Family 8284+02 IBM Power System S812 server Model 21A

IBM Japan Sales Manual
Revised: September 8, 2020

Table of contents

Product life cycle dates

Type Model	Announced	Available	Marketing Withdrawn	Service Discontinued
8284-21A	2017-02-14	2017-03-17	2020-08-31	-

Back to top

Abstract

The Power System S812 server brings robust and solid business transaction processing with proven infrastructure for AIX, or Linux, or IBM i operating system environments. The S812 is a 1-socket, 2U system designed to meet compute demands of larger deployments, for example, in retail space and as an entry point for noncompute-intense workloads that require high reliability and stability.

This 1-socket system can be ordered with one core for IBM i (up to 25 users) and up to four cores for AIX or Linux. The S812 provides the benefits of great performance per core and per socket, utilizing the POWER8 processor. It also provides resilient I/O capabilities, internal storage, and hot-plug PCI capabilities, along with greater reliability, availability, and serviceability.

Other benefits include:

- A foundation to core workloads in small footprints at a very competitive price point
- Right fit for small businesses and scale-out deployments
- Energy efficient and easy to manage by utilizing advanced energy control

The Power System S812 supports one processor socket, offering 1-core with IBM i or 4-core with AIX or Linux 3.026 GHz POWER8 configurations in a 19-inch rack-mount, 2U (EIA units) drawer configuration.

The Power S812 server supports a maximum of 64 GB DDR4 memory for IBM i workloads and a maximum of 128 GB DDR4 memory for AIX or Linux workloads. Memory features supported are 16 GB and 32 GB and run at speeds of 1600 Mbps.

I/O and system attributes in the system unit include:

- Six PCIe Gen3 Low Profile (LP) Slots (all hot pluggable)
- CAPI capable on two PCIe x16 slots (AIX or Linux)
- Twelve or eight 2.5-in. SAS SFF-3 bays for HDD or SSD (all hot pluggable)
  - Eight bays available for IBM i
  - Eight or twelve bays for AIX or Linux, depending on backplane
- Multiple RAID options supported
- One DVD
- Two front USB 3.0, two rear USB 3.0, and two rear USB 2.0 ports
- One system port (rear)
- Service processor
- 1+1 Redundant hot-swap AC power supplies
- 19-inch rack-mount 2U configuration
- AIX 6.1, 7.1, 7.2, or later, operating system support
- Red Hat Enterprise Linux 7.4, little endian, or later
- SUSE Linux Enterprise Server 12, Service Pack 3, or later
- Ubuntu Server 16.04.3, or later
- IBM i 7.3 TR2, 7.2 TR6, or later, operating system support with a maximum of 25 IBM i user entitlements

Model abstract 8284-21A

The IBM Power System S812 supports fully activated POWER8 DCM processor module configurations with one processor socket, offering 1-core or 4-core at 3.026 GHz, in a 19-inch rack-mount, 2U (EIA units) drawer configuration. All the cores are active. Supports a maximum of 64 GB DDR4 for IBM i workloads and a maximum of 128 GB DDR4 memory for AIX or Linux workloads. Memory features supported are 16 GB and 32 GB and run at speeds of 1600 Mbps.

↑ Back to top

Highlights

The IBM Power System S812 server is a powerful 1-socket server that ships with one or four activated cores and I/O configuration flexibility to meet small businesses' processing needs. The server features:

- The IBM POWER8 processor module configurations:

    - 1-core 3.026 GHz for IBM i
    - 4-core 3.026 GHz for AIX or Linux
- Up to 64 GB of memory for 1-core S812or up to 128 GB of memory for 4-core S812
- Choice of integrated storage backplane features:
    - Eight SFF-3 bays, DVD bay, and dual SAS controller with write cache
    - Twelve SFF-3 bays, DVD bay, and single SAS controller
    - Twelve SFF-3 bays, DVD bay, and split backplane two SAS controllers
- Expansion capabilities for the EXP24SX or EXP12SX Drawer for the 4-core S812
- Six low-profile, hot-swap PCIe Gen 3 slots
- Integrated:
    - Service processor
    - EnergyScale technology
    - Four (two front + two rear) USB 3.0 ports for general use
    - Two rear USB 2.0 ports for non-general use
    - Hot-swap and redundant cooling
    - One system port with RJ45 connector
- Two hot-plug, redundant power supplies
- 19-inch rack-mounting hardware (2U)
- For IBM i, a maximum of 25 IBM i user entitlements

↑ Back to top

Description

Summary of standard hardware features for the Power S812 server:

- POWER8 processor modules:
    - 1-core, 3.026 GHz for IBM i workloads under P05 licensing tier with up to 25 users
    - 4-core, 3.026 GHz for AIX or Linux workloads
- High-performance 1600 Mbps DDR4 ECC memory
    - 16 GB (#EM96) and 32 GB (#EM97) memory features
    - Up to 64 GB memory for 1-core S812 for use with IBM i operating system
    - Up to 128 GB memory for use with AIX or Linux operating system
- Choice of two storage backplane features:
    - Option one: Twelve SFF-3 bays, one DVD bay, one integrated SAS controller without cache, and JBOD RAID 0, 5, 6, and 10
        - Optionally, split the above SFF-3 bays and add a second integrated SAS controller without cache.
    - Option two: Eight SFF-3 bays, one DVD bay, a pair of integrated SAS controllers with cache, and RAID 0, 5, 6, 10, 5T2,(1)6T2,(1)and 10T2.(1)
      Note: (1) With AIX or Linux.

    - Optionally, attach an EXP12SXor EXP24SX SAS Storage Enclosure to the dual IOA with 4-core S812.
- Six hot-swap PCIe Gen 3 slots
    - Two x16 slots and four x8 slots

  Note: One less PCIe slot is available with the dual IOA storage backplane feature EJ0U.
  Note: One x8 PCIe slot is used for a PCIe Ethernet LAN adapter.
- Integrated:
    - Service processor
    - EnergyScale technology
    - Hot-swap and redundant cooling
    - Four (two front + two rear) USB 3.0 ports for general use
    - Two rear USB 2.0 ports for non-general use
    - One system port with RJ45 connector
- Two hot-plug, redundant power supplies
- 19-inch rack-mounting hardware (2U)
- Two hot-plug, redundant power supplies
- 19-inch rack-mounting hardware (2U)

Power S812 system operating environments

The 1-core Power S812 server supports a single IBM i partition system. Its software tier is P05. IBM i 7.3 TR2 or IBM i 7.2 TR6, or later, is supported.

The 4-core S812 server supports a single AIX or Linux partition, which can be 1 core, 2 cores, 3 cores, or 4 cores. It is a small software tier. AIX 7.2 TL0, AIX 7.1 TL1, AIX 6.1 TL7, or later, are supported. The optional Factory Deconfiguration (#2319) can be used to "set aside" cores and potentially reduce licensing and software maintenance costs.

The S812 uses firmware 860.20 and later.

Power S812 system configuration

The minimum Power S812 initial order must include a processor module, 16 GB or 32 GB of memory, a storage backplane, one Ethernet LAN adapter, either one or two SAS drives or, alternatively, a Fibre Channel adapter to external storage, two power supplies and line cords, an operating system indicator, a cover set indicator, and a Language Group Specify.

The primary operating system can be AIX, Linux, or IBM i.

The minimum AIX or Linux defined initial order configuration is as follows:

Feature number	Description
EPXQ	4-core 3.026 GHz POWER8 Process or Module
EPYQ x n or EPZQ x m	Processor core activations for EPXQ where the quantity of n plus must equal 4
1 memory DIMM	16 GB DDR4 Memory feature EM96

	defaulted
1 storage backplane	Storage backplane: 12 SFF-3 bays and DVD bay, single SAS controller with no cache feature EJ0T defaulted
1 SAS drive (HDD or SSD) or a Fibre Channel adapter for external storage	300 GB 15k RPM SAS SFF-3 Disk Drive for AIX feature ESFB defaulted
EB2L x 2	AC Power Supply - 900W
1 Ethernet LAN adapter	PCIe2 LP 4-port 1GbE Adapter feature 5260 defaulted
2 power cords	Two power cords such as feature 6458 Power Cord 4.3 m (14-ft), Drawer to IBM PDU (250V/10A)
9300	Language Group Specify
EJUD	Front bezel (used with #EJ0T backplane)
or	
EJUE	Front bezel (used with #EJ0U backplane)
EJT6	Rack OEM, bezel (used with #EJ0T backplane) - Bull or Hitachi sales only
or	
EJT7	Rack OEM, bezel (used with #EJ0U backplane) - Bull or Hitachi sales only
2146	Primary Operating System Indicator - AIX
or	
2147	Primary Operating System Indicator - Linux

The minimum IBM i defined initial order configuration is as follows:

Feature number	Description
EPXP	1-core 3.026 GHz POWER8 Processor module for IBM i
EPYP x 1	Processor core activations for EPXP
or	
EPZP x 1	Zero-priced 1-way processor core activations
1 memory DIMM	16 GB DDR4 Memory feature EM96 defaulted
1 storage backplane	Storage backplane: 8 SFF bays and DVD bay, pair SAS controllers with cache feature EJ0U defaulted
2 SAS drives (HDD or SSD) or a Fibre Channel	

```
adapter for external storage 283 GB 15k RPM SAS SFF-3 Disk Drives
for IBM i feature ESFG defaulted
EB2L x 2                          AC Power Supply - 900W
5260 x 1                          PCIe2 LP 4-port 1GbE Adapter
5771 x 1                          SATA DVDRAM with write cache
2 power cords                     Two power cords such as feature 6458
9300                              Language Group Specify
EJUD                              Front bezel (used with #EJ0T
                                  backplane)
or
EJUE                              Front bezel (used with #EJ0U
                                  backplane)
2145                              Primary Operating System
                                  Indicator - IBM i
```

- If IBM Manufacturing is to factory integrate the server in a rack, the initial order must also have an IBM 7014-T00, 7014-T42, or 7953-94Y rack. If IBM Manufacturing is to factory integrate a future I/O expansion drawer ordered as an MES to an existing system, either a feature 0551, 0553, or ER05 rack must be ordered as part of the MES.
- 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.
- Feature EJ0T is a prerequisite for the split backplane option (#EJ0V.)

Processor modules

The following options are available:

- One-core 3.026 GHz for the 1-core S812 (IBM i operating system)
- Four-core 3.026 GHz for the 4-core S812 (AIX or Linux operating system)
- Note that a 1-core S812 cannot be converted to 4-core S812 (or vice versa) after it has been shipped from IBM.

System memory

- A minimum 16 GB of memory is required on the Power S812 system (one DIMM) though more than one DIMM is recommended for higher performance.
- A maximum of 64GB is supported on a 1-core S812 and a maximum of 128GB is supported on a 4-core S812.
- The server has eight memory slots, but the maximum memory capacity of the server and size of DIMMs being used may allow only a subset of the slots to be used.
- Memory plugging rules require memory DIMMs to be plugged in identical pairs after the first single DIMM. For example, using a 4-core S812 and using all 16GB DIMMs, a quantity of 1, 2, 4, 6, or 8 DIMMs could be configured.
- On a 1-core S812, different size DDR4 memory DIMMs cannot be mixed. On a 4-core S812, 16GB and 32GB DDR4 DIMM pairs can be mixed.

