIOS. Feature ESBM indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. The 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESC0) - S&H - No Charge

No charge shipping and handling

- Attributes provided: None
- Attributes required: Sales Preapproval Required
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: Does not apply
- Initial Order/MES/Both/Supported: Both
- CSU: N/A
- Return parts MES: Does not apply

### (#ESC6) - S&H-b

(No longer available as of May 31, 2019)

Shipping and handling

- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#ESD2) - 1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)

(No longer available as of April 24, 2020)

1.14TB SFF 10K RPM SAS disk drive in Gen2 carrier. Supported in SFF-2 SAS bays such as provided in #5887 EXP24S I/O drawer. CCIN is 59CD. Disk is formatted for 528 byte sectors.

The drive can be reformatted to 512 byte sectors and used by AIX/ Linux/VIOS

Limitation: Cannot be used in #5802/5803 I/O drawers or in CEC bays due to physical difference in Gen1 and Gen2 carriers.

- Attributes provided: 1.14TB 10K RPM 2.5-inch SAS disk drive mounted on Gen-2 carrier (SFF-2)
- Attributes required: one SFF-2 SAS bay in EXP24S drawer
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESD3) - 1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)

(No longer available as of April 24, 2020)

1.20TB SFF 10K RPM SAS disk drive in Gen2 carrier. Supported in SFF-2 SAS bay such as used in the #5887 EXP24S I/O drawer. Disk is formatted for 512 byte sectors as shipped from IBM Manufacturing. CCIN is 59CD.

The drive can be reformatted to 528 byte sectors and used by AIX/ IBM i/Linux/VIOS.

Limitations: physical difference in Gen1 and Gen2 carriers prevent usage in SFF-1 bays such as used in the #5802/5803 I/O drawer

- Attributes provided: 1.20TB 10K RPM 2.5-inch SAS disk drive mounted on Gen-2 carrier (SFF-2)
- Attributes required: one SFF-2 SAS bay in EXP24S drawer
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESD4) - 571GB 10K RPM SAS SFF-3 Disk Drive (IBM i)

(No longer available as of December 31, 2020)

571 GB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 528 byte sectors. If reformatted to 512 byte sectors, capacity would be 600 GB. IBM i does not support 512 byte sectors.

CCIN is 59D0.

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

- Attributes provided: 571 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESD5) - 600GB 10K RPM SAS SFF-3 Disk Drive (AIX/Linux)

600 GB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 512 byte sectors. If reformatted to 528 byte sectors, capacity would be 571 GB.

CCIN is 59D0.

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size

- Attributes provided: 600 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESD8) - 1.1TB 10K RPM SAS SFF-3 Disk Drive (IBM i)

(No longer available as of April 24, 2020)

1.14 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 528 byte sectors. If reformatted to 512 byte sectors, capacity would be 1.2 TB. IBM i does not support 512 byte sectors.

CCIN is 59D8.

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

- Attributes provided: 1.1 TB disk drive - SFF-3
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESD9) - 1.2TB 10K RPM SAS SFF-3 Disk Drive (AIX/Linux)

(No longer available as of December 31, 2020)

1.2 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 512 byte sectors. If reformatted to 528 byte sectors, capacity would be 1.14 TB.

CCIN is 59D8

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size

- Attributes provided: 1.2 TB disk drive - SFF-3
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDA) - 283GB 15K RPM SAS SFF-3 Disk Drive (IBM i)

(No longer available as of December 31, 2020)

283 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 528 byte sectors. If reformatted to 512 byte sectors, capacity would be 300 GB. IBM i does not support 512 byte sectors.

CCIN is 59E0

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size.



- Attributes provided: 283 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDB) - 300GB 15K RPM SAS SFF-3 Disk Drive (AIX/Linux)

300 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 512 byte sectors. If reformatted to 528 byte sectors, capacity would be 283 GB.

CCIN is 59E0

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

- Attributes provided: 300 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDE) - 571GB 15k RPM SAS SFF-3 Disk Drive - 528 Block

(No longer available as of December 31, 2020)

2.5-inch (Small Form Factor (SFF)) 15k RPM SAS disk drive mounted in a Gen-3 carrier and supported in SAS SFF-3 bays. With 512 byte sectors (JBOD) drive capacity is 600GB. With 528 byte sectors (RAID) drive capacity is 571GB and the drive has additional data integrity protection. #ESDE and #ESDF are physically identical drives with the same CCIN. However, IBM Manufacturing always formats the #ESDE with 528 byte sectors. Depending on how the drive is ordered, IBM Manufacturing will ship #ESDF with either 512 or 528 byte formatting. Reformatting a disk drive can take significant time, especially on larger capacity disk drives.

- Attributes provided: One 571GB SFF SAS disk drive in Gen-3 carrier/ tray (SFF-3)
- Attributes required: Available Gen-3 drive bay (SFF-3) in POWER8 system unit
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDF) - 600GB 15k RPM SAS SFF-3 Disk Drive - 5xx Block

(No longer available as of December 31, 2020)

2.5-inch (Small Form Factor (SFF)) 15k RPM SAS disk drive mounted in a Gen-3 carrier and supported in SAS SFF-3 bays. With 512 byte sectors (JBOD) drive capacity is 600GB. With 528 byte sectors (RAID) drive capacity is 571GB and the drive has additional data integrity protection. #ESDE and #ESDF are physically identical drives with the same CCIN. However, IBM Manufacturing always formats the #ESDE with 528 byte sectors. Depending on how the drive is ordered, IBM Manufacturing will ship #ESDF with either 512 or 528 byte formatting. Reformatting a disk drive can take significant time, especially on larger capacity disk drives.

- Attributes provided: One 600GB (571GB with 528 byte sectors) SFF SAS disk drive in Gen-3 carrier/ tray (SFF-3)
- Attributes required: Available Gen-3 drive bay (SFF-3) in POWER8 system unit
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDN) - 571GB 15K RPM SAS SFF-2 Disk Drive - 528 Block

(No longer available as of December 31, 2020)

2.5-inch (Small Form Factor (SFF)) 15k RPM SAS disk drive mounted in a Gen-2 carrier and supported in SAS SFF-2 bays. With 512 byte sectors (JBOD) drive capacity is 600GB. With 528 byte sectors (RAID) drive capacity is 571GB and the drive has additional data integrity protection. #ESDN and #ESDP are physically identical drives with the same CCIN. However, IBM Manufacturing always formats the #ESDN with 528 byte sectors. Depending on how the drive is ordered, IBM Manufacturing will ship #ESDP with either 512 or 528 byte formatting. Reformatting a disk drive can take significant time, especially on larger capacity disk drives.

- Attributes provided: One 571GB SFF SAS disk drive in Gen-2 carrier/ tray (SFF-2)
- Attributes required: Available Gen-2 drive bay (SFF-2) in EXP24S drawer (such as #5887)
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDP) - 600GB 15K RPM SAS SFF-2 Disk Drive - 5xx Block

(No longer available as of December 31, 2020)

2.5-inch (Small Form Factor (SFF)) 15k RPM SAS disk drive mounted in a Gen-2 carrier and supported in SAS SFF-2 bays. With 512 byte sectors (JBOD) drive capacity is 600GB. With 528 byte sectors (RAID) drive capacity is 571GB and the drive has additional data integrity protection. #ESDN and #ESDP are physically identical drives with the same CCIN. However, IBM Manufacturing always formats the #ESDN with 528 byte sectors. Depending on how the drive is ordered, IBM Manufacturing will ship #ESDP with either 512 or 528 byte formatting. Reformatting a disk drive can take significant time, especially on larger capacity disk drives.

- Attributes provided: One 600GB (571GB with 528 byte sectors) SFF SAS disk drive in Gen-2 carrier/ tray (SFF-2)
- Attributes required: Available Gen-2 drive bay (SFF-2) in EXP24S drawer (such as #5887)
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDR) - 300GB 10k RPM SAS SFF-3 Disk Drive (AIX/Linux)

(No Longer Available as of July 8, 2016)

300 GB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 512 byte sectors. If reformatted to 528 byte sectors, capacity would be 283 GB.

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size

- Attributes provided: 300 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDS) - 283GB 10k RPM SAS SFF-3 Disk Drive (IBM i)

(No Longer Available as of July 8, 2016)

283GB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 528 byte sectors. If reformatted to 512 byte sectors, capacity would be 300 GB. IBM i does not support 512 byte sectors.

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

- Attributes provided: 283 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDT) - 146GB 15k RPM SAS SFF-3 Disk Drive (AIX/Linux)

(No Longer Available as of July 8, 2016)

146 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 512 byte sectors. If reformatted to 528 byte sectors, capacity would be 139 GB.

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

- Attributes provided: 146 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDU) - 139GB 15k RPM SAS SFF-3 Disk Drive (IBM i)

(No Longer Available as of July 8, 2016)

139 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 528 byte sectors. If reformatted to 512 byte sectors, capacity would be 146 GB.

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

- Attributes provided: 139 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESDV) - 283GB 15K RPM SAS SFF-3 Disk 5xx Block

(No longer available as of May 31, 2019)

283 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 528 byte sectors. If reformatted to 512 byte sectors, capacity would be 300 GB. IBM i does not support 512 byte sectors, but could use it through VIOS. Note 4k drives are especially recommended over 5xx drives under VIOS for IBM i.

