IBM System Storage EXP5060 High Density Disk Drive Enclosure reduces rack-space for disk storage expansion

Table of contents

1 Overview
2 Key prerequisites
3 Planned availability date
4 Description
5 Product number
6 At a glance
7 Publications
8 Technical information
16 Prices
20 Order now

At a glance

- The System Storage™ DS5000 series now has an EXP5060 High Density Disk Enclosure:
  - EXP5060 comes in a 4U rack-mount enclosure and accommodates up to sixty 1000 GB/7.2K SATA DDMs
  - Up to eight EXP5060 Disk Enclosures are attachable to a DS5100 or DS5300 controller; providing up to 480 TB physical storage

- New DS5000 series features
  - 4 Gbps FC 600 GB/15K DDM for EXP5000 expansion units
  - Encryptible 4 Gbps FC 600 GB/15K DDM for EXP5000 expansion units
  - 16-Pack 4 Gbps FC 600 GB/15K DDM for EXP5000 expansion units
  - 16-Pack Encryptible 4 Gbps FC 600 GB/15K DDM for EXP5000 expansion units
  - Attachment for up to Eight EXP5060s High Density Enclosures feature for DS5100 and DS5300 controllers
  - DS5000 IBM® i Host Kit for DS5100 and DS5300 controllers

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: YE001).

Overview

The IBM System Storage DS5000 series is expanded to include an EXP5060 High Density Disk Drive Enclosure designed to accommodate up to 60 disk drive modules (DDM) in a 4U rack-mount enclosure. The EXP5060 enclosure currently can be populated with 1 TB SATA DDMs using the 10-Pack EXP5060 1000 GB/7.2K SATA DDM feature (#4740). The EXP5060 has a physical storage capacity of up to 60 TB per enclosure, using the 1000 GB/7.2K SATA DDM.

DS5000 series DS5100 and DS5300 controllers support attachment of up to eight EXP5060 enclosures. A configuration composed of a DS5100 or DS5300 controller attached to eight EXP5060 disk enclosures provide up to 480 TB of physical storage, all of which can be housed in a single IBM 2101 Model 200 Storage Solutions rack system.

To help support the integration of EXP5060 enclosures into 2101-200 rack systems, this announcement includes new power cord features for the 2101-200 rack. These
power cords provide connections from the rack power distribution units (PDUs) within the rack enclosure to applicable 240 V ac power sources in the data center.

Also announced are the following DS5000 series features:

- DS5100 and DS5300 controller features
  - Attach up to Eight EXP5060 Enclosures feature (#7372) and (#7373)
  - DS5000 IBM i Host Kit feature (#7735)
- New EXP5000 disk drive module (DDM) features
  - 4 Gbps FC, 600 GB/15K DDM feature (#5513)
  - Encryptible 4 Gbps FC 600 GB/15K DDM feature (#5523)
  - 16-Pack 4 Gbps FC 600 GB/15K DDM feature (#5533)
  - 16-Pack Encryptible 4 Gbps FC 600 GB/15K DDM feature (#5543)

**Key prerequisites**

DS5000 series DS5100 and DS5300 controllers must be at firmware level 07.60, or later to support new enhancements in this announcement.

Initial plant orders (IPOs) for the EXP5060 High Density Disk Enclosure must include a minimum of two 10-Pack EXP5060 1000 GB/7.2K SATA DDMs feature (#4740).

When EXP5060 enclosures are to be plant or field integrated into the IBM 2101 Model 200 Storage Solutions Rack, the rack must be configured with PDU power cords rated for 240 V ac electrical service using either of rack power cord options 9491, 9492, 6491, or 6492. Refer to the **2101 Model 200 Rack** sales manual for details.

The DS5000 IBM i Host Kit feature (#7735) is supported with DS5300 and DS5100 controllers at firmware level 07.60, or later operating with IBM Power® Systems (POWER6™) (rack/tower systems only, no Power Blade support) while hosting IBM i OS 6.1 with 6.1.1 machine code.

**Planned availability date**

November 20, 2009, for
- EXP5060 High Density Enclosure (1818-G1A) and related features
- Attach up to Eight EXP5060
- Enclosures feature (#7372 and #7373)
- 2101 Model 200 features (#6491), (#6492), (#9009), (#9491), and (#9492)

December 4, 2009, for
- 4 Gbps 600 GB/15K FC DDM (#5513)
- Encryption Capable 4 Gbps 600 GB/15K FC DDM (#5523)
- 16-Pack 4 Gbps 600 GB/15K FC DDM (#5533)
- 16-Pack Encryption Capable 4 Gbps 600 GB/15K FC DDM (#5543) and DS5000 IBM i Host Kit (#7735)
**Description**

**EXP5060 High Density Disk Drive Enclosure**

The EXP5060 (1818-G1A) High Density Disk Enclosure is packaged in a 4U rack-mount enclosure containing 5 drive trays, each tray holds up to 12 SATA disk drives for a total disk drive capacity of up to 60 SATA drives per enclosure.

The storage capacity of the EXP5060 is 60 TB per enclosure using 1000 GB SATA drives. Up to eight EXP5060 enclosures can be attached to a DS5000 controller (when neither the EXP5000 expansion or EXP810 expansion enclosures are part of the configuration) to provide a configuration that scales up to 480 SATA disk drives with a physical storage capacity of up to 480 TB. The DS5100 controller must have the DS5100 Attach up to Eight DS5060s feature (#7372) installed to gain support for attachment of 480 SATA drives. Additionally, the DS5100 controller must have the Attach up to 448 disk drives feature (#7371) as a prerequisite to feature number 7372 to gain support for attachment of 480 SATA disk drives. The DS5300 controller must have the DS5300 Attach up to Eight DS5060s feature (#7373) installed to gain support for attachment of 480 SATA drives.

Intermixing of EXP5060 enclosures, EXP5000 enclosures, and EXP810 enclosures attached to a single DS5100 or DS5300 controller is supported, but limited to a configuration of up to 448 drives or less. Additionally, if the DS5100 is the controller and the configuration will exceed 256 disk drives, the Attach up to 448 disk drives feature (#7371) must be installed.