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. Note adding memory requires scheduled downtime of the server.

DDR4 Memory features for S812

```
Description     Feature Maximum  Maximum
                number  DIMM     DIMM
                        quantity quantity
```

		for 1-core	for 4-core
16 GB	1600 Mbps EM96	4	8
32 GB	1600 Mbps EM97	2	4

Active Memory Expansion (#4793) can be used with the 4-core S812 to effectively expand the capacity beyond 128GB. The degree of expansion will depend on the applications being run.

Power supply

Two redundant, hot-pluggable 900W AC power supplies are required (two #EB2L).

Redundant fans

Redundant fans are standard.

Power cords

Two power cords are required, one for each power supply. Refer to the feature listing for options. Recommendation: For redundancy, attach the power cords to independent power sources.

I/O support

The following I/O is supported.

PCIe slots

The Power S812 has up to six PCIe hot-plug Gen 3 slots, providing configuration flexibility. Two slots are x16 and four are x8 slots. Attachment of a PCIe Gen3 I/O Drawer is not supported on either the 1-core or 4-core S812.

The x16 slots can provide up to twice the bandwidth of x8 slots 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.

The new servers are smarter about energy efficiency for cooling the PCIe adapter environment than earlier generation servers such as the IBM POWER6 servers. 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. Note that faster fans increase the sound level of the server. Higher wattage PCIe adapters include the PCIe3 SAS adapters (#EJ0M and #EJ11).

Note the choice of SAS backplane can reduce the available PCIe slots. See below.

SAS bays and storage backplane options

Three backplane options provide a great deal of flexibility and capability for the 1-core and the 4-core S812. One of these three must be configured:

- Storage Backplane 12 SFF-3 bays/DVD bay (#EJ0T)
- Features EJ0T and EJ0V (split backplane)

- Storage Backplane 8 SFF-3 bays/DVD bay/Dual IOA with Write Cache (#EJ0U) and optionally Easy Tier functionality for the 4-core S812

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 an 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. These options can provide significant I/O performance compared to the integrated SAS controllers in earlier generation servers. 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 SSDs. Internally, 13 (no cache) or 16 (with cache) 6Gb SAS ports are implemented and provide plenty of bandwidth. The integrated SAS controllers are placed in dedicated slots, and the backplane options with no cache do not reduce the number of available PCIe slots. The backplane option with cache (#EJOU) does reduce the number of PCIe slots by one.

The feature EJ0T Storage Backplane option provides 12 SFF-3 bays, 1 SAS controller with zero write cache, and a DVD drive bay. All 12 bays can be used in a 4-core S812. A maximum of 8 of the 12 bays can be used in a 1-core S812.

By optionally adding the feature EJ0V split backplane, a second integrated SAS controller with no write cache is provided and the 12 SSF-3 bays are logically divided into 2 sets of 6 bays. Each SAS controller independently runs 1 of the 6-bay sets of drives. If the split backplane option is used for a 1-core S812 with its 8-drive maximum, the split options are 4+4 or 6+2.

The feature EJ0U storage backplane option has expanded function compared to the feature EJ0T backplane. Feature EJ0U provides eight SSF-3 bays; a pair of integrated SAS controllers, each with 1.8 GB physical (effectively up to 7.2 GB with compression) write cache; a DVD bay; two SAS ports enabled for attaching an external feature EXP12SX (#ESLL) or EXP24SX (#ESLS) SAS Storage Enclosure. The SAS ports are physically mounted on the rear of the server and do not use up one of the six S812 PCIe x8 slots. Use of the SAS ports is supported on the 4-core S812, but is not supported on the 1-core S812. Easy Tier functionality is available on the 4-core S812, but not the 1-core S812.

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. If you are 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. On the 4-core S812, the high-performance, expanded-function dual-IOA backplane also proves 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: Clients who have I/O performance-sensitive workloads with an appreciable percentage of writes should consider using the feature EJ0U 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.

IBM i requires that disks or SSDs be protected to have a supported configuration. Storage protection for AIX or Linux is highly recommended, but not required.

If needed, the backplane option can be changed after the server is already installed. For example, the feature EJ0V split backplane feature can be added to an existing feature EJ0T backplane. Or the feature EJ0T backplane can be removed and replaced by the expanded- function dual IOA feature EJ0U backplane. Or a feature EJ0U backplane could be replaced by a feature EJ0T and EJ0V 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 EJ0T or EJ0U backplanes is a slimline media bay that can optionally house a SATA DVD-RAM (#5771). This DVD is recommended but optional for AIX or Linux. It is required for IBM i. 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, high- performance storage backplane (#EJ0U) on the 4-core S812. 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 on the 4-core S812, an EXP12SX or EXP24SX Storage Enclosure. Hot data is automatically moved to SSD, and cold data is automatically moved to disk (HDD) in an AIX environment. No user application coding is required. The EJ0U Easy Tier function is not available on the 1-core S812, but IBM i has an integrated capability (trace/balance) that provides roughly similar capability.

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. 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.

On a 4-core S812, up to 12 internal HDD/SSD SAS bays and, optionally, with the EXP12SX or EXP24SX SAS Storage Enclosure, an additional 12 or 24 SAS bays are supported with the integrated Easy Tier function by the integrated SAS controllers.

Easy Tier function is configured using RAID 5T2 (2-tiered RAID5), RAID 6T2 (2-tiered RAID6) or RAID 10T2 (2-tiered RAID10). HDDs and SSDs 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 HDD. The HDDs and SSDs can be different capacities in this array. If an array has multiple capacity points, for example, 600 GB HDD and 387 GB HDD, only 387 GB of the larger 600 GB HDD 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.

SAS I/O drawer attachment for the 4-core S812

The EXP24SX or EXP12SX SAS Storage Enclosures (#ESLS or #ESLL respectively) are 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. A maximum total of three SAS enclosures are supported on the 4-core S812.

- One EXP24SX (#ESLS) or one EXP12SX (#ESLL) Storage Enclosure in mode 1 can optionally be attached to the two SAS ports on the rear of the server using the EJ0U backplane. Two SAS YO cables such as feature ECBT, ECBU, ECBV, or ECBW connect the system and the enclosures. Either SSDs or HDDs can be placed in this drawer, but SSDs and HDDs cannot be mixed in this drawer.
- Up to three EXP24SX (#ESLS) or EXP12SX (#ESLL) Storage Enclosures in mode 1, 2, or 4 can be attached to SAS ports of PCIe SAS adapters using SAS YO or X cables. The specific SAS cables used will depend on the specific adapter selected and drawer mode selected. 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.

The 1-core S812 does not support the attachment of the EXP24SX or EXP12SX enclosure. Neither the 1-core nor the 4-core S812 support the EXP24S SFF Gen2-bay Drawer (#5887).

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. Another RDX option is the separate external docking station feature EUA4 or EU04, which is attached to a USB port. The USB port can be the integrated USB 3.0 port on the S812 or on a USB adapter such as the feature EC45.

SAS drives supported

The 1-core S812 supports the following SFF-3 capacity drives, similar to the 4-core S814, in a maximum of 8 of the SAS bays in the S812 system unit:

- 15k rpm disk drives
  - 283GB 15K RPM 4K HDD (#ESFG)
  - 283GB 15k RPM 4k HDD (#ESFA)
- 10k rpm disk drives
  - 571GB 10k RPM 4k HDD (#ESF4)
- SSD
  - 387 GB eMLC4 4k SSD (#ES8P)
  - 387 GB SSD Enterprise 4k (#ESGE)
  - 387 GB SSD 5xx byte blocks Enterprise technology (#ESGA)
  - 387 GB SSD 4k byte blocks Enterprise technology (#ES91)
  - 387 GB Enterprise SAS 4k SFF-3 SSD for IBM i (#ESB9)
  - 931 GB SSD Mainstream 4k (#ES84)
  - 931 GB SSD 4k byte blocks Mainstream technology (#ESJ9)

The 4-core S812 supports the following capacity drives: SFF-3 in the system unit, SFF-2 in the EXP24SX, and LFF-1 in the EXP12SX:

- SFF-3 300 GB 15K RPM SAS 4KN HDD -- 4k (#ESNK)
- SFF-3 600GB 10K RPM HDD -- 5xx (#ESD5) and 4k (#ESF5)
- SFF-3 1.2TB 10K RPM HDD -- 5xx (#ESD9) and 4k (#ESF9)
- SFF-3 1.8 TB 10K RPM 4K HDD (#ESFV)
- SFF-3 300GB 15K RPM HDD -- 5xx (#ESDB) and 4k (#ESFB)
- SFF-3 600GB 15k rpm HDD -- 5xx (#ESDF) and 4k (ESFF)
- SFF-3 387 GB eMLC4 SSD -- 5xx (#ES7K) and 4k (#ES8N)
- SFF-3 775 GB eMLC4 SSD -- 5xx (#ES7P) and 4k (#ES8Q)
- SFF-3 1.5 TB 4k eMLC4 SSD (#ES8V)
- SFF-3 1.9 TB 4K READ INTENSIVE SSD (#ES8J)
- SFF-2 600GB 10k RPM HDD -- 5xx (#1964) and 4k (#ESEV)
- SFF-2 1.2TB 10k RPM HDD -- 4k (#ESF3)
- SFF-2 1.8TB 10k RPM 4k HDD (#ESFT)
- SFF-2 300GB 15k RPM HDD -- 5xx (#1953) and 4k (#ESEZ)
- SFF-2 600GB 15k RPM HDD -- 4k (#ESFP)
- SFF-2 775GB eMLC4 SSD -- 5xx (#ES7E) and 4k (#ES8C)
- SFF-2 387GB eMLC4 SSD -- 5xx (#ES78) and 4k (#ES85)
- SFF-2 1.9TB 4KN READ INTENSIVE SFF (#ES80)
- LFF-1 3.86 - 4.0 TB 7.2k rpm 4k HDD (#ES62)
- LFF-1 7.72 - 8.0 TB 7.2k rpm 4k HDD (#ES64)
- SFF-3 387 GB Enterprise SSD -- 5xx (#ESG9) and 4k (#ESGD)

- SFF-3 931 GB 4K Mainstream SSD (#ES83)
- SFF-2 387 GB Enterprise SSD -- 5xx (#ESG5) and 4k (#ESGB)
- SFF-2 931 GB 4K Mainstream SSD (#ES8Y)
- SFF-2 300 GB 15K RPM HDD -- 4k (#ESNM)
- 387GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux (#ESB0)
- 387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux (#ESB2)
- 775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux (#ESB4)
- 775GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux (#ESB6)
- 387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux (#ESB8)
- 387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux (#ESBA)
- 775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux (#ESBE)
- 775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux (#ESBG)
- 1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux (#ESBJ)
- 1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux (#ESBL)

Low-Profile PCIe adapters supported

Feature number	Feature name	1-core server (IBM i)	4-core server (AIX or Linux)
5260	PCIe2 LP 4-port 1GbE Adapter	x	x
5273	PCIe LP 8Gb 2-Port Fibre Channel Adapter	x	x
5277	PCIe LP 4-Port Async EIA-232 Adapter	x	x
EC45	PCIe2 LP 4-Port USB 3.0 Adapter	x	x
EJ11	PCIe3 LP SAS Tape/DVD Adapter Quad-port 6Gb x8	x	x
EN0T	PCIe2 LP 4-Port (10Gb+1GbE) SR+RJ45 Adapter		x
EN0V	PCIe2 LP 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter		x
EN0X	PCIe2 LP 2-port 10/1GbE BaseT RJ45 Adapter		x
EJ1N	PCIe1 LP SAS Tape/DVD Dual-port 3Gb x8 Adapter	x	x
EN0B	PCIe3 LP 16Gb 2-port Fibre Channel Adapter		x
EN0F	PCIe2 LP 8Gb 2-Port Fibre Channel Adapter		x
EJ0M	PCIe3 LP RAID SAS Adapter Quad-Port 6Gb x8	x	x

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 (3 ft) 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 is one system port and four USB ports.

