



IBM TotalStorage DS4800 Midrange Disk System delivers two new high-performance DS4000 series Fiber Channel disk models for IBM @server® xSeries servers

Overview

IBM expands its DS4000 series midrange disk storage offerings of high performance, high availability, and business-critical storage solutions, with the introduction of TotalStorage® DS4800 Midrange Disk System Models 82 and 84.

The TotalStorage DS4800 disk system addresses the needs of midrange/departmental storage requirements. The DS4800 delivers high performance, advanced function, and high availability, along with modular and scalable storage capacity, with SAN attached 4 Gbps FC connectivity. This disk system supports RAID levels 0, 1, 3, 5, and 10 up to over 67 TB physical capacity. The DS4800 can double IOP performance over the current DS4500 offering and represents the sixth-generation architecture of the DS4000 series family.

A 4 U rack-mountable enclosure houses the DS4800 redundant, dual-active intelligent RAID controllers equipped with sixteen 4 Gbps ports (eight ports per controller), for attachment of host servers and DS4000 Storage Expansion Unit enclosures. The DS4800 attaches up to sixteen DS4000 Storage Expansion Units, supporting configurations up to over 67 TB of FC or Serial Advanced Technology Attachment (SATA) disks or a mix of both types of disk drives by use of the optional DS4800 FC/SATA Enclosure Intermix feature.

Advanced DS4000 storage management, copy service options, and optional advanced disaster recovery functions are available for the DS4800, including FlashCopy®, VolumeCopy, and Enhanced Remote Mirroring.

The DS4000 Storage Manager platform is also available for the DS4800. This storage management software helps centralize storage management and simplify partitioning of the DS4000 series storage into as many as 64 virtual servers, and strategically allocate storage capacity to maximize storage space.

Key prerequisites

- IBM p5 and pSeries® servers
- IBM xSeries® and selected Netfinity® servers
- Selected Sun and HP-UNIX® servers
- Intel™-based servers running Microsoft™ Windows™ 2000, Windows Server 2003, Linux™, Novell NetWare, or VMware ESX

For availability dates, configuration options, supported server models, supported operating system levels, supported system levels, and attachment capabilities, visit

<http://www-1.ibm.com/servers/storage/disk/ds4000/interop-matrix.html>

Planned availability dates

- June 17, 2005: For all models/features except DS4100 Enhanced Remote Mirror option, part number 39M5602
- July 15, 2005: Enhanced Remote Mirror option, part number 39M5602

At a glance

TotalStorage DS4800 Model 82 and Model 84

- Sixth-generation architecture of the DS4000 series disk storage systems with built-in capability for 4 Gbps Fibre Channel (FC) operation
- DS4800 Model 82 includes 4 GB cache (2 GB per controller)
- DS4800 Model 84 includes 8 GB cache (4 GB per controller)

Refer to the **Description** section for additional information regarding DS4800 cache memory.

- Compact 4 U rack-mount enclosure, redundant high-performance RAID controllers containing sixteen 4 Gbps ports
- Support for storage configurations of up to over 67 TB physical capacity
- Support for RAID 0, 1, 3, 5, and 10
- Optional advanced copy function and disaster recovery functions including FlashCopy, VolumeCopy, Enhanced Remote Mirroring
- Redundant, hot-swappable power and cooling components

For ordering, contact:

Your IBM representative or the Americas Call Centers at

800-IBM-CALL

Reference: YE001

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: <http://www.ibm.com>.

Description

Note regarding DS4800 cache memory

To enable full addressability of the DS4800 Models 82 and 84 cache memory, the firmware level of these models must be at 06.15, or later, and requires DS4000 Storage Manager at V9.15, or later.

The 06.15 firmware level upgrade and DS4000 Storage Manager V9.15 upgrade are available on the DS4000 support Web site at no additional charge to DS4800 customers.

TotalStorage DS4000 family of disk storage systems

The TotalStorage DS4000 family of storage products offers a set of building blocks for FC-based SANs, whether you are just starting or expanding an existing storage network. The DS4000 product family offers scalable physical storage capacity ranging from 73 GB to over 67 TB to support your growing storage requirements. DS4000 series systems are easy to install and manage using the TotalStorage DS4000 Storage Manager that is available for every DS4000 Storage system. The TotalStorage DS4000 family offers various controller models at different performance and price points to help address varying SAN needs.