To gain support for attachment of the EXP810 Expansion Unit to a DS5000 series controller, customers must submit an RPQ request using the normal RPQ Request process.

At initial introduction, the EXP5060 uses 1000 GB/7200 rpm SATA DDMs available in a 10-Pack EXP5060 1000 GB/7.2K SATA DDM feature (#4740) that contains 10 disk drives. An initial order for the EXP5060 enclosure must include a minimum of 2 of these features, which provides a minimum of 20 drives that must be installed in the EXP5060.

The EXP5060 is designed for high availability and contains redundant Enclosure Service Modules (ESM) that uses Fibre Channel switching technology. The switches are attached to each of the dual-ported disk drive modules for added redundancy. The EXP5060 contains built-in, redundant power supplies and cooling components as well.

EXP5060 enclosures attach to DS5000 series DS5100 and DS5300 controllers and to other expansion enclosures via their 4 Gbps FC drive ports. The EXP5060 has four FC drive ports and depending upon the specific configuration and placement of the EXP5060, the actual number of drive ports used will vary from two to four. To enable the drive ports, they must first be populated with shortwave 4 Gbps SFP transceivers. The EXP5060 is shipped with two of the four ports already populated. If your configuration requires the other two ports enabled, you must order feature 2412 which provides a pair of shortwave 4 Gbps SFP transceivers that will populate these two ports.

The EXP5060 High Density enclosure is designed to be powered from 200-240 V ac power sources. For those installations that require the EXP5060 to be directly connected to wall power outlets that will supply 200-240 V ac, country-specific wall outlet power cords are available by selecting the appropriate optional feature (#98xx). Two power cords are included with each country-specific power cord feature for the EXP5060 enclosure. Only one country-specific feature can be ordered with each EXP5060. For additional information on the various country-specific wall outlet power cords available for the EXP5060, refer to the DS5000 Midrange Disk System sales manual.

When EXP5060 enclosures are to be plant or field integrated into the IBM 2101 Model 200 Storage Solutions Rack, the rack must be configured with PDU power...
cords rated for 240 V ac electrical service using either of rack power cord options 9491, 9492, 6491, or 6492. This will enable the 2101-200 Rack to be connected to the appropriate power sources in the data center. Refer to the 2101 Model 200 Rack sales manual for details.

The Ruggedized Rack feature (#6080) on the 2101-200 Rack is not designed to handle the weight associated with the EXP5060 High Density Enclosure. The EXP5060 is not supported or allowed for installation into a 2101-200 Rack which has the Ruggedized Rack feature, and the Ruggedized Rack feature is not supported or allowed for installation on a 2101-200 Rack which have EXP5060s integrated. Refer to the Limitations section for details.

**DS5100 and DS5300 controller features**

**Attach up to Eight EXP5060s feature (#7372) and (#7373)**

The DS5100 Attach up to Eight EXP5060s feature (#7372) provides authorization and support to attach up to eight EXP5060 expansion units to a DS5100 controller providing support for up to 480 SATA disk drives. The DS5300 Attach up to Eight EXP5060s feature (#7373) provides authorization and support to attach up to eight EXP5060 expansion units to a DS5300 controller providing support for up to 480 SATA disk drives.

The DS5100 controller base machine supports attachment of up to 256 drives. The Attach up to 448 disk drives feature (#7371) is a required prerequisite which must be installed first, before installing feature #7372 to gain support for attachment of 480 SATA disk drives.

The DS5300 controller base machine supports attachment of up to 448 drives. The DS5300 Attach up to Eight DS5060s feature (#7373) can be installed directly onto the DS5300 controller base machine to gain support for attachment of 480 SATA drives.

Refer to the EXP5060 High Density Enclosure installation and user guide documentation for details on feature 7372 and 7373 activation, which includes a power cycle refresh on the DS5100 or DS5300 controller. It is recommended that data center site planning take into consideration the activation process in their overall capacity deployment plans using the EXP5060. Refer to the Limitations section for details.

**DS5000 IBM i Host Kit feature (#7735)**

The DS5000 IBM i Host Kit feature (#7735) provides support and entitlement for DS5300 and DS5100 controllers, at firmware level 07.60 or later, attached via native Fibre Channel SAN connection with IBM Power Systems (POWER6) (rack/tower systems only, no Power Blade support) hosting IBM i OS 6.1 with 6.1.1 machine code.

The DS5000 IBM i Host Kit feature is required to entitle support for one or more IBM Power Systems (POWER6) attaching to a DS5300 or DS5100. Initial support includes:

- DS5300 and DS5100 controllers, at firmware level 07.60 or later
- Attachment via native Fibre Channel SAN connection
- IBM Power Systems (POWER6) (rack/tower systems only, no Power Blade support) hosting IBM i OS 6.1 with 6.1.1 machine code
- Power Systems IOPless Fibre Channel Adapters only
  - FC5749 (PCI-X, 4Gb, 2 port)
  - FC5774 (PCIe, 4Gb, 2 port)
  - FC5735 (PCIe, 8Gb, 2 port)
- IBM i OS maximum LUN capacity is less than 2TB
- Maximum of 64 LUNs allowed per HBA port
- Support FC drives and SATA drives within attached enclosures

Refer to the DS5000 Interoperability Matrix for specific details on supported operating system levels, prerequisites, and required attachments.

For more information on IBM i integrated operating system for IBM Power Systems, refer to Software Announcement 209-281, dated October 20, 2009.

**New EXP5000 Storage Expansion Unit disk drive options**

The EXP5000 expansion unit adds the following high capacity 4 Gbps 600 GB/15K rpm FC disk drive features as well 600 GB encryption-capable FC 15K rpm disk drive features. The new 600 GB FC disk drives may be integrated within the EXP5000 and intermixed with existing EXP5000 FC and SATA disk drive features.

