

IBM FlashSystem 5015 and 5035 entry-level storage offerings deliver cost-effective solutions for storage challenges

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At a glance

IBM FlashSystem 5000 family delivers additional offerings with the 5015 and 5035 storage solutions. These entry-level storage offerings enable organizations to overcome their storage challenges in a cost-effective manner. Built with IBM Spectrum Virtualize software, the FlashSystem family is an industry-leading storage solution.

IBM FlashSystem 5015 control enclosures feature:

- Two node canisters, each with a two-core processor
- 32 GB and 64 GB cache options (16 GB or 32 GB per canister)
- 1 Gb iSCSI (copper) connectivity standard with optional 16 Gb FC, 12 Gb SAS, and 25/10 Gb iSCSI (optical) connectivity
- 12 Gb SAS ports for expansion enclosure attachment
- Twelve 3.5-inch large form factor (LFF) or twenty-four 2.5-inch small form factor (SFF) drive slots within the enclosure
- Data reduction pools with thin provisioning for improved storage efficiency
- Support for optional licensed features such as Easy Tier, FlashCopy, and Remote Mirroring

FlashSystem 5015 supports the attachment for up to ten 2U FlashSystem 5000 expansion enclosures or up to four 5U FlashSystem 5000 expansion enclosures, delivering support for up to 392 drives.

IBM FlashSystem 5035 control enclosures feature:

- Two node canisters, each with a six-core processor
- 32 GB and 64 GB cache options (16 GB or 32 GB per canister)
- 10 Gb iSCSI (copper) connectivity standard with optional 16 Gb FC, 12 Gb SAS, and 25/10 Gb iSCSI (optical) connectivity
- 12 Gb SAS ports for expansion enclosure attachment
- Twelve 3.5-inch LFF or twenty-four 2.5-inch SFF drive slots within the enclosure
- Data reduction pools with deduplication, compression, and thin provisioning for improved storage efficiency
- Support for optional licensed features such as Easy Tier, FlashCopy, Remote Mirroring, system clustering, HyperSwap, and encryption of data at rest

FlashSystem 5035 supports the attachment for up to twenty 2U FlashSystem 5000 expansion enclosures or up to eight 5U FlashSystem 5000 expansion enclosures, delivering support for up to 504 drives or 1,008 in a two-way clustered system.

All models are delivered in a 2U, 19-inch rack mount enclosure and include a three-year warranty with customer replaceable unit (CRU) and on-site service. Optional warranty service upgrades are available for enhanced levels of warranty service.

Overview

FlashSystem 5015 and 5035 feature two node canisters in a compact, 2U 19-inch rackmount enclosure. Four different models are available to deliver a range of performance, scalability, and functional capabilities.

- FlashSystem 5015 SFF Dual Control Enclosure
- FlashSystem 5015 LFF Dual Control Enclosure
- FlashSystem 5035 SFF Dual Control Enclosure
- FlashSystem 5035 LFF Dual Control Enclosure

FlashSystem 5015 control enclosure models offer entry-level performance and scalability:

- Two 2-core processors and up to 64 GB of cache
- Support for 392 drives per system with the attachment of four FlashSystem 5000 high-density expansion enclosures
- Data reduction pools with thin provisioning for improved storage efficiency

FlashSystem 5035 control enclosure models offer the highest level of performance and scalability:

- Two 6-core processors and up to 64 GB of cache
- Support for 504 drives per system with the attachment of eight FlashSystem 5000 high-density expansion enclosures and 1,008 drives with a two-way clustered configuration
- Data reduction pools with thin provisioning for improved storage efficiency
- Encryption of data at rest stored within the FlashSystem 5035 system

All FlashSystem 5015 and 5035 models include:

- A 2U, 19-inch rackmount enclosure with either AC or DC power
- Dual-active intelligent array node canisters
- Twelve 3.5-inch LFF or twenty-four 2.5-inch SFF drive slots within the enclosure
- Support for the attachment of FlashSystem 5000 12 Gb SAS expansion enclosures
- I/O connectivity options for 16 Gb FC, 12 Gb SAS, 10 Gb iSCSI, or 25 Gb iSCSI
- Innovative, intuitive web-based GUI for easy system setup and management
- Virtualization of internal storage for rapid, flexible provisioning and simple configuration changes
- Distributed RAID 1, 5, and 6
- Support for optional licensed features, including thin provisioning, Easy Tier, FlashCopy, and remote mirroring
 - IBM System Storage Easy Tier for automatic migration of frequently accessed data from disk drives to high performing flash drives
 - FlashCopy for creating instant copies of data for backup or application testing
 - Remote mirroring for data replication between systems at different locations through Metro Mirror and Global Mirror functions

- Extensive interoperability support with support for most major server platforms and operating systems
- One-way data migration to easily move your data onto a FlashSystem 5000 system

FlashSystem 5015 and 5035 support the attachment of existing FlashSystem 5000 expansion enclosure models 12G, 24G, and 92G. Model 12G (LFF) supports up to twelve 3.5-inch drives, while Model 24G (SFF) supports up to twenty-four 2.5-inch drives. Model 92G holds ninety-two 3.5 inch SAS drives. High-performance disk drives, high-capacity nearline disk drives, and flash (solid state) drives are supported. Drives of the same form factor can be intermixed within an enclosure, and LFF and SFF expansion enclosures can be intermixed within a FlashSystem 5000 system.

All FlashSystem 5000 functional capabilities are provided through IBM Spectrum Virtualize licensed machine code.

Key requirements

FlashSystem 5015 and 5035 require IBM Spectrum Virtualize licensed machine code level 8.4.0.1, or later.

See the FlashSystem 5000 product documentation and the [IBM Support site](#) for additional information on licensed machine code levels and other requirements.

For a comprehensive list of supported environments, devices, and configurations, go to the [IBM System Storage Interoperation Center \(SSIC\)](#).

Planned availability date

- February 19, 2021: All IBM FlashSystem 5015 and 5035 models and features, except as noted below
- April 26, 2021: 9200R Integration, 9200R Switch Duct, and 10m OM3 Fiber Cable (feature numbers AL0S, AL0B, and ACSU)
- May 15, 2021: Model conversions
- June 11, 2021: TAA Compliance (feature number 0983)

The Encryption Enablement feature and the Encryption USB Drive feature (feature numbers ALE1 and ALEC) are not available in the following countries:

- Armenia
- Belarus
- Kazakhstan
- Kyrgyzstan
- Russia

Description

FlashSystem 5015 and 5035 offerings consist of four control enclosure models.

FlashSystem 5015 control enclosure models 2N2 and 2N4

- Two node canisters, each with a two-core processor
- 32 GB cache (16 GB per canister) with optional 64 GB cache (32 GB per canister)
- 1 Gb iSCSI connectivity standard with optional 16 Gb FC, 12 Gb SAS, 10 Gb iSCSI (optical), 25 Gb iSCSI (optical), and 1 Gb iSCSI connectivity
- 12 Gb SAS ports for expansion enclosure attachment

- Twelve slots for 3.5-inch LFF SAS drives (Model 2N2) and 24 slots for 2.5-inch SFF SAS drives (Model 2N4)
- 2U, 19-inch rack mount enclosure with 100 - 240 V AC or -48 V DC power supplies

FlashSystem 5035 control enclosure models 3N2 and 3N4

- Two node canisters, each with a six-core processor
- 32 GB cache (16 GB per canister) with optional 64 GB cache (32 GB per canister)
- 10 Gb iSCSI (copper) connectivity standard with optional 16 Gb FC, 12 Gb SAS, 10 Gb iSCSI (optical), and 25 Gb iSCSI (optical) connectivity
- 12 Gb SAS ports for expansion enclosure attachment
- Twelve slots for 3.5-inch LFF SAS drives (Model 3N2) and 24 slots for 2.5-inch SFF SAS drives (Model 3N4)
- 2U, 19-inch rack mount enclosure with 100 - 240 V AC or -48 V DC power supplies

All models are available with a three-year warranty.

FC, SAS, and iSCSI connectivity with intermix flexibility

All FlashSystem 5015 and 5035 control enclosures include 1 Gb or 10 Gb Ethernet ports standard for iSCSI connectivity. The standard connectivity can be extended with additional ports or enhanced with additional connectivity through an optional I/O adapter card feature. The following configurations are available:

	1 Gb Ethernet (iSCSI)	10 Gb Ethernet - Copper (iSCSI)	12 Gb SAS	16 Gb FC	10 Gb Ethernet - Optical (iSCSI)	25 Gb iSCSI Ethernet
FlashSystem 5015	4 ports (standard)	N/A	8 ports (with optional adapter card feature ¹)	8 ports (with optional adapter card feature ¹)	8 ports (with optional adapter card feature ¹)	4 ports (with optional adapter card feature ¹)
FlashSystem 5035	N/A	4 ports (standard)	8 ports (with optional adapter card feature ¹)	8 ports (with optional adapter card feature ¹)	8 ports (with optional adapter card feature ¹)	4 ports (with optional adapter card feature ¹)

¹ One optional I/O adapter card feature is allowed per FlashSystem 5000 control enclosure.

N/A = Not available

Select ports on FlashSystem 5000 control enclosures support additional link speeds. For example, the 10 Gb Ethernet (copper) ports on FlashSystem 5035 also support 1 Gb iSCSI. For a comprehensive list of supported environments, devices, and configurations, go to the [IBM SSIC](#) website.

Drive options and intermix flexibility meet a complete range of needs

FlashSystem 5000 is designed to support a complete range of data storage requirements, from highly utilized applications to high-capacity, low usage application with hybrid or all-flash solutions.

The following 3.5-inch LFF drives are supported:

- High-performance, enterprise-class disk drives: 900 GB, 1.2 TB, 1.8 TB, and 2.4 TB 10,000 rpm²
- High-capacity, archival class nearline disk drives: 4 TB, 6 TB, 8 TB, 10 TB, 12 TB, 14 TB, 16 TB, and 18 TB 7,200 rpm

² These are 2.5-inch drives packaged in a 3.5-inch carrier.

The following 2.5-inch SFF drives are supported:

- Flash drives: 800 GB, 1.92 TB, 3.84 TB, 7.68 TB, 15.36 TB, and 30.72 TB
- High-performance, enterprise class disk drives: 900 GB, 1.2 TB, 1.8 TB, and 2.4 TB 10,000 rpm
- High-capacity, archival class nearline disk drives: 2 TB 7,200 rpm

All drives are dual-port and hot-swappable. Drives of the same form factor can be intermixed within an enclosure, and LFF and SFF expansion enclosures can be intermixed behind either an LFF or SFF control enclosure.

Scalable configurations respond to growing capacity needs

FlashSystem 5015 systems scale to 392 drives per system with the attachment of four FlashSystem 5000 high-density LFF expansion enclosures.

FlashSystem 5035 system scales to 504 drives per system with the attachment of eight FlashSystem 5000 high-density expansion enclosures. FlashSystem 5035 systems can be clustered to help deliver even greater performance, bandwidth, and storage capacity. With two-way system clustering, the maximum size of a FlashSystem 5035 system increases to 1,008 drives.

Designed for high availability

FlashSystem 5015 and 5035 are designed to offer high system and data availability with the following features:

- Dual-active, intelligent node canisters with mirrored cache
- Dual-port drives with automatic drive failure detection
- Distributed RAID 1, 5, and 6
- Redundant hardware, including power supplies and fans
- Hot-swappable and client replaceable components
- Automated path failover support for the data path between the server and the drives
- HyperSwap, only available on 5035 models

Rich set of functional capabilities standard with every system

As a member of the FlashSystem family, FlashSystem 5015 and 5035 leverage IBM Spectrum Virtualize software functions and management tools. The following functions are included with FlashSystem 5015 and 5035 models:

- Distributed RAID 1, 5, and 6 provides the flexibility to choose the level of data protection required.
- Virtualization of internal storage enables rapid, flexible provisioning and simple configuration changes.
- Thin provisioning optimizes efficiency by allocating disk storage space in a flexible manner among multiple users, based on the minimum space required by each user at any given time. With thin provisioning, applications consume only the space they are actually using, not the total space that has been allocated to them.
- Data reduction pools increase existing infrastructure capacity utilization by leveraging the following efficiency functions:
 - Automatically deallocate and reclaim capacity of thin-provisioned volumes containing deleted data and, for the first time, enable this reclaimed capacity to be reused by other volumes.
 - Block deduplication for increased efficiency of storage usage by utilizing pointers in duplicate blocks rather than keeping multiple copies (FlashSystem 5035 only).

- Compression improves efficiency by storing more active primary data in the same physical disk space (FlashSystem 5035 only).
- Dynamic migration delivers efficiency and business value through a nondisruptive migration function.
- FlashCopy enables you to create copies of data for backup, parallel processing, testing, and development, and have the copies available almost immediately. FlashSystem 5015 and 5035 support up to 64 FlashCopy mappings per system.
- Graphical user interface delivers intuitive data management designed with point-and-click system management capabilities.

Optional licensed functions and 90-day trial period

FlashSystem 5015 and 5035 capabilities can be expanded with the following optional licensed functions. Each function is licensed to a control enclosure and covers the entire system (control enclosure and all attached expansion enclosures).

To help evaluate the benefits of these capabilities, licensed functions (with the exception of FlashCopy upgrade) can be enabled at no charge for a 90-day trial period. Trials are initiated from the FlashSystem management GUI and do not require any IBM intervention. Upon expiration of the trial, the function will be automatically disabled unless a license key for that function has been installed onto the machine.