Multiple DS4000 storage systems can be centrally managed from a common DS4000 management console located virtually anywhere within an existing LAN infrastructure. Use the DS4000 advanced copy service functions, such as FlashCopy, VolumeCopy, and Enhanced Remote Mirror to help address data protection and disaster recovery needs.

DS4000 storage systems offer various options for disk drive attachment. Depending on the particular DS4000 model, you have the choice of using high performance and highly reliable FC disks with the DS4000 EXP710 Storage Expansion Units for your mission-critical server production data operations, or the DS4000 EXP100 Storage Expansion Units with Serial Advanced Technology Attachment (SATA) disks for small business, data archival, reference data, and near-line applications.

Key potential benefits of the DS4000 family of storage systems include:

- High-availability support — Dual processors and many redundant hardware components
- Scalability — From 73 GB to over 67 TB of physical capacity
- Performance — Excellent throughput to help address application needs
- Advanced DS4000 functions designed to support business continuance — FlashCopy, VolumeCopy, and Enhanced Remote Mirror

Newest DS4000 offering — DS4800 Disk System Model 82 and Model 84

The DS4800 Model 82 and Model 84 are the newest members of the DS4000 series storage products that address the needs of midrange/departmental storage requirements and deliver high performance with advanced function and high availability. The DS4800 delivers up to double the IOP performance of the current DS4500 offering and is based on new sixth-generation architecture that provides 4 Gbps FC connectivity directly to host servers, SAN fabric, disk drive expansion enclosures. The DS4800 has built-in growth to integrate

next-generation 4 Gbps disk drives in the future. The DS4800 supports attachment of up to 16 DS4000 storage expansion enclosures, resulting in the capability of up to 224 disk drives enabling storage configurations of up to over 67 TB of physical capacity.

The DS4800 disk systems come in 4 U, rack-mountable enclosures that contain dual, high-performance RAID controllers. DS4800 Model 84 comes with 8 GB of cache memory (4 GB per controller) while Model 82 comes equipped with 4 GB cache (2 GB per controller).

The DS4800 contains eight 4 Gbps FC host ports and eight 4 Gbps FC drive ports. The ports are enabled by populating them with 4 Gbps Small Form Factor Pluggable (SFP) transceivers. Eight shortwave 4 Gbps SFP transceivers are provided in the DS4800 ship group. Depending upon requirements, the supplied SFP transceivers can be used to populate four of the eight host ports (two ports per controller), and four of the eight drive ports (two ports per controller). Up to four, shortwave 4 Gbps SFP transceiver options (part number 22R4242) can be ordered for connectivity to all of the host and drive ports.

Each option, part number 22R4242, contains two shortwave 4 Gbps SFP transceivers and will populate two host or two drive ports. Eight DS4000 Storage Expansion Units can be attached using four of eight populated drive ports. For attachment of greater than eight, but less than thirteen supported DS4000 Storage Expansion Units, six populated drive ports are required for connectivity. For greater than twelve, up to a maximum of sixteen storage expansion units, eight populated drive ports are required.

The DS4800 can attach either the DS4000 EXP710 FC Storage Expansion Unit (for fibre channel drives), or the DS4000 EXP100 Storage Expansion Unit that houses Serial ATA disk drives. With the optional DS4800 FC/SATA Enclosure Intermix option, part number 22R4248, flexibility is provided to concurrently attach drive paths containing both types of storage expansion units up to a combined maximum of 16 expansion enclosures and 224 disk drives.

Key elements of the DS4800 Disk Systems Models 82 and 84 are:

- Dual, high-performance intelligent RAID controller cards, with sixteen 4 Gbps FC ports for host connections and attachment to disk storage expansion units.
- Eight shortwave 4 Gbps SFP transceivers included with ship group to populate user selected host and drive ports
- Eight 4 Gbps host ports (four ports per controller) for connections to SAN fabric, or directly to host servers. Auto-negotiation of 1, 2, or 4 Gbps FC speeds.
- DS4800 Model 82 contains 4 GB of cache (2 GB per controller) with battery backup
- DS4800 Model 84 contains 8 GB of cache (4 GB per controller) with battery backup

For additional details on DS4800 cache memory, refer to the **Description** section.