- 4 Gbps FC, 600 GB/15K DDM feature (#5513)
- Encryptible 4 Gbps FC 600 GB/15K DDM feature (#5523)
- 16-Pack 4 Gbps FC 600 GB/15K DDM feature (#5533) (plant installed only)
- 16-Pack Encryptible 4 Gbps FC 600 GB/15K DDM feature (#5543) (plant installed only)

Encryption-capable Fibre Channel disk drives are designed to encrypt data automatically as it enters the drive to be stored, and automatically decrypt the same data as it moves out of the drive. The embedded encryption engine is designed to help prevent performance degradation compared with non-encrypting disk drives. The Disk Encryption Activation feature (#7358) is a required prerequisite to turn on and enable support for encryption-capable Fibre Channel disk drives.

The DS5100 and DS5300 disk systems must be at firmware level 07.60, or later, and the host server must be at DS Storage Manager level 10.60, or later, to enable support for the 600 GB FC disk drive and 600 GB encryption-capable FC disk drive features.

**2101 Model 200 Storage Solutions Rack features**

To help support EXP5060 enclosure integration into 2101-200 rack systems, new power cord features for the 2101 Model 200 Rack are being announced. These new power cords provide connections from the rack power distribution units (PDUs) to appropriate power sources rated for 240 V ac service within the data center:

- For field (MES) upgrade only of existing 2101-200 rack installations to install EXP5060 High Density Enclosures and no PDUs are being ordered.
  - (#6491) Power Cord, #7188/#9188 PDU or #7190/#7192 iPDU To Wall, 4.3 meters, 48A, IEC 309 P+N+G 63A connector - (Field-installable only)
  - (#6492) Power Cord, #7188/#9188 PDU or #7190/#7192 iPDU To Wall, 4.3 meters, 48A, IEC 309 2P+G 60A connector - (Field-installable only)

- For new orders of the 2101 Model 200 Rack when the EXP5060 High High Density Enclosure will be plant integrated into the rack, and for field (MES) orders in conjunction with optional PDU feature 7188 or optional iPDU feature 7192.
  - (#9491) Power Cord, #7188/#9188 PDU or #7190/#7192 iPDU To Wall, 4.3 meters, 48A, IEC 309 P+N+G 63A connector - (Plant/Field installable)
  - (#9492) Power Cord, #7188/#9188 PDU or #7190/#7192 iPDU To Wall, 4.3 meters, 48A, IEC 309 2P+G 60A connector - (Plant/Field installable)

When EXP5060 enclosures are to be plant or field integrated into the IBM 2101 Model 200 Storage Solutions Rack, the rack must be configured with PDU power cords rated for 240 V ac electrical service using either of rack power cord options 9491, 9492, 6491, or 6492. Refer to the 2101 Model 200 Rack sales manual for details.

Plant and MES power cord features 9491 and 9492 for the 2101-200 rack are provided with the purchase and delivery of the 2101-200 rack power distribution units (PDUs).
The MES (field) only power cord features 6491 and 6492 for the 2101-200 rack are used to replace previously installed PDU power cords that have lower electrical current ratings, when one or more EXP5060 are being field integrated into the 2101-200 Rack, and no PDU feature is being purchased or delivered with the order. Refer to the 2101-200 Rack sales manual for additional information.

Accessibility by people with disabilities

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


Section 508 of the U.S. Rehabilitation Act

The System Storage EXP5060 is capable as of November 20, 2009, when used in accordance with IBM's associated documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it.

Product number

<table>
<thead>
<tr>
<th>Description</th>
<th>Machine type</th>
<th>Model</th>
<th>Feature number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP5060 Hi-Density Enclosure</td>
<td>1818</td>
<td>G1A</td>
<td></td>
</tr>
<tr>
<td>SW 4Gbps SFP transcvr pair</td>
<td>1818</td>
<td>G1A</td>
<td>2412</td>
</tr>
<tr>
<td>10-Pak 1000GB/7.2K SATA DDM</td>
<td>1818</td>
<td>G1A</td>
<td>4740</td>
</tr>
<tr>
<td>Bulk Ordering Feature Ind.</td>
<td>1818</td>
<td>G1A</td>
<td>5555</td>
</tr>
<tr>
<td>1m Fiber Optic Cable LC-LC</td>
<td>1818</td>
<td>G1A</td>
<td>5601</td>
</tr>
<tr>
<td>5m Fiber Optic Cable LC-LC</td>
<td>1818</td>
<td>G1A</td>
<td>5605</td>
</tr>
<tr>
<td>25m Fiber Optic Cable LC-LC</td>
<td>1818</td>
<td>G1A</td>
<td>5625</td>
</tr>
<tr>
<td>Attach to DS5000 series</td>
<td>1818</td>
<td>G1A</td>
<td>9019</td>
</tr>
<tr>
<td>Plant Integrate in 2101-200</td>
<td>1818</td>
<td>G1A</td>
<td>9201</td>
</tr>
<tr>
<td>Field Integrate EXP5060</td>
<td>1818</td>
<td>G1A</td>
<td>9202</td>
</tr>
<tr>
<td>Power Cord, Group #2</td>
<td>1818</td>
<td>G1A</td>
<td>9820</td>
</tr>
<tr>
<td>Power Cord, Denmark</td>
<td>1818</td>
<td>G1A</td>
<td>9821</td>
</tr>
<tr>
<td>Power Cord, Group #3</td>
<td>1818</td>
<td>G1A</td>
<td>9825</td>
</tr>
<tr>
<td>Power Cord, Israel</td>
<td>1818</td>
<td>G1A</td>
<td>9827</td>
</tr>
<tr>
<td>Power Cord, Switzerland</td>
<td>1818</td>
<td>G1A</td>
<td>9828</td>
</tr>
<tr>
<td>Power Cord, Group #4</td>
<td>1818</td>
<td>G1A</td>
<td>9829</td>
</tr>
<tr>
<td>Power Cord, Group #5</td>
<td>1818</td>
<td>G1A</td>
<td>9830</td>
</tr>
<tr>
<td>Power Cord, Australia, NZ</td>
<td>1818</td>
<td>G1A</td>
<td>9831</td>
</tr>
<tr>
<td>Power Cord, Uruguay</td>
<td>1818</td>
<td>G1A</td>
<td>9834</td>
</tr>
<tr>
<td>Power Cord, Pr China</td>
<td>1818</td>
<td>G1A</td>
<td>9840</td>
</tr>
<tr>
<td>Power Cord, India</td>
<td>1818</td>
<td>G1A</td>
<td>9843</td>
</tr>
<tr>
<td>Power Cord, Korea</td>
<td>1818</td>
<td>G1A</td>
<td>9845</td>
</tr>
<tr>
<td>240V Pwr Cord, Group #1</td>
<td>1818</td>
<td>G1A</td>
<td>9860</td>
</tr>
<tr>
<td>240V Pwr Cord, Taiwan</td>
<td>1818</td>
<td>G1A</td>
<td>9861</td>
</tr>
<tr>
<td>240V Pwr Cord, Brazil</td>
<td>1818</td>
<td>G1A</td>
<td>9862</td>
</tr>
<tr>
<td>240V Pwr Cord, Japan</td>
<td>1818</td>
<td>G1A</td>
<td>9864</td>
</tr>
<tr>
<td>240V Pwr Cord, US/Chicago</td>
<td>1818</td>
<td>G1A</td>
<td>9866</td>
</tr>
</tbody>
</table>