This disk is identical to feature #ESDA with the same CCIN of 59E0. Up to four of these lower-price drives can be ordered with the initial shipment of a Power S814 with 4-core or 6-core with the IBM i Edition #EU2C or #EU2D.

Limitation: can not be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Can not be combined in the same array with a drive using a different sector size.

- Attributes provided: 283 GB Disk Drive - SFF-3 - 15k rpm 5xx
- Attributes required: one SFF-3 drive bay & IBM i edition feature on server
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.1 TR8; IBM i 7.2; IBM i 7.3, or later
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: No

### (#ESE1) - 3.72TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of January 18, 2019)

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESE1 and #ESE2 are physically identical drives with the same 5B2C CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESE1 indicates usage by AIX, Linux or VIOS. #ESE2 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitations:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70 or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the IBM Power Tool Repository:

<http://www14.software.ibm.com/support/customercare/sa/sf/lopdiags/home.html>

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESE2) - 3.72TB Mainstream SAS 4k SFF-3 SSD for IBM i

(No longer available as of January 18, 2019)

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESE1 and #ESE2 are physically identical drives with the same 5B2C CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESE1 indicates usage by AIX, Linux or VIOS. #ESE2 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitations:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.

- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESE7) - 3.72TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of January 18, 2019)

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

#ESE7 and #ESE8 are physically identical drives with the same 5B2D CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESE7 indicates usage by AIX, Linux or VIOS. #ESE8 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitations:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70, or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the IBM Power Tool Repository:

<http://www14.software.ibm.com/support/customer/sa/sf/lopdiags/home.html>

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESE8) - 3.72TB Mainstream SAS 4k SFF-2 SSD for IBM i

(No longer available as of January 18, 2019)

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

#ESE7 and #ESE8 are physically identical drives with the same 5B2D CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESE7 indicates usage by AIX, Linux or VIOS. #ESE8 indicates usage by IBM i. Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitations:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESEU) - 571GB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4224

571 GB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays such as found in EXP24S storage drawer. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, its capacity would be 500 GB and it would not have the 4224 byte additional data integrity protection. Reformatting large drives takes significant time.

Limitations: - Cannot be combined in the same array as a drive using different sector size - Physically does not fit in a SFF-1 or SFF-3 bay due to carrier/ tray differences

- Attributes provided: 571GB 10K RPM SFF-2 Disk 4K
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR10 and 7.2 TR2 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESEV) - 600GB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096

600 GB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays such as found in EXP24S storage drawer. IBM Manufacturing may ship formatted with 4224 byte sectors or with 4096 sectors. With 4096 byte sectors the drive's capacity is 600 GB or with 4224 byte sectors the capacity is 571 GB. Using 4224 byte sectors provides additional data integrity protection. Reformatting large drives takes significant time.

#### Limitations:

- Cannot be combined in the same array as a drive using different sector size.
- Physically does not fit in a SFF-1 or SFF-3 bay due to carrier/tray differences.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: 571GB 10K RPM SFF-2 Disk 4K
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level + SP 3 and APAR IV56366 or later
  - AIX Version 7.1 with the 7100-03 Technology Level + SP 3 and APAR IV56367 or later
  - Red Hat Enterprise Linux 6.5, or later
  - Red Hat Enterprise Linux 7, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.3 or later

### (#ESEY) - 283GB 15K RPM SAS SFF-2 4K Block - 4224 Disk Drive

(No longer available as of December 31, 2020)

283 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays of EXP24S drawer. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, capacity would be 300 GB. IBM i does not support 4096 byte sectors.

CCIN is 59C9

Limitation: Cannot be used in POWER8 System unit SFF Gen3-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

- Attributes provided: 283 GB Disk Drive - SFF-2 4K block
- Attributes required: one SFF-2 drive bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESEZ) - 300GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive

(No longer available as of December 31, 2020)

300 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays of EXP24S drawer. Disk is formatted for 4096 byte sectors. If reformatted to 4224 byte sectors, capacity would be 283 GB.

CCIN is 59C9.

Limitations:

- Cannot be used in POWER8 System unit SFF Gen3-bay Drawer because of physical difference of carrier/tray.
- Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: 300 GB Disk Drive - SFF-2 4K block
- Attributes required: one SFF-2 drive bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESF2) - 1.1TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4224

1.14 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays such as found in EXP24S storage drawer. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, its capacity would be 1.2 TB and it would not have the 4224 byte additional data integrity protection. Reformatting large drives takes significant time.

Limitations: - Cannot be combined in the same array as a drive using different sector size - Physically does not fit in a SFF-1 or SFF-3 bay due to carrier/ tray differences

- Attributes provided: 1.1TB 10K RPM SFF-2 Disk 4K
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR10 and 7.2 TR2 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESF3) - 1.2TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096

1.2 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays such as found in EXP24S storage drawer. IBM Manufacturing may ship formatted with 4224 byte sectors or with 4096 sectors. With 4096 byte sectors the drive's capacity is 1.2 TB or with 4224 byte sectors the capacity is 1.14TB. Using 4224 byte sectors provides additional data integrity protection. Reformatting large drives takes significant time.

Limitations:

- Cannot be combined in the same array as a drive using different sector size.
- Physically does not fit in a SFF-1 or SFF-3 bay due to carrier/tray differences.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure

compatibility with 4K byte sector drives.

- Attributes provided: 1.2TB 10K RPM SFF-2 Disk 4K
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level + SP 3 and APAR IV56366 or later
  - AIX Version 7.1 with the 7100-03 Technology Level + SP 3 and APAR IV56367 or later
  - Red Hat Enterprise Linux 6.5, or later
  - Red Hat Enterprise Linux 7, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.3 or later

#### (#ESF4) - 571GB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4224

571 GB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays such as found in POWER8 servers. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, its capacity would be 600 GB and it would not have the 4224 byte additional data integrity protection.

Limitations: - Cannot be combined in the same array as a drive using different sector size - Physically does not fit in a SFF-1 or SFF-2 bay due to carrier/ tray differences

- Attributes provided: 571GB 10K RPM SFF-3 Disk 4K
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR10 and 7.2 TR2 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ESF5) - 600GB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4096

600 GB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays such as found in POWER8 servers. IBM Manufacturing may ship formatted with 4224 byte sectors or with 4096 sectors. With 4096 byte sectors the drive's capacity is 600 GB or with 4224 byte sectors the capacity is 571 GB. Using 4224 byte sectors provides additional data integrity protection. Reformatting large drives takes significant time.

Limitations:

- Cannot be combined in the same array as a drive using different sector size
- Physically does not fit in a SFF-1 or SFF-2 bay due to carrier/tray differences

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: 600GB 10K RPM SFF-3 Disk 4K
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level + SP 3 and APAR IV56366 or later
  - AIX Version 7.1 with the 7100-03 Technology Level + SP 3 and APAR IV56367 or later
  - Red Hat Enterprise Linux 6.5, or later
  - Red Hat Enterprise Linux 7, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.3 or late

#### (#ESF8) - 1.1TB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4224

1.14 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays such as found in POWER8 servers. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, its capacity would be 1.2 TB and it would not have the 4224 byte additional data integrity protection. Reformatting large drives takes significant time.

Limitations: - Cannot be combined in the same array as a drive using different sector size - Physically does not fit in a SFF-1 or SFF-2 bay due to carrier/ tray differences



- Attributes provided: 1.1TB 10K RPM SFF-3 Disk 4K
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1TR10 and 7.2 TR2 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESF9) - 1.2TB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4096

1.2 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays such as found in EXP24S storage drawer. IBM Manufacturing may ship formatted with 4224 byte sectors or with 4096 sectors. With 4096 byte sectors the drive's capacity is 1.2 TB or with 4224 byte sectors the capacity is 1.14TB. Using 4224 byte sectors provides additional data integrity protection. Reformatting large drives takes significant time.

Limitations:

- Cannot be combined in the same array as a drive using different sector size
- Physically does not fit in a SFF-1 or SFF-2 bay due to carrier/tray differences

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: 1.2TB 10K RPM SFF-3 Disk 4K
  - Attributes required: one SFF-3 SAS bay
  - Minimum required: 0
  - Maximum allowed: 18 (Initial order maximum: 18)
  - OS level required:
    - AIX Version 6.1 with the 6100-09 Technology Level + SP 3 and APAR IV56366 or later
    - AIX Version 7.1 with the 7100-03 Technology Level + SP 3 and APAR IV56367 or later
    - Red Hat Enterprise Linux 6.5, or later
    - Red Hat Enterprise Linux 7, big endian, or later
    - Red Hat Enterprise Linux 7.1, little endian, or later
    - SUSE Linux Enterprise Server 11, Service Pack 3, or later
    - SUSE Linux Enterprise Server 12, or later
    - Ubuntu 15.04, or later
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: VIOS 2.2.3.3 or later

## (#ESFA) - 283GB 15K RPM SAS SFF-3 4K Block - 4224 Disk Drive

(No longer available as of December 31, 2020)

283 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, capacity would be 300 GB. IBM i does not support 4096 byte sectors.