The one system port is RJ45 and is supported by AIX, Linux, and IBM i for attaching serial devices. AIX or Linux typically uses the port to attach an asynchronous device like a console. IBM i typically does not use this port. If the device does not have an 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. Two are located on the front of the server and two are located on the rear.

The service processor card on the rear of the server has five ports. One is the system port mentioned above. There are also two USB-2 ports which are available for limited client use. The USB-2 ports can be used to communicate with a UPS. This usage is common for IBM i and requires a converter cable (#ECCF). This usage is less common for AIX or Linux. The last two service processor ports are HMC ports.

HMC or vHMC

An HMC or vHMC is not required with the Power S812. Given the S812 has only one partition and no virtualization, it's value would be limited. An HMC or vHMC could be used for things like remote console support, additional diagnostic tooling, remote set and management, update access key for firmware and more.

Racking and front bezel

The S812 requires 2U in a standard 19-inch rack. Airflow is front to back. The IBM Enterprise 7014-T00, 7014-T42, and Slim Rack 7965-94Y have been tested by IBM and meet multiple certification tests required by IBM. Other 19-inch racks may work, but have not been certified by IBM Development. If other IBM or non-IBM racks are used, the client should work with IBM Service to determine if they are acceptable for S812 warranty and service support. The S812 rails can adjust to rack depths from about 24in. -31in.

Different front bezels are required depending on the storage backplane, either 8-bay (EJ0U) or 12-bay (EJ0T) storage backplane features can be selected. The 8-bay (EJ0U) requires feature EJUE bezel, and the 12-bay (EJ0T) requires feature EJUD.

IBM i Express Edition

With the initial order of a 1-core S812, the no-charge IBM i Express Edition can be ordered (feature EU2E). This provides several advantages:

- 5 no charge IBM i user license entitlements
- "Unlimited" (up to 25) users for IBM i Access Family
- Option to order development tools at a lower price
- Option to order up to four lower priced 283GB 15k disk drives (#ESFG) with initial order

Power System S812 (8284-21A) CBU offering for IBM i

The Power S812 (8284-21A) CBU designation enables you to temporarily transfer IBM i user license entitlements purchased for a primary machine to a secondary CBU-designated system for HA/DR operations. Temporarily transferring user license entitlements instead of purchasing them for your secondary system may result in significant savings. Note that since the S812 is a 1-core server with an IBM i processor license entitlement, moving additional "processor entitlements" such as done on larger CBU servers is not available (or useful) while moving "user entitlements" is useful.

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 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.

For a Power S812 (8284-21A) server with its IBM i P05 software tier when designated as a CBU, the primary systems can be an IBM POWER7, IBM POWER7+, or POWER8 server with a P05 or P10 software tier listed below:

- S814 (8286-41A)
- S822 (8284-22A)
- P460 (7895-43X and 7895-42X)
- P270 (7954-24X)
- P260 (7895-22X, 7895-23X, and 7895-23A)
- PS704 (7891-74X)
- PS703 (7891-73X)
- PS701/702 (8406-71Y)
- 720 (8202--E4B, 8202-E4C, and 8202-E4D)
- 710 (8231-E1D and 8268-E1D)
- PS700 (8406-70Y)

The primary machine must be in the same enterprise as the S812 CBU system.

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 and up to 20 users for the S812 CBU since the S812 has a maximum IBM i user entitlement of 25 users, 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. For example, the minimum number of IBM i users on a sampling of the POWER7 and POWER8 with IBM i user entitlements are:

- Power S814 (8286-41A) 4-core: 5 users; 6-/8-core: 10 users
- Power S822 (8284-22A): 10 users
- Power 720 (8202-E4B, 8202-E4C, 8202-E4D) 4-core: 5 users; 6-/8-core: 30 users

For example, if you have a 4-core S814 as your primary system with 50 IBM i user entitlements, you can temporarily transfer up to 20 user entitlements to the CBU.

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, see the IBM Capacity Backup for Power Systems website.

Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be found on the Product accessibility information website.

Section 508 of the US Rehabilitation Act

The IBM Power System S812 (8284-21A) server is capable as of March 17, 2017, when used in accordance with IBM's associated documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it. A US Section 508 Voluntary Product Accessibility Template (VPAT) can be found on the Product accessibility information website.

↑ Back to top

Product positioning

Power System S812 (8284-21A) server solutions and services, designed for small to midsized businesses, help your business capitalize on new opportunities, manage business risk while meeting high service levels, and keep within tight budget constraints.

This System aims at large deployment for example in retail environments where reliability and security matter. The other segment are small businesses looking for a price attractive alternative that meets their performance requirements to keep their infrastructure current. The S812 is the entry point into the POWER8 server family. To enable the financial advantage but still meet customer requirements in the mentioned segments this system comes with some limitations versus the current POWER8 scale out systems. There is AIX, Linux, and IBM i operating support available. The S812 will have no virtualization capabilities. There is an IBM i 1-core system available and a 4-core AIX or Linux system. It is not possible to run different operating systems on these system.

↑ Back to top

Models

Model summary matrix

Model	Description	Processor	Speed	Operating System	Memory	Hard Drive	DVD	USB
21A	IBM Power System S812	1-core	3.026 GHz	IBM i	64 GB maximum	Eight 2.5-in HDD SFF bays	Applies	Two front and two rear USB 3.0 ports
21A	IBM Power System S812	4-core	3.026 GHz	AIX or Linux	128 GB maximum	Twelve 2.5-in HDD SFF bays	Applies	Two front and two rear USB 3.0 ports

Note: IBM Power System Machine type/Model 8284-21A is being withdrawn in South Korea effective December 31, 2019.

Customer setup (CSU)

Yes.

Devices supported

Not applicable.

Model conversions

Not available.

Back to top

Technical description

Physical specifications

- Width: 443 mm (17.5 in.)
- Depth: 755 mm (29.7 in.)
- Height: 87 mm (3.5 in.)
- Weight: 28.6 kg (63 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% - 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 V AC or 200 to 240 V AC
- Operating frequency: 47/63 Hz
- Maximum measured power consumption: 1,225 watts (maximum)
- Power factor: 0.98
- Thermal output: 4,180 Btu/hour (maximum)
- Power-source loading
  - 1.27kVa (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 website should be used to obtain a heat output estimate based on a specific configuration.
- Noise level and sound power
  - Rack-mount system: 6.7 bels operating; 6.7 bels idling

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 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).

Systems:

- Product category: D
- Power consumption in active mode: 291 watts
- Base processor configuration Composite Theoretical Performance (CTP): 255,509 MTOPs (6-core 3.026 GHz processor)
- WT:
  - 0.0073 1-core POWER8 3.026 GHz (1 processor)
  - 0.0290 4-core POWER8 3.026 GHz (1 processor)

WT is Weighted Teraflops, which is based on the number of floating point operations the processor can perform in a cycle.

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.

Limitations

- AIX 5.3 WPAR is not supported on S812
- The integrated system ports are supported for modem and asynchronous 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 ports do not support HACMP configurations.
- The S812 is designed for simplicity and cost effectiveness and thus has a number of limitations compared to the S822 or S814 server:
  - There is a maximum of one partition.
  - There is no virtualization of processors, memory, or I/O (no VIOS).
  - The 1-core server runs i and does not run AIX.
  - The 4-core server runs AIX or Linux and does not run IBM i.
  - PCIe Gen3 I/O Expansion Drawers are not supported.
  - Older SAS expansion drawers such as the EXP24S (#5887) and earlier are not supported.
- Specific 1-core S812 hardware rules:
  - A maximum of 64 GB memory.
  - A maximum of 8 SAS bays supported.
  - Zero SAS expansion drawers supported.
  - Only 4k disk and 4k SSD options: 387 GB SSD, 600 GB 10k, and 283 GB 15k.
  - A maximum of 25 IBM i users
- Specific 4-core S812 hardware rules:
  - A maximum of 128 GB memory.
  - A maximum of 3 SAS expansion drawers (EXP24SX or EXP12SX).

Hardware requirements

Not applicable.

Software requirements

The Power S812 supports:

- FW 860.20 and above
- IBM i 7.3 TR2, or later, and IBM i 7.2 TR6, or later with a maximum of 25 IBM i user entitlements
- AIX levels supported for any I/O configuration (no VIOS):
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, with APAR IV56367, or later

    - AIX Version 7.1 with the 7100-02 Technology Level and Service Pack 5, or later
    - AIX Version 7.1 with the 7100-01 Technology Level and Service Pack 10, or later
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, with APAR IV56366, or later
    - AIX Version 6.1 with the 6100-08 Technology Level and Service Pack 5, or later
    - AIX Version 6.1 with the 6100-07 Technology Level and Service Pack 10, or later
- Red Hat Enterprise Linux 7.4, little endian, or later
- SUSE Linux Enterprise Server 12, Service Pack 3, or later
- Ubuntu Server 16.04.3, or later

↑ Back to top

Publications

IBM Power Systems hardware documentation provides you 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

IBM Knowledge Center provides access to the PurePower System Solution documentation at the POWER8 systems information web page.

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

The following information is shipped with the 8284-21A:

- Power Hardware Information DVD (SK5T-7087)
- Installing the 8284-21A
- Important Notices
- Warranty Information
- License Agreement for Machine Code

For hardware documentation such as installation instructions, user's information, and service information, available to download or view, go to the IBM support website.

You can access AIX documentation by going to IBM Knowledge Center.

The IBM Knowledge Center provides you with a single point of reference where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access by going to IBM Knowledge Center for all your product information needs.

To access the IBM Publications Center Portal, go to the IBM Publications Center website.

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. A large number of publications are available online in various file formats, which can currently be downloaded.