DS5100, DS5300, and EXP5000 features

<table>
<thead>
<tr>
<th></th>
<th>Machine type</th>
<th>Model</th>
<th>Feature number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Gbps FC, 600 GB/15K DDM</td>
<td>1818</td>
<td>D1A</td>
<td>5513</td>
</tr>
<tr>
<td>16-Pak 600 GB/15K DDM</td>
<td>1818</td>
<td>D1A</td>
<td>5533</td>
</tr>
<tr>
<td>Encryptible DDM 4Gbps 600GB</td>
<td>1818</td>
<td>D1A</td>
<td>5523</td>
</tr>
<tr>
<td>FC 15K Disk Drive Module</td>
<td>1818</td>
<td>D1A</td>
<td></td>
</tr>
</tbody>
</table>
16PK Encr DDM 4Gbps 600GB
FC 15K Disk Drive Modules

DS5100 Att up to 8 EXP5060
DS5300 Att up to 8 EXP5060
DS5000 IBM i Host Kit

2101 Model 200 Storage Solution Rack features

Pwr Cd IEC309 P+N+G 63A/MES
Pwr Cd IEC309 2P+G 60A/MES
Int. EXP5060 in 2101-200
Pwr Cord IEC309 P+N+G 63A
Pwr Cord IEC309 2P+G 60A

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 IBM ID).


Publications

A CD-ROM that contains the product documentation in PDF format and a printed Quick Start Guide are shipped with the hardware product.

In addition, the most up-to-date product documentation is available and downloadable from the following IBM support site

http://www.ibm.com/systems/support/storage/

Services

Global Technology Services

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an On Demand Business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

http://www.ibm.com/services/

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

http://www.ibm.com/services/continuity

For details on education offerings related to specific products, visit

Select your country, and then select the product as the category.

Technical information

Specified operating environment

**Physical specifications**
IBM System Storage EXP5060 High Density Enclosure (1818-G1A)

- Height: 176.0 mm (6.93 in)
- Width: 482.6 mm (19.0 in)
- Depth: 866.1 mm (34.10 in)
- Weight
  - Drive-ready (without drive modules installed): 56.7 kg (125 lb)
  - Fully configured (60 drive modules installed): 102.1 kg (225 lb)

**Operating environment**
IBM System Storage EXP5060 High Density Enclosure (1818-G1A)

Temperature (operating)

- 10 to 35 degrees C (50 to 95 degrees F) at 0 to 914 m (0-3,000 ft)
- 10 to 32 degrees C (50 to 90 degrees F) at 914 to 2,133 m (3,000-7,000 ft)

Relative humidity (operating): 8% to 80%
Relative humidity (storage): 5% to 80%

Electrical power (per power supply, system rating)

- Voltage range: 200-240 V ac
- Operating current: 8.62 - 7.19 amperes
- Power: 1428 watts
- Frequency: 50/60 Hz

Heat dissipation: 4884 BTU per hour
Noise level (normal operation): 6.8 bels

**Hardware requirements**

For a list of hardware requirements, refer to product documentation or visit

http://www.ibm.com/systems/support/storage/

**Software requirements**

For a list of software requirements, refer to product documentation or visit

http://www.ibm.com/systems/support/storage/

**Compatibility**

For compatibility information, refer to product documentation or visit

http://www.ibm.com/systems/support/storage/

**Limitations**

Before powering up the EXP5060 High Density Enclosure, follow the installation and set-up instructions provided with the unit. The EXP5060 requires a minimum
number of disk drive modules be installed in the unit before powering up. Refer to the EXP5060 High Density Enclosure installation and setup instructions shipped with the machine for details.

The EXP5060 High Density enclosure is designed to be powered from 200-240 V ac power sources. For those installations that require the EXP5060 to be directly connected to wall power outlets that will supply 200-240 V ac, country-specific wall outlet power cords are available by selecting the appropriate optional feature (#98xx). Two power cords are included with each country-specific power cord feature for the EXP5060 enclosure. Only one country-specific feature can be ordered with each EXP5060. For additional information on the various country-specific wall outlet power cords available for the EXP5060, refer to the DS5000 Midrange Disk System sales manual.

When EXP5060 enclosures are to be plant or field integrated into the IBM 2101 Model 200 Storage Solutions Rack, the rack must be configured with PDU power cords rated for 240 V ac electrical service using either of rack power cord options 9491, 9492, 6491, or 6492. This will enable the 2101-200 Rack to be connected to the appropriate power sources in the data center. Refer to the 2101 Model 200 Rack sales manual for details.