CCIN is 59E1

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

- Attributes provided: 283 GB Disk Drive - SFF-3 4K block
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESFB) - 300GB 15K RPM SAS SFF-3 4K Block - 4096 Disk Drive

(No longer available as of December 31, 2020)

300 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 4096 byte sectors. If reformatted to 4224 byte sectors, capacity would be 283 GB.

CCIN is 59E1.

Limitations:

- Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.
- Cannot be combined in the same array as a drive of the same capacity, but using different sector size

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: 300 GB Disk Drive - SFF-3 4K block
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 - or-AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3 or later
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Requires VIOS 2.2.3.3 or later when assigned to the VIOS.

## (#ESFE) - 571GB 15K RPM SAS SFF-3 4K Block - 4224 Disk Drive

(No longer available as of December 31, 2020)

571 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, capacity would be 600 GB. IBM i does not support 4096 byte sectors.

CCIN is 59E5

Limitation: Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

- Attributes provided: 571 GB Disk Drive - SFF-3 4K block
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESFF) - 600GB 15K RPM SAS SFF-3 4K Block - 4096 Disk Drive

(No longer available as of December 31, 2020)

600 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 4096 byte sectors. If reformatted to 4224 byte sectors, capacity would be 571 GB.

CCIN is 59E5.

Limitations:

- Cannot be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray
- Cannot be combined in the same array as a drive of the same capacity, but using different sector size

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: 600 GB Disk Drive - SFF-3 4K block
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 - or-AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3 or later
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Requires VIOS 2.2.3.3 or later when assigned to the VIOS.

## (#ESFG) - 283GB 15K RPM SAS SFF-3 Disk 4K Block

(No longer available as of May 31, 2019)

283 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, capacity would be 300 GB. IBM i does not support 4096 byte sectors, but could use it through VIOS.

This disk is identical to feature #ESFA with the same CCIN of 59E1. Up to four of these lower-price drives can be ordered with the initial shipment of a Power S814 with 4-core or 6-core with the IBM i Edition #EU2C or #EU2D.

Limitation: can not be used in EXP24S SFF Gen2-bay Drawer because of physical difference of carrier/tray.

Limitation: Can not be combined in the same array with a drive using a different sector size.

- Attributes provided: 283 GB Disk Drive - SFF-3 - 15k rpm 4k
- Attributes required: one SFF-3 drive bay & IBM i edition feature on server
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 0)
- OS level required:
  - .
  - IBM i 7.1 TR8; IBM i 7.2; IBM i 7.3, or later
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: No

## (#ESFN) - 571GB 15K RPM SAS SFF-2 4K Block - 4224 Disk Drive

(No longer available as of December 31, 2020)

571 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays of EXP24S drawer. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, capacity would be 600 GB. IBM i does not support 4096 byte sectors.

CCIN is 59CC

Limitation: Cannot be used in POWER8 System unit SFF Gen3-bay Drawer because of physical difference of carrier/tray.

Limitation: Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

- Attributes provided: 571 GB Disk Drive - SFF-2 4K block
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESFP) - 600GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive

(No longer available as of December 31, 2020)

600 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays of EXP24S drawer. Disk is formatted for 4096 byte sectors. If reformatted to 4224 byte sectors, capacity would be 571 GB.

CCIN is 59CC.

Limitations:

- Cannot be used in POWER8 System unit SFF Gen3-bay Drawer because of physical difference of carrier/tray.
- Cannot be combined in the same array as a drive of the same capacity, but using different sector size.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: 600 GB Disk Drive - SFF-2 4K block
  - Attributes required: one SFF-2 SAS bay
  - Minimum required: 0
  - Maximum allowed: 336 (Initial order maximum: 250)
  - OS level required:
    - Red Hat Enterprise Linux
    - SUSE Linux Enterprise Server
    - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3 - or-AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3 or later
    - Refer to Software requirements for specific O/S levels supported
  - Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Requires VIOS 2.2.3.3 or later when assigned to the VIOS.

## (#ESFS) - 1.7TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4224

1.71 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays such as found in EXP24S storage drawer. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, its capacity would be 1.8 TB and it would not have the 4224 byte additional data integrity protection. Reformatting large drives takes significant time.

Limitations: - Cannot be combined in the same array as a drive using different sector size - Physically does not fit in a SFF-1 or SFF-3 bay due to carrier/ tray differences

- Attributes provided: 1.7TB 10K RPM SFF-2 Disk 4K
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR2 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESFT) - 1.8TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096

1.8 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays such as found in EXP24S storage drawer. IBM Manufacturing may ship formatted with 4224 byte sectors or with 4096 sectors. With 4096 byte sectors the drive's capacity is 1.8 TB or with 4224 byte sectors the capacity is 1.71TB. Using 4224 byte sectors provides additional data integrity protection. Reformatting large drives takes significant time.

Limitations:

- Cannot be combined in the same array as a drive using different sector size.
- Physically does not fit in a SFF-1 or SFF-3 bay due to carrier/tray differences.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: 1.8TB 10K RPM SFF-2 Disk 4K
- Attributes required: one SFF-2 SAS bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level + SP 3 and APAR IV56366 or later
  - AIX Version 7.1 with the 7100-03 Technology Level + SP 3 and APAR IV56367 or later
  - Red Hat Enterprise Linux 6.5, or later
  - Red Hat Enterprise Linux 7, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.3 or later

### (#ESFU) - 1.7TB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4224

1.71 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays such as found in POWER8 system. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, its capacity would be 1.8 TB and it would not have the 4224 byte additional data integrity protection. Reformatting large drives takes significant time.

Limitations: - Cannot be combined in the same array as a drive using different sector size - Physically does not fit in a SFF-1 or SFF-3 bay due to carrier/ tray differences

- Attributes provided: 1.7TB 10K RPM SFF-3 Disk 4K
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR2 or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESFV) - 1.8TB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4096

1.8 TB 2.5-inch (Small Form Factor (SFF)) 10k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays such as found in POWER8 system. IBM Manufacturing may ship formatted with 4224 byte sectors or with 4096 sectors. With 4096 byte sectors the drive's capacity is 1.8 TB or with 4224 byte sectors the capacity is 1.71TB. Using 4224 byte sectors provides additional data integrity protection. Reformatting large drives takes significant time.

Limitations:

- Cannot be combined in the same array as a drive using different sector size
- Physically does not fit in a SFF-1 or SFF-2 bay due to carrier/tray differences

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure

compatibility with 4K byte sector drives.

- Attributes provided: 1.8TB 10K RPM SFF-3 Disk 4K
- Attributes required: one SFF-3 SAS bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 6.1 with the 6100-09 Technology Level + SP 3 and APAR IV56366 or later
  - AIX Version 7.1 with the 7100-03 Technology Level + SP 3 and APAR IV56367 or later
  - Red Hat Enterprise Linux 6.5, or later
  - Red Hat Enterprise Linux 7, big endian, or later
  - Red Hat Enterprise Linux 7.1, little endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later
  - SUSE Linux Enterprise Server 12, or later
  - Ubuntu 15.04, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS 2.2.3.3 or later

## (#ESG5) - 387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESG5 and #ESG6 are physically identical drives with the same CCIN of 5B16. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESG5 indicates usage by AIX, Linux or VIOS. ESG6 indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 5xx SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESG6) - 387GB Enterprise SAS 5xx SFF-2 SSD for IBM i

(No longer available as of April 24, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESG5 and #ESG6 are physically identical drives with the same CCIN of 5B16. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESG5 indicates usage by AIX, Linux or VIOS. ESG6 indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 5xx SSD
- Attributes required: SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESG9) - 387GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESG9 and #ESGA are physically identical drives with the same CCIN of 5B19. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESG9 indicates usage by AIX, Linux or VIOS. ESGA indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 5xx SSD
- Attributes required: SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGA) - 387GB Enterprise SAS 5xx SFF-3 SSD for IBM i

(No longer available as of April 24, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESG9 and #ESGA are physically identical drives with the same CCIN of 5B19. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESG9 indicates usage by AIX, Linux or VIOS. ESGA indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 5xx SSD
- Attributes required: SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGB) - 387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGB and #ESGC are physically identical drives with the same CCIN of 5B10. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGB indicates usage by AIX, Linux or VIOS. ESGC indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure

compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGC) - 387GB Enterprise SAS 4k SFF-2 SSD for IBM i

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGB and #ESGC are physically identical drives with the same CCIN of 5B10. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGB indicates usage by AIX, Linux or VIOS. ESGC indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGD) - 387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGD and #ESGE are physically identical drives with the same CCIN of 5B13. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGD indicates usage by AIX, Linux or VIOS. ESGE indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGE) - 387GB Enterprise SAS 4k SFF-3 SSD for IBM i

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGD and #ESGE are physically identical drives with the same CCIN of 5B13. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGD indicates usage by AIX, Linux or VIOS. ESGE indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESGF) - 775GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGF and #ESGG are physically identical drives with the same CCIN of 5B17. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGF indicates usage by AIX, Linux or VIOS. ESGG indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 5xx SSD
- Attributes required: SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESGG) - 775GB Enterprise SAS 5xx SFF-2 SSD for IBM i