↑ Back to top

Features

Features - No charge

- None

Features - Chargeable

Special Features - Initial Orders

- Administrative
  - (#EBC0) -Blockchain on Power
  - (#ECP0) -Cloud Private Solution
  - (#ESC5) -S&H-a
- Cable
  - (#ECCG) -Variable Length, Blue Cat5e Cable
  - (#ECCH) -Variable Length, Green Cat5e Cable
  - (#ECCJ) -Variable Length, Yellow Cat5e Cable
  - (#ECCK) -Variable Length FIBRE SAN CABLE
  - (#ECCN) -Variable Length DAC QSFP+ TO QSFP+ CABLE
- Disk
  - (#ESFG) -283GB 15K RPM SAS SFF-3 Disk 4K Block

- Editions
  - (#EU2E) -1-core Express Edition for IBM i
- 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
- Miscellaneous
  - (#0444) -CBU Specify
  - (#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

- Packaging
  - (#ERB0) -Bulk Packaging Request ID
  - (#ERB1) -Bulk Packaging IDr #1
  - (#ERB2) -Bulk Packaging ID #2
  - (#ERB3) -Bulk Packaging ID #3
  - (#ERB4) -Bulk Packaging ID #4
  - (#ERB5) -Bulk Packaging ID #5
  - (#ERB6) -Bulk Packaging ID #6
  - (#ERB7) -Bulk Packaging ID #7
  - (#ERB8) -Bulk Packaging ID #8
  - (#ERB9) -Bulk Packaging ID #9
  - (#ERBA) -Bulk Packaging ID #10
  - (#ERBB) -Bulk Packaging ID #11
  - (#ERBC) -Bulk Packaging ID #12
  - (#ERBD) -Bulk Packaging ID #13
  - (#ERBE) -Bulk Packaging ID #14
  - (#ERBF) -Bulk Packaging ID #15
  - (#ERBG) -Bulk Packaging ID #16
  - (#ERBH) -Bulk Packaging ID #17
  - (#ERBJ) -Bulk Packaging ID #18
  - (#ERBK) -Bulk Packaging ID #19
  - (#ERBL) -Bulk Packaging ID #20
  - (#ERBZ) -No Bulk Packaging Specify
- Power
  - (#EB2L) -AC Power Supply - 900W
- Processor
  - (#2319) -Factory Deconfiguration of 1-core
  - (#EPXP) -1-core 3.026 GHz POWER8 Processor
  - (#EPZP) -One 0 Proc Activate for #EPXP
  - (#EPZQ) -One 0 Proc Activate for #EPXQ
- Services
  - (#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 onall 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 LAN adapter
- (#9169) -Order Routing Indicator-System Plant
- (#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
- (#9449) -Other 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

- Adapters
  - (#5260) -PCIe2 LP 4-port 1GbE Adapter
  - (#5269) -PCIe LP POWER GXT145 Graphics Accelerator
  - (#5273) -PCIe LP 8Gb 2-Port Fibre Channel Adapter
  - (#5277) -PCIe LP 4-Port Async EIA-232 Adapter
  - (#EC45) -PCIe2 LP 4-Port USB 3.0 Adapter
  - (#EJ0M) -PCIe3 LP RAID SAS Adapter Quad-Port 6Gb x8
  - (#EJ11) -PCIe3 LP SAS Tape/DVD Adapter Quad-port 6Gb x8
  - (#EJ1N) -PCIe1 LP SAS Tape/DVD Dual-port 3Gb x8 Adapter
  - (#EN0B) -PCIe3 LP 16Gb 2-port Fibre Channel Adapter
  - (#EN0F) -PCIe2 LP 8Gb 2-Port Fibre Channel Adapter
  - (#EN0T) -PCIe2 LP 4-Port (10Gb+1GbE) SR+RJ45 Adapter
  - (#EN0V) -PCIe2 LP 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter
  - (#EN0X) -PCIe2 LP 2-port 10/1GbE BaseT RJ45 Adapter
- Administrative
  - (#0719) -Load Source Not in CEC
  - (#B0UQ) -SP WSU 3Y 24x7 SD
  - (#B0VH) -SP HDR/MR POWER 3Y
  - (#EHS2) -SSD Placement Indicator - #ESLS/#ELLS
  - (#ESC0) -S&H - No Charge
- 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
  - (#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

- (#3684) -SAS Cable (AE) Adapter to Enclosure, single controller/ single path 3M
- (#3685) -SAS Cable (AE) Adapter to Enclosure, single controller/ single path 6M
- (#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
- (#4256) -Extender Cable - USB Keyboards, 1.8M
- (#4276) -VGA to DVI Connection Converter
- (#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
- (#ECBY) -SAS AE1 Cable 4m - HD Narrow 6Gb Adapter to Enclosure
- (#ECBZ) -SAS YE1 Cable 3m - HD Narrow 6Gb Adapter to Enclosure
- (#ECCF) -System Port Converter Cable for UPS
- (#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)
- (#ECW0) -Optical Wrap Plug
- (#EN01) -1m (3.3-ft), 10Gb E'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

- Disk
  - (#1953) -300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)
  - (#1964) -600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)
  - (#ELT4) -#ESF4 Load Source Specify (571GB HDD SFF-3)
  - (#ELTA) -#ESFA Load Source Specify (283GB 15K RPM SAS SFF-3 4K Block - 4224)
  - (#ELUJ) -#ESNJ Load Source Specify (283GB HDD SFF-3)
  - (#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)
  - (#ESD5) -600GB 10K RPM SAS SFF-3 Disk Drive (AIX/Linux)
  - (#ESD9) -1.2TB 10K RPM SAS SFF-3 Disk Drive (AIX/Linux)

- (#ESDB) -300GB 15K RPM SAS SFF-3 Disk Drive (AIX/Linux)
- (#ESDF) -600GB 15k RPM SAS SFF-3 Disk Drive - 5xx Block (Aix/ Linux)
- (#ESEV) -600GB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096
- (#ESEZ) -300GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive
- (#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
- (#ESF9) -1.2TB 10K RPM SAS SFF-3 Disk Drive 4K Block - 4096
- (#ESFA) -283GB 15K RPM SAS SFF-3 4K Block - 4224 Disk Drive
- (#ESFB) -300GB 15K RPM SAS SFF-3 4K Block - 4096 Disk Drive
- (#ESFF) -600GB 15K RPM SAS SFF-3 4K Block - 4096 Disk Drive
- (#ESFP) -600GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive
- (#ESFT) -1.8TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096
- (#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)
- (#ESNM) -300GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/ Linux)
- (#ESNP) -600GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (AIX/ Linux)
- (#ESNR) -600GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/ Linux)

- 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
  - (#EK58) -Full Width Keyboard -- USB, Brazilian Portuguese, #275

- (#EK59) -Full Width Keyboard -- USB, Hungarian, #208
- (#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
- (#EK78) -Full Width Keyboard -- USB, LA Spanish, #171
- (#EK79) -Full Width Keyboard -- USB, Arabic, #253

- Linecords
  - (#6458) -Power Cord 4.3m (14-ft), Drawer to IBM PDU (250V/10A)
  - (#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)

- Manufacturing Instruction
  - (#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
  - (#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
- Media Devices
    - (#5771) -SATA Slimline DVD-RAM Drive
    - (#EJ0T) -Storage Backplane 12 SFF-3 Bays/DVD Bay
    - (#EJ0U) -Storage Backplane 8 SFF-3 Bays/DVD Bay/Dual IOA with Write Cache
    - (#EJ0V) -Split #EJ0T to 6+6 SFF-3 Bays: Add 2nd SAS Controller
- Memory
    - (#4793) -Power Active Memory Expansion Enablement
    - (#EM96) -16 GB DDR4 Memory
    - (#EM97) -32 GB DDR4 Memory
- Miscellaneous
    - (#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
    - (#ECSF) -Custom Service Specify, Montpellier, France
    - (#ECSM) -Custom Service Specify, Mexico
    - (#ECSP) -Custom Service Specify, Poughkeepsie, USA
- 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
    - (#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
- (#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
  - (#EPXQ) -4-core 3.026 GHz POWER8 Processor
  - (#EPYP) -One Proc Activation for #EPXP
  - (#EPYQ) -One Proc Activation for #EPXQ
- Rack Related
  - (#0551) -19 inch, 1.8 meter high rack
  - (#0553) -19 inch, 2.0 meter high rack
  - (#0599) -Rack Filler Panel Kit
  - (#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
  - (#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)
- (#EJT6) -Front OEM Bezel for 12-Bay BackPlane
- (#EJT7) -Front OEM Bezel for 8-Bay BackPlane
- (#EJUD) -Front Bezel for 12-Bays used with #EJ0T BackPlane
- (#EJUE) -Front Bezel for 8-Bays used with #EJ0U BackPlane
- (#EPTH) -Horizontal PDU Mounting Hardware
- (#ER05) -42U Slim Rack
- (#ERG0) -Rear rack extension
- (#ESLL) -EXP12SX SAS Storage Enclosure
- (#ESLS) -EXP24SX SAS Storage Enclosure

- 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
  - (#ELTP) -#ES8P Load Source Specify (387GB SFF-3 SSD 4k for IBM i)
  - (#ELZ4) -#ES84 Load Source Specify (931GB SSD SFF-3)
  - (#ELZA) -#ESGA Load Source Specify (387GB SSD SFF-3)
  - (#ELZE) -#ESGE Load Source Specify (387GB SSD SFF-3)
  - (#ES78) -387GB SFF-2 SSD 5xx eMLC4 for AIX/Linux
  - (#ES7E) -775GB SFF-2 SSD 5xx eMLC4 for AIX/Linux
  - (#ES7K) -387GB SFF-3 SSD 5xx eMLC4 for AIX/Linux
  - (#ES7P) -775GB SFF-3 SSD 5xx eMLC4 for AIX/Linux
  - (#ES80) -1.9TB Read Intensive SAS 4k SFF-2 SSD for AIX/Linux
  - (#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
  - (#ES8C) -775GB SFF-2 SSD 4k eMLC4 for AIX/Linux
  - (#ES8J) -1.9TB Read Intensive SAS 4k SFF-3 SSD for AIX/Linux
  - (#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
  - (#ES8V) -1.55TB SFF-3 SSD 4k eMLC4 for AIX/Linux

- (#ES8Y) -931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#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
- (#ES94) -387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ES96) -1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#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
- (#ESBE) -775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ESBG) -775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESBJ) -1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ESBL) -1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESE1) -3.72TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESE7) -3.72TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESG5) -387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux
- (#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
- (#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
- (#ESGH) -775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
- (#ESGK) -775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESGM) -775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ESGP) -1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESGR) -1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#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
- (#ESHL) -1.86 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#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
- (#ESJ0) -931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESJ2) -1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESJ4) -3.72TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#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
- (#ESJC) -3.72TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESM8) -3.72 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
- (#ESMQ) -3.72 TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
- (#ESNA) -775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESNC) -775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
- (#ESNE) -1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
- (#ESNG) -1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux

- Specify Codes
  - (#0040) -Mirrored System Disk Level, Specify Code
  - (#0041) -Device Parity Protection-All, 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
  - (#0347) -RAID Hot Spare Specify
  - (#0837) -SAN Load Source Specify
  - (#5550) -Sys Console On HMC
  - (#EB72) -IBM i 7.2 Indicator
  - (#EB73) -IBM i 7.3 Indicator
  - (#EB74) -IBM i 7.4 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)
  - (#ELZ1) -ES91 Load Source Specify (387GB SSD SFF-3)
  - (#ELZT) -#ESHT Load Source Specify (931 GB SSD 4k SFF-3)