- Eight drive-side ports for attachment of up to sixteen DS4000 storage expansion units with a maximum of up to 224 disk drives (up to over 67 TB physical storage capacity)
- Selectable Storage Partitions of either 8, 16, or 64 partitions
- Support for RAID 0, 1, 3, 5, and 10
- TotalStorage DS4000 Storage Manager V9.14 host-based code support

- Optional DS4800 FlashCopy, VolumeCopy, and Enhanced Remote Mirroring copy services and disaster recovery features
- Dual power supplies and redundant cooling fan assemblies
- Attachment to a wide range of industry-standard SAN switches and directors

DS4800 Storage Partitions

The DS4800 (181582H, 181584H) comes with eight storage partitions enabled and has advanced storage management and capacity allocation options for 16 and 64 storage partitions. You can field upgrade your DS4800 to either 16 or 64 storage partitions by use of field upgrade options (8 to 16 partitions, part number 22R4670), (8 to 64 partitions, part number 22R4671), and (16 to 64 partitions, part number 22R4259).

DS4800 Host Kits

For attachment to host servers, the DS4800 (181582H, 181584H) comes with the Windows Host Kit included in the ship group. The DS4800 host kits contain the DS4000 Storage Manager. For attachment to hosts with other operating systems, one of the following host kit options must be ordered for the DS4800. The host kits includes licensed IBM machine code to support attachment to host servers running Microsoft Windows, p5/pSeries running AIX®, p5/pSeries running Linux, Sun/Solaris, HP/HP-UX, and other Intel-based servers.

Description	Part number
Linux/Intel	22R4252
Novell NetWare	22R4253
VMware ESX	22R4254
AIX Host Kit	22R4255
Sun/Solaris	22R4256
HP/HP-UX	22R4257
Linux on Power	22R4258

Refer to the Interoperability Matrix for specific details on supported operating system levels, prerequisites, and required attachments. The Interoperability Matrix is available at

<http://www-1.ibm.com/servers/storage/disk/ds4000/interop-matrix.html>

DS4800 Advanced Copy Service Functions

The DS4800 has optional advanced copy services and disaster recovery solutions including FlashCopy (part number 22R4244), VolumeCopy (part number 22R4245), and Enhanced Remote Mirroring (part number 22R4247). The Enhanced Remote Mirroring option consists of Global Mirror with Asynchronous Write-order Consistency (critical for mirroring multi-LUN applications), Global Copy with Asynchronous, and Metro Mirror with Synchronous (max of 64 mirror pairs).

DS4000 Storage Manager

IBM DS4000 Storage Manager V9.14, available for the DS4800, provides the host-based server code with a GUI for configuring, monitoring, and managing one or more DS4000 storage systems and provides a common storage management platform for the DS4000 series. The DS4000 Storage Manager can provide administrators with a powerful, yet easy-to-use, management interface, where all tasks, including configuration, re-configuration, expansion, maintenance and performance tuning, can be

performed while avoiding system downtime and interruption to system I/O.

The DS4000 Storage Manager configuration flexibility includes the ability to mix drive technologies (when intermix is activated), manage RAID levels, segment sizes, volume group sizes, volume characteristics and cache policies, all within a single DS4000 storage system.

Upon activation of the optional storage partitioning features, the DS4000 Storage Manager enables a single DS4000 storage system to function as multiple, logical storage systems, to meet the needs of storage consolidation in heterogeneous environments.

Additionally, the DS4000 Storage Manager enables management of advanced copy services features, such as FlashCopy and VolumeCopy when separately activated.

Packaging

- DS4800 Disk System Model 82 (181582H)
 - 4 U rack-mount enclosure
 - Dual intelligent RAID enclosure with eight 4 Gbps SFP GBIC transceivers
 - 4 GB cache memory (2 GB per controller) (refer to the **Description** section), eight storage partitions enabled, Windows Host Kit with Storage Manager V9.14 host code
 - Version 06.14 firmware preloaded on controller
 - Dual power supplies, redundant cooling
 - Rack mounting rails
 - Two rack PDU power cords
 - Hardcopy documentation
- DS4800 Disk System Model 84 (181584H)
 - 4 U rack-mount enclosure
 - Dual intelligent RAID enclosure with eight 4 Gbps SFP GBIC transceivers
 - 8 GB cache memory (4 GB per controller) (refer to the **Description** section), eight storage partitions enabled, Windows Host Kit with Storage Manager V9.14 host code
 - Version 06.14 firmware preloaded on controller
 - Dual power supplies, redundant cooling
 - Rack mounting rails
 - Two rack PDU power cords
 - Hardcopy documentation

Country-specific power cords: If U.S. wall outlet power cords are required for the DS4800, then part number 94G6667 should be ordered for each unit. Two power cords are required for each DS4800 unit. Part number 94G6667 provides a U.S. wall outlet power cord, 10A/125V, 2.8 meters (C13/NEMA5-15P).