(No longer available as of April 24, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGF and #ESGG are physically identical drives with the same CCIN of 5B17. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGF indicates usage by AIX, Linux or VIOS. ESGG indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure



compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 5xx SSD
- Attributes required: SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGH) - 775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGH and #ESGJ are physically identical drives with the same CCIN of 5B1A. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGH indicates usage by AIX, Linux or VIOS. ESGJ indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 5xx SSD
- Attributes required: SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGJ) - 775GB Enterprise SAS 5xx SFF-3 SSD for IBM i

(No longer available as of April 24, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGH and #ESGJ are physically identical drives with the same CCIN of 5B1A. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGH indicates usage by AIX, Linux or VIOS. ESGJ indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 5xx SSD
- Attributes required: SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGK) - 775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGK and #ESGL are physically identical drives with the same CCIN of 5B11. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGK indicates usage by AIX, Linux or VIOS. ESGL indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESGL) - 775GB Enterprise SAS 4k SFF-2 SSD for IBM i

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGK and #ESGL are physically identical drives with the same CCIN of 5B11. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGK indicates usage by AIX, Linux or VIOS. ESGL indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESGM) - 775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGM and #ESGN are physically identical drives with the same CCIN of 5B14. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGM indicates usage by AIX, Linux or VIOS. ESGN indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX supported
  - Linux Supported

- Initial Order/MES/Both/Supported: Both

- CSU: Yes
- Return parts MES: No

## (#ESGN) - 775GB Enterprise SAS 4k SFF-3 SSD for IBM i

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGM and #ESGN are physically identical drives with the same CCIN of 5B14. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGM indicates usage by AIX, Linux or VIOS. ESGN indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGP) - 1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGP and #ESGQ are physically identical drives with the same CCIN of 5B12. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGP indicates usage by AIX, Linux or VIOS. ESGQ indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGQ) - 1.55TB Enterprise SAS 4k SFF-2 SSD for IBM i

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGP and #ESGQ are physically identical drives with the same CCIN of 5B12. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGP indicates usage by AIX, Linux or VIOS. ESGQ indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGR) - 1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGR and #ESGS are physically identical drives with the same CCIN of 5B15. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGR indicates usage by AIX, Linux or VIOS. ESGS indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGS) - 1.55TB Enterprise SAS 4k SFF-3 SSD for IBM i

(No longer available as of August 30, 2019)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGR and #ESGS are physically identical drives with the same CCIN of 5B15. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGR indicates usage by AIX, Linux or VIOS. ESGS indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESGT) - 387GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPDP (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGT CCIN is 5B19. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGT indicates usage by AIX, Linux or VIOS.

### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-3 5xx SSD
- Attributes required: SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESGV) - 387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 387 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPDP (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGV CCIN is 5B16. Different feature codes to help the IBM configuration tools understand how the SSD is used. ESGV indicates usage by AIX, Linux or VIOS.

### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 387 GB SFF-2 5xx SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESGX) - 775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPDP (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGX CCIN is 5B1A. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESGX indicates usage by AIX, Linux or VIOS.

### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure

compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 5xx SSD
- Attributes required: SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESGZ) - 775GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 5xx (528) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESGZ CCIN is 5B17. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESGZ indicates usage by AIX, Linux or VIOS.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 512 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 5xx SSD
- Attributes required: SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESHJ) - 931 GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of August 30, 2019)

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DDPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity Total Bytes written (TBW) in (TB)

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESHJ and #ESHK are physically identical drives with the same 5B29 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESHJ indicates usage by AIX, Linux or VIOS. #ESHK indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.

- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70 or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the [IBM Power Tool Repository](#)

- Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70, or later.

## (#ESHK) - 931 GB Mainstream SAS 4k SFF-2 SSD for IBM i

(No longer available as of August 30, 2019)

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

### Drive Capacity Total Bytes written (TBW) in (TB)

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESHJ and #ESHK are physically identical drives with the same 5B29 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESHJ indicates usage by AIX, Linux or VIOS. #ESHK indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

### Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESHL) - 1.86 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of August 30, 2019)

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

### Drive Capacity Total Bytes written (TBW) in (TB)

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESHL and #ESHM are physically identical drives with the same 5B21 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESHL indicates usage by AIX, Linux or VIOS. #ESHM indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70 or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the [IBM Power Tool Repository](#)

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESHM) - 1.86 TB Mainstream SAS 4k SFF-2 SSD for IBM i

(No longer available as of August 30, 2019)

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

#### Drive Capacity Total Bytes written (TBW) in (TB)

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESHL and #ESHM are physically identical drives with the same 5B21 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESHL indicates usage by AIX, Linux or VIOS. #ESHM indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESHS) - 931 GB Mainstream SAS 4k SFF-3 SSD for AIX/Linux



(No longer available as of August 30, 2019)

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

**Drive Capacity Total Bytes written (TBW) in (TB)**

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESHS and #ESHT are physically identical drives with the same 5B2B CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESHS indicates usage by AIX, Linux or VIOS. #ESHT indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

**Limitation:**

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - Linux supported
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70 or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the [IBM Power Tool Repository](#)

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

**(#ESHT) - 931 GB Mainstream SAS 4k SFF-3 SSD for IBM i**

(No longer available as of August 30, 2019)

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

**Drive Capacity Total Bytes written (TBW) in (TB)**

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESHS and #ESHT are physically identical drives with the same 5B2B CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESHS indicates usage by AIX, Linux or VIOS. #ESHT indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

**Limitation:**

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.

- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESHU) - 1.86 TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of August 30, 2019)

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESHU and #ESHV are physically identical drives with the same 5B20 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESHU indicates usage by AIX, Linux or VIOS. #ESHV indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitation:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70 or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the [IBM Power Tool Repository](#)

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESHV) - 1.86 TB Mainstream SAS 4k SFF-3 SSD for IBM i

(No longer available as of August 30, 2019)

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESHU and #ESHV are physically identical drives with the same 5B20 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESHU indicates usage by AIX, Linux or VIOS. #ESHV indicates usage by IBM i.  
Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitation:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESJ0) - 931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity Total Bytes written (TBW) in (TB)

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJ0 and #ESJ1 are physically identical drives with the same 5B29 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJ0 indicates usage by AIX, Linux or VIOS. #ESJ1 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESJ1) - 931GB Mainstream SAS 4k SFF-2 SSD for IBM i

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity Total Bytes written (TBW) in (TB)

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJ0 and #ESJ1 are physically identical drives with the same 5B29 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJ0 indicates usage by AIX, Linux or VIOS. #ESJ1 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

(#ESJ2) - 1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJ2 and #ESJ3 are physically identical drives with the same 5B21 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJ2 indicates usage by AIX, Linux or VIOS. #ESJ3 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

(#ESJ3) - 1.86TB Mainstream SAS 4k SFF-2 SSD for IBM i

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJ2 and #ESJ3 are physically identical drives with the same 5B21 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJ2 indicates usage by AIX, Linux or VIOS. #ESJ3 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.

- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESJ4) - 3.72TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJ4 and #ESJ5 are physically identical drives with the same 5B2D CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJ4 indicates usage by AIX, Linux or VIOS. #ESJ5 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESJ5) - 3.72TB Mainstream SAS 4k SFF-2 SSD for IBM i

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJ4 and #ESJ5 are physically identical drives with the same 5B2D CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJ4 indicates usage by AIX, Linux or VIOS. #ESJ5 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.

- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESJ8) - 931GB Mainstream SAS 4k SFF-3 SSD for AIX/Linux

931 GB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJ8 and #ESJ9 are physically identical drives with the same 5B2B CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJ8 indicates usage by AIX, Linux or VIOS. #ESJ9 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

Limitation:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 931 GB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESJ9) - 931GB Mainstream SAS 4k SFF-3 SSD for IBM i

- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESJA) - 1.86TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJA and #ESJB are physically identical drives with the same 5B20 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJA indicates usage by AIX, Linux or VIOS. #ESJB indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitation:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESJB) - 1.86TB Mainstream SAS 4k SFF-3 SSD for IBM i

1.86 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

#### Drive Capacity Total Bytes written (TBW) in (TB)

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJA and #ESJB are physically identical drives with the same 5B20 CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJA indicates usage by AIX, Linux or VIOS. #ESJB indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitation:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 1.86 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESJC) - 3.72TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

#### Drive Capacity Total Bytes written (TBW) in (TB)

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJC and #ESJD are physically identical drives with the same 5B2C CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJC indicates usage by AIX, Linux or VIOS. #ESJD indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

**Limitation:**

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

**(#ESJD) - 3.72TB Mainstream SAS 4k SFF-3 SSD for IBM i**

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

**Drive Capacity Total Bytes written (TBW) in (TB)**

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESJC and #ESJD are physically identical drives with the same 5B2C CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESJC indicates usage by AIX, Linux or VIOS. #ESJD indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

**Limitation:**

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter, or later
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

**(#ESLA) - Specify AC Power Supply for EXP12SX/EXP24SX Storage Enclosure**

No-charge specify for AC power supply for an EXP12SX or EXP24SX SAS Storage Enclosure.