The Ruggedized Rack feature (#6080) on the 2101-200 Rack is not designed to handle the weight associated with the EXP5060 High Density Enclosure. The EXP5060 is not supported or allowed for installation into a 2101-200 Rack which has the Ruggedized Rack feature, and the Ruggedized Rack feature is not supported or allowed for installation on a 2101-200 Rack which have EXP5060s integrated.

The EXP5060 Quick Start Guide describes the basic procedures for installing, cabling, and configuring the EXP5060 storage expansion enclosure. Specifically note, due to the weight of the storage enclosure as shipped, a lift tool and a minimum of two trained service technicians (IBM SSRs) are required for installation. For safety information, see the multilingual IBM Safety Information document on the documentation CD.

For more detailed information about the EXP5060 storage enclosure, see the IBM System Storage EXP5060 Storage Subsystem Installation, User’s, and Maintenance Guide. This includes instructions to prepare the site to meet all area, environmental, power, and site requirements, as well as the following important highlights:

- Procedure to load EXP5060 starting at the bottom of the rack to ensure rack stability
- Instructions that specify the top of the EXP5060 unit must be installed at or below 60.75 inches (1543 mm) height above the floor
- Procedure to remove disk drives from EXP5060 when planning to move or relocate the EXP5060 or 2101-200 Rack
- Specifications for the installation in non-IBM machine-type 2101 or machine-type 7014 racks
- Specifications for installing a DS5060 into a non-IBM machine-type 2101 or machine-type 7414 standard EIA rack enclosure. Note, the recommendation to contact your Installation Planning Representative to ensure a safe installation into your environment, with regard to rack mounting loads and floor loading. Note, the weight for one (1) DS5060 fully loaded with disk drives is 102.1 kg (225 lb). Also note, the load bearing capability and overall stability of the standard EIA rack enclosure must be sufficient to support 25.49 kg (56.25 lb) per EIU throughout the rack.

The Attach Up To Eight EXP5060 Enclosures feature (#7372) or (#7373) provides support for a maximum disk drive configuration of 480 SATA drives installed in eight EXP5060 Enclosures attached to a DS5100 or DS5300 controller, respectively. Note, application of this feature results in a disruptive controller re-boot operation; therefore, if the intended purpose of the DS5000 storage configuration is to only use EXP5060s with SATA drives and over time attain the 480 maximum supported number of SATA disk drives, it is recommended to select and apply the Attach Up To Eight EXP5060s feature (#7372) or (#7373) during the time of initial system
installation. This will help to avoid a disruptive controller re-boot operation after
the system has been deployed and additional EXP5060 Enclosures are prepared for
attachment.

The Attach up to Eight EXP5060s feature (#7372) or (#7373) provides authorization
and support to attach up to eight (8) EXP5060 expansion units to a DS5100 or
DS5300 controller respectively, providing support for up to 480 SATA disk drives.
Upon activation of feature 7372 or 7373, the DS5100 or DS5300 controller only
recognizes and attaches to EXP5060 Enclosures, which only uses SATA drives.
DS5000 systems, which migrate attachment from a mixture of EXP5000, EXP5060,
and/or EXP810, and migrate to EXP5060 only attachment, will need to apply feature
7372 or 7373 and controller re-boot operation in order to attain the 480 maximum
supported number of SATA disk drives.

The DS5100 controller base machine supports attachment of up to 256 drives. The
Attach up to 448 disk drives feature (#7371) is a required prerequisite which must
be installed first, before installing feature #7372 to gain support for attachment of
480 SATA disk drives.

The DS5300 controller base machine supports attachment of up to 448 drives. The
DS5300 Attach up to Eight DS5060s feature (#7373) can be installed directly onto
the DS5300 controller base machine to gain support for attachment of 480 SATA
drives.

The DS5000 IBM i Host Kit feature (#7735) is supported with DS5300 and DS5100
controllers at firmware level 07.60, or later operating with IBM Power Systems
(Power6) (rack/tower systems only, no Power Blade support) while hosting IBM
i OS 6.1 with 6.1.1 machine code. Refer to the DS5000 Interoperability Matrix for
specific details on supported operating system levels, prerequisites, and required
attachments.

The DS5100 and DS5300 disk systems must be at firmware level 07.60, or later,
and the host server must be at DS Storage Manager level 10.60, or later, to enable
support for the 600 GB FC disk drive and 600 GB encryption-capable FC disk drive
features. The Disk Encryption Activation feature (#7358) is a required prerequisite
to turn on and enable support for encryption-capable Fibre Channel disk drives.

Customers must submit an RPQ request using the normal RPQ Request process to
gain support for attaching EXP810 Storage Expansion Units to DS5000 controllers.

Fiber optic cable options 5601, 5605, and 5625 provide 50 micron fiber optic cables
with "length - bandwidth product" rating of 500km **MHz, which translates to 250
meters for 2 Gbps FC, 125 meters for 4 Gbps FC, and 62.5 meters for 8 Gbps FC.
These distances reflect the rating for the cable only, within a cable installation
design.

Note that fiber optic cables are provided as an accommodation to customers to help
connect the storage array to the nearest patch panel or SAN switch. Customers are
responsible to ensure that the overall end-to-end fiber optic cable infrastructure is
suitable for the corresponding industry standard communication protocols and link
speeds.

Planning information

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 Web site 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: The EXP5060 High Density Enclosure attaches to DS5000 controllers via its
4 Gbps FC disk drive ports.
Fiber optic cables for use with the Fibre Channel disk drive ports can be supplied by the customer or ordered with the EXP5060 in the lengths available.

Fiber optic cable options 5601, 5605, and 5625 provide 50 micron fiber optic cables with "length - bandwidth product" rating of 500km *MHz, which translates to 250 meters for 2 Gbps FC, 125 meters for 4 Gbps FC, and 62.5 meters for 8 Gbps FC. These distances reflect the rating for the cable only, within a cable installation design.