- FlashCopy enables the creation of copies of data for backup, parallel processing, testing, and development, and will allow the copies to be available almost immediately. All FlashSystem 5015 and 5035 systems support up to 64 targets per system at no charge. The FlashCopy upgrade option increases this support to 8,192 FlashCopy mappings per system.
- Easy Tier storage tiering helps optimize storage use with data location to improve system performance, reduce costs, and simplify management. Easy Tier automatically and dynamically moves frequently accessed data to flash (solid state) drives in the system, resulting in flash drive performance without manually creating and managing storage tier policies. Easy Tier makes it easy and economical to deploy flash drives in the environment.
- Remote mirroring provides storage system-based data replication using either synchronous or asynchronous data transfers:
 - Metro Mirror is designed to maintain a fully synchronized copy at metropolitan distances (up to 300 km).
 - Global Mirror is designed to operate asynchronously and helps maintain a copy at much greater distances (up to 8,000 km).
 - Both functions are designed to support VMware Site Recovery Manager to help speed disaster recovery.
 - For ultimate flexibility, FlashSystem 5000 remote mirroring is designed to interoperate with any other IBM Spectrum Virtualize family system, including FlashSystem 5000, FlashSystem 7000, FlashSystem 9000, and IBM SAN Volume Controller.
 - The remote mirroring option must be acquired (or licensed) for both the primary (local) and secondary (remote) systems. If FlashSystem 5000 is mirrored to a system other than FlashSystem 5000, the other system must have the appropriate and applicable license for remote mirroring.
- HyperSwap requires remote mirroring to be activated on the machine. It delivers high availability configurations for resilient virtualized environments.

Encryption for enhanced data security with FlashSystem 5035

FlashSystem 5035 supports encryption for data at rest. Encryption is performed by the FlashSystem 5035 control enclosure for data stored within the entire FlashSystem 5035 system, the FlashSystem 5035 control enclosure, and all attached FlashSystem 5000 expansion enclosures.

Encryption is enabled on FlashSystem 5035 through the acquisition of the Encryption Enablement feature. This feature enables encryption on the entire FlashSystem 5035 system.

The Encryption USB Flash Drives (Four Pack) feature or IBM Security Key Manager (SKLM) are required for encryption keys management.

IBM Storage Insights

Available at no charge, cloud-based IBM Storage Insights provides a single dashboard that gives you a clear view of all your IBM block storage. You'll be able to make better decisions by seeing trends in performance and capacity. Storage health information enables you to focus on areas needing attention and when IBM support is needed, Storage Insights simplifies uploading logs, speeds resolution with online configuration data, and provides an overview of open tickets all in one place. Storage Insights Pro is a subscription service that provides longer historical views of data, more reporting and optimization options, and supports IBM file and block storage together with EMC VNX and VMAX.

There is no ordering required. For registration and installation information, see the [IBM Storage Insights Enrollment](#) website.

Accessibility by people with disabilities

Accessibility Compliance Reports (previously known as a VPAT) containing details on accessibility compliance to standards, including the Worldwide Consortium Web Content Accessibility Guidelines, European Standard EN 301 349, and US Section 508, can be found on the [IBM Accessibility Conformance Report Request](#) website.

Product number

The following are newly announced features and models on the specified models of the IBM System Storage 2072, 2076, 2077, 2078, 2145, 2147, 9846, and 9848 machine types:

Description	Machine type	Model	Feature
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	12G	AL3G
10 GbE SW SFP + Transceivers (Four)	2072	2H2	ACHQ
10 GbE SW SFP + Transceivers (Four)	2072	2H4	ACHQ
IBM FlashSystem 5015 LFF Control Enclosure	2072	2N2	
JEMT Indicator	2072	2N2	0021
TAA Compliance	2072	2N2	0983
Bulk Order Indicator	2072	2N2	5555
Power Cord - EMEA	2072	2N2	9716
Power Cord - Australia/NZ	2072	2N2	9717
Power Cord - Europe/Africa	2072	2N2	9718
Power Cord - Denmark	2072	2N2	9719
Power Cord - South Africa	2072	2N2	9720
Power Cord - Switzerland	2072	2N2	9721
Power Cord - Chile/Italy	2072	2N2	9722

Description	Machine type	Model	Feature
Power Cord - Israel	2072	2N2	9723
Power Cord - Argentina	2072	2N2	9725
Power Cord - China	2072	2N2	9726
Power Cord - PDU Connection	2072	2N2	9730
Power Cord - US/ Group 1	2072	2N2	9731
Power Cord - Taiwan	2072	2N2	9732
Power Cord - Brazil	2072	2N2	9733
Power Cord - India	2072	2N2	9734
Power Cord - Japan	2072	2N2	9735
Power Cord - Korea	2072	2N2	9736
Power Cord - Chicago	2072	2N2	9737
RFID AG/AP: 902-928 Mhz	2072	2N2	A2EV
RFID EMEA: 865.6-867.8 Mhz	2072	2N2	A2EW
10 GbE SW SFP + Transceivers (Four)	2072	2N2	ACHQ
16 Gb FC LW SFP Transceivers (Pair)	2072	2N2	ACHU
0.6m SAS Cable (mSAS HD to mSAS)	2072	2N2	ACSA
1.5m SAS Cable (mSAS HD to mSAS)	2072	2N2	ACSB
3m SAS Cable (mSAS HD to mSAS)	2072	2N2	ACSC
1m OM3 Fiber Cable (LC)	2072	2N2	ACSQ
5m OM3 Fiber Cable (LC)	2072	2N2	ACSR
10m OM3 Fiber Cable (LC)	2072	2N2	ACSS
25m OM3 Fiber Cable (LC)	2072	2N2	ACST
0.6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	2N2	ACUA
1.5m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	2N2	ACUB
3m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	2N2	ACUC
6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	2N2	ACUE
OEM 1 FC Order Indicator	2072	2N2	ACW1
OEM 2 FC Order Indicator	2072	2N2	ACW2

Description	Machine type	Model	Feature
OEM 3 FC Order Indicator	2072	2N2	ACW3
OEM 4 FC Order Indicator	2072	2N2	ACW4
OEM 5 FC Order Indicator	2072	2N2	ACW5
OEM 6 FC Order Indicator	2072	2N2	ACW6
OEM 7 FC Order Indicator	2072	2N2	ACW7
OEM 8 FC Order Indicator	2072	2N2	ACW8
OEM 9 FC Order Indicator	2072	2N2	ACW9
OEM 10 FC Order Indicator	2072	2N2	ACWA
OEM 11 FC Order Indicator	2072	2N2	ACWB
OEM 12 FC Order Indicator	2072	2N2	ACWC
OEM 13 FC Order Indicator	2072	2N2	ACWD
OEM 14 FC Order Indicator	2072	2N2	ACWE
OEM 15 FC Order Indicator	2072	2N2	ACWF
OEM 1 MTM Order Indicator	2072	2N2	ACY1
OEM 2 MTM Order Indicator	2072	2N2	ACY2
OEM 3 MTM Order Indicator	2072	2N2	ACY3
OEM 4 MTM Order Indicator	2072	2N2	ACY4
OEM 5 MTM Order Indicator	2072	2N2	ACY5
OEM 6 MTM Order Indicator	2072	2N2	ACY6
OEM 7 MTM Order Indicator	2072	2N2	ACY7
OEM 8 MTM Order Indicator	2072	2N2	ACY8
OEM 9 MTM Order Indicator	2072	2N2	ACY9
OEM 10 MTM Order Indicator	2072	2N2	ACYA
OEM 11 MTM Order Indicator	2072	2N2	ACYB
OEM 12 MTM Order Indicator	2072	2N2	ACYC
OEM 13 MTM Order Indicator	2072	2N2	ACYD
OEM 14 MTM Order Indicator	2072	2N2	ACYE
OEM 15 MTM Order Indicator	2072	2N2	ACYF
Generic Bezel	2072	2N2	ACZA
Generic Packaging	2072	2N2	ACZF
Order Type 1 - CTO	2072	2N2	ADN1
Order Type 2 - MTM Only	2072	2N2	ADN2

Description	Machine type	Model	Feature
Order Type 3 - FC Only	2072	2N2	ADN3
No Rules Order Indicator	2072	2N2	ADNR
TAA Designated Country	2072	2N2	ADZ1
Shipping and Handling NC	2072	2N2	AG00
Shipping and Handling	2072	2N2	AGJW
Power Cord - DC	2072	2N2	AHP4
Power Cord - PDU Connection (C20)	2072	2N2	AHP6
AC Power Supply High Efficiency (Pair)	2072	2N2	AHPA
DC Power Supply -48V (Pair)	2072	2N2	AHPB
20A Circuit Breaker (Pair)	2072	2N2	AHPC
Future use - reserved 1	2072	2N2	AHY1
Future use - reserved 2	2072	2N2	AHY2
Future use - reserved 3	2072	2N2	AHY3
Future use - reserved 4	2072	2N2	AHY4
Future use - reserved 5	2072	2N2	AHY5
Future use - reserved 6	2072	2N2	AHY6
Future use - reserved 7	2072	2N2	AHY7
Future use - reserved 8	2072	2N2	AHY8
Future use - reserved 9	2072	2N2	AHY9
VersaStack Solution Indicator	2072	2N2	AHZC
Hybrid Flash Indicator	2072	2N2	AHZE
Red Hat OpenShift Indicator	2072	2N2	AJGH
900 GB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2072	2N2	AL27
1.2 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2072	2N2	AL28
1.8 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2072	2N2	AL29
2.4 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2072	2N2	AL2A
4 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	2N2	AL39
6 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	2N2	AL3A

Description	Machine type	Model	Feature
8 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	2N2	AL3B
10 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	2N2	AL3C
12 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	2N2	AL3D
14 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	2N2	AL3E
16 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	2N2	AL3F
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	2N2	AL3G
12 Gb SAS 4 Port Adapter Cards (Pair)	2072	2N2	ALBA
16 Gb FC 4 Port Adapter Cards (Pair)	2072	2N2	ALBB
10 Gb Ethernet 4 Port Adapter Cards (Pair)	2072	2N2	ALBD
25GbE (RoCE) Adapter Cards (Pair)	2072	2N2	ALBE
25GbE (iWARP) Adapter Cards (Pair)	2072	2N2	ALBF
FlashCopy Upgrade	2072	2N2	ALE7
Remote Mirroring	2072	2N2	ALE8
Easy Tier	2072	2N2	ALE9
Storwize V5000E Cache Upgrade	2072	2N2	ALGA
ServicePac Machine Setup Support for Storage	2072	2N2	B0SK
BP Post-Sale Services: 1 Day	2072	2N2	SVBP
IBM Systems Lab Services Post-Sale Services: 1 Day	2072	2N2	SVCS
Other IBM Post- Sale Services: 1 Day	2072	2N2	SVNN
IBM FlashSystem 5015 SFF Control Enclosure	2072	2N4	
JEMT Indicator	2072	2N4	0021
TAA Compliance	2072	2N4	0983
Bulk Order Indicator	2072	2N4	5555
Power Cord - EMEA	2072	2N4	9716
Power Cord - Australia/NZ	2072	2N4	9717
Power Cord - Europe/Africa	2072	2N4	9718

Description	Machine type	Model	Feature
Power Cord - Denmark	2072	2N4	9719
Power Cord - South Africa	2072	2N4	9720
Power Cord - Switzerland	2072	2N4	9721
Power Cord - Chile/Italy	2072	2N4	9722
Power Cord - Israel	2072	2N4	9723
Power Cord - Argentina	2072	2N4	9725
Power Cord - China	2072	2N4	9726
Power Cord - PDU Connection	2072	2N4	9730
Power Cord - US/ Group 1	2072	2N4	9731
Power Cord - Taiwan	2072	2N4	9732
Power Cord - Brazil	2072	2N4	9733
Power Cord - India	2072	2N4	9734
Power Cord - Japan	2072	2N4	9735
Power Cord - Korea	2072	2N4	9736
Power Cord - Chicago	2072	2N4	9737
RFID AG/AP: 902-928 Mhz	2072	2N4	A2EV
RFID EMEA: 865.6-867.8 Mhz	2072	2N4	A2EW
10 GbE SW SFP + Transceivers (Four)	2072	2N4	ACHQ
16 Gb FC LW SFP Transceivers (Pair)	2072	2N4	ACHU
0.6m SAS Cable (mSAS HD to mSAS)	2072	2N4	ACSA
1.5m SAS Cable (mSAS HD to mSAS)	2072	2N4	ACSB
3m SAS Cable (mSAS HD to mSAS)	2072	2N4	ACSC
1m OM3 Fiber Cable (LC)	2072	2N4	ACSQ
5m OM3 Fiber Cable (LC)	2072	2N4	ACSR
10m OM3 Fiber Cable (LC)	2072	2N4	ACSS
25m OM3 Fiber Cable (LC)	2072	2N4	ACST
0.6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	2N4	ACUA
1.5m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	2N4	ACUB