The power supply has a 320-C14 inlet electrical connection for a separately ordered power cord. It is rated 800 Watts Output Power and 100 -- 240 VAC (RMS) input voltage.

- Attributes provided: communicates to IBM Manufacturing an AC Power Supply is to be used
- Attributes required: EXP12SX or EXP24SX Storage Enclosure and AC power cord
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required: N/A
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

**(#ESLL) - EXP12SX SAS Storage Enclosure**



The EXP12SX is a storage expansion enclosure with twelve 3.5-inch large form factor (LFF) SAS bays. It supports up to 12 hot-swap Hard Disk Drives (HDD) in only 2 EIA of space in a 19-inch rack. The EXP12SX SFF bays use LFF gen1 (LFF-1) carriers/trays. 4k byte sector drives (4096 or 4224) are supported.

With AIX/Linux/VIOS, the EXP12SX can be ordered with four sets of 3 bays (mode 4), two sets of 6 bays (mode 2) or one set of 12 bays (mode 1). The mode setting can be changed in the field using software commands along with a specifically documented procedure. IMPORTANT NOTE when changing mode, it is very important that you follow the documented procedures and that there is no data on the drives before the change. Improperly changing modes can potentially destroy existing RAID sets, prevent access to existing data, or allow other partitions to access another partition's existing data. Hire an expert to assist if you are not familiar with this type of re-configuration work.

The EXP12SX has redundant SAS paths to all drives via two redundant Enclosure Services Modules (ESMs). Four mini-SAS HD narrow ports are attached to PCIe Gen3 SAS adapters such as the #EJ0J/EJ0M or #EJ0L or #EJ14, or attached to an imbedded SAS controller in a POWER8 Scale-out server such as the Power S814, S822 or S824. Attachment between the SAS controller and the storage enclosure SAS ports is via the appropriate SAS YO12 or X12 cables. The PCIe Gen3 SAS adapters support 6Gb throughput. The EXP12SX has been designed to support up to 12Gb throughput if future SAS adapters support that capability.

The EXP12SX uses redundant power supplies and two power cords. Order two feature #ESLA for AC power supplies. The enclosure is shipped with adjustable depth rails and can accommodate rack depths from 59.5 - 75 cm (23.4 - 29.5 inches). Slot filler panels are provided for empty bays when initially shipped from IBM.

See also the 24-bay Small Form Factor (SFF) EXP24SX SAS Storage Enclosure (feature #ESLS) for higher performance drives with lower capacity.

Limitations: Not supported by IBM i. Does not support SSDs.

- Attributes provided: 12 LFF-1 SAS bays in a 2U enclosure
- Attributes required: PCIe Gen3 SAS adapter/controller; Power System (at least POWER8 generation); 2U 19-inch rack space; Appropriate SAS cables
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 3 and APAR IV88680 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 8 and APAR IV88679 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 8 or later (planned availability 1/27/2017)
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 3 or later (planned availability 1/27/2017)
  - Red Hat Enterprise Linux 7.2, little endian, or later
  - Red Hat Enterprise Linux 7.2, big endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 4, or later
  - SUSE Linux Enterprise Server 12, Service Pack 1, or later
  - Ubuntu Server 16.04.1, or later

Note: Please install the latest iprutils package from the IBM Power Tools Repository for full support.

- Initial Order/MES/Both/Supported: Both
  - CSU: Yes
  - Return parts MES: No
- Note: Assignment to the VIOS requires VIOS 2.2.5.10, or later

## (#ESLS) - EXP24SX SAS Storage Enclosure

The EXP24SX is a storage expansion enclosure with 24 2.5-inch small form factor (SFF) SAS bays. It supports up to 24 hot-swap Hard Disk Drives (HDD) or Solid State Drives (SSD) in only 2 EIA of space in a 19-inch rack. The EXP24SX SFF bays use SFF gen2 (SFF-2) carriers/ trays identical to the carrier/trays in the previous EXP24S Drawer .

With AIX/Linux/VIOS, the EXP24SX can be ordered with four sets of 6 bays (mode 4), two sets of 12 bays (mode 2) or one set of 24 bays (mode 1). With IBM i one set of 24 bays (mode 1) is supported. The mode setting can be changed in the field using software commands along with a specifically documented procedure. IMPORTANT NOTE: when changing mode, it is very important that you follow the documented procedures and that there is no data on the drives before the change. Improperly changing modes can potentially destroy existing RAID sets, prevent access to existing data, or allow other partitions to access another partition's existing data. Hire an expert to assist if you are not familiar with this type of re-configuration work.

The EXP24SX has redundant SAS paths to all drives via two redundant Enclosure Services Modules (ESMs). Four mini-SAS HD narrow ports are attached to PCIe Gen3 SAS adapters such as the #EJ0J/EJ0M or #EJ0L or #EJ14, or attached to an imbedded SAS controller in a POWER8 Scale-out server such as the Power S814, S822 or S824. Attachment between the SAS controller and the storage enclosure SAS ports is via the appropriate SAS YO12 or X12 cables. The PCIe Gen3 SAS adapters support 6Gb throughput. The EXP24SX has been designed to support up to 12Gb throughput if future SAS adapters support that capability.

The EXP24SX uses redundant power supplies and two power cords. Order two feature #ESLA for AC power supplies. The enclosure is shipped with adjustable depth rails and can accommodate rack depths from 59.5 - 75 cm (23.4 - 29.5 inches). Slot filler panels are provided for empty bays when initially shipped from IBM.

See also the 12-bay Large Form Factor (LFF) EXP12SX SAS Storage Enclosure (feature #ESLL) for higher capacity drives with lower performance.

- Attributes provided: 24 SFF-2 SAS bays in a 2U enclosure
- Attributes required: PCIe Gen3 SAS adapter/controller; Power System (at least POWER8 generation); 2U 19-inch rack space; Appropriate SAS cables
- Minimum required: 0
- Maximum allowed: 28 (Initial order maximum: 28)
- OS level required:
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 3 and APAR IV88680 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 8 and APAR IV88679 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 8 or later (planned availability 1/27/2017)
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 3 or later (planned availability 1/27/2017)
  - IBM i 7.2 TR5, or later
  - IBM i 7.3 TR1, or later
  - Red Hat Enterprise Linux 7.2, little endian, or later
  - Red Hat Enterprise Linux 7.2, big endian, or later
  - SUSE Linux Enterprise Server 11, Service Pack 4, or later
  - SUSE Linux Enterprise Server 12, Service Pack 1, or later
  - Ubuntu Server 16.04.1, or later

Note: Please install the latest iprutils package from the IBM Power Tools Repository for full support.

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: Assignment to the VIOS requires VIOS 2.2.5.10, or later.

## (#ESM8) - 3.72 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of August 30, 2019)

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESM8 and #ESM9 are physically identical drives with the same 5B2D CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESM8 indicates usage by AIX, Linux or VIOS. #ESM9 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

### Limitation:

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70 or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the [IBM Power Tool Repository](#)

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESM9) - 3.72 TB Mainstream SAS 4k SFF-2 SSD for IBM i

(No longer available as of August 30, 2019)

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-2 carrier/tray to fit an expansion drawer such as the EXP24SX. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive Capacity	Total Bytes written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESM8 and #ESM9 are physically identical drives with the same 5B2D CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESM8 indicates usage by AIX, Linux or VIOS. #ESM9 indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

**Limitation:**

- The drive is mounted on a SFF-2 carrier/tray and does not physically fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive can not be reformatted to 5xx byte sectors. 5xx and 4k drives can not be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-2 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

**(#ESMQ) - 3.72 TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux**

(No longer available as of August 30, 2019)

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

**Drive Capacity Total Bytes written (TBW) in (TB)**

931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESMQ and #ESMR are physically identical drives with the same 5B2C CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESMQ indicates usage by AIX, Linux or VIOS. #ESMR indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

**Limitation:**

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Version 7.2 with the 7200-02 Technology Level or later
  - AIX Version 7.2 with the 7200-01 Technology Level or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-05 Technology Level or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 7 or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7 or later (AIX 6.1 service extension required)

Note: Assignment to the VIOS requires VIOS 2.2.6, or later; VIOS 2.2.5, or later; VIOS 2.2.4.20, or later; VIOS 2.2.3.70 or later.

- Red Hat Enterprise Linux 7.2, little endian, or later
- Red Hat Enterprise Linux 7.2, big endian, or later
- SUSE Enterprise Linux 11, Service Pack 4, or later
- SUSE Enterprise Linux 12, Service Pack 1, or later
- Ubuntu Server 16.04, or later

Note: Please install the latest iprutils software available in the [IBM Power Tool Repository](#)

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

**(#ESMR) - 3.72 TB Mainstream SAS 4k SFF-3 SSD for IBM i**

(No longer available as of August 30, 2019)

3.72 TB SAS 2.5-inch (SFF) Mainstream solid state drive (SSD) formatted in 4224 byte sectors (4k). The drive is mounted on a 2.5-inch SFF-3 carrier/tray. Drive is rated at 6Gb/s though actual performance is dependent upon multiple factors.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5 year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

**Drive Capacity Total Bytes written (TBW) in (TB)**

931 GB	1700
1.86 TB	3399

3.72 TB 6799  
7.45 TB 13601

Depending on the nature of the workload, the lifetime TBW may be somewhat larger. To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the Terms and Conditions section or IBM Knowledge Center for additional detail.