Note that fiber optic cables are provided as an accommodation to customers to help connect the storage array to the nearest patch panel or SAN switch. Customers are responsible to ensure that the overall end-to-end fiber optic cable infrastructure is suitable for the corresponding industry standard communication protocols and link speeds.

The connection is a duplex LC connector type for these fiber optic cables. Following are fiber cables that can be ordered with the EXP5060 Disk Enclosure:

<table>
<thead>
<tr>
<th>Description</th>
<th>Feature number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Optic Cable 1m LC/LC</td>
<td>5601</td>
</tr>
<tr>
<td>Fiber Optic Cable 5m LC/LC</td>
<td>5605</td>
</tr>
<tr>
<td>Fiber Optic Cable 25m LC/LC</td>
<td>5625</td>
</tr>
</tbody>
</table>

In many situations, the required lengths and installation of fiber optic cables will be unique to each customer's configuration and facility specifications. IBM Network Integration and Deployment Services, offered by IBM Global Services, can provide assistance for these unique cabling and installation requirements. The above cable features are available to accommodate simple installations where the Fibre Channel components and attaching subsystems are within the distances available.

**Direct customer support**

Direct customer support for DS5000 series is provided by IBM Operational Support Services -- Support Line. This fee service provides voice and electronic access into the IBM support organization. IBM Operational Support Services -- Support Line helps answer questions pertaining to product and feature usage ("how to"), configuration, and product compatibility for eligible products. For a list of the products supported via Support Line, visit

http://www.ibm.com/services/sl/products/

For more information on services, call 800-IBM-4YOU (426-4968).

**Security, auditability, and control**

This product uses the security and auditability features of the host hardware, software, and application software.

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

**IBM Electronic Services**

IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a Web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but
complementary elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent™ is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, visit

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

Terms and conditions

Volume orders: Contact your IBM representative.

IBM Global Financing
Yes

Warranty period
One year

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 via an IBM Web site. 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 Customer 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 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.

No parts have been designated as Tier 1 CRUs:

**CRU and On-site Service**
At the discretion of IBM, 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 24 hours per day, 7 days a week, 4 hour average, same day response. Same day service level includes the installation of Tier 1 CRUs at no additional charge.

**CRU and Machine Exchange Service**
At IBM's discretion, you will receive specified CRU service, or IBM will initiate shipment of a replacement machine to your location. You are responsible for its installation and verification of operation. You must pack the failed machine into the shipping container that contained the replacement machine and return the failed machine to IBM. Transportation charges, both ways, are paid by IBM. You may be charged for the replacement machine if IBM does not receive the failed machine within 15 days of your receipt of the replacement.

**Warranty 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 customers, and normal warranty service procedures for the IBM machine apply.

**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 Web site. 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 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. The following on-site response-time objectives are available as warranty service upgrades for your machine.

Available offerings are 24 hours per day, 7 days a week, 2 hour average response.

Customer Replaceable Units (CRUs) may be provided as part of the machine's standard warranty CRU Service except that you may install a CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified above. For additional information on the CRU Service, see the warranty information.

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, via an IBM Web site. 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 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.

Service levels are:

• 9 hours per day, Monday through Friday, excluding holidays, next business day response
• 9 hours per day, Monday through Friday, excluding holidays, 4 hour average response
• 24 hours per day, 7 days a week, 4 hour average response
• 24 hours per day, 7 days a week, 2 hour average response

Customer 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 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 may be provided as part of the machine's standard maintenance service except that you may install a CRU yourself or request IBM installation, at no additional charge, under any of the On-site Service levels specified above.

For service options with a committed level of service or any other special service option, please contact your local business representative.

**Machine Exchange Service**

IBM will initiate shipment of a replacement machine to your location. You are responsible for its installation and verification of operation. You must pack the failed machine into the shipping container that contained the replacement machine and return the failed machine to IBM. Transportation charges, both ways, are paid by IBM. You may be charged for the replacement machine if IBM does not receive the failed machine within 15 days of your receipt of the replacement.

**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, customers 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.

**Warranty service upgrades**

**Usage plan machine**

No

**IBM hourly service rate classification**

One

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.

**Field-installable features**

Yes

**Model conversions**

No

**Machine installation**

Installation is performed by IBM. IBM will install the machine in accordance with the IBM installation procedures for the machine.

In the United States, contact IBM at 1-800-IBM-SERV (426-7378). In other countries, contact the local IBM office.
**Graduated program license charges apply**

No

**Licensed machine code**

IBM Machine Code is licensed for use by a customer 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 customer. You can obtain the agreement at


IBM may release changes to the Machine Code. IBM plans to make the Machine Code changes available for download from the IBM System Storage technical support Web site

http://www.ibm.com/systems/support/storage/

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 customers. 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**