Description	Machine type	Model	Feature
3m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	2N4	ACUC
6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	2N4	ACUE
OEM 1 FC Order Indicator	2072	2N4	ACW1
OEM 2 FC Order Indicator	2072	2N4	ACW2
OEM 3 FC Order Indicator	2072	2N4	ACW3
OEM 4 FC Order Indicator	2072	2N4	ACW4
OEM 5 FC Order Indicator	2072	2N4	ACW5
OEM 6 FC Order Indicator	2072	2N4	ACW6
OEM 7 FC Order Indicator	2072	2N4	ACW7
OEM 8 FC Order Indicator	2072	2N4	ACW8
OEM 9 FC Order Indicator	2072	2N4	ACW9
OEM 10 FC Order Indicator	2072	2N4	ACWA
OEM 11 FC Order Indicator	2072	2N4	ACWB
OEM 12 FC Order Indicator	2072	2N4	ACWC
OEM 13 FC Order Indicator	2072	2N4	ACWD
OEM 14 FC Order Indicator	2072	2N4	ACWE
OEM 15 FC Order Indicator	2072	2N4	ACWF
OEM 1 MTM Order Indicator	2072	2N4	ACY1
OEM 2 MTM Order Indicator	2072	2N4	ACY2
OEM 3 MTM Order Indicator	2072	2N4	ACY3
OEM 4 MTM Order Indicator	2072	2N4	ACY4
OEM 5 MTM Order Indicator	2072	2N4	ACY5
OEM 6 MTM Order Indicator	2072	2N4	ACY6
OEM 7 MTM Order Indicator	2072	2N4	ACY7
OEM 8 MTM Order Indicator	2072	2N4	ACY8
OEM 9 MTM Order Indicator	2072	2N4	ACY9
OEM 10 MTM Order Indicator	2072	2N4	ACYA
OEM 11 MTM Order Indicator	2072	2N4	ACYB
OEM 12 MTM Order Indicator	2072	2N4	ACYC
OEM 13 MTM Order Indicator	2072	2N4	ACYD

Description	Machine type	Model	Feature
OEM 14 MTM Order Indicator	2072	2N4	ACYE
OEM 15 MTM Order Indicator	2072	2N4	ACYF
Generic Bezel	2072	2N4	ACZA
Generic Packaging	2072	2N4	ACZF
Order Type 1 - CTO	2072	2N4	ADN1
Order Type 2 - MTM Only	2072	2N4	ADN2
Order Type 3 - FC Only	2072	2N4	ADN3
No Rules Order Indicator	2072	2N4	ADNR
TAA Designated Country	2072	2N4	ADZ1
Shipping and Handling NC	2072	2N4	AG00
Shipping and Handling	2072	2N4	AGJW
Power Cord - DC	2072	2N4	AHP4
Power Cord - PDU Connection (C20)	2072	2N4	AHP6
AC Power Supply High Efficiency (Pair)	2072	2N4	AHPA
DC Power Supply -48V (Pair)	2072	2N4	AHPB
20A Circuit Breaker (Pair)	2072	2N4	AHPC
Future use - reserved 1	2072	2N4	AHY1
Future use - reserved 2	2072	2N4	AHY2
Future use - reserved 3	2072	2N4	AHY3
Future use - reserved 4	2072	2N4	AHY4
Future use - reserved 5	2072	2N4	AHY5
Future use - reserved 6	2072	2N4	AHY6
Future use - reserved 7	2072	2N4	AHY7
Future use - reserved 8	2072	2N4	AHY8
Future use - reserved 9	2072	2N4	AHY9
VersaStack Solution Indicator	2072	2N4	AHZC
All Flash Indicator	2072	2N4	AHZD
Hybrid Flash Indicator	2072	2N4	AHZE
Red Hat OpenShift Indicator	2072	2N4	AJGH
900 GB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2072	2N4	AL68
1.2 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2072	2N4	AL69

Description	Machine type	Model	Feature
1.8 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2072	2N4	AL6A
2.4 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2072	2N4	AL6B
2 TB 7,200 rpm 12 Gb SAS NL 2.5 Inch HDD	2072	2N4	AL76
1.92TB 12 Gb SAS 2.5 Inch Flash Drive	2072	2N4	AL80
3.84TB 12 Gb SAS 2.5 Inch Flash Drive	2072	2N4	AL81
7.68TB 12 Gb SAS 2.5 Inch Flash Drive	2072	2N4	AL82
15.36TB 12 Gb SAS 2.5 Inch Flash Drive	2072	2N4	AL83
30.72TB 12 Gb SAS 2.5 Inch Flash Drive	2072	2N4	AL84
800 GB 3DWPD 12 Gb SAS 2.5 Inch Flash Drive	2072	2N4	AL8A
12 Gb SAS 4 Port Adapter Cards (Pair)	2072	2N4	ALBA
16 Gb FC 4 Port Adapter Cards (Pair)	2072	2N4	ALBB
10 Gb Ethernet 4 Port Adapter Cards (Pair)	2072	2N4	ALBD
25GbE (RoCE) Adapter Cards (Pair)	2072	2N4	ALBE
25GbE (iWARP) Adapter Cards (Pair)	2072	2N4	ALBF
FlashCopy Upgrade	2072	2N4	ALE7
Remote Mirroring	2072	2N4	ALE8
Easy Tier	2072	2N4	ALE9
Storwize V5000E Cache Upgrade	2072	2N4	ALGA
ServicePac Machine Setup Support for Storage	2072	2N4	B0SK
BP Post-Sale Services: 1 Day	2072	2N4	SVBP
IBM Systems Lab Services Post-Sale Services: 1 Day	2072	2N4	SVCS
Other IBM Post- Sale Services: 1 Day	2072	2N4	SVNN
10 GbE SW SFP + Transceivers (Four)	2072	3H2	ACHQ

Description	Machine type	Model	Feature
10 GbE SW SFP + Transceivers (Four)	2072	3H4	ACHQ
IBM FlashSystem 5035 LFF Control Enclosure	2072	3N2	
JEMT Indicator	2072	3N2	0021
TAA Compliance	2072	3N2	0983
Bulk Order Indicator	2072	3N2	5555
Power Cord - EMEA	2072	3N2	9716
Power Cord - Australia/NZ	2072	3N2	9717
Power Cord - Europe/Africa	2072	3N2	9718
Power Cord - Denmark	2072	3N2	9719
Power Cord - South Africa	2072	3N2	9720
Power Cord - Switzerland	2072	3N2	9721
Power Cord - Chile/Italy	2072	3N2	9722
Power Cord - Israel	2072	3N2	9723
Power Cord - Argentina	2072	3N2	9725
Power Cord - China	2072	3N2	9726
Power Cord - PDU Connection	2072	3N2	9730
Power Cord - US/ Group 1	2072	3N2	9731
Power Cord - Taiwan	2072	3N2	9732
Power Cord - Brazil	2072	3N2	9733
Power Cord - India	2072	3N2	9734
Power Cord - Japan	2072	3N2	9735
Power Cord - Korea	2072	3N2	9736
Power Cord - Chicago	2072	3N2	9737
RFID AG/AP: 902-928 Mhz	2072	3N2	A2EV
RFID EMEA: 865.6-867.8 Mhz	2072	3N2	A2EW
10 GbE SW SFP + Transceivers (Four)	2072	3N2	ACHQ
16 Gb FC LW SFP Transceivers (Pair)	2072	3N2	ACHU
0.6m SAS Cable (mSAS HD to mSAS)	2072	3N2	ACSA
1.5m SAS Cable (mSAS HD to mSAS)	2072	3N2	ACSB
3m SAS Cable (mSAS HD to mSAS)	2072	3N2	ACSC

Description	Machine type	Model	Feature
1m OM3 Fiber Cable (LC)	2072	3N2	ACSQ
5m OM3 Fiber Cable (LC)	2072	3N2	ACSR
10m OM3 Fiber Cable (LC)	2072	3N2	ACSS
25m OM3 Fiber Cable (LC)	2072	3N2	ACST
0.6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	3N2	ACUA
1.5m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	3N2	ACUB
3m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	3N2	ACUC
6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	3N2	ACUE
OEM 1 FC Order Indicator	2072	3N2	ACW1
OEM 2 FC Order Indicator	2072	3N2	ACW2
OEM 3 FC Order Indicator	2072	3N2	ACW3
OEM 4 FC Order Indicator	2072	3N2	ACW4
OEM 5 FC Order Indicator	2072	3N2	ACW5
OEM 6 FC Order Indicator	2072	3N2	ACW6
OEM 7 FC Order Indicator	2072	3N2	ACW7
OEM 8 FC Order Indicator	2072	3N2	ACW8
OEM 9 FC Order Indicator	2072	3N2	ACW9
OEM 10 FC Order Indicator	2072	3N2	ACWA
OEM 11 FC Order Indicator	2072	3N2	ACWB
OEM 12 FC Order Indicator	2072	3N2	ACWC
OEM 13 FC Order Indicator	2072	3N2	ACWD
OEM 14 FC Order Indicator	2072	3N2	ACWE
OEM 15 FC Order Indicator	2072	3N2	ACWF
OEM 1 MTM Order Indicator	2072	3N2	ACY1
OEM 2 MTM Order Indicator	2072	3N2	ACY2
OEM 3 MTM Order Indicator	2072	3N2	ACY3
OEM 4 MTM Order Indicator	2072	3N2	ACY4
OEM 5 MTM Order Indicator	2072	3N2	ACY5
OEM 6 MTM Order Indicator	2072	3N2	ACY6

Description	Machine type	Model	Feature
OEM 7 MTM Order Indicator	2072	3N2	ACY7
OEM 8 MTM Order Indicator	2072	3N2	ACY8
OEM 9 MTM Order Indicator	2072	3N2	ACY9
OEM 10 MTM Order Indicator	2072	3N2	ACYA
OEM 11 MTM Order Indicator	2072	3N2	ACYB
OEM 12 MTM Order Indicator	2072	3N2	ACYC
OEM 13 MTM Order Indicator	2072	3N2	ACYD
OEM 14 MTM Order Indicator	2072	3N2	ACYE
OEM 15 MTM Order Indicator	2072	3N2	ACYF
Generic Bezel	2072	3N2	ACZA
Generic Packaging	2072	3N2	ACZF
Order Type 1 - CTO	2072	3N2	ADN1
Order Type 2 - MTM Only	2072	3N2	ADN2
Order Type 3 - FC Only	2072	3N2	ADN3
No Rules Order Indicator	2072	3N2	ADNR
TAA Designated Country	2072	3N2	ADZ1
Shipping and Handling NC	2072	3N2	AG00
Shipping and Handling	2072	3N2	AGJW
Power Cord - DC	2072	3N2	AHP4
Power Cord - PDU Connection (C20)	2072	3N2	AHP6
AC Power Supply High Efficiency (Pair)	2072	3N2	AHPA
DC Power Supply -48V (Pair)	2072	3N2	AHPB
20A Circuit Breaker (Pair)	2072	3N2	AHPC
Future use - reserved 1	2072	3N2	AHY1
Future use - reserved 2	2072	3N2	AHY2
Future use - reserved 3	2072	3N2	AHY3
Future use - reserved 4	2072	3N2	AHY4
Future use - reserved 5	2072	3N2	AHY5
Future use - reserved 6	2072	3N2	AHY6
Future use - reserved 7	2072	3N2	AHY7
Future use - reserved 8	2072	3N2	AHY8
Future use - reserved 9	2072	3N2	AHY9

Description	Machine type	Model	Feature
VersaStack Solution Indicator	2072	3N2	AH2C
Hybrid Flash Indicator	2072	3N2	AH2E
Red Hat OpenShift Indicator	2072	3N2	AJGH
900 GB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2072	3N2	AL27
1.2 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2072	3N2	AL28
1.8 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2072	3N2	AL29
2.4 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2072	3N2	AL2A
4 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	3N2	AL39
6 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	3N2	AL3A
8 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	3N2	AL3B
10 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	3N2	AL3C
12 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	3N2	AL3D
14 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	3N2	AL3E
16 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	3N2	AL3F
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	3N2	AL3G
12 Gb SAS 4 Port Adapter Cards (Pair)	2072	3N2	ALBA
16 Gb FC 4 Port Adapter Cards (Pair)	2072	3N2	ALBB
10 Gb Ethernet 4 Port Adapter Cards (Pair)	2072	3N2	ALBD
25GbE (RoCE) Adapter Cards (Pair)	2072	3N2	ALBE
25GbE (iWARP) Adapter Cards (Pair)	2072	3N2	ALBF
Encryption Enablement	2072	3N2	ALE1
FlashCopy Upgrade	2072	3N2	ALE7
Remote Mirroring	2072	3N2	ALE8
Easy Tier	2072	3N2	ALE9

Description	Machine type	Model	Feature
Encryption USB Flash Drives (Four Pack)	2072	3N2	ALEC
Storwize V5000E Cache Upgrade	2072	3N2	ALGA
ServicePac Machine Setup Support for Storage	2072	3N2	B0SK
BP Post-Sale Services: 1 Day	2072	3N2	SVBP
IBM Systems Lab Services Post-Sale Services: 1 Day	2072	3N2	SVCS
Other IBM Post-Sale Services: 1 Day	2072	3N2	SVNN
IBM FlashSystem 5035 SFF Control Enclosure	2072	3N4	
JEMT Indicator	2072	3N4	0021
TAA Compliance	2072	3N4	0983
Bulk Order Indicator	2072	3N4	5555
Power Cord - EMEA	2072	3N4	9716
Power Cord - Australia/NZ	2072	3N4	9717
Power Cord - Europe/Africa	2072	3N4	9718
Power Cord - Denmark	2072	3N4	9719
Power Cord - South Africa	2072	3N4	9720
Power Cord - Switzerland	2072	3N4	9721
Power Cord - Chile/Italy	2072	3N4	9722
Power Cord - Israel	2072	3N4	9723
Power Cord - Argentina	2072	3N4	9725
Power Cord - China	2072	3N4	9726
Power Cord - PDU Connection	2072	3N4	9730
Power Cord - US/ Group 1	2072	3N4	9731
Power Cord - Taiwan	2072	3N4	9732
Power Cord - Brazil	2072	3N4	9733
Power Cord - India	2072	3N4	9734
Power Cord - Japan	2072	3N4	9735
Power Cord - Korea	2072	3N4	9736
Power Cord - Chicago	2072	3N4	9737
RFID AG/AP: 902-928 Mhz	2072	3N4	A2EV
RFID EMEA: 865.6-867.8 Mhz	2072	3N4	A2EW