Features #ESMQ and #ESMR are physically identical drives with the same 5B2C CCIN. Different feature codes help the IBM configuration tools understand how the SSD is used. #ESMQ indicates usage by AIX, Linux or VIOS. #ESMR indicates usage by IBM i.

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

#### Limitation:

- The drive is mounted on a SFF-3 carrier/tray to fit into a POWER8/POWER9 system unit's SFF-3 bays. JBOD formatting of 4096 byte sectors is not tested or supported. Drive cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot be mixed in the same array. Older SAS adapters such as PCIe2 or earlier do not support 4k drives.
- Attributes provided: 3.72 TB Mainstream SSD
- Attributes required: Open SFF-3 SAS bay controlled by PCIe Gen3 PCIe SAS adapter or later.
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESNA) - 775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESNA and #ESNB are physically identical drives with the same CCIN of 5B11. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESNA indicates usage by AIX, Linux or VIOS. Feature ESNB indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sector drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESNB) - 775GB Enterprise SAS 4k SFF-2 SSD for IBM i

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESNA and #ESNB are physically identical drives with the same CCIN of 5B11. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESNA indicates usage by AIX, Linux or VIOS. Feature ESNB indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sector drives. If there are 4k usage concerns, check with the application provider to ensure

compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESNC) - 775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESNC and #ESND are physically identical drives with the same CCIN of 5B14. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESNC indicates usage by AIX, Linux or VIOS. Feature ESND indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESND) - 775GB Enterprise SAS 4k SFF-3 SSD for IBM i

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 775 GB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESNC and #ESND are physically identical drives with the same CCIN of 5B14. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESNC indicates usage by AIX, Linux or VIOS. Feature ESND indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 775 GB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESNE) - 1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPDP (Drive Writes Per Day) calculated over a 5-year period.

Features #ESNE and #ESNF are physically identical drives with the same CCIN of 5B12. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESNE indicates usage by AIX, Linux or VIOS. Feature ESNF indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESNF) - 1.55TB Enterprise SAS 4k SFF-2 SSD for IBM i

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-2 SAS bays in the EXP24S (#5887) or EXP24SX (#ESLS) I/O drawer. This drive is rated at 10 DWPDP (Drive Writes Per Day) calculated over a 5-year period.

Features #ESNE and #ESNF are physically identical drives with the same CCIN of 5B12. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESNE indicates usage by AIX, Linux or VIOS. Feature ESNF indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in SFF-2 bays such as found in EXP24SX storage enclosure and cannot be used in POWER8/POWER9 system units (SFF-3) or in older SFF-1 SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-2 4k SSD
- Attributes required: one SFF-2 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 336 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#ESNG) - 1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DWPDP (Drive Writes Per Day) calculated over a 5-year period.

Features #ESNG and #ESNH are physically identical drives with the same CCIN of 5B15. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESNG indicates usage by AIX, Linux or VIOS. Feature ESNH indicates usage by IBM i.

#### Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure

compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - AIX supported
  - Linux Supported
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESNH) - 1.55TB Enterprise SAS 4k SFF-3 SSD for IBM i

(No longer available as of December 31, 2020)

This SFF (2.5") Enterprise SAS Solid State Drive (SSD) is shipped from IBM with 1.55 TB capacity formatted with 4k (4224) byte sectors. The drive is supported in SFF-3 SAS bays. This drive is rated at 10 DDPD (Drive Writes Per Day) calculated over a 5-year period.

Features #ESNG and #ESNH are physically identical drives with the same CCIN of 5B15. Different feature codes to help the IBM configuration tools understand how the SSD is used. Feature ESNG indicates usage by AIX, Linux or VIOS. Feature ESNH indicates usage by IBM i.

Limitations:

- Due to physical differences in the carrier/tray on which the drive is mounted, the SSD only fits in POWER8/POWER9 system unit SAS bays (SFF-3). It does not fit in EXP24S or EXP24SX drawers (SFF-2) or in #5802/#5803 I/O drawers (SFF-1) or in POWER7 system units (SFF-1) SAS bays. Also the drive was not tested with 4096 byte sectors and thus JBOD mode for AIX/Linux is not supported. 4k drives can not be reformatted to 5xx drives (or vice versa).

Note: As part of a larger industry transition, IBM Power Systems is in the process of gradually shifting away from offering 5xx (512/ 528) byte sector SAS drives (HDD or SSD) to 4K byte sector drives. Most AIX/Linux applications access SAS drives through a file system and experience no effect of this sector size transition. In much less common cases, an AIX/Linux application may access the disk drive directly through the raw device interface and may still require only 5xx byte sectors drives. If there are 4k usage concerns, check with the application provider to ensure compatibility with 4K byte sector drives.

- Attributes provided: one 1.55 TB SFF-3 4k SSD
- Attributes required: one SFF-3 SAS bay, PCIe3 SAS controller
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 0)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#ESNJ) - 283GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (IBM i)

283 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, capacity would be 300 GB. Drive includes enhanced caching capability with 256MB DRAM which may improve performance somewhat compared to previous disk drives without the cache.

CCIN is 5B41.

Limitations:

- Cannot be used in EXP24S or EXP24SX SFF Gen2-bay Drawer because of physical difference of carrier/tray.
- Cannot be combined in the same array as a drive of the same capacity, but using different sector size. However, can be combined with non-cached drives of same capacity in the same array.
- Attributes provided: 283 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#ESNK) - 300GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (AIX/Linux)

300 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 4096 byte sectors. If reformatted to 4224 byte sectors, capacity would be 283 GB. Drive includes enhanced caching capability with 256MB DRAM which may improve performance somewhat compared to previous disk drives without the cache.

CCIN is 5B41.

Limitations:

- Cannot be used in EXP24S or EXP24SX SFF Gen2-bay Drawer because of physical difference of carrier/tray.
- Cannot be combined in the same array as a drive of the same capacity, but using different sector size. However, can be combined with non-cached drives of same capacity in the same array.

- Attributes provided: 300 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESNL) - 283GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (IBM i)

283 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, capacity would be 300 GB. Drive includes enhanced caching capability with 256MB DRAM which may improve performance somewhat compared to previous disk drives without the cache.

CCIN is 5B43.

Limitations:

- Cannot be combined in the same array as a drive of the same capacity, but using different sector size. However, can be combined with non-cached drives of same capacity in the same array.
- This HDD feature is not supported in the EXP24S drawer (#5887 or #EL1S).
- Attributes provided: 283 GB Disk Drive - SFF-2
- Attributes required: one SFF-2 drive bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESNM) - 300GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/Linux)

300 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays. Disk is formatted for 4096 byte sectors. If reformatted to 4224 byte sectors, capacity would be 283 GB. Drive includes enhanced caching capability with 256MB DRAM which may improve performance somewhat compared to previous disk drives without the cache.

CCIN is 5B43.

Limitations:

- Cannot be combined in the same array as a drive of the same capacity, but using different sector size. However, can be combined with non-cached drives of same capacity in the same array.
- This HDD feature is not supported in the EXP24S drawer (#5887 or #EL1S).
- Attributes provided: 300 GB Disk Drive - SFF-2
- Attributes required: one SFF-2 drive bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - AIX Supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESNN) - 571GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (IBM i)

571 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, capacity would be 600 GB. Drive includes enhanced caching capability with 256MB DRAM which may improve performance somewhat compared to previous disk drives without the cache.

CCIN is 5B45.

Limitations:

- Cannot be used in EXP24S or EXP24SX SFF Gen2-bay Drawer because of physical difference of carrier/tray.
- Cannot be combined in the same array as a drive of the same capacity, but using different sector size. However, can be combined with non-cached drives of same capacity in the same array.



- Attributes provided: 571 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESNP) - 600GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (AIX/Linux)

600 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-3 carrier/tray. Supported in SFF-3 SAS bays. Disk is formatted for 4096 byte sectors. If reformatted to 4224 byte sectors, capacity would be 571 GB. Drive includes enhanced caching capability with 256MB DRAM which may improve performance somewhat compared to previous disk drives without the cache.

CCIN is 5B45.

Limitations:

- Cannot be used in EXP24S or EXP24SX SFF Gen2-bay Drawer because of physical difference of carrier/tray.
- Cannot be combined in the same array as a drive of the same capacity, but using different sector size. However, can be combined with non-cached drives of same capacity in the same array.
- Attributes provided: 600 GB Disk Drive - SFF-3
- Attributes required: one SFF-3 drive bay
- Minimum required: 0
- Maximum allowed: 18 (Initial order maximum: 18)
- OS level required:
  - AIX Supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESNQ) - 571GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (IBM i)

571 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays. Disk is formatted for 4224 byte sectors. If reformatted to 4096 byte sectors, capacity would be 600 GB. Drive includes enhanced caching capability with 256MB DRAM which may improve performance somewhat compared to previous disk drives without the cache.