- (#ESL9) -ESB9 Load Source Specify (387GB SSD SFF-3)
- (#EU49) -ESJ9 Load Source Specify (931GB SSD SFF-3)

Feature availability matrix

The following feature availability matrix for MT 8284 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.

```
        |2| A = AVAILABLE  S = SUPPORTED
        |1| N = NOT SUPPORTED, MUST BE REMOVED
        |A|
        | |
FEAT/PN | |        DESCRIPTION
--------|-|-------------------------------------------------------------



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
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
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



0444    |S| CBU Specify
0551    |A| 19 inch, 1.8 meter high rack
0553    |A| 19 inch, 2.0 meter high rack
0599    |A| Rack Filler Panel Kit
0719    |A| Load Source Not in CEC
0837    |A| SAN Load Source Specify
```

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
1953 |A| 300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)
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
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
3632 |S| Widescreen LCD Monitor
3684 |A| SAS Cable (AE) Adapter to Enclosure, single controller/
| |single path 3M
3685 |S| SAS Cable (AE) Adapter to Enclosure, single controller/
| |single path 6M
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
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 onall 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
4793 |A| Power Active Memory Expansion Enablement
5000 |S| Software Preload Required
5260 |A| PCIe2 LP 4-port 1GbE Adapter
5269 |A| PCIe LP POWER GXT145 Graphics Accelerator
5273 |S| PCIe LP 8Gb 2-Port Fibre Channel Adapter
5277 |A| PCIe LP 4-Port Async EIA-232 Adapter
5550 |A| Sys Console On HMC
5557 |S| System Console-Ethernet LAN adapter
5771 |A| SATA Slimline DVD-RAM Drive
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| Power Cord 4.3m (14-ft), Drawer to IBM PDU (250V/10A)
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
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
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
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
B0UQ |A| SP WSU 3Y 24x7 SD
B0VH |A| SP HDR/MR POWER 3Y
EB2L |S| AC Power Supply - 900W
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
EB4G |S| 50M FDR IB / 40GbE Optical Cable QSFP
EB4Z |A| Service wedge shelf tool kit for EB3Z
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 |S| Rack Front Door (Black)
EC02 |S| Rack Rear Door
EC03 |S| Rack Side Cover
EC04 |S| Rack Suite Attachment Kit
EC07 |A| Slim Rear Acoustic Door
EC08 |A| Slim Front Acoustic Door
EC15 |S| Rear Door Heat Exchanger for 2.0 Meter Slim Rack
EC45 |S| PCIe2 LP 4-Port USB 3.0 Adapter
ECBY |A| SAS AE1 Cable 4m - HD Narrow 6Gb Adapter to Enclosure
ECBZ |A| SAS YE1 Cable 3m - HD Narrow 6Gb Adapter to Enclosure
ECCF |A| System Port Converter Cable for UPS
ECCG |S| Variable Length, Blue Cat5e Cable
ECCH |S| Variable Length, Green Cat5e Cable
ECCJ |S| Variable Length, Yellow Cat5e Cable
ECCK |S| Variable Length FIBRE SAN CABLE
ECCN |S| Variable Length DAC QSFP+ TO QSFP+ CABLE
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)