DS4100 Enhanced Remote Mirror option: The Enhanced Remote Mirror option (part number 39M5602) is now available for the dual controller model of the DS4100 Serial ATA (SATA) Disk System (1724100). Enhanced Remote Mirroring provide the ability to maintain synchronous or asynchronous copies of a logical drive on a remote DS4100 Disk System for disaster recovery protection. Both DS4000 Disk Systems in an Enhanced Remote Mirror pair require the Enhanced Remote Mirror feature to be installed. This option adds Global Copy and Global Mirroring support, and enhances Metro Mirroring with the ability to suspend and resume synchronous mirroring. On the DS4100 this feature is designed to support up to 32 mirrored LUN pairs. This option is available for the DS4100 Disk Systems that have been upgraded to (fw: 6.12) or later, DS4000 Storage Manager V9.12, or later, host code.

Section 508 of the U.S. Rehabilitation Act

The TotalStorage DS4800 Disk System is capable, as of June 17, 2005, when used in accordance with associated IBM 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.

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IBM US Announcement Supplemental Information

May 10, 2005

Publications

A CD-ROM that contains a softcopy (PDF format) of the product documentation is shipped with the hardware product.

Services

Integrated 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 for e-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 more details on available services, contact your IBM representative, or visit

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

For details on education offerings related to specific products, visit

<http://www.ibm.com/services/learning/index.html>

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

Technical information

Physical specifications

- Height: 174.50 mm (6.87 in)
- Width: 481.75 mm (18.97 in)
- Depth: 634.92 mm (25.0 in)
- Weight: 36.38 kg (80.2 lb)

Operating environment

- Temperature:
 - Operating:
 - 10° to 35°C (50° to 95°F) at 0 to 914 m (0 to 3,000 ft)
 - 10° to 32°C (50° to 90°F) at 914 to 2,133 m (3,000 to 7,000 ft)
 - Storage: 1° to 60°C (33° to 140°F) at 0 to 914 m (0 to 3,000 ft)

- Relative humidity:

- Operating:
 - 8% to 80%
 - Storage: 5% to 80%
- Electrical power (per power supply, system rating):
 - Voltage range: 100 to 240 V ac
 - Operating current: 2.25 to 5.4 Amperes
 - Power: 540 watts
 - Frequency: 50/60 Hz
- Heat dissipation: 804 BTU per hour
- Noise level (normal operation): 6.75 bels

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

<http://www-1.ibm.com/servers/storage/disk/ds4000/index.html>

Software requirements: For a list of software requirements, cross-product requirements, prerequisites, product dependencies, the DS4000 Product Interoperability Matrix, and other documentation, visit

<http://www-1.ibm.com/servers/storage/disk/ds4000/index.html>

<http://www-1.ibm.com/servers/storage/disk/ds4000/interop-matrix.html>

Compatibility: The DS4800 Disk System is compatible and attachable to the DS4000 EXP710 Fibre Channel Storage Expansion Unit (1740710) and the DS4000 EXP100 Serial ATA Disk (SATA) Storage Expansion Units (171010U, 17241XP).

Limitations

Note regarding DS4800 cache memory

To enable full addressability of the DS4800 Models 82 and 84 cache memory, the firmware level of these models must be at 06.15, or later, and requires DS4000 Storage Manager at V9.15, or later.

The 06.15 firmware level upgrade and DS4000 Storage Manager V9.15 upgrade are available on the DS4000 support Web site at no additional charge to DS4800 customers.

Note: DS4000 Storage Manager V9.14 supports operation with DS4000 controller firmware versions 05.xx, and later.

Refer to the following Web sites

<http://www-1.ibm.com/servers/storage/disk/ds4000/index.html>

<http://www-1.ibm.com/servers/storage/disk/ds4000/interop-matrix.html>

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: <http://www.ibm.com>.