**Product charges**

<table>
<thead>
<tr>
<th>Description</th>
<th>Machine type</th>
<th>Model</th>
<th>Feature number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP5060 Hi-Density Enclosure</td>
<td>1818</td>
<td>G1A</td>
<td></td>
</tr>
<tr>
<td>SW 4 Gbps SFP transcvr pair</td>
<td>1818</td>
<td>G1A</td>
<td>2412</td>
</tr>
<tr>
<td>10-Pak 1000GB/7.2K SATA DDM</td>
<td>1818</td>
<td>G1A</td>
<td>4740</td>
</tr>
<tr>
<td>Bulk ordering Feature Ind.</td>
<td>1818</td>
<td>G1A</td>
<td>5555</td>
</tr>
<tr>
<td>1m Fiber Optic Cable LC-LC</td>
<td>1818</td>
<td>G1A</td>
<td>5601</td>
</tr>
<tr>
<td>5m Fiber Optic Cable LC-LC</td>
<td>1818</td>
<td>G1A</td>
<td>5605</td>
</tr>
<tr>
<td>25m Fiber Optic Cable LC-LC</td>
<td>1818</td>
<td>G1A</td>
<td>5625</td>
</tr>
<tr>
<td>Attach to DS5000 series</td>
<td>1818</td>
<td>G1A</td>
<td>9019 NC</td>
</tr>
<tr>
<td>Plant Integrate in 2101-200</td>
<td>1818</td>
<td>G1A</td>
<td>9201 NC</td>
</tr>
<tr>
<td>Field Integrate EXP5060</td>
<td>1818</td>
<td>G1A</td>
<td>9202 NC</td>
</tr>
<tr>
<td>Power Cord, Group #2</td>
<td>1818</td>
<td>G1A</td>
<td>9820 NC</td>
</tr>
<tr>
<td>Power Cord, Denmark</td>
<td>1818</td>
<td>G1A</td>
<td>9821 NC</td>
</tr>
<tr>
<td>Power Cord, Group #3</td>
<td>1818</td>
<td>G1A</td>
<td>9825 NC</td>
</tr>
<tr>
<td>Power Cord, Israel</td>
<td>1818</td>
<td>G1A</td>
<td>9827 NC</td>
</tr>
<tr>
<td>Power Cord, Switzerland</td>
<td>1818</td>
<td>G1A</td>
<td>9828 NC</td>
</tr>
<tr>
<td>Power Cord, Group #4</td>
<td>1818</td>
<td>G1A</td>
<td>9829 NC</td>
</tr>
<tr>
<td>Power Cord, Group #5</td>
<td>1818</td>
<td>G1A</td>
<td>9830 NC</td>
</tr>
<tr>
<td>Power Cord, Australia, NZ</td>
<td>1818</td>
<td>G1A</td>
<td>9831 NC</td>
</tr>
<tr>
<td>Power Cord, Uruguay</td>
<td>1818</td>
<td>G1A</td>
<td>9834 NC</td>
</tr>
<tr>
<td>Power Cord, Pr China</td>
<td>1818</td>
<td>G1A</td>
<td>9840 NC</td>
</tr>
<tr>
<td>Power Cord, India</td>
<td>1818</td>
<td>G1A</td>
<td>9843 NC</td>
</tr>
<tr>
<td>Power Cord, Korea</td>
<td>1818</td>
<td>G1A</td>
<td>9845 NC</td>
</tr>
</tbody>
</table>
### 240V Pwr Cord, Group #1
- Taiwan: 1818, G1A, 9861, NC
- Brazil: 1818, G1A, 9862, NC
- Japan: 1818, G1A, 9864, NC
- US/Chicago: 1818, G1A, 9866, NC

### DS5100, DS5300, and EXP5000 features

<table>
<thead>
<tr>
<th>Description</th>
<th>Mach type</th>
<th>Mod</th>
<th>Feature number</th>
<th>Install only</th>
<th>Plant only</th>
<th>Cables required</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Gbps FC, 600 GB/15K DDM</td>
<td>1818</td>
<td>G1A</td>
<td>5513</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Encryptible DDM 4Gbps 600GB</td>
<td>1818</td>
<td>G1A</td>
<td>5523</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>FC 15K Disk Drive Module</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>16-Pak 600GB/15K DDM</td>
<td>1818</td>
<td>D1A</td>
<td>5533</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>DS5100 Att up to 8 EXP5060</td>
<td>1818</td>
<td>S1A</td>
<td>7372</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>DS5300 Att up to 8 EXP5060</td>
<td>1818</td>
<td>S3A</td>
<td>7373</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>DS5000 IBM i Host Kit</td>
<td>1818</td>
<td>S1A</td>
<td>7735</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

### 2101 Model 200 Rack features

<table>
<thead>
<tr>
<th>Description</th>
<th>Mach type</th>
<th>Mod</th>
<th>Feature number</th>
<th>Install only</th>
<th>Plant only</th>
<th>Cables required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pwr Cd IEC309 P+N+G 63A/MES</td>
<td>2101</td>
<td>200</td>
<td>6491</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Pwr Cd IEC309 2P+G 60A/MES</td>
<td>2101</td>
<td>200</td>
<td>6492</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Int. EXP5060 in 2101-200</td>
<td>2101</td>
<td>200</td>
<td>9009</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Pwr Cord IEC309 P+N+G 63A</td>
<td>2101</td>
<td>200</td>
<td>9491</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Pwr Cord IEC309 2P+G 60A</td>
<td>2101</td>
<td>200</td>
<td>9492</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

### Bulk Ordering Ind.
- Description: 1818, G1A, 5555, Y, N, N
- Description: 1818, G1A, 5601, N, N, N
- Description: 1818, G1A, 5605, N, N, N
- Description: 1818, G1A, 5625, N, N, N

### Power Cord, Group #2
- Description: 1818, G1A, 9820, N, N, N
- Description: 1818, G1A, 9821, N, N, N
- Description: 1818, G1A, 9825, N, N, N

### Power Cord, Group #3
- Description: 1818, G1A, 9827, N, N, N
- Description: 1818, G1A, 9828, N, N, N
- Description: 1818, G1A, 9829, N, N, N

### Power Cord, Group #4
- Description: 1818, G1A, 9830, N, N, N
- Description: 1818, G1A, 9831, N, N, N
- Description: 1818, G1A, 9834, N, N, N

### Power Cord, Group #5
- Description: 1818, G1A, 9840, N, N, N
- Description: 1818, G1A, 9843, N, N, N
- Description: 1818, G1A, 9845, N, N, N

### Power Cord, Group #6
- Description: 1818, G1A, 9860, N, N, N
- Description: 1818, G1A, 9861, N, N, N
- Description: 1818, G1A, 9862, N, N, N