Description	Machine type	Model	Feature
10 GbE SW SFP + Transceivers (Four)	2072	3N4	ACHQ
16 Gb FC LW SFP Transceivers (Pair)	2072	3N4	ACHU
0.6m SAS Cable (mSAS HD to mSAS)	2072	3N4	ACSA
1.5m SAS Cable (mSAS HD to mSAS)	2072	3N4	ACSB
3m SAS Cable (mSAS HD to mSAS)	2072	3N4	ACSC
1m OM3 Fiber Cable (LC)	2072	3N4	ACSQ
5m OM3 Fiber Cable (LC)	2072	3N4	ACSR
10m OM3 Fiber Cable (LC)	2072	3N4	ACSS
25m OM3 Fiber Cable (LC)	2072	3N4	ACST
0.6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	3N4	ACUA
1.5m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	3N4	ACUB
3m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	3N4	ACUC
6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2072	3N4	ACUE
OEM 1 FC Order Indicator	2072	3N4	ACW1
OEM 2 FC Order Indicator	2072	3N4	ACW2
OEM 3 FC Order Indicator	2072	3N4	ACW3
OEM 4 FC Order Indicator	2072	3N4	ACW4
OEM 5 FC Order Indicator	2072	3N4	ACW5
OEM 6 FC Order Indicator	2072	3N4	ACW6
OEM 7 FC Order Indicator	2072	3N4	ACW7
OEM 8 FC Order Indicator	2072	3N4	ACW8
OEM 9 FC Order Indicator	2072	3N4	ACW9
OEM 10 FC Order Indicator	2072	3N4	ACWA
OEM 11 FC Order Indicator	2072	3N4	ACWB
OEM 12 FC Order Indicator	2072	3N4	ACWC
OEM 13 FC Order Indicator	2072	3N4	ACWD
OEM 14 FC Order Indicator	2072	3N4	ACWE
OEM 15 FC Order Indicator	2072	3N4	ACWF

Description	Machine type	Model	Feature
OEM 1 MTM Order Indicator	2072	3N4	ACY1
OEM 2 MTM Order Indicator	2072	3N4	ACY2
OEM 3 MTM Order Indicator	2072	3N4	ACY3
OEM 4 MTM Order Indicator	2072	3N4	ACY4
OEM 5 MTM Order Indicator	2072	3N4	ACY5
OEM 6 MTM Order Indicator	2072	3N4	ACY6
OEM 7 MTM Order Indicator	2072	3N4	ACY7
OEM 8 MTM Order Indicator	2072	3N4	ACY8
OEM 9 MTM Order Indicator	2072	3N4	ACY9
OEM 10 MTM Order Indicator	2072	3N4	ACYA
OEM 11 MTM Order Indicator	2072	3N4	ACYB
OEM 12 MTM Order Indicator	2072	3N4	ACYC
OEM 13 MTM Order Indicator	2072	3N4	ACYD
OEM 14 MTM Order Indicator	2072	3N4	ACYE
OEM 15 MTM Order Indicator	2072	3N4	ACYF
Generic Bezel	2072	3N4	ACZA
Generic Packaging	2072	3N4	ACZF
Order Type 1 - CTO	2072	3N4	ADN1
Order Type 2 - MTM Only	2072	3N4	ADN2
Order Type 3 - FC Only	2072	3N4	ADN3
No Rules Order Indicator	2072	3N4	ADNR
TAA Designated Country	2072	3N4	ADZ1
Shipping and Handling NC	2072	3N4	AG00
Shipping and Handling	2072	3N4	AGJW
Power Cord - DC	2072	3N4	AHP4
Power Cord - PDU Connection (C20)	2072	3N4	AHP6
AC Power Supply High Efficiency (Pair)	2072	3N4	AHPA
DC Power Supply -48V (Pair)	2072	3N4	AHPB
20A Circuit Breaker (Pair)	2072	3N4	AHPC
Future use - reserved 1	2072	3N4	AHY1
Future use - reserved 2	2072	3N4	AHY2
Future use - reserved 3	2072	3N4	AHY3

Description	Machine type	Model	Feature
Future use - reserved 4	2072	3N4	AHY4
Future use - reserved 5	2072	3N4	AHY5
Future use - reserved 6	2072	3N4	AHY6
Future use - reserved 7	2072	3N4	AHY7
Future use - reserved 8	2072	3N4	AHY8
Future use - reserved 9	2072	3N4	AHY9
VersaStack Solution Indicator	2072	3N4	AHZC
All Flash Indicator	2072	3N4	AHZD
Hybrid Flash Indicator	2072	3N4	AHZE
Red Hat OpenShift Indicator	2072	3N4	AJGH
900 GB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2072	3N4	AL68
1.2 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2072	3N4	AL69
1.8 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2072	3N4	AL6A
2.4 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2072	3N4	AL6B
2 TB 7,200 rpm 12 Gb SAS NL 2.5 Inch HDD	2072	3N4	AL76
1.92TB 12 Gb SAS 2.5 Inch Flash Drive	2072	3N4	AL80
3.84TB 12 Gb SAS 2.5 Inch Flash Drive	2072	3N4	AL81
7.68TB 12 Gb SAS 2.5 Inch Flash Drive	2072	3N4	AL82
15.36TB 12 Gb SAS 2.5 Inch Flash Drive	2072	3N4	AL83
30.72TB 12 Gb SAS 2.5 Inch Flash Drive	2072	3N4	AL84
800 GB 3DWP 12 Gb SAS 2.5 Inch Flash Drive	2072	3N4	AL8A
12 Gb SAS 4 Port Adapter Cards (Pair)	2072	3N4	ALBA
16 Gb FC 4 Port Adapter Cards (Pair)	2072	3N4	ALBB
10 Gb Ethernet 4 Port Adapter Cards (Pair)	2072	3N4	ALBD
25GbE (RoCE) Adapter Cards (Pair)	2072	3N4	ALBE

Description	Machine type	Model	Feature
25GbE (iWARP) Adapter Cards (Pair)	2072	3N4	ALBF
Encryption Enablement	2072	3N4	ALE1
FlashCopy Upgrade	2072	3N4	ALE7
Remote Mirroring	2072	3N4	ALE8
Easy Tier	2072	3N4	ALE9
Encryption USB Flash Drives (Four Pack)	2072	3N4	ALEC
Storwize V5000E Cache Upgrade	2072	3N4	ALGA
ServicePac Machine Setup Support for Storage	2072	3N4	B0SK
BP Post-Sale Services: 1 Day	2072	3N4	SVBP
IBM Systems Lab Services Post-Sale Services: 1 Day	2072	3N4	SVCS
Other IBM Post- Sale Services: 1 Day	2072	3N4	SVNN
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2072	92G	AL4D
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2076	12G	AHDA
10 GbE SW SFP + Transceivers (Four)	2076	824	ACHQ
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2076	92G	AH7X
10 GbE SW SFP + Transceivers (Four)	2076	U7C	ACHQ
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2077	12G	AC3G
10 GbE SW SFP + Transceivers (Four)	2077	4H4	ACHQ
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2077	92G	ACPX
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2078	12G	AC3G
10 GbE SW SFP + Transceivers (Four)	2078	4H4	ACHQ
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2078	92G	ACPX
10 GbE SW SFP + Transceivers (Four)	2078	UHB	ACHQ
10 GbE SW SFP+ Transceivers (Pair)	2145	SA2	ACHR

Description	Machine type	Model	Feature
10 GbE SW SFP+ Transceivers (Pair)	2145	SV1	ACHR
10 GbE SW SFP+ Transceivers (Pair)	2145	SV2	ACHR
10 GbE SW SFP+ Transceivers (Pair)	2147	SA2	ACHR
10 GbE SW SFP+ Transceivers (Pair)	2147	SV1	ACHR
10 GbE SW SFP+ Transceivers (Pair)	2147	SV2	ACHR
10 GbE SW SFP + Transceivers (Four)	9846	AG8	ACHQ
10 GbE SW SFP + Transceivers (Four)	9848	AG8	ACHQ
10m OM3 Fiber Cable (LC)	9848	AG8	ACSU
FlashSystem 9200R Integration	9848	AG8	AL0S
FlashSystem 9200R Switch Duct	9848	AG8	AL0B
10 GbE SW SFP + Transceivers (Four)	9848	UG8	ACHQ

Model conversions

Type	Model	Type	Model
2072	2N2	2072	3N2
2072	2N4	2072	3N4

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld ID and password are required (use IBMid).

[BP Attachment for Announcement Letter 121-005](#)

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For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or go to the [Business Continuity](#) website.

Details on education offerings related to specific products can be found on the [IBM Training](#) website.

Technical information

Specified operating environment

Physical specifications

- Height: 8.7 cm (3.4 in.)
- Width: 48.3 cm (19.0 in.)
- Depth: 55.6 cm (21.9 in.)
- Approximate weight:
 - LFF control enclosure:
 - Empty: 17.4 kg (38.3 lb)
 - Fully configured: 27.7 kg (61.0 lb)
 - SFF control enclosure:
 - Empty: 17.7 kg (38.9 lb)

-- Fully configured: 26.0 kg (57.2 lb)

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

Standards

Note: This product was designed, tested, manufactured, and certified for safe operation. It complies with IEC 60950-1 and/or IEC 62368-1 and where required, to relevant national differences/deviations (NDs) to these IEC base standards. This includes, but is not limited to: EN (European Norms including all Amendments under the Low Voltage Directive), UL/CSA (North America bi-national harmonized and marked per accredited NRTL agency listings), and other such derivative certifications according to corporate determinations and latest regional publication compliance standardized requirements.

(Relevant machine type - models may also be used to supplement identification for worldwide co-compliance filings or registrations with regulatory bodies.)

Operating environment

Air temperature

- Operating:
 - 5°C - 40°C (41°F - 104°F) up to 950 m (3,117 ft) above sea level
 - Above 950 m, de-rate maximum air temperature 1 degree per 175 m
- Nonoperating: 1°C - 60°C (33.8°F - 140°F)

Relative humidity

- Operating: 8% - 85%
- Nonoperating: 8% - 85%

Electrical power

- AC power:
 - Voltage range: 100 - 240 V AC
 - Frequency: 50 - 60 Hz
 - Power: 800 watts
- DC power:
 - Voltage range: -42 to -60 V DC
 - Voltage nominal: -48 V DC
 - Current: 12.0 A
 - Power: 800 watts

Models with the DC power feature require an electrically rated 20A circuit breaker for the -48 V DC input. The wiring between the DC power source and the FlashSystem 5000 DC power supply connectors must be with 12 AWG copper wires.

Heat dissipation

- 2,730 BTU per hour

Acoustical noise emission

- 6.2 bels (idling)
- 6.1 bels (operating)

Software requirements

FlashSystem 5015 and 5035 require licensed machine code level 8.4.0.1, or later.

See the FlashSystem 5000 product documentation and the [IBM Support](#) site for additional information on licensed machine code levels and other requirements.

For a comprehensive list of supported environments, devices, and configurations, go to the [IBM SSIC](#) website.

Compatibility

For a comprehensive list of supported environments, devices, and configurations, go to the [IBM SSIC](#).

Limitations

Drive considerations

Distributed RAID 1, 5, and 6 configurations are supported.

Configuration limitations and restrictions

For FlashSystem 5000 configuration limits and restrictions, go to the [IBM Support Portal](#) and enter *FlashSystem 5000 configuration limits and restrictions* in the Search support box.

Consider the following rules when planning for the maximum configuration in terms of drive slots and expansion enclosures that a specific system can be configured with.

Expansion enclosure attachment rules:

Product	Machine type type	Model	SAS chains per control enclosure or node pair	Max. expansion enclosure per SAS chain (2U- / 5U-92G)	Max. qty of drives per SAS chain	Max. qty of drives per control enclosure or node pair	Max. qty of drives per clustered system
FlashSystem 5015	2072	2N2, 2N4	1	10/4	368	392	N/A
FlashSystem 5035	2072	3N2, 3N4	2	10/4	368	504	1008

2U expansion enclosures and 5U expansion enclosure mix rules:

Maximum number of drive slots per SAS expansion string												
2U	0	1	2	3	4	5	6	7	8	9	10	5U
0	0	24	48	72	96	120	144	168	192	216	240	
1	92	116	140	164	188	212	236	260	-	-	-	
2	184	208	232	256	280	304	-	-	-	-	-	
3	276	300	324	-	-	-	-	-	-	-	-	
4	368	-	-	-	-	-	-	-	-	-	-	

Encryption

The Encryption Enablement feature (number ALE1) and the Encryption USB Drive Pack feature (feature number ALEC) are only available for FlashSystem 5035 models, and are not available in the following countries:

- Belarus
- Kazakhstan
- People's Republic of China
- Russia

Shipments to India, Russia, Japan, and Korea

FlashSystem 5000 machines shipped prior to the published planned availability date for India, Russia, Japan, and Korea are not compliant with associated India, Russia, Japan, or Korea certification and product labeling requirements. If you did not acquire your machine from IBM as a direct shipment to these countries, you are responsible for validating the machine has the appropriate certifications and product labels.

Contact your IBM sales representative or IBM Business Partner for assistance with this validation.

Certifications and product labels

Machines directly shipped from IBM are compliant with certification and product labeling requirements for the country into which the machine is shipped. You are responsible for validating the machine has the appropriate certifications and product labels if the machine is relocated to another country.

Contact your IBM sales representative or IBM Business Partner for assistance with this validation.

Planning information

Client responsibilities

Physical configuration and installation planning are client responsibilities.