CCIN is 5B47.

Limitations:

- Cannot be combined in the same array as a drive of the same capacity, but using different sector size. However, can be combined with non-cached drives of same capacity in the same array.
- This HDD feature is not supported in the EXP24S drawer (#5887 or #EL1S).
- Attributes provided: 571 GB Disk Drive - SFF-2
- Attributes required: one SFF-2 drive bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2 TR7, or later
  - IBM i 7.3 TR3, or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#ESNR) - 600GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/Linux)

600 GB 2.5-inch (Small Form Factor (SFF)) 15k rpm SAS disk drive on Gen-2 carrier/tray. Supported in SFF-2 SAS bays. Disk is formatted for 4096 byte sectors. If reformatted to 4224 byte sectors, capacity would be 571 GB. Drive includes enhanced caching capability with 256MB DRAM which may improve performance somewhat compared to previous disk drives without the cache.

CCIN is 5B47.

Limitations:

- Cannot be combined in the same array as a drive of the same capacity, but using different sector size. However, can be combined with non-cached drives of same capacity in the same array.

- This HDD feature is not supported in the EXP24S drawer (#5887 or #EL1S).
- Attributes provided: 600 GB Disk Drive - SFF-2
- Attributes required: one SFF-2 drive bay
- Minimum required: 0
- Maximum allowed: 672 (Initial order maximum: 250)
- OS level required:
  - AIX Supported
  - Linux Supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ESPL) - Quantity 150 of #ESNL (283GB 15k SFF-2)

This feature ships a quantity of 150 #ESNL 283GB 15K RPM 4K SAS SFF-2, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

Limitation: This HDD feature is not supported in the EXP24S drawer (#5887 or #EL1S).

- Attributes provided: See feature#ESNL
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required: see feature ESNL
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ESPM) - Quantity 150 of #ESNM (300GB 15k SFF-2)

This feature ships a quantity of 150 #ESNM 300GB 15K RPM 4K SAS SFF-2, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

Limitation: This HDD feature is not supported in the EXP24S drawer (#5887 or #EL1S).

- Attributes provided: See feature#ESNM
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required: see feature ESNM
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ESPQ) - Quantity 150 of #ESNQ (571GB 15k SFF-2)

This feature ships a quantity of 150 #ESNQ 571GB 15K RPM 4K SAS SFF-2, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

Limitation: This HDD feature is not supported in the EXP24S drawer (#5887 or #EL1S).

- Attributes provided: See feature#ESNQ
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required: see feature ESNQ
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ESPR) - Quantity 150 of #ESNR (600GB 15k SFF-2)

This feature ships a quantity of 150 #ESNR 600GB 15K RPM 4K SAS SFF-2, units. The configurator may either generate this feature or allow users to select this feature as they would any other single disk unit feature. This feature remains on the inventory records.

Limitation: This HDD feature is not supported in the EXP24S drawer (#5887 or #EL1S).

- Attributes provided: See feature#ESNR
- Attributes required: 150 SFF-2 SAS bays in EXP24S or EXP24SX drawers
- Minimum required: 0
- Maximum allowed: 4 (Initial order maximum: 4)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#ESQ2) - Quantity 150 of ESB2 387GB SAS 4k

This feature ships a quantity of 150 #ESB2 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESB2
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESB2
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESQ6) - Quantity 150 of ESB6 775GB SAS 4k

This feature ships a quantity of 150 #ESB6 SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESB6
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESB6
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESQA) - Quantity 150 of ESBA 387GB SAS 4k

This feature ships a quantity of 150 #ESBA SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESBA
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESBA
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESQB) - Quantity 150 of ESBB 387GB SAS 4k

This feature ships a quantity of 150 #ESBB SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESBB
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESBB
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESQG) - Quantity 150 of ESBG 775GB SAS 4k

This feature ships a quantity of 150 #ESBG SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESBG
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESBG
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESQH) - Quantity 150 of ESBH 775GB SAS 4k

This feature ships a quantity of 150 #ESBH SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESBH
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESBH
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESQL) - Quantity 150 of ESBL 1.55TB SAS 4k

This feature ships a quantity of 150 #ESBL SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESBL
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESBL
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#ESQM) - Quantity 150 of ESBM 1.55TB SAS 4k

This feature ships a quantity of 150 #ESBM SSD. The configurator may either generate this feature or allow users to select this feature as they would any other single SSD feature. This feature remains on the inventory records.

- Attributes provided: see feature #ESBM
- Attributes required: 150 SFF-2 SAS bays in expansion drawers
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 0)
- OS level required: See feature #ESBM
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#EU01) - 1TB Removable Disk Drive Cartridge

1TB Removable Disk Drive Cartridge (#EU01) provides a RDX disk drive in a rugged cartridge to be used in an RDX Internal and External Docking Station such as the (#1103, #1104 or #1123, #EU03, #EU04, #EU23, or #EU07 1TB is uncompressed. docking station. 1TB is uncompressed. Compression/decompression is provided by the operating system, not the drive itself. Feature EU01 is not entitled under the IBM Maintenance Agreement, if one is purchased.

- Attributes provided: 1TB RDX rugged disk cartridge
- Attributes required: None.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: See Docking station for OS requirements
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

#### (#EU04) RDX USB External Docking Station for Removable Disk Cartridge

(No Longer Available as of July 26, 2016)

Note: Feature EU04 is withdrawn in the following European countries: Belgium, Luxembourg, Netherlands, Germany, Austria, Liechtenstein, France, Italy, Denmark, Sweden, Norway, Finland, Iceland, Spain, Portugal, Greece, Cyprus, Malta, United Kingdom, Ireland, Bulgaria, Croatia, Hungary, Romania, Slovenia, Czech Republic, Slovakia, Estonia, Latvia, Lithuania, and Poland.

USB External Docking Station accommodates RDX removable disk cartridge of any capacity. The disk are in a protective rugged cartridge enclosure that plug into the docking station. The docking station holds one removable rugged disk drive/cartridge at a time. The rugged removable disk cartridge and docking station backs up similar to tape drive. This can be an excellent alternative to DAT72, DAT160, 8mm, and VXA-2 and VXA-320 tapes. CCIN: 632C-0D4

#EU04 is a follow on product to the #1104 RDX docking station. #EU04 has identical function and performance to the internal #EU03 RDX docking station.

- Attributes provided: USB RDX External Docking Station, 3M USB cable, 1M power cord with universal adapter 100-240 VAC, 50-60Hz input providing 15W DC to the docking station.

- Attributes required: One USB port and at least one #1106, #1107, #EU01, #EU08, #EU15, or follow-on Removable Disk Drive Cartridge
- Minimum required: 0
- Maximum allowed: 5 (Initial order maximum: 5)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - AIX 6.1 and 7.1 or later supported
  - IBM i 7.1 TR8 and 7.2 or later supported
  - Refer to Software requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No  
Note: VIOS supported. Refer to Software requirements for specific code levels supported.

## (#EU08) - RDX 320 GB Removable Disk Drive

(No Longer Available as of November 30, 2015)

Provides a RDX disk drive in a rugged cartridge to be used in an RDX docking station such as #EU03, #EU04, #EU23, #1123, #1103, #1104 or #EU07. Capacity is 320 GB is uncompressed. Compression/ decompression is provided by the operating system, not the drive itself. Feature EU08 is not entitled under the IBM Maintenance Agreement, if one is purchased.

- Attributes provided: 320 GB RDX rugged disk/cartridge
- Attributes required: One docking station
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required:
  - See RDX Docking Station
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EU15) - 1.5TB Removable Disk Drive Cartridge

(No Longer Available as of November 30, 2015)

The 1.5 TB Removable Disk Drive Cartridge provides a RDX disk drive in a rugged cartridge to be used in an RDX Internal and External Docking Station such as #1103, #1104 or #1123, #EU03, #EU04, #EU23, or #EU07. 1.5TB is uncompressed. Compression/ decompression is provided by the operating system, not the drive itself. Feature EU015 is not entitled under the IBM Maintenance Agreement, if one is purchased.

- Attributes provided: 1.5TB RDX rugged disk cartridge
- Attributes required: RDX docking station
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: See Docking station for OS requirements
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EU19) - Cable Ties & Labels

Set of 10 hook and loop fabric, often called VELCRO(R), ties 35.5 cm (14-inch) in length to conveniently attach cables or cords to rack or other cables. Set of 16 labels 2x4 inches (5x10 cm) in sizes to identify cables when installing or moving or servicing equipment.

- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 254)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EU29) - Order Placed Indicator

This feature is use to identify ORDER PLACED IN ALGERIA, COMOROS, OR TUNISIA for administrative purposes within manufacturing to Facilitate processing.