Planning information

Customer responsibilities

SFP Transceiver orders: The DS4800 contains sixteen 4 Gbps FC interface ports, eight 4 Gbps FC host ports, and eight 4 Gbps FC drive ports. Eight shortwave 4 Gbps SFP transceivers are included with the DS4800 for the user to populate eight of sixteen selected host and drive ports. The other host and drive ports can be enabled by ordering the required number of shortwave 4 Gbps SFP transceiver pairs, option part number 22R4242. Each option part number 22R4242 contains a pair of shortwave 4 Gbps SFP transceivers that will enable two host or drive ports.

Four of the eight supplied SFP transceivers can be used to enable four of eight drive ports for attachment of DS4000 Storage Expansion Units. The four drive ports can attach up to eight expansion units. Attachment of expansion units greater than eight, but less than thirteen, requires one additional option, part number 22R4242, be installed to increase the number of enabled drive ports to six. If attachment of expansion units greater than twelve up to a maximum of sixteen is desired, two options, part number 22R4242, must be ordered to increase the number of enabled drive ports to eight. Eight drive ports support attachment of up to 16 DS4000 EXP100 or EXP710 Storage Expansion Units with up to a maximum of 224 disk drives.

Cable orders

Fiber optic cables: The DS4800 Disk System utilizes the small form factor duplex LC-type connector. This connector is required on the end of all fiber optic cables that plug into the DS4800 host-side and drive-side ports. The DS4000 Host Bus Adapter (part number 24P0960) also requires the small form factor duplex LC-type connector on the cable end that directly connects to the host bus adapter.

Each host port requires one LC-LC type fiber cable to attach to host systems or switches. When attached to systems or switches utilizing the larger SC-type connector, an LC-SC adapter cable is required.

You can order fiber optic cables with the DS4800 and the other DS4000 family products, or supply your own cables. The fiber optic cables must be multimode 50.0/125 micrometers for distances up to 150 meters at 4 Gbps performance for both host port and drive expansion port attachment with the shortwave 4 Gbps SFP transceivers (part number 22R4242).

Fiber optic cables orderable with DS4000 family products

- Cables with two duplex LC-type connectors (LC-LC type) of in the following lengths:
 - 1 meter cable, part number 19K1247
 - 5 meter cable, part number 19K1248
 - 25 meter cable, part number 19K1249

Installability: Installation time is approximately two hours.

Packaging

Description	Part number
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Each item is packed in one box.

Packed weight for DS4800 models: 115.2 lb

DS4800 Model 82 Disk System	181582H
DS4800 Model 84 Disk System	181584H
SW 4 Gbps SFP transceiver pair	22R4242
DS4800 FlashCopy®	22R4244
DS4800 VolumeCopy	22R4245
DS4800 Flash/VolumeCopy	22R4246
DS4800 Enhanced Remote Mirror	22R4247
DS4800 FC/SATA Enclosed Intermix	22R4248
DS4800 Linux™/Intel™ Host Kit	22R4252
DS4800 Novell Netware Host	22R4253
DS4800 VMware ESX Host Kit	22R4254
DS4800 AIX® Host Kit	22R4255
DS4800 SUN Host Kit	22R4256
DS4800 HP-UX Host Kit	22R4257
DS4800 Linux on Power Host	22R4258
DS4800 8 to 16 Storage Partitions	22R4670
DS4800 8 to 64 Storage Partitions	22R4671
DS4800 16 to 64 Storage Partitions	22R4259
DS4100 Enhanced Remote Mirror	39M5602

Security, auditability, and control

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

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

Terms and conditions

Volume orders: Contact your IBM representative.

IBM Global Financing: Yes

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or calling IBM. In the United States, call IBM at 800-772-2227. In Canada, call IBM at 800-565-3344.

Warranty period: Three years

Warranty service

- IBM on-site repair (IOR), 9 hours per day, Monday through Friday, next-business-day (NBD) response

Maintenance services — ServiceElect (ESA)

The announced products are eligible for IBM ServicePacs. ServicePac® provides convenient prepackaged offerings for warranty service upgrades, maintenance services, and installation services. Refer to the **Prices** section for information on the availability of ServicePac offerings.