You are responsible for downloading or obtaining from IBM, and installing designated Machine Code (microcode, basic input/output system code (called BIOS), utility programs, device drivers, and diagnostics delivered with an IBM machine) and other software updates in a timely manner from an IBM internet website or from other electronic media, and following the instructions that IBM provides. You may request IBM to install Machine Code changes; however, you may be charged for that service.

Cable orders

Cables are required for the following:

- I/O connectivity to servers and fabric components
- Expansion enclosure attachment
- System management

As a convenience, a limited selection of cables can be ordered with the FlashSystem 5000 machine. See the [Product number](#) section for features numbers.

Cables, along with installation services, are also available from IBM Network Integration and Deployment Services, an IBM Global Services offering.

I/O connectivity cables

Host interface cables are required to connect FlashSystem 5000 I/O ports to server or fabric ports.

16 Gb FC

FlashSystem 5000 requires a 50.0/125 micrometer fiber optic cable terminated with an LC Duplex connector. The following fiber optic cables can be ordered with FlashSystem 5000 control enclosure models:

- 1-meter OM3 fiber cable (LC)
- 5-meter OM3 fiber cable (LC)
- 25-meter OM3 fiber cable (LC)
- 10-meter OM3 fibre cable (LC)

12 Gb SAS

FlashSystem 5000 requires a 12 Gb mini-SAS HD 4x cable terminated with an SFF-8644 (HD) connector. The following SAS cables can be ordered with FlashSystem 5000 control enclosure models:

- Cables terminated with a SFF-8088 connector for attachment to the server SAS port:
 - 0.6-meter SAS cable (mSAS HD to mSAS)
 - 1.5-meter SAS cable (mSAS HD to mSAS)
 - 3-meter SAS cable (mSAS HD to mSAS)
- Cables terminated with a SFF-8644 (HD) connector for attachment to the server SAS port:
 - 0.6-meter 12 Gb SAS cable (mSAS HD)
 - 1.5-meter 12 Gb SAS cable (mSAS HD)
 - 3-meter 12 Gb SAS cable (mSAS HD)

10 Gb Ethernet - Optical

FlashSystem 5000 requires a 10GBASE-SR cable terminated with an LC duplex connector. The following can be ordered with FlashSystem 5000 control enclosure models:

- 1-meter OM3 fiber cable (LC)
- 5-meter OM3 fiber cable (LC)
- 25-meter OM3 fiber cable (LC)
- 10-meter OM3 fibre cable (LC)

A 50.0/125 micrometer fiber optic cable can also be used, subject to distance limitations.

10 Gb Ethernet - Copper (FlashSystem 5035 only)

The 10 Gb Ethernet (copper) ports standard on FlashSystem 5035 require a 10GBASE-T Category 6A shielded cable terminated with an 8P8C modular connector (RJ45 compatible connector). This cable is not available for ordering with the machine and must be supplied by the client.

If these ports are used at a 1 Gb link speed, the 1 Gb Ethernet cables described below can be used.

1 Gb Ethernet

FlashSystem 5000 requires a Category 5 or Category 5E Ethernet cable terminated with an 8P8C modular connector (RJ45 compatible connector). This cable is not available for ordering with the machine and must be supplied by the client.

Expansion enclosure attachment cables

Expansion enclosure attachment cables are required to connect a FlashSystem 5000 expansion enclosure to the control enclosure and to another expansion enclosure. This requires a 12 Gb mini-SAS HD 4x cable terminated with SFF-8644 (HD) connectors.

The following SAS cables can be ordered with FlashSystem 5000 expansion enclosure models:

- 0.6-meter 12 Gb SAS cable (mSAS HD)
- 1.5-meter 12 Gb SAS cable (mSAS HD)
- 3-meter 12 Gb SAS cable (mSAS HD)
- 6-meter 12 Gb SAS cable (mSAS HD)

System management cables

FlashSystem 5035 requires:

- A 10GBASE-T Category 6A shielded cable terminated with an 8P8C modular connector (RJ45 compatible connector) when system management is performed over a 10 Gb link speed.
- A Category 5 or Category 5E Ethernet cable terminated with an 8P8C modular connector (RJ45 compatible connector) when system management is performed over a 1 Gb link speed.

FlashSystem 5015 require a Category 5 or Category 5E Ethernet cable terminated with an 8P8C modular connector (RJ45 compatible connector).

These cables are not available for ordering with the machine and must be supplied by the client.

Security, auditability, and control

This product uses the security and auditability features of the preloaded application software.

The client is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

IBM Systems Lab Services

For details on available services, contact your IBM representative or go to the [Lab Services](#) website.

Terms and conditions

Volume orders

Contact your IBM representative.

IBM Global Financing

Yes

Products - terms and conditions

Warranty period

Warranty and additional coverage options	Coverage summary³
Warranty Period:	Three years standard warranty

Warranty and additional coverage options	Coverage summary³
Service Level:	IBM CRU and On-Site Limited, 9x5 Next Business Day
Service upgrade options	
Warranty Service Upgrade	IBM CRU and On-Site Repair, 9x5 Same Day ⁴ and 24x7 Same Day options
Maintenance Services (post-warranty)	IBM On-Site Repair, Next Business Day and Same Day options
IBM Hardware Maintenance Services - Committed maintenance ⁵	Yes

³ See complete coverage details below.

⁴ Only offered in US and EMEA.

⁵ Not offered in the US.

Three years (including the battery)

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or IBM. An IBM part or feature installed during the initial installation of an IBM machine is subject to the full warranty period specified by IBM. An IBM part or feature that replaces a previously installed part or feature assumes the remainder of the warranty period for the replaced part or feature. An IBM part or feature added to a machine without replacing a previously installed part or feature is subject to a full warranty. Unless specified otherwise, the warranty period, type of warranty service, and service level of a part or feature are the same as those for the machine in which it is installed.

Warranty service

If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone, or electronically through an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. If applicable to your product, parts considered Client Replaceable Units (CRUs) will be provided as part of the machine's standard warranty service.

Service levels are response-time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country-specific and location-specific information.

CRU Service

IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request. CRUs are designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU.

Tier 1 (mandatory) CRU

Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

Tier 2 (optional) CRU

You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Based upon availability, CRUs will be shipped for next business day (NBD) delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, return instructions and a container are shipped with the replacement CRU. You may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

The following parts have been designated as Tier 1 CRUs (5000 control enclosures):

- Power Cable
- I/O adapter
- SFP
- DIMM
- system disk
- Fibre cable
- SAS cable
- Drive
- Coin cell
- Bezel
- Node battery
- PSU
- Rail kit
- Drive blank
- Node canister

The following parts have been designated as Tier 1 CRUs (5000 2U expansion enclosures):

- Power cable
- Drive
- Bezel
- PSU
- Rail kit
- Drive blank
- Mini SAS-HD cable
- Expansion canister

The following parts have been designated as Tier 1 CRUs (5000 5U expansion enclosures):

- Power cable
- Drive
- Fascia
- PSU
- Rail kit
- Fan module
- Drive blank
- Mini SAS-HD cable
- Control panel
- SAS expander module
- Cable management arms
- Lid

- Fan interface board
- Expansion canister
- Enclosure

CRU and On-site Service

At IBM's discretion, you will receive specified CRU service, or IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well-lit, and suitable for the purpose.

Service level is:

- 9 hours per day, Monday through Friday, excluding holidays, next business day response. Calls must be received by 5:00 PM local time in order to qualify for next business day response.

Non-IBM parts service

IBM is now shipping machines with selected non-IBM parts that contain an IBM field replaceable unit (FRU) part number label. These parts are to be serviced during the IBM machine warranty period. IBM is covering the service on these selected non-IBM parts as an accommodation to their clients, and normal warranty service procedures for the IBM machine apply.

International Warranty Service

International Warranty Service allows you to relocate any machine that is eligible for International Warranty Service and receive continued warranty service in any country where the IBM machine is serviced. If you move your machine to a different country, you are required to report the machine information to your Business Partner or IBM representative.

The warranty service type and the service level provided in the servicing country may be different from that provided in the country in which the machine was purchased. Warranty service will be provided with the prevailing warranty service type and service level available for the eligible machine type in the servicing country, and the warranty period observed will be that of the country in which the machine was purchased.

The following types of information can be found on the [International Warranty Service](#) website

- Machine warranty entitlement and eligibility
- Directory of contacts by country with technical support contact information
- Announcement Letters

Warranty service upgrades

During the warranty period, warranty service upgrades provide an enhanced level of On-site Service for an additional charge. Service levels are response-time objectives and are not guaranteed. See the Warranty services section for additional details.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts.

- On-Site Repair, Monday through Friday (excluding holidays), 8 AM to 5 PM, 4 hour on-site response objective. Response times are objectives and are not guaranteed.
- On-Site Repair, 7 days a week, 24 hours per day

- On-Site Repair, 7 days a week, 24 hours per day, 2 hour response objective. Response times are objectives and are not guaranteed.

Maintenance service options

Maintenance services

If required, IBM provides repair or exchange service depending on the types of maintenance service specified for the machine. IBM will attempt to resolve your problem over the telephone or electronically, through an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed. The specified level of maintenance service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country-specific and location-specific information. The following service selections are available as maintenance options for your machine type.

On-site Service

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well-lit, and suitable for the purpose.

- On-Site Repair, Monday through Friday (excluding holidays), 8 AM to 5 PM, next business day.
- On-Site Repair, Monday through Friday (excluding holidays), 8 AM to 5 PM, 4 hour response objective. Response times are objectives and are not guaranteed.
- On-Site Repair, 7 days a week, 24 hours per day.
- On-Site Repair, 7 days a week, 24 hours per day, 2 hour response objective. Response times are objectives and are not guaranteed.

Client Replaceable Unit (CRU) Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), and depending upon the maintenance service offerings in your geography, IBM will ship the replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request.

Based upon availability, CRUs will be shipped for next business day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU, and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

CRUs are designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU.

Tier 1 (mandatory) CRUs: Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

For machines with On-site Same-day Response Service, IBM will replace a Tier 1 CRU part at your request, at no additional charge.

Tier 2 (optional) CRUs: You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

The following parts have been designated as Tier 1 CRUs (5000 control enclosures):

- Power Cable

- I/O adapter
- SFP
- DIMM
- system disk
- Fibre cable
- SAS cable
- Drive
- Coin cell
- Bezel
- Node battery
- PSU
- Rail kit
- Drive blank
- Node canister

The following parts have been designated as Tier 1 CRUs (5000 2U expansion enclosures):

- Power cable
- Drive
- Bezel
- PSU
- Rail kit
- Drive blank
- Mini SAS-HD cable
- Expansion canister

The following parts have been designated as Tier 1 CRUs (5000 5U expansion enclosures):

- Power cable
- Drive
- Fascia
- PSU
- Rail kit
- Fan module
- Drive blank
- Mini SAS-HD cable
- Control panel
- SAS expander module
- Cable management arms
- Lid
- Fan interface board
- Expansion canister
- Enclosure

Feature codes for which there is a maintenance charge:

Description	Machine type	Model	Feature
800GB 3DWPB 2.5" Flash Drive	2072	2N4	AL8A
1.92TB 2.5" Flash Drive	2072	2N4	AL80

Description	Machine type	Model	Feature
3.84TB 2.5" Flash Drive	2072	2N4	AL81
7.68TB 2.5" Flash Drive	2072	2N4	AL82
15.36TB 2.5" Flash Drive	2072	2N4	AL83
30.72TB 2.5" Flash Drive	2072	2N4	AL84
800GB 3DWPD 2.5" Flash Drive	2072	3N4	AL8A
1.92TB 2.5" Flash Drive	2072	3N4	AL80
3.84TB 2.5" Flash Drive	2072	3N4	AL81
7.68TB 2.5" Flash Drive	2072	3N4	AL82
15.36TB 2.5" Flash Drive	2072	3N4	AL83
30.72TB 2.5" Flash Drive	2072	3N4	AL84

Non-IBM parts service

Under certain conditions, IBM provides services for selected non-IBM parts at no additional charge for machines that are covered under warranty service upgrades or maintenance services.

This service includes hardware problem determination (PD) on the non-IBM parts (for example, adapter cards, PCMCIA cards, disk drives, memory) installed within IBM machines and provides the labor to replace the failing parts at no additional charge.

If IBM has a Technical Service Agreement with the manufacturer of the failing part, or if the failing part is an accommodations part (a part with an IBM FRU label), IBM may also source and replace the failing part at no additional charge. For all other non-IBM parts, clients are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

Usage plan machine

No

IBM hourly service rate classification

Two

When a type of service involves the exchange of a machine part, the replacement may not be new, but will be in good working order.

General terms and conditions

Field-installable features

Yes

Model conversions

Yes

Machine installation

Client setup. Clients are responsible for installation according to the instructions IBM provides with the machine.

Graduated program license charges apply

No

Licensed Machine Code

IBM Machine Code is licensed for use by a client on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its specifications, and only for the capacity authorized by IBM and acquired by the client. You can obtain the agreement from the [License Agreement for Machine Code](#) and [Licensed Internal Code](#) website.

Access to Machine Code updates is conditioned on entitlement and license validation in accordance with IBM policy and practice. IBM may verify entitlement through customer number, serial number, electronic restrictions, or any other means or methods employed by IBM in its discretion.

You may also obtain updated code by contacting your IBM representative.

If the machine does not function as warranted and your problem can be resolved through your application of downloadable Machine Code, you are responsible for downloading and installing these designated Machine Code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable Machine Code changes; however, you may be charged for that service.

Educational allowance

A reduced charge is available to qualified education clients. The educational allowance may not be added to any other discount or allowance.

The educational allowance is 15% for the products in this announcement.

Prices

For additional information and current prices, contact your local IBM representative or IBM Business Partner.