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
ECP0	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)
ECSF	A	Custom Service Specify, Montpellier, France
ECSM	A	Custom Service Specify, Mexico
ECSP	A	Custom Service Specify, Poughkeepsie, USA
ECW0	A	Optical Wrap Plug
EHR1	A	Boot Drive/Load Source in EXP12SX Specify (in #ESLL or #ELLL)
EHR2	A	Boot Drive/Load Source in EXP24SX Specify (in #ESLS or #ELLS)
EHS2	A	SSD Placement Indicator - #ESLS/#ELLS
EJ0M	A	PCIe3 LP RAID SAS Adapter Quad-Port 6Gb x8
EJ0T	S	Storage Backplane 12 SFF-3 Bays/DVD Bay
EJ0U	S	Storage Backplane 8 SFF-3 Bays/DVD Bay/Dual IOA with Write Cache
EJ0V	S	Split #EJ0T to 6+6 SFF-3 Bays: Add 2nd SAS Controller
EJ11	A	PCIe3 LP SAS Tape/DVD Adapter Quad-port 6Gb x8
EJ1N	S	PCIe1 LP SAS Tape/DVD Dual-port 3Gb x8 Adapter
EJT6	A	Front OEM Bezel for 12-Bay BackPlane
EJT7	A	Front OEM Bezel for 8-Bay BackPlane
EJUD	S	Front Bezel for 12-Bays used with #EJ0T BackPlane
EJUE	S	Front Bezel for 8-Bays used with #EJ0U BackPlane
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
EJW0    |A| Specify Mode-1 & CEC SAS Ports & (2)YO12 for EXP24SX #ESLS/
        | |ELS
EJW1    |A| Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for
        | |EXP24SX #ESLS/ELLS
EJW2    |A| Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 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)YO12 for
        | |EXP24SX #ESLS/ELLS
EJW7    |A| Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for
        | |EXP24SX #ESLS/ELLS
EJWA    |A| Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 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
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)
ELT4    |A| #ESF4 Load Source Specify (571GB HDD SFF-3)
ELTA    |A| #ESFA Load Source Specify (283GB 15K RPM SAS SFF-3 4K
        | |Block - 4224)
ELTP    |S| #ES8P Load Source Specify (387GB SFF-3 SSD 4k for IBM i)
ELUJ    |A| #ESNJ Load Source Specify (283GB HDD SFF-3)
ELZ1    |S| ES91 Load Source Specify (387GB SSD SFF-3)
ELZ4    |S| #ES84 Load Source Specify (931GB SSD SFF-3)
ELZA    |A| #ESGA Load Source Specify (387GB SSD SFF-3)
ELZE    |S| #ESGE Load Source Specify (387GB SSD SFF-3)
ELZT    |S| #ESHT Load Source Specify (931 GB SSD 4k SFF-3)
EM96    |S| 16 GB DDR4 Memory
EM97    |A| 32 GB DDR4 Memory
EN01    |A| 1m (3.3-ft), 10Gb E'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
EN0B    |A| PCIe3 LP 16Gb 2-port Fibre Channel Adapter
EN0F    |S| PCIe2 LP 8Gb 2-Port Fibre Channel Adapter
EN0T    |A| PCIe2 LP 4-Port (10Gb+1GbE) SR+RJ45 Adapter
EN0V    |A| PCIe2 LP 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter
EN0X    |A| PCIe2 LP 2-port 10/1GbE BaseT RJ45 Adapter
```

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
EPXP	S	1-core 3.026 GHz POWER8 Processor
EPXQ	A	4-core 3.026 GHz POWER8 Processor
EPYP	A	One Proc Activation for #EPXP
EPYQ	A	One Proc Activation for #EPXQ
EPZP	S	One 0 Proc Activate for #EPXP
EPZQ	S	One 0 Proc Activate for #EPXQ
ER05	S	42U Slim Rack
ERB0	S	Bulk Packaging Request ID
ERB1	S	Bulk Packaging IDr #1
ERB2	S	Bulk Packaging ID #2
ERB3	S	Bulk Packaging ID #3
ERB4	S	Bulk Packaging ID #4
ERB5	S	Bulk Packaging ID #5
ERB6	S	Bulk Packaging ID #6
ERB7	S	Bulk Packaging ID #7
ERB8	S	Bulk Packaging ID #8
ERB9	S	Bulk Packaging ID #9
ERBA	S	Bulk Packaging ID #10
ERBB	S	Bulk Packaging ID #11
ERBC	S	Bulk Packaging ID #12
ERBD	S	Bulk Packaging ID #13
ERBE	S	Bulk Packaging ID #14
ERBF	S	Bulk Packaging ID #15
ERBG	S	Bulk Packaging ID #16
ERBH	S	Bulk Packaging ID #17
ERBJ	S	Bulk Packaging ID #18
ERBK	S	Bulk Packaging ID #19
ERBL	S	Bulk Packaging ID #20
ERBZ	S	No Bulk Packaging Specify
ERF1	S	RFID Tags for Servers, Compute Nodes, Chassis, Racks, and HMCs
ERG0	A	Rear rack extension
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
ES7E	S	775GB SFF-2 SSD 5xx eMLC4 for AIX/Linux
ES7K	S	387GB SFF-3 SSD 5xx eMLC4 for AIX/Linux
ES7P	S	775GB SFF-3 SSD 5xx eMLC4 for AIX/Linux
ES80	S	1.9TB Read Intensive SAS 4k SFF-2 SSD for AIX/Linux

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
ES8C	S	775GB SFF-2 SSD 4k eMLC4 for AIX/Linux
ES8J	S	1.9TB Read Intensive SAS 4k SFF-3 SSD for AIX/Linux
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
ES8V	S	1.55TB SFF-3 SSD 4k eMLC4 for AIX/Linux
ES8Y	S	931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
ES90	S	387GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ES91	S	387GB Enterprise SAS 4k SFF-3 SSD for IBM i
ES92	S	1.86TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
ES94	S	387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ES96	S	1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
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
ESBE	A	775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ESBG	A	775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESBJ	A	1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ESBL	A	1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESC0	A	S&H - No Charge
ESC5	S	S&H-a
ESD5	A	600GB 10K RPM SAS SFF-3 Disk Drive (AIX/Linux)
ESD9	S	1.2TB 10K RPM SAS SFF-3 Disk Drive (AIX/Linux)
ESDB	A	300GB 15K RPM SAS SFF-3 Disk Drive (AIX/Linux)
ESDF	S	600GB 15k RPM SAS SFF-3 Disk Drive - 5xx Block (Aix/Linux)
ESE1	S	3.72TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
ESE7	S	3.72TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
ESEV	A	600GB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096
ESEZ	S	300GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive
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
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
ESFF	S	600GB 15K RPM SAS SFF-3 4K Block - 4096 Disk Drive
ESFG	S	283GB 15K RPM SAS SFF-3 Disk 4K Block
ESFP	S	600GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive
ESFT	A	1.8TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096
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
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
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
ESGH	S	775GB Enterprise SAS 5xx SFF-3 SSD for AIX/Linux
ESGK	S	775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESGM	S	775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ESGP	S	1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESGR	S	1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
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
ESHL	S	1.86 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
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
ESJ0	A	931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
ESJ2	A	1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
ESJ4	A	3.72TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux
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
ESJC	A	3.72TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
ESL9	A	ESB9 Load Source Specify (387GB SSD SFF-3)
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
ESMQ	S	3.72 TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux
ESNA	S	775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESNC	S	775GB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
ESNE	S	1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux
ESNG	S	1.55TB Enterprise SAS 4k SFF-3 SSD for AIX/Linux
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)
ESNM	A	300GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/Linux)
ESNP	A	600GB 15K RPM SAS SFF-3 4k Block Cached Disk Drive (AIX/Linux)
ESNR	A	600GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/Linux)
EU01	A	1TB Removable Disk Drive Cartridge
EU04	A	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



EU2E    |S| 1-core Express Edition for IBM i
EU2T    |A| 2TB Removable Disk Drive Cartridge (RDX)



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 8284 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.

(#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 - 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 - 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 - 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 - supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

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

(No longer available as of August 31, 2020)

#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

- 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:
- Initial Order/MES/Both/Supported: Initial
- CSU: Yes
- Return parts MES: No

(#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: 1 (Initial order maximum: 1)
- OS level required:
  - AIX 6.1, 7.1, 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: Features 0265, 0266, and 0267 are mutually exclusive and one of these features must be selected.

(#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: 1 (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

Note: Features 0265, 0266, and 0267 are mutually exclusive and one of these features must be selected.

(#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: 1 (Initial order maximum: 1)
- OS level required:
    - IBM i 7.2 TR6 or later
    - IBM i 7.3 TR2 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: Features 0265, 0266, and 0267 are mutually exclusive and one of these features must be selected.

(#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 - 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 - 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

(#0444) - CBU Specify

(No longer available as of August 31, 2020)

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:

www.ibm.com/systems/power/hardware/cbu

- 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:

(#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 horizonal 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

(#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

(#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

(#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

(#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:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later supported
  - Refer to Software Requirements for specific O/S levels supported
  - For IBM i, see docking station for OS requirements.
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#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

(#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 300GB with 512 byte formatting and is 283GB 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: 300GB/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: 672 (Initial order maximum: 250)
- OS level required:
  - Linux supported
  - 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

(#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 600GB with 512 byte formatting and is 571GB with 528 byte sector.

Limitation: 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: 672 (Initial order maximum: 250)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, 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

(#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:
  - IBMi 7.3 TR2 and IBMi 7.2 TR6 or later
- 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, 7.1, 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

(#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 August 31, 2020)

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: 19 (Initial order maximum: 19)
- 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

(#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) InfinBand 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) InfinBand 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) InfinBand 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

(#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: 9999 (Initial order maximum: 250)
- OS level required: None
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No
  Note: Not supported in Mainland China.

(#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

(No longer available as of December 31, 2020)

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

(#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

(#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

(No longer available as of August 30, 2020)

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 August 31, 2020)

#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 onall orders (#4650 to #4666).

(#4650) - Rack Indicator- Not Factory Integrated

(No longer available as of August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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

(#4793) - 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:
  - Linux supported
  - 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

(#5000) - Software Preload Required

(No longer available as of August 31, 2020)

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:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later supported
  - IBM i 7.2 TR6 or later supported
  - IBM i 7.3 TR2 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

(#5260) - PCIe2 LP 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:

- 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 Low Profile (LP) PCIe slot (Gen1 or Gen2)
- Minimum required: 0
- Maximum allowed: 9 (Initial order maximum: 9)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1 and 7.2 or later supported
  - IBM i 7.2 TR6 or later supported
  - IBM i 7.3 TR2 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

(#5269) - PCIe LP POWER GXT145 Graphics Accelerator

This feature is the Low Profile (LP) equivalent of feature number 5748. 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. A short converter cable is included which adapts the 2nd 28-pin port on the adapter to 15-pin D-Shell receptacle.

- 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
  - 1 converter cable
- 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 connecter 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 Low Profile (LP) 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 supported
  - IBM i not supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No
  Note: Placement of this PCIe adapter is not supported in the PCIe Gen3 I/O Drawer.

(#5273) - PCIe LP 8Gb 2-Port Fibre Channel Adapter

(No longer available as of December 13, 2019)

This feature is the Low Profile (LP) equivalent of feature number 5735.

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 Low Profile (LP) slot
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Linux supported

    - 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
    - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#5277) - PCIe LP 4-Port Async EIA-232 Adapter

This feature is the Low Profile (LP) equivalent of feature number 5785. 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 Asynchroous 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 Low Profile (LP) slot
- Minimum required: 0
- Maximum allowed: 7 (Initial order maximum: 7)
- OS level required:
    - Linux supported
    - AIX 6.1, 7.1, and 7.2 or later supported
    - IBM i 7.2 TR6 or later and IBM i 7.3 TR2 or later
    - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#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:)
- OS level required:
- Initial Order/MES/Both/Supported: Both

- CSU: Yes
- Return parts MES:

(#5557) - System Console-Ethernet LAN adapter

(No longer available as of August 31, 2020)

Indicates that the system console is driven by an 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 Ethernet LAN adapter
- Attributes required: Ethernet LAN adapter
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.2 TR6 or later
  - IBM i 7.3 TR2 or later
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: No

(#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 cannot 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:
  - Linux supported

    - AIX 6.1, 7.1, and 7.2 or later supported
    - IBM i 7.2 TR6 or later and IBM i 7.3 TR2 or later
    - Refer to Software Requirements for specific O/S levels supported
- 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) - Power Cord 4.3m (14-ft), 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 #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, Congo, 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, Kyrgyzstan, Laos, Latvia, Lebanon, Lithuania, 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, Tunisia, 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, Nigeria, 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
- CSU: Yes
- Return parts MES: No
  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 an 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

(#8143) - Linux Software Preinstall

(No longer available as of August 31, 2020)

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 August 31, 2020)

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:
  - Linux supported
  - AIX 6.1, 7.1, 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

(#9169) - Order Routing Indicator- System Plant

(No longer available as of August 31, 2020)

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 August 31, 2020)

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

(#9440) - New AIX License Core Counter

(No longer available as of August 31, 2020)

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: 24 (Initial order maximum: 24)
- 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 August 31, 2020)

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: 1 (Initial order maximum: 1)
- 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 August 31, 2020)

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: 4 (Initial order maximum: 4)
- 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 August 31, 2020)

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: 4 (Initial order maximum: 4)
- 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 August 31, 2020)

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: 24 (Initial order maximum: 24)
- 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 August 31, 2020)

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: 4 (Initial order maximum: 4)
- 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 August 31, 2020)

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: 4 (Initial order maximum: 4)
- 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 August 31, 2020)

This feature is used to count the number of other cores licensed.

- 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

(#9450) - Ubuntu Linux License Core Counter

(No longer available as of August 31, 2020)

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: 4 (Initial order maximum: 4)
- 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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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 August 31, 2020)

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

(#B0UQ) - SP WSU 3Y 24x7 SD

ServicePac Warranty Service Upgrade 3 YR 24x7 Same Day ORT 6hrCL/ 4hrPD

- 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: 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

(#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

(No longer available as of August 31, 2020)

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: Supported on Tower model only.
- Minimum required: 0
- Maximum allowed: 2 (Initial order maximum: 2)
- OS level required: None
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- 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, 10M = #EB4C, 15M = #EB4D, 20M = #EB4E, 30M = #EB4F, and 50M = #EB4G.

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, 10M = #EB4C, 15M = #EB4D, 20M = #EB4E, 30M = #EB4F, and 50M = #EB4G.

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

(#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, 10M = #EB4C, 15M = #EB4D, 20M = #EB4E, 30M = #EB4F, and 50M = #EB4G.

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, 10M = #EB4C, 15M = #EB4D, 20M = #EB4E, 30M = #EB4F, and 50M = #EB4G.

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

(#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, 10M = #EB4C, 15M = #EB4D, 20M = #EB4E, 30M = #EB4F, and 50M = #EB4G.

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, 10M = #EB4C, 15M = #EB4D, 20M = #EB4E, 30M = #EB4F, and 50M = #EB4G.

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, 10M = #EB4C, 15M = #EB4D, 20M = #EB4E, 30M = #EB4F, and 50M = #EB4G.

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

(#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: 480 (Initial order maximum: 250)
- OS level required:
  - IBM i 7.2
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#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: 250)
- OS level required:
  - IBM i 7.4 supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#EBC0) - Blockchain on Power

(No longer available as of August 31, 2020)

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 7965-94Y rack. A front door such as #EC01 is required on the 7965-94Y. 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 (this door hinges on either the left side or right side). 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 7965-94Y rack. Either feature number EC02 or feature EC05 is required on the 7965-94Y. 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 (this door hinges on either the left side or right side). 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 7965-94Y rack. Either feature EC02 or feature EC05 is required on the 7965-94Y. This door hinges on the right side. ("Right" is as you face the door from the outside of the rack).