### Power Cord, Group #7
- Description: 1818, G1A, 9864, N, N, N
- Description: 1818, G1A, 9866, N, N, N

### Power Cord, Group #8
- Description: 1818, D1A, 5513, N, N, N
- Description: 1818, D1A, 5523, N, N, N

### Power Cord, Group #9
- Description: 1818, D1A, 5543, N, Y, N

### Power Cord, Group #10
- Description: 1818, S1A, 7372, N, N, N
### IBM United States Hardware Announcement

**Description Feature Machine Type Model List Price**

<table>
<thead>
<tr>
<th>Description</th>
<th>Feature</th>
<th>Machine Type</th>
<th>Model</th>
<th>List Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP5060 Hi-Density Enclosure</td>
<td>2412</td>
<td>1818</td>
<td>G1A</td>
<td>$19,900</td>
</tr>
<tr>
<td>SW 4 Gbps SFP transceiver pair</td>
<td>4740</td>
<td>1818</td>
<td>G1A</td>
<td>998</td>
</tr>
<tr>
<td>10-Pak 1000GB/7.2K SATA DDM</td>
<td>5555</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Bulk Ordering Feature Ind.</td>
<td>5601</td>
<td>1818</td>
<td>G1A</td>
<td>79</td>
</tr>
<tr>
<td>1m Fiber Optic Cable LC-LC</td>
<td>5605</td>
<td>1818</td>
<td>G1A</td>
<td>129</td>
</tr>
<tr>
<td>5m Fiber Optic Cable LC-LC</td>
<td>5625</td>
<td>1818</td>
<td>G1A</td>
<td>189</td>
</tr>
<tr>
<td>Power Cord, Group #2</td>
<td>9820</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Denmark</td>
<td>9821</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Group #3</td>
<td>9825</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Israel</td>
<td>9827</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Switzerland</td>
<td>9828</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Group #4</td>
<td>9829</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Group #5</td>
<td>9830</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Australia, NZ</td>
<td>9831</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Uruguay</td>
<td>9834</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Pr China</td>
<td>9840</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, India</td>
<td>9843</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Power Cord, Korea</td>
<td>9845</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>240V Pwr Cord, Group #1</td>
<td>9860</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>240V Pwr Cord, Taiwan</td>
<td>9861</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>240V Pwr Cord, Brazil</td>
<td>9862</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>240V Pwr Cord, Japan</td>
<td>9864</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>240V Pwr Cord, US/Chicago</td>
<td>9866</td>
<td>1818</td>
<td>G1A</td>
<td>-</td>
</tr>
<tr>
<td>Feature</td>
<td>Code</td>
<td>Quantity</td>
<td>Type</td>
<td>Price</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------</td>
<td>----------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>4 Gbps FC, 600 GB/15K DDM</td>
<td>5513</td>
<td>1818</td>
<td>D1A</td>
<td>4,202</td>
</tr>
<tr>
<td>Encryptible DDM 4Gbps 600GB</td>
<td>5523</td>
<td>1818</td>
<td>D1A</td>
<td>5,587</td>
</tr>
<tr>
<td>16-Pak 600GB/15K DDM</td>
<td>5533</td>
<td>1818</td>
<td>D1A</td>
<td>61,232</td>
</tr>
<tr>
<td>16Pk Encr DDM 4 Gbps 600GB</td>
<td>5543</td>
<td>1818</td>
<td>D1A</td>
<td>83,392</td>
</tr>
<tr>
<td>DS5100 Attach up to Eight EXP5060</td>
<td>7372</td>
<td>1818</td>
<td>51A</td>
<td>4,000</td>
</tr>
<tr>
<td>DsS300 Attach up to Eight EXP5060</td>
<td>7373</td>
<td>1818</td>
<td>53A</td>
<td>4,000</td>
</tr>
<tr>
<td>DS5000 IBM i Host Kit</td>
<td>7735</td>
<td>1818</td>
<td>51A</td>
<td>7,000</td>
</tr>
<tr>
<td>DS5000 IBM i Host Kit</td>
<td>7735</td>
<td>1818</td>
<td>53A</td>
<td>7,000</td>
</tr>
<tr>
<td>Pwr Cd IEC309 P+N+G 63A/MES</td>
<td>6491</td>
<td>2101</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Pwr Cd IEC309 2P+G 60A/MES</td>
<td>6492</td>
<td>2101</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Pwr Cord IEC309 P+N+G 63A</td>
<td>9491</td>
<td>2101</td>
<td>200</td>
<td>-</td>
</tr>
<tr>
<td>Pwr Cord IEC309 2P+G 60A</td>
<td>9492</td>
<td>2101</td>
<td>200</td>
<td>-</td>
</tr>
</tbody>
</table>

**IBM Global Financing**

IBM Global Financing offers competitive financing to credit-qualified customers to assist them in acquiring IT solutions. Offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit

http://www.ibm.com/financing

IBM Global Financing offerings are provided through IBM Credit LLC in the United States, and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Rates are based on a customer's credit rating, financing terms, offering type, equipment type, and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension, or withdrawal without notice. Financing solutions from IBM Global Financing can help you stretch your budget and affordably acquire the new product. But beyond the initial acquisition, our end-to-end approach to IT management can also help keep your technologies current, reduce costs, minimize risk, and preserve your ability to make flexible equipment decisions throughout the entire technology life cycle.
To order, contact the Americas Call Centers or your local IBM representative, or your IBM Business Partner.

To identify your local IBM representative or IBM Business Partner, call 800-IBM-4YOU (426-4968).

Phone: 800-IBM-CALL (426-2255)
Fax: 800-2IBM-FAX (242-6329)
Internet: callserv@ca.ibm.com
Mail: IBM Teleweb Customer Support
ibm.com® Sales Execution Center, Americas North
3500 Steeles Ave. East, Tower 3/4
Markham, Ontario
Canada
L3R 2Z1

Reference: YE001

The Americas Call Centers, our national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

**Note:** Shipments will begin after the planned availability date.

**Trademarks**

System Storage, POWER6 and Electronic Service Agent are trademarks of IBM Corporation in the United States, other countries, or both.

IBM, Power, PartnerWorld and ibm.com are registered trademarks of IBM Corporation in the United States, other countries, or both.

Other company, product, and service names may be trademarks or service marks of others.

**Terms of use**

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


For the most current information regarding IBM products, consult your IBM representative or reseller, or visit the IBM worldwide contacts page