Field-installable features: Yes

Model conversions: No

Machine installation: Customer setup; customers 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 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 for which the customer has acquired. To obtain the agreement, contact your IBM representative or visit

http://www-1.ibm.com/servers/support/machine_warranties/machine_code.html

Prices

Description	Part number	Purchase price
Machine type/model 1815-82H		
DS4800 Disk System Model 82 (includes 4 GB cache, 8 storage partitions, Microsoft™ Windows™ Host Kit)	181582H	\$64,245
Machine type/model 1815-84H		
DS4800 Disk System Model 84 (includes 8 GB cache, 8 storage partitions, Windows Host Kit)	181584H	79,313
SW 4 Gbps SFP transceiver pair	22R4242	998
DS4800 FlashCopy	22R4244	10,499
DS4800 VolumeCopy	22R4245	13,499
DS4800 Flash/VolumeCopy	22R4246	23,998
DS4800 Enhanced Remote Mirror	22R4247	28,000
DS4800 FC/SATA Enclosure Intermix	22R4248	6,000
DS4800 Linux/Intel Host Kit	22R4252	1,250
DS4800 Novell Network Host	22R4253	1,250
DS4800 VMware ESX Host Kit	22R4254	1,250
DS4800 AIX Host Kit	22R4255	7,000
DS4800 SUN Host Kit	22R4256	7,000
DS4800 HP-UX Host Kit	22R4257	7,000
DS4800 Linux on Power Host	22R4258	1,250
DS4800 8 to 16 Storage Partitions	22R4670	8,400
DS4800 8 to 64 Storage Partitions	22R4671	26,250
DS4800 16 to 64 Storage Partitions	22R4259	21,250
DS4100 Disk System feature		
DS4100 Enhanced Remote Mirroring	39M5602	28,000

Description	Part number	Field Install Only
SW 4 Gbps SFP transceiver pair	22R4242	N
DS4800 FlashCopy	22R4244	N
DS4800 VolumeCopy	22R4245	N
DS4800 Flash/VolumeCopy	22R4246	N
DS4800 Enhanced Remote Mirror	22R4247	N
DS4800 FC/SATA Encl. Intermix	22R4248	N
DS4800 Linux/Intel Host Kit	22R4252	N
DS4800 Novell Network Host	22R4253	N
DS4800 VMware ESX Host Kit	22R4254	N
DS4800 AIX Host Kit	22R4255	N
DS4800 SUN Host Kit	22R4256	N
DS4800 HP-UX Host Kit	22R4257	N
DS4800 Linux on Power Host	22R4258	N
DS4800 8-16 Storage Partition	22R4670	Y
DS4800 8-64 Storage Partition	22R4671	Y
DS4800 16-64 Storage Partition	22R4259	Y
DS4100 Enhanced Remote Mirror	39M5602	N

- Plant install only: No
- Cables required: No
- MES removal: No
- MES removal charge: NA
- MES add charge: NA

ServicePacs for warranty upgrades and maintenance charges

DS4800 Model 82 (181582H) ServicePac Information

Description	Part number
3-year IOR 9 x 5 4-hour average response	41C5952
3-year IOR 24 x 7 4-hour average response	41C5953
3-year IOR 24 x 7 2-hour average response	41C5954
5-year IOR 24 x 7 4-hour average response	41C5955
5-year IOR 24 x 7 2-hour average response	41C5956
1-year MA IOR 9 x 5 next business day (NBD) average response	41C5957
1-year MA IOR 24 x 7 4-hour average response	41C5958
1-year MA IOR 24 x 7 2-hour average response	41C5959

Description	Part number
2-year MA IOR 9 x 5 NBD average response	41C5960
2-year MA IOR 24 x 7 4-hour average response	41C5961
2-year MA IOR 24 x 7 2-hour average response	41C5962

DS4800 Model 84 (181584H) ServicePac Information

Description	Part number
3-year IOR 9 x 5 4-hour average response	41C5963
3-year IOR 24 x 7 4-hour average response	41C5964
3-year IOR 24 x 7 2-hour average response	41C5965
5-year IOR 24 x 7 4-hour average response	41C5966
5-year IOR 24 x 7 2-hour average response	41C5967
1-year MA IOR 9 x 5 NBD average response	41C5968
1-year MA IOR 24 x 7 4-hour average response	41C5969
1-year MA IOR 24 x 7 2-hour average response	41C5970
2-year MA IOR 9 x 5 NBD average response	41C5971
2-year MA IOR 24 x 7 4-hour average response	41C5972
2-year MA IOR 24 x 7 2-hour average response	41C5973

For ServiceElect (ESA) Maintenance Service Charges, contact IBM Global Services at 888-IBM-4343 (426-4343).

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Note: Shipments will begin after the planned availability date.

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