- 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

(#EC45) - PCIe2 LP 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 low profile available PCIe slot.
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later supported
  - IBM i 7.2 TR6 or later supported
  - IBM i 7.3 TR2 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

(#ECBN) - 5m (16.4-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: 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

(#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 or DVD. The tape drive or DVD 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 or DVD. 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 or DVD.

- Attributes provided: connection between PCIe3 SAS adapter with Mini-SAS HD Narrow connectors and a SAS tape drive or DVD 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 or DVD.
- 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

(#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: N/A
- Return parts MES: No

(#ECCG) - Variable Length, Blue Cat5e Cable

(No longer available as of August 31, 2020)

This feature allows manufacturing to select the appropriate length Cat5e cable, Blue during the assembly process.

- Attributes provided: Cat5e Ethernet Cable.
- Attributes required: RJ45 ports/transceivers.
- 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
  Note: Cable is only used for Solution.

(#ECCH) - Variable Length, Green Cat5e Cable

(No longer available as of August 31, 2020)

This feature allows manufacturing to select the appropriate length Cat5e cable, Green during the assembly process.

- Attributes provided: Cat5e Ethernet Cable.
- Attributes required: RJ45 ports/transceivers.
- 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
  Note: Cable is only used for Solution.

(#ECCJ) - Variable Length, Yellow Cat5e Cable

(No longer available as of August 31, 2020)

This feature allows manufacturing to select the appropriate length Cat5e cable, Yellow during the assembly process.

- Attributes provided: Cat5e Ethernet Cable.
- Attributes required: RJ45 ports/transceivers.
- 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
  Note: Cable is only used for Solution.

(#ECCK) - Variable Length FIBRE SAN CABLE

(No longer available as of August 31, 2020)

This feature allows manufacturing to select the appropriate length Fibre SAN Cable during the assembly process.

- Attributes provided: FIBRE SAN CABLE.
- Attributes required: RJ45 ports/transceivers.
- 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
  Note: Cable is only used for Solution.

(#ECCN) - Variable Length DAC QSFP+ TO QSFP+ CABLE

(No longer available as of August 31, 2020)

This feature allows manufacturing to select the appropriate length DAC QSFP+ TO QSFP+ CABLE during the assembly process.

- Attributes provided: DAC QSFP+ TO QSFP+ CABLE.
- Attributes required: RJ45 ports/transceivers.
- 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
  Note: Cable is only used for Solution.

(#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 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 cannot be used with 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 cannot 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

- 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 cannot 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

- 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 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 cannot be used with 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 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 cannot be used with 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/#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 cannot 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

- 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/#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 cannot 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

- 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

(#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 #EPTH 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 #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.

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 #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.

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 August 31, 2020)

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

(#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

(#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

(#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

(#EJ0M) - PCIe3 LP RAID SAS Adapter Quad-Port 6Gb x8

The PCIe3 RAID SAS LP 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 (#EJ0M or #EJ0J) is optional. Pairing can provide controller redundancy and enhance performance. There are no batteries in the 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 enclosure or #5802/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 respectively, but have different feature codes to identify their use to IBM configurator tools as tape/DVD controllers 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.
- 177GB SSD are not supported.
- Running SAS bays for both a EXP24S storage 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.
- A single #EJ0M cannot control drives in a #5802/5803/EL36 because the adapter must be located in that #5802/5803/ EL36 in a full high slot. However, if controlling drives in a #5802/5803/EL36 as a pair of controllers, one #EJ0J can be located in that #5802/ 5803/EL36 and one #EJ0M can be in the system's low profile slot.
- Tape/DVD cannot be mixed with disk/SSD on the same adapter.
- Attributes provided: low profile PCIe3 four port x8 SAS RAID adapter with no write cache and optional pairing
- Attributes required: One low profile PCIe slot per adapter and Mini-SAS HD narrow connector SAS cables such as #ECBJ-ECBL, #ECBT-ECBV, #ECCO-ECC4 or 12Gb cables such as #ECDJ, ECDT or #ECDU.
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later supported
  - IBM i 7.2 TR6 or later supported
  - IBM i 7.3 TR2 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

(#EJ0T) - 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 #EJ0V feature. For write cache performance use #EJ0U Backplane instead of this backplane.

Both 5xx and 4k byte sector HDD/SSD are supported. 5xx and 4k drives cannot 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 #EJ0U backplane
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later supported
  - IBM i 7.2 TR6 or later supported
  - IBM i 7.3 TR2 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

(#EJ0U) - Storage Backplane 8 SFF-3 Bays/DVD Bay/Dual IOA with Write Cache

(No longer available as of December 31, 2020)

Storage backplane with dual integrated SAS controllers with effectively up to 7.2GB write cache. High performance controllers run SFF-3 SAS 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. However cache power protection hardware covers one PCIe x8 slot. Write cache augments controller's high performance for workloads with writes, especially for HDD. 1.8GB physical write cache is leveraged with compression to provide up to 7.2GB 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 controllesrs 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 eight SFF-3 bays.

This backplane also provides two SAS ports on the rear of the system unit support the attachment of one EXP12SX or EXP24SX SAS Storage Enclosure. Two SAS Y0 cables ordered separately with mini-SAS HD narrow connectors are used for the optional EXP12SX or EXP24SX attachment. Y0 cables must be 3m or

shorter. If shorter the remember cable management arm needs about 1 meter.

Note this backplane doesn't support split backplane. For split backplane use #EJ0T + #EJ0V backplane features

Both 5xx and 4k byte sector HDD/SSD are supported. 5xx and 4k drives cannot be mixed in the same array.

Limitation: this backplane option reduces the number of available x8 PCIe slots in the system unit by one.

- Attributes provided: Storage backplane with a pair of integrated SAS adapters with write cache running four things: a) a set of 8 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
- Attributes required: Server without #EJ0T backplane
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later supported
  - IBM i 7.2 TR6 or later supported
  - IBM i 7.3 TR2 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
  Easy Tier capability requires:
  - AIX Version 7.1 with the 7100-03 Technology Level and Service Pack 3, or later
  - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 3, or later

(#EJ0V) - Split #EJ0T to 6+6 SFF-3 Bays

(No longer available as of December 31, 2020)

Add 2nd SAS Controller

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 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 cannot 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: #EJ0T backplane feature
- Minimum required: 0

- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later supported
  - IBM i 7.2 TR6 or later supported
  - IBM i 7.3 TR2 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

(#EJ11) - PCIe3 LP SAS Tape/DVD Adapter Quad-port 6Gb x8

The PCIe3 Low Profile 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.

#EJ0M and #EJ11 are the same adapter with the same 57B4 CCIN, but have different feature code numbers to indicate different usage to IBM configurator tools. #EJ11 runs SAS LTO-5 or later tape drives and DVD. Support of both tape/DVD and HDD/SSD on the same adapter is not supported.
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: low profile PCIe3 four port x8 SAS adapter
- Attributes required: One low profile PCIe slot per adapter
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later supported
  - IBM i 7.2 TR6 or later supported
  - IBM i 7.3 TR2 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

(#EJ1N) - PCIe1 LP 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 EJ1N and EJ1P are electrically and functionally identical with the same CCIN of 57B3. EJ1N has a low profile tailstock bracket and EJ1P has a full-high tailstock bracket. Feature EJ1N/EJ1P is the same adapter as #5278/5901 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: 4 (Initial order maximum: 4)
- OS level required:
  - Linux supported
  - AIX supported
  - IBM i 7.2 TR6 or later
  - IBM i 7.3 TR2 or later
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#EJT6) - Front OEM Bezel for 12-Bay BackPlane

Front bezel with no IBM logo plus adjustable depth rails for 2U rack mounted system. Bezel fits #EJ0T Storage Backplane and its 12 SAS bays. Rails adjust from approximately 24 to 31 inches in depth.

- 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

(#EJT7) - Front OEM Bezel for 8-Bay BackPlane

Front bezel with no IBM logo plus adjustable depth rails for 2U rack mounted system. Bezel fits #EJ0U Storage Backplane and its 8 SAS bays and optional SSD cage. Rails adjust from approximately 24 to 31 inches in depth.

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

(#EJUD) - Front Bezel for 12-Bays used with #EJ0T BackPlane

(No longer available as of December 31, 2020)

Front bezel with IBM logo for 2U rack mounted system with #EJ0T Storage Backplane and its 12 SAS bays.

- 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

(#EJUE) - Front Bezel for 8-Bays used with #EJ0U BackPlane

(No longer available as of December 31, 2020)

Front bezel with IBM logo for 2U rack mounted system with #EJ0U Storage Backplane and its 8 SAS bays.

- 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

(#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 Enclsoure 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

(#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:
  - 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 when a subset of adapters and cables are 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 #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 Enclsoure 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 when a subset of adapters and cables are 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 #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 when a subset of adapters and cables are 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 #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 when a subset of adapters and cables are 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 #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 when a subset of adapters and cables are 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 #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 Enclsoure 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 when a subset of adapters and cables are 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 #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 when a subset of adapters and cables are 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 #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:
  - 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 "partioal" 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:
  - 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:
  - 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:
  - 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:
  - 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 #EPTJ, #EPTN, #7188 or #7109 when the PDU is located in a 7965-94Y 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

(#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:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#ELTA) - #ESFA Load Source Specify (283GB 15K RPM SAS SFF-3 4K 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:
- 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:
- 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

(#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: 1)
- OS level required: See feature ES91
- 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

(#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

(#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

(#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

(#EM96) - 16 GB DDR4 Memory

(No longer available as of November 26, 2019)

This feature provides 16 GB DIMM, 1600MHZ, 4GBIT DDR4 DRAM

Limitations:

- DDR4 memory cannot 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: 16 (Initial order maximum: 16)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#EM97) - 32 GB DDR4 Memory

This feature provides 32 GB DIMM, 1600MHZ, 4GBIT DDR4 DRAM

Limitations:

- DDR4 memory cannot 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: 16 (Initial order maximum: 16)
- OS level required:
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: Yes

(#EN01) - 1m (3.3-ft), 10Gb E'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:
  - Linux supported
  - 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

(#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:
  - Linux supported
  - AIX 6.1, 7.1, 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:
  - Linux supported
  - AIX 6.1, 7.1, 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

(#EN0B) - PCIe3 LP 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 16Gb Fibre Channel capability using SR optics. Each port can provide up to 16Gb 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

- Attributes provided: Two 16Gb FC ports (with LC connectors)
- Attributes required: Available PCIe Gen2 or Gen3 slot in supported server
- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - Linux supported
  - IBM i - not supported
  - AIX 6.1, 7.1, and 7.2 or later
  - IBM i 7.2 TR6 and IBM i 7.3 TR2 or later
  - Refer to Software Requirements for specific O/S levels supported

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#EN0F) - PCIe2 LP 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: Low Profile PCIe slot
- Minimum required: 0
- Maximum allowed: 5 (Initial order maximum: 5)
- OS level required:
  - Linux supported
  - 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
    - AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 7
    - IBM i - not supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#EN0T) - PCIe2 LP 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:

- VIOS NIM and LINUX NETWORK INSTALL are supported.
- IEEE 802.3ae (10GBASE-SR), IEEE 802.3ab (1000BASE-T GbE), IEEEu 802.3u (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 - low profile
- Minimum required: 0
- Maximum allowed: 9 (Initial order maximum: 9)

- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 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

(#EN0V) - PCIe2 LP 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 copperl 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:

- VIOS 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 - low profile
- Minimum required: 0

- Maximum allowed: 9 (Initial order maximum: 9)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 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

(#EN0X) - PCIe2 LP 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 - low profile
- Minimum required: 0
- Maximum allowed: 9 (Initial order maximum: 9)

- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 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

(#EPTH) - 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 #EPTH 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

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 #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 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

(#EPXP) - 1-core 3.026 GHz POWER8 Processor

(No longer available as of August 31, 2020)

1-core 3.026 GHz POWER8 processor

- Attributes provided: 1-core 3.062 GHz processor
- Attributes required: One processor card slot.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i 7.2 TR6 or later
  - IBM i 7.3 TR2 or later
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- Return parts MES: No

(#EPXQ) - 4-core 3.026 GHz POWER8 Processor

4-core 3.026 GHz POWER8 processor

- Attributes provided: 4-core 3.062 GHz processor
- Attributes required: One processor card slot.
- Minimum required: 0
- Maximum allowed: 1 (Initial order maximum: 1)
- OS level required:
  - IBM i - not supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#EPYP) - One Proc Activation for #EPXP

Entitlement for one processor core activation

- Attributes provided: Processor core activation for #EPXP
- Attributes required: Feature #EPXP
- 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

(#EPYQ) - One Proc Activation for #EPXQ

Entitlement for one processor core activation

- Attributes provided: Processor core activation for #EPXQ
- Attributes required: Feature #EPXQ
- 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

(#EPZP) - One 0 Proc Activate for #EPXP

(No longer available as of August 31, 2020)

Entitlement for one processor core activation

- Attributes provided: Zero priced processor core activation for #EPXP
- Attributes required: Feature #EPXP
- 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: No

(#EPZQ) - One 0 Proc Activate for #EPXQ

(No longer available as of August 31, 2020)

Entitlement for one processor core activation

- Attributes provided: Zero priced processor core activation for #EPXQ

- Attributes required: Feature #EPXQ
- 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: 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

(#ERB0) - Bulk Packaging Request ID

(No longer available as of August 31, 2020)

This indicator is used to optimize package density of 2u server shipments through the use of bulk packaging.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Bulk packaging from the IBM factory to the customer.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERB1) - Bulk Packaging IDr #1

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #1.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERB2) - Bulk Packaging ID #2

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #2.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERB3) - Bulk Packaging ID #3

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #3.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERB4) - Bulk Packaging ID #4

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #4.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERB5) - Bulk Packaging ID #5

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #5.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERB6) - Bulk Packaging ID #6

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #6.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERB7) - Bulk Packaging ID #7

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #7.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERB8) - Bulk Packaging ID #8

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #8.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERB9) - Bulk Packaging ID #9

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #9.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.

- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBA) - Bulk Packaging ID #10