The following are newly announced features and models on the specified models of the IBM System Storage 2072 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
FS 5035 LFF Control	3N2		Both	Yes	
FS 5015 LFF Control	2N2		Both	Yes	
FS 5035 SFF Control	3N4		Both	Yes	
FS 5015 SFF Control	2N4		Both	Yes	
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	12G	AL3G	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
10 GbE SW SFP+ Transceivers (Four)	2H2	ACHQ	Both	Yes	No
10 GbE SW SFP+ Transceivers (Four)	2H4	ACHQ	Both	Yes	No
JEMT Indicator	2N2	0021	Initial	Yes	No
TAA Compliance	2N2	0983	Initial	Yes	No
Bulk Order Indicator	2N2	5555	MES	Yes	No
Power Cord - EMEA	2N2	9716	Both	Yes	No
Power Cord - Australia/ NZ	2N2	9717	Both	Yes	No
Power Cord - Europe/ Africa	2N2	9718	Both	Yes	No
Power Cord - Denmark	2N2	9719	Both	Yes	No
Power Cord - South Africa	2N2	9720	Both	Yes	No
Power Cord - Switzerland	2N2	9721	Both	Yes	No
Power Cord - Chile/Italy	2N2	9722	Both	Yes	No
Power Cord - Israel	2N2	9723	Both	Yes	No
Power Cord - Argentina	2N2	9725	Both	Yes	No
Power Cord - China	2N2	9726	Both	Yes	No
Power Cord - PDU Connection	2N2	9730	Both	Yes	No
Power Cord - US/ Group 1	2N2	9731	Both	Yes	No
Power Cord - Taiwan	2N2	9732	Both	Yes	No
Power Cord - Brazil	2N2	9733	Both	Yes	No
Power Cord - India	2N2	9734	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Power Cord - Japan	2N2	9735	Both	Yes	No
Power Cord - Korea	2N2	9736	Both	Yes	No
Power Cord - Chicago	2N2	9737	Both	Yes	No
RFID AG/AP: 902-928 Mhz	2N2	A2EV	Initial	Yes	No
RFID EMEA: 865.6-867.8 Mhz	2N2	A2EW	Initial	Yes	No
10 GbE SW SFP+ Transceivers (Four)	2N2	ACHQ	Both	Yes	No
16 Gb FC LW SFP Transceivers (Pair)	2N2	ACHU	Both	Yes	No
0.6m SAS Cable (mSAS HD to mSAS)	2N2	ACSA	Both	Yes	No
1.5m SAS Cable (mSAS HD to mSAS)	2N2	ACSB	Both	Yes	No
3m SAS Cable (mSAS HD to mSAS)	2N2	ACSC	Both	Yes	No
1m OM3 Fiber Cable (LC)	2N2	ACSQ	Both	Yes	No
5m OM3 Fiber Cable (LC)	2N2	ACSR	Both	Yes	No
10m OM3 Fiber Cable (LC)	2N2	ACSS	Both	Yes	No
25m OM3 Fiber Cable (LC)	2N2	ACST	Both	Yes	No
0.6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2N2	ACUA	Both	Yes	No
1.5m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2N2	ACUB	Both	Yes	No
3m 12 Gb SAS Cable (mSAS HD	2N2	ACUC	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
to mSAS HD)					
6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2N2	ACUE	Both	Yes	No
OEM 1 FC Order Indicator	2N2	ACW1	MES	Yes	No
OEM 2 FC Order Indicator	2N2	ACW2	MES	Yes	No
OEM 3 FC Order Indicator	2N2	ACW3	MES	Yes	No
OEM 4 FC Order Indicator	2N2	ACW4	MES	Yes	No
OEM 5 FC Order Indicator	2N2	ACW5	MES	Yes	No
OEM 6 FC Order Indicator	2N2	ACW6	MES	Yes	No
OEM 7 FC Order Indicator	2N2	ACW7	MES	Yes	No
OEM 8 FC Order Indicator	2N2	ACW8	MES	Yes	No
OEM 9 FC Order Indicator	2N2	ACW9	MES	Yes	No
OEM 10 FC Order Indicator	2N2	ACWA	MES	Yes	No
OEM 11 FC Order Indicator	2N2	ACWB	MES	Yes	No
OEM 12 FC Order Indicator	2N2	ACWC	MES	Yes	No
OEM 13 FC Order Indicator	2N2	ACWD	MES	Yes	No
OEM 14 FC Order Indicator	2N2	ACWE	MES	Yes	No
OEM 15 FC Order Indicator	2N2	ACWF	MES	Yes	No
OEM 1 MTM Order Indicator	2N2	ACY1	Both	Yes	No
OEM 2 MTM Order Indicator	2N2	ACY2	Initial	Yes	No
OEM 3 MTM Order Indicator	2N2	ACY3	Initial	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
OEM 4 MTM Order Indicator	2N2	ACY4	Initial	Yes	No
OEM 5 MTM Order Indicator	2N2	ACY5	Initial	Yes	No
OEM 6 MTM Order Indicator	2N2	ACY6	Initial	Yes	No
OEM 7 MTM Order Indicator	2N2	ACY7	Initial	Yes	No
OEM 8 MTM Order Indicator	2N2	ACY8	Initial	Yes	No
OEM 9 MTM Order Indicator	2N2	ACY9	Initial	Yes	No
OEM 10 MTM Order Indicator	2N2	ACYA	Initial	Yes	No
OEM 11 MTM Order Indicator	2N2	ACYB	Initial	Yes	No
OEM 12 MTM Order Indicator	2N2	ACYC	Initial	Yes	No
OEM 13 MTM Order Indicator	2N2	ACYD	Initial	Yes	No
OEM 14 MTM Order Indicator	2N2	ACYE	Initial	Yes	No
OEM 15 MTM Order Indicator	2N2	ACYF	Initial	Yes	No
Generic Bezel	2N2	ACZA	Initial	Yes	No
Generic Packaging	2N2	ACZF	Initial	Yes	No
Order Type 1 - CTO	2N2	ADN1	Initial	Yes	No
Order Type 2 - MTM Only	2N2	ADN2	Initial	Yes	No
Order Type 3 - FC Only	2N2	ADN3	MES	Yes	No
No Rules Order Indicator	2N2	ADNR	Both	Yes	No
TAA Designated Country	2N2	ADZ1	Initial	Yes	No
Shipping and Handling NC	2N2	AG00	Initial	Yes	No
Shipping and Handling	2N2	AGJW	Initial	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Power Cord - DC	2N2	AHP4	Both	Yes	No
Power Cord - PDU Connection (C20)	2N2	AHP6	Both	Yes	No
AC Power Supply High Efficiency (Pair)	2N2	AHPA	Initial	Yes	No
DC Power Supply -48V (Pair)	2N2	AHPB	Initial	Yes	No
20A Circuit Breaker (Pair)	2N2	AHPC	Both	Yes	No
Future use - reserved 1	2N2	AHY1	Initial	Yes	No
Future use - reserved 2	2N2	AHY2	Initial	Yes	No
Future use - reserved 3	2N2	AHY3	Initial	Yes	No
Future use - reserved 4	2N2	AHY4	Initial	Yes	No
Future use - reserved 5	2N2	AHY5	Initial	Yes	No
Future use - reserved 6	2N2	AHY6	Initial	Yes	No
Future use - reserved 7	2N2	AHY7	Initial	Yes	No
Future use - reserved 8	2N2	AHY8	Initial	Yes	No
Future use - reserved 9	2N2	AHY9	Initial	Yes	No
VersaStack Solution Indicator	2N2	AHZC	Initial	Yes	No
Hybrid Flash Indicator	2N2	AHZE	Initial	Yes	No
Red Hat OpenShift Indicator	2N2	AJGH	Initial	Yes	No
900 GB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2N2	AL27	Both	Yes	No
1.2 TB 10,000 rpm 12 Gb	2N2	AL28	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
SAS 3.5 Inch HDD					
1.8 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2N2	AL29	Both	Yes	No
2.4 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	2N2	AL2A	Both	Yes	No
4 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2N2	AL39	Both	Yes	No
6 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2N2	AL3A	Both	Yes	No
8 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2N2	AL3B	Both	Yes	No
10 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2N2	AL3C	Both	Yes	No
12 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2N2	AL3D	Both	Yes	No
14 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2N2	AL3E	Both	Yes	No
16 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2N2	AL3F	Both	Yes	No
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	2N2	AL3G	Both	Yes	No
12 Gb SAS 4 Port Adapter Cards (Pair)	2N2	ALBA	Both	Yes	No
16 Gb FC 4 Port Adapter Cards (Pair)	2N2	ALBB	Both	Yes	No
10 Gb Ethernet 4 Port	2N2	ALBD	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Adapter Cards (Pair)					
25GbE (RoCE) Adapter Cards (Pair)	2N2	ALBE	Both	Yes	No
25GbE (iWARP) Adapter Cards (Pair)	2N2	ALBF	Both	Yes	No
FlashCopy Upgrade	2N2	ALE7	Both	Yes	No
Remote Mirroring	2N2	ALE8	Both	Yes	No
Easy Tier	2N2	ALE9	Both	Yes	No
Storwize V5000E Cache Upgrade	2N2	ALGA	Both	Yes	No
ServicePac Machine Setup Support for Storage	2N2	B0SK	Both	Yes	No
BP Post-Sale Services: 1 Day	2N2	SVBP	Both	Yes	No
IBM Systems Lab Services Post-Sale Services: 1 Day	2N2	SVCS	Both	Yes	No
Other IBM Post-Sale Services: 1 Day	2N2	SVNN	Both	Yes	No
JEMT Indicator	2N4	0021	Initial	Yes	No
TAA Compliance	2N4	0983	Initial	Yes	No
Bulk Order Indicator	2N4	5555	MES	Yes	No
Power Cord - EMEA	2N4	9716	Both	Yes	No
Power Cord - Australia/ NZ	2N4	9717	Both	Yes	No
Power Cord - Europe/ Africa	2N4	9718	Both	Yes	No
Power Cord - Denmark	2N4	9719	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Power Cord - South Africa	2N4	9720	Both	Yes	No
Power Cord - Switzerland	2N4	9721	Both	Yes	No
Power Cord - Chile/Italy	2N4	9722	Both	Yes	No
Power Cord - Israel	2N4	9723	Both	Yes	No
Power Cord - Argentina	2N4	9725	Both	Yes	No
Power Cord - China	2N4	9726	Both	Yes	No
Power Cord - PDU Connection	2N4	9730	Both	Yes	No
Power Cord - US/ Group 1	2N4	9731	Both	Yes	No
Power Cord - Taiwan	2N4	9732	Both	Yes	No
Power Cord - Brazil	2N4	9733	Both	Yes	No
Power Cord - India	2N4	9734	Both	Yes	No
Power Cord - Japan	2N4	9735	Both	Yes	No
Power Cord - Korea	2N4	9736	Both	Yes	No
Power Cord - Chicago	2N4	9737	Both	Yes	No
RFID AG/AP: 902-928 Mhz	2N4	A2EV	Initial	Yes	No
RFID EMEA: 865.6-867.8 Mhz	2N4	A2EW	Initial	Yes	No
10 GbE SW SFP+ Transceivers (Four)	2N4	ACHQ	Both	Yes	No
16 Gb FC LW SFP Transceivers (Pair)	2N4	ACHU	Both	Yes	No
0.6m SAS Cable	2N4	ACSA	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
(mSAS HD to mSAS)					
1.5m SAS Cable (mSAS HD to mSAS)	2N4	ACSB	Both	Yes	No
3m SAS Cable (mSAS HD to mSAS)	2N4	ACSC	Both	Yes	No
1m OM3 Fiber Cable (LC)	2N4	ACSQ	Both	Yes	No
5m OM3 Fiber Cable (LC)	2N4	ACSR	Both	Yes	No
10m OM3 Fiber Cable (LC)	2N4	ACSS	Both	Yes	No
25m OM3 Fiber Cable (LC)	2N4	ACST	Both	Yes	No
0.6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2N4	ACUA	Both	Yes	No
1.5m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2N4	ACUB	Both	Yes	No
3m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2N4	ACUC	Both	Yes	No
6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	2N4	ACUE	Both	Yes	No
OEM 1 FC Order Indicator	2N4	ACW1	MES	Yes	No
OEM 2 FC Order Indicator	2N4	ACW2	MES	Yes	No
OEM 3 FC Order Indicator	2N4	ACW3	MES	Yes	No
OEM 4 FC Order Indicator	2N4	ACW4	MES	Yes	No
OEM 5 FC Order Indicator	2N4	ACW5	MES	Yes	No
OEM 6 FC Order Indicator	2N4	ACW6	MES	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
OEM 7 FC Order Indicator	2N4	ACW7	MES	Yes	No
OEM 8 FC Order Indicator	2N4	ACW8	MES	Yes	No
OEM 9 FC Order Indicator	2N4	ACW9	MES	Yes	No
OEM 10 FC Order Indicator	2N4	ACWA	MES	Yes	No
OEM 11 FC Order Indicator	2N4	ACWB	MES	Yes	No
OEM 12 FC Order Indicator	2N4	ACWC	MES	Yes	No
OEM 13 FC Order Indicator	2N4	ACWD	MES	Yes	No
OEM 14 FC Order Indicator	2N4	ACWE	MES	Yes	No
OEM 15 FC Order Indicator	2N4	ACWF	MES	Yes	No
OEM 1 MTM Order Indicator	2N4	ACY1	Both	Yes	No
OEM 2 MTM Order Indicator	2N4	ACY2	Initial	Yes	No
OEM 3 MTM Order Indicator	2N4	ACY3	Initial	Yes	No
OEM 4 MTM Order Indicator	2N4	ACY4	Initial	Yes	No
OEM 5 MTM Order Indicator	2N4	ACY5	Initial	Yes	No
OEM 6 MTM Order Indicator	2N4	ACY6	Initial	Yes	No
OEM 7 MTM Order Indicator	2N4	ACY7	Initial	Yes	No
OEM 8 MTM Order Indicator	2N4	ACY8	Initial	Yes	No
OEM 9 MTM Order Indicator	2N4	ACY9	Initial	Yes	No
OEM 10 MTM Order Indicator	2N4	ACYA	Initial	Yes	No
OEM 11 MTM Order Indicator	2N4	ACYB	Initial	Yes	No
OEM 12 MTM Order Indicator	2N4	ACYC	Initial	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
OEM 13 MTM Order Indicator	2N4	ACYD	Initial	Yes	No
OEM 14 MTM Order Indicator	2N4	ACYE	Initial	Yes	No
OEM 15 MTM Order Indicator	2N4	ACYF	Initial	Yes	No
Generic Bezel	2N4	ACZA	Initial	Yes	No
Generic Packaging	2N4	ACZF	Initial	Yes	No
Order Type 1 - CTO	2N4	ADN1	Initial	Yes	No
Order Type 2 - MTM Only	2N4	ADN2	Initial	Yes	No
Order Type 3 - FC Only	2N4	ADN3	MES	Yes	No
No Rules Order Indicator	2N4	ADNR	Both	Yes	No
TAA Designated Country	2N4	ADZ1	Initial	Yes	No
Shipping and Handling NC	2N4	AG00	Initial	Yes	No
Shipping and Handling	2N4	AGJW	Initial	Yes	No
Power Cord - DC	2N4	AHP4	Both	Yes	No
Power Cord - PDU Connection (C20)	2N4	AHP6	Both	Yes	No
AC Power Supply High Efficiency (Pair)	2N4	AHPA	Initial	Yes	No
DC Power Supply -48V (Pair)	2N4	AHPB	Initial	Yes	No
20A Circuit Breaker (Pair)	2N4	AHPC	Both	Yes	No
Future use - reserved 1	2N4	AHY1	Initial	Yes	No
Future use - reserved 2	2N4	AHY2	Initial	Yes	No
Future use - reserved 3	2N4	AHY3	Initial	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Future use - reserved 4	2N4	AHY4	Initial	Yes	No
Future use - reserved 5	2N4	AHY5	Initial	Yes	No
Future use - reserved 6	2N4	AHY6	Initial	Yes	No
Future use - reserved 7	2N4	AHY7	Initial	Yes	No
Future use - reserved 8	2N4	AHY8	Initial	Yes	No
Future use - reserved 9	2N4	AHY9	Initial	Yes	No
VersaStack Solution Indicator	2N4	AHZC	Initial	Yes	No
All Flash Indicator	2N4	AHZD	Initial	Yes	No
Hybrid Flash Indicator	2N4	AHZE	Initial	Yes	No
Red Hat OpenShift Indicator	2N4	AJGH	Initial	Yes	No
900 GB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2N4	AL68	Both	Yes	No
1.2 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2N4	AL69	Both	Yes	No
1.8 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2N4	AL6A	Both	Yes	No
2.4 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	2N4	AL6B	Both	Yes	No
2 TB 7,200 rpm 12 Gb SAS NL 2.5 Inch HDD	2N4	AL76	Both	Yes	No
1.92TB 12 Gb SAS 2.5 Inch Flash Drive	2N4	AL80	Both	Yes	No
3.84TB 12 Gb SAS 2.5 Inch Flash Drive	2N4	AL81	Both	Yes	No
7.68TB 12 Gb SAS	2N4	AL82	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
2.5 Inch Flash Drive					
15.36TB 12 Gb SAS 2.5 Inch Flash Drive	2N4	AL83	Both	Yes	No
30.72TB 12 Gb SAS 2.5 Inch Flash Drive	2N4	AL84	Both	Yes	No
800 GB 3DWPD 12 Gb SAS 2.5 Inch Flash Drive	2N4	AL8A	Both	Yes	No
12 Gb SAS 4 Port Adapter Cards (Pair)	2N4	ALBA	Both	Yes	No
16 Gb FC 4 Port Adapter Cards (Pair)	2N4	ALBB	Both	Yes	No
10 Gb Ethernet 4 Port Adapter Cards (Pair)	2N4	ALBD	Both	Yes	No
25GbE (RoCE) Adapter Cards (Pair)	2N4	ALBE	Both	Yes	No
25GbE (iWARP) Adapter Cards (Pair)	2N4	ALBF	Both	Yes	No
FlashCopy Upgrade	2N4	ALE7	Both	Yes	No
Remote Mirroring	2N4	ALE8	Both	Yes	No
Easy Tier	2N4	ALE9	Both	Yes	No
Storwize V5000E Cache Upgrade	2N4	ALGA	Both	Yes	No
ServicePac Machine Setup Support for Storage	2N4	B0SK	Both	Yes	No
BP Post-Sale Services: 1 Day	2N4	SVBP	Both	Yes	No