- Attributes provided: ORDER PLACED INDICATOR FOR ADMINISTRATIVE TRACKING
- Attributes required: None.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EU2B) - BLU Acceleration Solution Edition Indicator

(No Longer Available as of December 29, 2017)

This feature specifies that the Power ESE (8412-EAD) system order includes BLU Acceleration Solution Edition software components of the solution. This feature will automatically be selected by the configurator when the solution is configured. The solution will be integrated at the Customer Solution Center.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - AIX 6.1 and 7.1 or later supported
  - IBM i - not supported
  - Red Hat Enterprise Linux 6.5, or later
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#EU2C) - Express Edition 4 core (IBM i)

(No longer available as of May 31, 2019)

Specify Express Edition 4-core (IBM i) to invoke configuration feature defaults.

- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#EU2D) - Express Edition 6-core (IBM i)

(No longer available as of May 31, 2019)

Specify Express Edition 6-core (IBM i) to invoke configuration feature defaults.

- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

### (#EU2T) - 2TB Removable Disk Drive Cartridge (RDX)

The 2.0TB Removable Disk Drive Cartridge provides a RDX disk drive in a rugged cartridge to be used in an RDX Internal and External Docking Station such as (#1103, #1104 or #1123, #EU03, #EU04, #EU23, or #EU07. 2.0TB is uncompressed. Compression/ decompression is provided by the operating system, not the drive itself. Feature EU2T is not entitled under the IBM Maintenance Agreement, if one is purchased.

- Attributes provided: 2.0TB RDX rugged disk cartridge
- Attributes required: None.
- Minimum required: 0
- Maximum allowed: 9999 (Initial order maximum: 250)
- OS level required: See docking station for OS requirements
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

### (#EU41) - ESJ1 Load Source Specify (931GB SSD SFF-2)

This specify code indicates that a #ESJ1 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESJ1
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature #ESJ1
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

### (#EU43) - ESJ3 Load Source Specify (1.86TB SSD SFF-2)

This specify code indicates that a #ESJ3 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESJ3
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature #ESJ3
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#EU45) - ESJ5 Load Source Specify (3.72TB SSD SFF-2)

This specify code indicates that a #ESJ5 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESJ5
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature #ESJ5
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#EU49) - ESJ9 Load Source Specify (931GB SSD SFF-3)

This specify code indicates that a #ESJ9 Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESJ9
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature #ESJ9
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#EU4B) - ESJB Load Source Specify (1.86TB SSD SFF-3)

This specify code indicates that a #ESJB Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESJB
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature #ESJB
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#EU4D) - ESJD Load Source Specify (3.72TB SSD SFF-3)

This specify code indicates that a #ESJD Solid State Drive is being used as the Load Source.

- Attributes provided: Communicate location of load source to IBM Manufacturing
- Attributes required: Feature ESJD
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 0)
- OS level required: See feature #ESJD
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

#### (#EUA3) - RDX USB Top Mount Docking Station for Removable Cartridge

(No longer available as of May 31, 2019)

This feature ships an RDX docking station and an enclosure for the docking station. The enclosure is firmly mounted on top of a Power S814 tower configuration. It is not available for a rack-mounted configuration. The enclosure adds about 5 cm (2 in) height to the tower. The RDX docking station be removed from the enclosure using concurrent maintenance.

The RDX Docking Station accommodates RDX removable disk cartridge of any capacity. The disk are in a protective rugged cartridge enclosure that plug into the docking station. The docking station holds one removable rugged disk drive/cartridge at a time. The rugged removable disk cartridge and docking station provides saves, restores and backs up similar to tape drive. This can be an excellent entry capacity/performance option. Functionally this docking station is identical to the feature #EU03/#EU04 RDX USB docking stations introduced on POWER7 servers.

Internal USB cables in the enclosure connect the RDX docking to internal USB connections in the server. The internal cables are included in this feature code and are not ordered separately.

Limitation: Due to the internal USB connections, the two USB ports on the rear of the server are removed. The USB port at the front of the server remains available for client use.

Limitation: Factory installed only with a new server.

- Attributes provided: RDX docking station and top mount mounting enclosure
- Attributes required: Tower configuration of Power S814
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.1 with machine code RS710-S, or later
  - IBM i 7.2 TR5, or later
  - IBM i 7.3 TR1, or later
  - AIX supported
  - Linux supported
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: No

## (#EUA4) - RDX USB External Docking Station

USB External Docking Station which accommodates RDX removable disk cartridge of any capacity. The disk is in a protective rugged cartridge enclosure that plug into the docking station. The docking station holds one removable rugged disk drive/cartridge at a time. The rugged removable disk cartridge and docking station can be used similar to a tape drive. This can be an excellent entry system save/ restore option and a good alternative to DAT72, DAT160, 8mm, and VXA-2 and VXA-320 tapes. CCIN: 63B8-005.

#EUA4 attaches to a Power server via a USB cable which carries data and control information. It is not powered by the USB port on the Power System or Power System USB adapter, but has a separate electrical line cord. Physically the #EUA4 docking station is a standalone enclosure about 2.0 x 7.0 x 4.25 inches in size which can

#EUA4 is a follow on product to the #EU04 RDX docking station. #EUA4 has identical performance and identical application function to:

- Previously announced #EU04 and #1104 USB external docking stations
- Top mount #EUA3 USB docking station used in the Power S814 tower configuration
- #EU03 USB internal docking stations used in Power 720 system units
- #EU03 USB docking station available in the rack mounted IBM 7226-1U3 Multimedia Drawer

The RDX USB External Docking Station (Feature EUA4) is only orderable in the following countries/regions:

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

- Attributes provided:
  - USB 3.0 RDX External Docking Station
  - USB 3.0 Cable (2.7 meter or 8.8 foot)
  - Four line cords (1.85 meter or 6 foot) with type A, G, F or I plug (see <http://www.iec.ch/worldplugs> for type definition and country-specific usage)
  - One power jumper cord as an alternative to using one of the four power line cords above. This would draw power from a PDU in a rack.
  - Power Adapter using single phase 110-250V 50-60Hz power source
- Attributes required:
  - One USB port on server or server's USB adapter
  - At least one Removable Disk Drive Cartridge such as #EU01 or #1107
  - Firmware version 860.20, or higher
- Minimum required: 0
- Maximum allowed: 5 (Initial order maximum: 5)
- OS level required:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise Server
  - Ubuntu Server
  - IBM i 7.1 TR11 or later
  - IBM i 7.2 TR6 or later
  - IBM i 7.3 TR2 or later
  - AIX 6.1, 7.1, and 7.2, or later supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

## (#EUC0) - Solution Specify - Reserved

(No longer available as of April 24, 2018)

Communicates to the Customer Solution Center that no components of a given software product are to be preloaded.

- Attributes provided: Within a hardware and software solution, a define for software components.
- Attributes required: Hardware specify feature for the software product within a hardware and software solution.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

## (#EUC1) - Solution Specify - Reserved



(No longer available as of April 24, 2018)

Communicates to the Customer Solution Center that a given component of a software product is to be preloaded. The name of the software component is defined by the configurator.

- Attributes provided: Within a hardware and software solution, a define for a software component.
- Attributes required: Hardware specify feature for the software product within a hardware and software solution.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

## (#EUC2) - Solution Specify - Reserved

(No longer available as of April 24, 2018)

Communicates to the Customer Solution Center that a given component of a software product is to be preloaded. The name of the software component is defined by the configurator.

- Attributes provided: Within a hardware and software solution, a define for a software component.
- Attributes required: Hardware specify feature for the software product within a hardware and software solution.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

## (#EUC3) - Solution Specify - Reserved

(No longer available as of April 24, 2018)

Communicates to the Customer Solution Center that a given component of a software product is to be preloaded. The name of the software component is defined by the configurator.

- Attributes provided: Within a hardware and software solution, a define for a software component.
- Attributes required: Hardware specify feature for the software product within a hardware and software solution.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: Does not apply

## (#EUC6) - Core Use HW Feature

A Service Provider (SP) under a "revenue payment" contract with IBM pays IBM a percentage of revenue generated on their infrastructure used to deliver cloud services. The contract stipulates that each quarter the service provider calculates the amount due IBM and then purchases a quantity of features that satisfies the required payment. Each occurrence of this feature represents one billing unit.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 250 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## (#EUC7) - Core Use HW Feature 10X

A Service Provider (SP) under a "revenue payment" contract with IBM pays IBM a percentage of revenue generated on their infrastructure used to deliver cloud services. The contract stipulates that each quarter the service provider calculates the amount due IBM and then purchases a quantity of features that satisfies the required payment. Each occurrence of this feature represents ten billing units.

- Attributes provided: None
- Attributes required: None
- Minimum required: 0
- Maximum allowed: 250 (Initial order maximum: 0)
- OS level required: None
- Initial Order/MES/Both/Supported: MES
- CSU: Yes
- Return parts MES: No

## Accessories

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None

## Customer replacement parts

The following parts have been designated as Tier 1 CRUs:

- DASD SFF Drive
- DASD SSD Drive
- DVD Drive
- Fan
- Fan Cage
- All PCI Adapters
- High Function RAID Card Cable
- Memory DIMMs
- Native USB Serial Card
- Operator Panel
- Operator Panel Cable
- Power Supply
- Line/power cord
- Keyboard
- Mouse
- External cables
- Power Bus Signal Cable
- Display
- GXP adapter
- Time of Day (TOD) Battery

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## Supplies

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None

## Supplemental media

None

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