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #10.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBB) - Bulk Packaging ID #11

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #11.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBC) - Bulk Packaging ID #12

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #12.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBD) - Bulk Packaging ID #13

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #13.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBE) - Bulk Packaging ID #14

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #14.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBF) - Bulk Packaging ID #15

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #15.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBG) - Bulk Packaging ID #16

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #16.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBH) - Bulk Packaging ID #17

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #17.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBJ) - Bulk Packaging ID #18

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #18.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBK) - Bulk Packaging ID #19

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #19.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBL) - Bulk Packaging ID #20

(No longer available as of August 31, 2020)

This indicator is used to specify that servers will be bulk packaged for shipment in package identifier #20.
Note: Bulk packaging would be defaulted via a specify code on the order for any customer order that contains 4 or more servers.

Limitations: There will be no mixing of MTMs with in the bulk packaging.

- Attributes provided: Multiple servers in 1 package.
- Attributes required: Order that contains 4 or more servers.
- 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

(#ERBZ) - No Bulk Packaging Specify

(No longer available as of August 31, 2020)

This indicator is used to indicate single packaging will be used and not allow for bulk packaging.

- Attributes provided: Single packages
- Attributes required: Customer orders fewer than 4 servers
- 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

(#ERF1) - RFID Tags for Servers, Compute Nodes, Chassis, Racks, and HMCs

(No longer available as of August 31, 2020)

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 POWER 7 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

(#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 which results in 4 TB capacity, but with less protection.
Note: Reformatting large, 7200 rpm drives takes very significant time.

Limitation: Cannot 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:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later 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 which results in 8 TB capacity, but with less protection.
Note: Reformatting large, 7200 rpm drives takes very significant time.

Limitation: Cannot 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:
  - Linux supported
  - AIX 6.1, 7.1, and 7.2 or later 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:
  - Linux supported
  - AIX 6.1, 7.1, and 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

(#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:
  - Linux supported
  - AIX 6.1, 7.1, and 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

(#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 cannot 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 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

(#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 cannot 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, and 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

(#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 cannot 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:
  - Linux supported
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1 or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
  - AIX Version 7.1 with the 7100-04 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
- 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: 12 (Initial order maximum: 12)
- 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.
- 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: 8 (Initial order maximum: 8)
- 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.
- 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 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:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
  - Refer to Software Requirements for specific O/S levels supported
- 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.
- 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 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:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
    - Refer to Software Requirements for specific O/S levels supported
- 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 cannot be reformatted to 5xx byte sectors. 5xx and 4k drives cannot 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: 12 (Initial order maximum: 12)
- OS level required:
    - Linux supported
    - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1 or later
    - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 2 or later
    - AIX Version 7.1 with the 7100-04 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
- 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.
- 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).

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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#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: 8 (Initial order maximum: 8)
- OS level required:
  - IBM i 7.2 TR6 or later
  - IBM i 7.3 TR2 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.
- 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).

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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
    - Refer to Software Requirements for specific O/S levels supported
- 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.
- 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).

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: 12 (Initial order maximum: 12)
- OS level required:
    - Linux supported
    - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
    - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
    - Refer to Software Requirements for specific O/S levels supported
- 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 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: 36 (Initial order maximum: 36)
- 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.

- 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
- Minimum required: 0
- Maximum allowed: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#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: 8 (Initial order maximum: 8)
- OS level required:
  - IBM i 7.2, TR7
  - IBM i 7.3, TR3
  - IBM i 7.4, or later
- Initial Order/MES/Both/Supported: Both
- 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: 12 (Initial order maximum: 12)
- 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 to the VIOS requires VIOS 2.2.6 or later, VIOS 2.2.5 or alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 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: 72 (Initial order maximum: 72)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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.

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: 36 (Initial order maximum: 36)
- 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 to the VIOS requires VIOS 2.2.6 or later, VIOS 2.2.5 or alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 or later
- Initial Order/MES/Both/Supported: Both
- 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: 12 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 72 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 12 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 72 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 12 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 8 (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: 72 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 12 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 72 (Initial order maximum: 0)
- OS level required:

    - Linux supported
    - AIX supported
- 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 ESBJ 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: 12 (Initial order maximum: 0)
- OS level required:
    - Linux supported
    - AIX supported
- 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: 72 (Initial order maximum: 0)
- OS level required:
  - Linux supported
  - AIX supported
- 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

(#ESC5) - S&H-a

(No longer available as of August 31, 2020)

Shipping and handling

- Attributes provided: 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

(#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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, 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 (AIX/Linux)

(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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX 6.1, 7.1, 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

(#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: 12 (Initial order maximum: 12)
- 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 to the VIOS requires VIOS 2.2.6 or later, VIOS 2.2.5 or alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 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: 36 (Initial order maximum: 36)
- 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 to the VIOS requires VIOS 2.2.6 or later, VIOS 2.2.5 or alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 or later
- 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:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
- 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: 672 (Initial order maximum: 250)
- OS level required:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
  - Refer to Software Requirements for specific O/S levels 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:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#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: 8 (Initial order maximum: 8)
- OS level required:
    - IBM i 7.2 TR6 or later
    - IBM i 7.3 TR2 or later
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
- Initial Order/MES/Both/Supported: Both

- CSU: Yes
- Return parts MES: No

(#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: 8 (Initial order maximum: 8)
- OS level required:
  - IBM i 7.2 TR6 or later
  - IBM i 7.3 TR2 or later
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported

    - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
    - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
    - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#ESFG) - 283GB 15K RPM SAS SFF-3 Disk 4K Block

(No longer available as of August 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, 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, or with a Power S812 1-core with IBM i Edition EU2E.

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 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: 8 (Initial order maximum: 8)
- OS level required:
    - IBM i 7.2 TR6 or later
    - IBM i 7.3 TR2 or later
- Initial Order/MES/Both/Supported: Initial
- CSU: N/A
- 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

Limitation:

- 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: 672 (Initial order maximum: 250)
- OS level required:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
- 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:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 1, or later
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 1, or later
  - AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 1, 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

- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#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 DWPD (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: 36 (Initial order maximum: 36)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX 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: 8 (Initial order maximum: 8)
- 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: 36 (Initial order maximum: 36)
- OS level required:
  - Linux supported
  - AIX supported
- 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 DWPD (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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX 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 DWPD (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: 8 (Initial order maximum: 8)
- 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: 36 (Initial order maximum: 36)
- OS level required:
  - Linux supported

    - AIX supported
- 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: 12 (Initial order maximum: 12)
- OS level required:
    - Linux supported
    - AIX supported
- 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: 36 (Initial order maximum: 36)
- OS level required:
  - Linux supported
  - AIX supported
- 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 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 36 (Initial order maximum: 36)
- OS level required:
  - Linux supported
  - AIX supported
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX supported
- 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 DWPD (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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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 DWPD (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: 72 (Initial order maximum: 72)
- OS level required:
  - Linux supported

    - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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 DWPD (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: 12 (Initial order maximum: 12)
- OS level required:
    - Linux supported
    - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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 DWPD (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: 72 (Initial order maximum: 72)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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.

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:
  - 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 to the VIOS requires VIOS 2.2.6 or later, VIOS 2.2.5 or alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 or later
- 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.

(#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:
  - 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 to the VIOS requires VIOS 2.2.6 or later, VIOS 2.2.5 or alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 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: 12 (Initial order maximum: 12)
- 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 alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 or later.
- 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: 12 (Initial order maximum: 12)
- 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: 12 (Initial order maximum: 12)
- 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 to the VIOS requires VIOS 2.2.6 or later, VIOS 2.2.5 or alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 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: 72 (Initial order maximum: 72)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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: 72 (Initial order maximum: 72)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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: 72 (Initial order maximum: 72)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#ESJ9) - 931GB Mainstream SAS 4k SFF-3 SSD for IBM i

- Minimum required: 0
- Maximum allowed: 8 (Initial order maximum: 8)
- OS level required:
  - IBM i 7.2 TR7
  - IBM i 7.3 TR3
  - IBM i 7.4, or later

- Initial Order/MES/Both/Supported: Both
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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

(#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:
  - Linux supported
  - IBM i - not supported
  - 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
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 3 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

(#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:
  - Linux supported
  - IBM i - not supported
  - 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
  - AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 3 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

(#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:
  - 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 to the VIOS requires VIOS 2.2.6 or later, VIOS 2.2.5 or alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 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: 12 (Initial order maximum: 12)
- 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 to the VIOS requires VIOS 2.2.6 or later, VIOS 2.2.5 or alter VIOS 2.2.4.20 or later, VIOS 2.2.3.70 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 DWPD (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 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:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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: 8 (Initial order maximum: 8)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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 DWPD (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: 250)
- OS level required:
  - Linux supported
  - AIX supported

- Initial Order/MES/Both/Supported: Both
- 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 DWPD (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: 8 (Initial order maximum: 8)
- OS level required:
  - Linux supported
  - AIX supported
- Initial Order/MES/Both/Supported: Both
- 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: 8 (Initial order maximum: 8)
- 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: 12 (Initial order maximum: 12)
- OS level required:
  - Linux supported
  - AIX Supported
- 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: 72 (Initial order maximum: 72)
- OS level required:
  - Linux supported
  - AIX Supported
- 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: 12 (Initial order maximum: 12)
- OS level required:

    - Linux supported
    - AIX Supported
- 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: 72 (Initial order maximum: 72)
- OS level required:
    - Linux supported
    - AIX Supported
- Initial Order/MES/Both/Supported: Both
- 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 October 9, 2018)

USB Eternal 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:
  - Linux supported
  - 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
  - Refer to Software Requirements for specific O/S levels supported
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- Return parts MES: No

(#EU08) - RDX 320 GB Removable Disk Drive

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: Supported
- CSU: Yes
- Return parts MES: No

(#EU15) - 1.5TB Removable Disk Drive Cartridge

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: Supported
- 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 size 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

(#EU2E) - 1-core Express Edition for IBM i

(No longer available as of August 31, 2020)

1-core Express Edition for IBM i

- Attributes provided: 1-core Express Edition for IBM i
- Attributes required: Feature #EU2E
- 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: No

(#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

(#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: 1)
- OS level required: See feature #ESJ9
- Initial Order/MES/Both/Supported: Both
- CSU: Yes
- 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 sit on a shelf or on top of equipment in a rack.

#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
- 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:
  - Linux supported
  - 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

(#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

↑ Back to top

Accessories

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

- Base SAS Card
- 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
- Time of Day (TOD) Battery

↑ Back to top

Supplies

Not applicable

Supplemental media

Not applicable

↑ Back to top

Trademarks

(R), (TM), * Trademark or registered trademark of International Business Machines Corporation.

** Company, product, or service name may be a trademark or service mark of others.

Terms of use

IBM products and services which are announced and available in your country can be ordered under the applicable standard agreements, terms, conditions, and prices in effect at the time. IBM reserves the right to modify or withdraw this Sales Manual at any time without notice. This Sales Manual is provided for your

information only. Additional terms of use are located at

Terms of use

Share this page