IBM Systems Lab Services Post-Sale	2N4	SVCS	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Services: 1 Day					
Other IBM Post-Sale Services: 1 Day	2N4	SVNN	Both	Yes	No
10 GbE SW SFP+ Transceivers (Four)	3H2	ACHQ	Both	Yes	No
10 GbE SW SFP+ Transceivers (Four)	3H4	ACHQ	Both	Yes	No
JEMT Indicator	3N2	0021	Initial	Yes	No
TAA Compliance	3N2	0983	Initial	Yes	No
Bulk Order Indicator	3N2	5555	MES	Yes	No
Power Cord - EMEA	3N2	9716	Both	Yes	No
Power Cord - Australia/ NZ	3N2	9717	Both	Yes	No
Power Cord - Europe/ Africa	3N2	9718	Both	Yes	No
Power Cord - Denmark	3N2	9719	Both	Yes	No
Power Cord - South Africa	3N2	9720	Both	Yes	No
Power Cord - Switzerland	3N2	9721	Both	Yes	No
Power Cord - Chile/Italy	3N2	9722	Both	Yes	No
Power Cord - Israel	3N2	9723	Both	Yes	No
Power Cord - Argentina	3N2	9725	Both	Yes	No
Power Cord - China	3N2	9726	Both	Yes	No
Power Cord - PDU Connection	3N2	9730	Both	Yes	No
Power Cord - US/ Group 1	3N2	9731	Both	Yes	No
Power Cord - Taiwan	3N2	9732	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Power Cord - Brazil	3N2	9733	Both	Yes	No
Power Cord - India	3N2	9734	Both	Yes	No
Power Cord - Japan	3N2	9735	Both	Yes	No
Power Cord - Korea	3N2	9736	Both	Yes	No
Power Cord - Chicago	3N2	9737	Both	Yes	No
RFID AG/AP: 902-928 Mhz	3N2	A2EV	Initial	Yes	No
RFID EMEA: 865.6-867.8 Mhz	3N2	A2EW	Initial	Yes	No
10 GbE SW SFP+ Transceivers (Four)	3N2	ACHQ	Both	Yes	No
16 Gb FC LW SFP Transceivers (Pair)	3N2	ACHU	Both	Yes	No
0.6m SAS Cable (mSAS HD to mSAS)	3N2	ACSA	Both	Yes	No
1.5m SAS Cable (mSAS HD to mSAS)	3N2	ACSB	Both	Yes	No
3m SAS Cable (mSAS HD to mSAS)	3N2	ACSC	Both	Yes	No
1m OM3 Fiber Cable (LC)	3N2	ACSQ	Both	Yes	No
5m OM3 Fiber Cable (LC)	3N2	ACSR	Both	Yes	No
10m OM3 Fiber Cable (LC)	3N2	ACSS	Both	Yes	No
25m OM3 Fiber Cable (LC)	3N2	ACST	Both	Yes	No
0.6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	3N2	ACUA	Both	Yes	No
1.5m 12 Gb SAS Cable	3N2	ACUB	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
(mSAS HD to mSAS HD)					
3m 12 Gb SAS Cable (mSAS HD to mSAS HD)	3N2	ACUC	Both	Yes	No
6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	3N2	ACUE	Both	Yes	No
OEM 1 FC Order Indicator	3N2	ACW1	MES	Yes	No
OEM 2 FC Order Indicator	3N2	ACW2	MES	Yes	No
OEM 3 FC Order Indicator	3N2	ACW3	MES	Yes	No
OEM 4 FC Order Indicator	3N2	ACW4	MES	Yes	No
OEM 5 FC Order Indicator	3N2	ACW5	MES	Yes	No
OEM 6 FC Order Indicator	3N2	ACW6	MES	Yes	No
OEM 7 FC Order Indicator	3N2	ACW7	MES	Yes	No
OEM 8 FC Order Indicator	3N2	ACW8	MES	Yes	No
OEM 9 FC Order Indicator	3N2	ACW9	MES	Yes	No
OEM 10 FC Order Indicator	3N2	ACWA	MES	Yes	No
OEM 11 FC Order Indicator	3N2	ACWB	MES	Yes	No
OEM 12 FC Order Indicator	3N2	ACWC	MES	Yes	No
OEM 13 FC Order Indicator	3N2	ACWD	MES	Yes	No
OEM 14 FC Order Indicator	3N2	ACWE	MES	Yes	No
OEM 15 FC Order Indicator	3N2	ACWF	MES	Yes	No
OEM 1 MTM Order Indicator	3N2	ACY1	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
OEM 2 MTM Order Indicator	3N2	ACY2	Initial	Yes	No
OEM 3 MTM Order Indicator	3N2	ACY3	Initial	Yes	No
OEM 4 MTM Order Indicator	3N2	ACY4	Initial	Yes	No
OEM 5 MTM Order Indicator	3N2	ACY5	Initial	Yes	No
OEM 6 MTM Order Indicator	3N2	ACY6	Initial	Yes	No
OEM 7 MTM Order Indicator	3N2	ACY7	Initial	Yes	No
OEM 8 MTM Order Indicator	3N2	ACY8	Initial	Yes	No
OEM 9 MTM Order Indicator	3N2	ACY9	Initial	Yes	No
OEM 10 MTM Order Indicator	3N2	ACYA	Initial	Yes	No
OEM 11 MTM Order Indicator	3N2	ACYB	Initial	Yes	No
OEM 12 MTM Order Indicator	3N2	ACYC	Initial	Yes	No
OEM 13 MTM Order Indicator	3N2	ACYD	Initial	Yes	No
OEM 14 MTM Order Indicator	3N2	ACYE	Initial	Yes	No
OEM 15 MTM Order Indicator	3N2	ACYF	Initial	Yes	No
Generic Bezel	3N2	ACZA	Initial	Yes	No
Generic Packaging	3N2	ACZF	Initial	Yes	No
Order Type 1 - CTO	3N2	ADN1	Initial	Yes	No
Order Type 2 - MTM Only	3N2	ADN2	Initial	Yes	No
Order Type 3 - FC Only	3N2	ADN3	MES	Yes	No
No Rules Order Indicator	3N2	ADNR	Both	Yes	No
TAA Designated Country	3N2	ADZ1	Initial	Yes	No
Shipping and	3N2	AG00	Initial	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Handling NC					
Shipping and Handling	3N2	AGJW	Initial	Yes	No
Power Cord - DC	3N2	AHP4	Both	Yes	No
Power Cord - PDU Connection (C20)	3N2	AHP6	Both	Yes	No
AC Power Supply High Efficiency (Pair)	3N2	AHPA	Initial	Yes	No
DC Power Supply -48V (Pair)	3N2	AHPB	Initial	Yes	No
20A Circuit Breaker (Pair)	3N2	AHPC	Both	Yes	No
Future use - reserved 1	3N2	AHY1	Initial	Yes	No
Future use - reserved 2	3N2	AHY2	Initial	Yes	No
Future use - reserved 3	3N2	AHY3	Initial	Yes	No
Future use - reserved 4	3N2	AHY4	Initial	Yes	No
Future use - reserved 5	3N2	AHY5	Initial	Yes	No
Future use - reserved 6	3N2	AHY6	Initial	Yes	No
Future use - reserved 7	3N2	AHY7	Initial	Yes	No
Future use - reserved 8	3N2	AHY8	Initial	Yes	No
Future use - reserved 9	3N2	AHY9	Initial	Yes	No
VersaStack Solution Indicator	3N2	AHZC	Initial	Yes	No
Hybrid Flash Indicator	3N2	AHZE	Initial	Yes	No
Red Hat OpenShift Indicator	3N2	AJGH	Initial	Yes	No
900 GB 10,000 rpm 12 Gb	3N2	AL27	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
SAS 3.5 Inch HDD					
1.2 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	3N2	AL28	Both	Yes	No
1.8 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	3N2	AL29	Both	Yes	No
2.4 TB 10,000 rpm 12 Gb SAS 3.5 Inch HDD	3N2	AL2A	Both	Yes	No
4 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	3N2	AL39	Both	Yes	No
6 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	3N2	AL3A	Both	Yes	No
8 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	3N2	AL3B	Both	Yes	No
10 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	3N2	AL3C	Both	Yes	No
12 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	3N2	AL3D	Both	Yes	No
14 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	3N2	AL3E	Both	Yes	No
16 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	3N2	AL3F	Both	Yes	No
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	3N2	AL3G	Both	Yes	No
12 Gb SAS 4 Port Adapter Cards (Pair)	3N2	ALBA	Both	Yes	No
16 Gb FC 4 Port Adapter	3N2	ALBB	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Cards (Pair)					
10 Gb Ethernet 4 Port Adapter Cards (Pair)	3N2	ALBD	Both	Yes	No
25GbE (RoCE) Adapter Cards (Pair)	3N2	ALBE	Both	Yes	No
25GbE (iWARP) Adapter Cards (Pair)	3N2	ALBF	Both	Yes	No
Encryption Enablement	3N2	ALE1	Both	Yes	No
FlashCopy Upgrade	3N2	ALE7	Both	Yes	No
Remote Mirroring	3N2	ALE8	Both	Yes	No
Easy Tier	3N2	ALE9	Both	Yes	No
Encryption USB Flash Drives (Four Pack)	3N2	ALEC	Both	Yes	No
Storwize V5000E Cache Upgrade	3N2	ALGA	Both	Yes	No
ServicePac Machine Setup Support for Storage	3N2	B0SK	Both	Yes	No
BP Post-Sale Services: 1 Day	3N2	SVBP	Both	Yes	No
IBM Systems Lab Services Post-Sale Services: 1 Day	3N2	SVCS	Both	Yes	No
Other IBM Post-Sale Services: 1 Day	3N2	SVNN	Both	Yes	No
JEMT Indicator	3N4	0021	Initial	Yes	No
TAA Compliance	3N4	0983	Initial	Yes	No
Bulk Order Indicator	3N4	5555	MES	Yes	No
Power Cord - EMEA	3N4	9716	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Power Cord - Australia/ NZ	3N4	9717	Both	Yes	No
Power Cord - Europe/ Africa	3N4	9718	Both	Yes	No
Power Cord - Denmark	3N4	9719	Both	Yes	No
Power Cord - South Africa	3N4	9720	Both	Yes	No
Power Cord - Switzerland	3N4	9721	Both	Yes	No
Power Cord - Chile/Italy	3N4	9722	Both	Yes	No
Power Cord - Israel	3N4	9723	Both	Yes	No
Power Cord - Argentina	3N4	9725	Both	Yes	No
Power Cord - China	3N4	9726	Both	Yes	No
Power Cord - PDU Connection	3N4	9730	Both	Yes	No
Power Cord - US/ Group 1	3N4	9731	Both	Yes	No
Power Cord - Taiwan	3N4	9732	Both	Yes	No
Power Cord - Brazil	3N4	9733	Both	Yes	No
Power Cord - India	3N4	9734	Both	Yes	No
Power Cord - Japan	3N4	9735	Both	Yes	No
Power Cord - Korea	3N4	9736	Both	Yes	No
Power Cord - Chicago	3N4	9737	Both	Yes	No
RFID AG/AP: 902-928 Mhz	3N4	A2EV	Initial	Yes	No
RFID EMEA: 865.6-867.8 Mhz	3N4	A2EW	Initial	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
10 GbE SW SFP+ Transceivers (Four)	3N4	ACHQ	Both	Yes	No
16 Gb FC LW SFP Transceivers (Pair)	3N4	ACHU	Both	Yes	No
0.6m SAS Cable (mSAS HD to mSAS)	3N4	ACSA	Both	Yes	No
1.5m SAS Cable (mSAS HD to mSAS)	3N4	ACSB	Both	Yes	No
3m SAS Cable (mSAS HD to mSAS)	3N4	ACSC	Both	Yes	No
1m OM3 Fiber Cable (LC)	3N4	ACSQ	Both	Yes	No
5m OM3 Fiber Cable (LC)	3N4	ACSR	Both	Yes	No
10m OM3 Fiber Cable (LC)	3N4	ACSS	Both	Yes	No
25m OM3 Fiber Cable (LC)	3N4	ACST	Both	Yes	No
0.6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	3N4	ACUA	Both	Yes	No
1.5m 12 Gb SAS Cable (mSAS HD to mSAS HD)	3N4	ACUB	Both	Yes	No
3m 12 Gb SAS Cable (mSAS HD to mSAS HD)	3N4	ACUC	Both	Yes	No
6m 12 Gb SAS Cable (mSAS HD to mSAS HD)	3N4	ACUE	Both	Yes	No
OEM 1 FC Order Indicator	3N4	ACW1	MES	Yes	No
OEM 2 FC Order Indicator	3N4	ACW2	MES	Yes	No
OEM 3 FC Order Indicator	3N4	ACW3	MES	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
OEM 4 FC Order Indicator	3N4	ACW4	MES	Yes	No
OEM 5 FC Order Indicator	3N4	ACW5	MES	Yes	No
OEM 6 FC Order Indicator	3N4	ACW6	MES	Yes	No
OEM 7 FC Order Indicator	3N4	ACW7	MES	Yes	No
OEM 8 FC Order Indicator	3N4	ACW8	MES	Yes	No
OEM 9 FC Order Indicator	3N4	ACW9	MES	Yes	No
OEM 10 FC Order Indicator	3N4	ACWA	MES	Yes	No
OEM 11 FC Order Indicator	3N4	ACWB	MES	Yes	No
OEM 12 FC Order Indicator	3N4	ACWC	MES	Yes	No
OEM 13 FC Order Indicator	3N4	ACWD	MES	Yes	No
OEM 14 FC Order Indicator	3N4	ACWE	MES	Yes	No
OEM 15 FC Order Indicator	3N4	ACWF	MES	Yes	No
OEM 1 MTM Order Indicator	3N4	ACY1	Both	Yes	No
OEM 2 MTM Order Indicator	3N4	ACY2	Initial	Yes	No
OEM 3 MTM Order Indicator	3N4	ACY3	Initial	Yes	No
OEM 4 MTM Order Indicator	3N4	ACY4	Initial	Yes	No
OEM 5 MTM Order Indicator	3N4	ACY5	Initial	Yes	No
OEM 6 MTM Order Indicator	3N4	ACY6	Initial	Yes	No
OEM 7 MTM Order Indicator	3N4	ACY7	Initial	Yes	No
OEM 8 MTM Order Indicator	3N4	ACY8	Initial	Yes	No
OEM 9 MTM Order Indicator	3N4	ACY9	Initial	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
OEM 10 MTM Order Indicator	3N4	ACYA	Initial	Yes	No
OEM 11 MTM Order Indicator	3N4	ACYB	Initial	Yes	No
OEM 12 MTM Order Indicator	3N4	ACYC	Initial	Yes	No
OEM 13 MTM Order Indicator	3N4	ACYD	Initial	Yes	No
OEM 14 MTM Order Indicator	3N4	ACYE	Initial	Yes	No
OEM 15 MTM Order Indicator	3N4	ACYF	Initial	Yes	No
Generic Bezel	3N4	ACZA	Initial	Yes	No
Generic Packaging	3N4	ACZF	Initial	Yes	No
Order Type 1 - CTO	3N4	ADN1	Initial	Yes	No
Order Type 2 - MTM Only	3N4	ADN2	Initial	Yes	No
Order Type 3 - FC Only	3N4	ADN3	MES	Yes	No
No Rules Order Indicator	3N4	ADNR	Both	Yes	No
TAA Designated Country	3N4	ADZ1	Initial	Yes	No
Shipping and Handling NC	3N4	AG00	Initial	Yes	No
Shipping and Handling	3N4	AGJW	Initial	Yes	No
Power Cord - DC	3N4	AHP4	Both	Yes	No
Power Cord - PDU Connection (C20)	3N4	AHP6	Both	Yes	No
AC Power Supply High Efficiency (Pair)	3N4	AHPA	Initial	Yes	No
DC Power Supply -48V (Pair)	3N4	AHPB	Initial	Yes	No
20A Circuit Breaker (Pair)	3N4	AHPC	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Future use - reserved 1	3N4	AHY1	Initial	Yes	No
Future use - reserved 2	3N4	AHY2	Initial	Yes	No
Future use - reserved 3	3N4	AHY3	Initial	Yes	No
Future use - reserved 4	3N4	AHY4	Initial	Yes	No
Future use - reserved 5	3N4	AHY5	Initial	Yes	No
Future use - reserved 6	3N4	AHY6	Initial	Yes	No
Future use - reserved 7	3N4	AHY7	Initial	Yes	No
Future use - reserved 8	3N4	AHY8	Initial	Yes	No
Future use - reserved 9	3N4	AHY9	Initial	Yes	No
VersaStack Solution Indicator	3N4	AHZC	Initial	Yes	No
All Flash Indicator	3N4	AHZD	Initial	Yes	No
Hybrid Flash Indicator	3N4	AHZE	Initial	Yes	No
Red Hat OpenShift Indicator	3N4	AJGH	Initial	Yes	No
900 GB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	3N4	AL68	Both	Yes	No
1.2 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	3N4	AL69	Both	Yes	No
1.8 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	3N4	AL6A	Both	Yes	No
2.4 TB 10,000 rpm 12 Gb SAS 2.5 Inch HDD	3N4	AL6B	Both	Yes	No
2 TB 7,200 rpm 12 Gb SAS NL 2.5 Inch HDD	3N4	AL76	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
1.92TB 12 Gb SAS 2.5 Inch Flash Drive	3N4	AL80	Both	Yes	No
3.84TB 12 Gb SAS 2.5 Inch Flash Drive	3N4	AL81	Both	Yes	No
7.68TB 12 Gb SAS 2.5 Inch Flash Drive	3N4	AL82	Both	Yes	No
15.36TB 12 Gb SAS 2.5 Inch Flash Drive	3N4	AL83	Both	Yes	No
30.72TB 12 Gb SAS 2.5 Inch Flash Drive	3N4	AL84	Both	Yes	No
800 GB 3DWP 12 Gb SAS 2.5 Inch Flash Drive	3N4	AL8A	Both	Yes	No
12 Gb SAS 4 Port Adapter Cards (Pair)	3N4	ALBA	Both	Yes	No
16 Gb FC 4 Port Adapter Cards (Pair)	3N4	ALBB	Both	Yes	No
10 Gb Ethernet 4 Port Adapter Cards (Pair)	3N4	ALBD	Both	Yes	No
25GbE (RoCE) Adapter Cards (Pair)	3N4	ALBE	Both	Yes	No
25GbE (iWARP) Adapter Cards (Pair)	3N4	ALBF	Both	Yes	No
Encryption Enablement	3N4	ALE1	Both	Yes	No
FlashCopy Upgrade	3N4	ALE7	Both	Yes	No
Remote Mirroring	3N4	ALE8	Both	Yes	No
Easy Tier	3N4	ALE9	Both	Yes	No
Encryption USB Flash Drives (Four Pack)	3N4	ALEC	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Storwize V5000E Cache Upgrade	3N4	ALGA	Both	Yes	No
ServicePac Machine Setup Support for Storage	3N4	B0SK	Both	Yes	No
BP Post-Sale Services: 1 Day	3N4	SVBP	Both	Yes	No
IBM Systems Lab Services Post-Sale Services: 1 Day	3N4	SVCS	Both	Yes	No
Other IBM Post-Sale Services: 1 Day	3N4	SVNN	Both	Yes	No
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	92G	AL4D	Both	Yes	No

The following are newly announced features of the IBM System Storage 2076 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	12G	AHDA	Both	Yes	No
10 GbE SW SFP+ Transceivers (Four)	824	ACHQ	Both	Yes	No
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	92G	AH7X	Both	Yes	No
10 GbE SW SFP+ Transceivers (Four)	U7C	ACHQ	Both	Yes	No

The following are newly announced features of the IBM System Storage 2077 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
18 TB 7,200 rpm 12 Gb SAS	12G	AC3G	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
NL 3.5 Inch HDD					
10 GbE SW SFP+ Transceivers (Four)	4H4	ACHQ	Both	Yes	No
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	92G	ACPX	Both	Yes	No

The following are newly announced features of the IBM System Storage 2078 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	12G	AC3G	Both	Yes	No
10 GbE SW SFP+ Transceivers (Four)	4H4	ACHQ	Both	Yes	No
18 TB 7,200 rpm 12 Gb SAS NL 3.5 Inch HDD	92G	ACPX	Both	Yes	No
10 GbE SW SFP+ Transceivers (Four)	UHB	ACHQ	Both	Yes	No

The following are newly announced features of the IBM System Storage 2145 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
10 GbE SW SFP+ Transceivers (Pair)	SA2	ACHR	Both	Yes	No
10 GbE SW SFP+ Transceivers (Pair)	SV1	ACHR	Both	Yes	No
10 GbE SW SFP+ Transceivers (Pair)	SV2	ACHR	Both	Yes	No

The following are newly announced features of the IBM System Storage 2147 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
10 GbE SW SFP+	SA2	ACHR	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Transceivers (Pair)					
10 GbE SW SFP+ Transceivers (Pair)	SV1	ACHR	Both	Yes	No
10 GbE SW SFP+ Transceivers (Pair)	SV2	ACHR	Both	Yes	No

The following are newly announced feature of the IBM System Storage 9846 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
10 GbE SW SFP+ Transceivers (Four)	AG8	ACHQ	Both	Yes	No

The following are newly announced features of the IBM System Storage 9848 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
10 GbE SW SFP+ Transceivers (Four)	AG8	ACHQ	Both	Yes	No
10m OM3 Fiber Cable (LC)	AG8	ACSU	Both	Yes	No
9200R integration	AG8	AL0S	Initial	No	No
9200R Switch Duct	AG8	AL0B	Initial	No	No
10 GbE SW SFP+ Transceivers (Four)	UG8	ACHQ	Both	Yes	No

CSU = Customer setup

RP MES = Returnable parts MES

ServiceElect (ESA) charges

For ServiceElect (ESA) maintenance service charges, contact IBM Global Services at 888-IBM-4343 (426-4343).

Model conversion purchase price

Type	From Model	To Model	Parts Returned
2072	2N2	3N2	No
2072	2N4	3N4	No

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