

IBM TotalStorage® DS6000 series



Interoperability Matrix

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About this Document

This document lists interoperable environments and configurations for the IBM TotalStorage DS6000 series.

The document is for informational and planning purposes only and may change at anytime. This version supersedes and replaces all previous versions. The latest version of this document is available at:

<http://www.ibm.com/storage/disk/ds6000/supserver.htm>

Not all combinations created from interoperable components are supported, nor will they necessarily function properly together. The customer is responsible for confirming that a specific configuration (i.e. server model, operating system level, patches, host adapter, and fabric product combination) is a valid and supported configuration by each of the vendors whose products are included in the configuration.

This document is not intended to be the sole resource for configuration information, requirements, and prerequisites. Refer to DS6000 series publications, vendor documentation, or your IBM Sales Representative or IBM Business Partner for additional information.

End-of-Service / End-of-Support

Throughout this document, this symbol – @ – indicates that the product vendor has announced that they no longer provide support for the product. If problems are encountered with existing installations, you may be required to update your configuration to a supported level before problem determination can take place.

Request for Price Quotations (RPQ)

If a desired configuration is not represented in this document, a RPQ should be submitted to IBM to request approval. To submit a RPQ, contact your local IBM Storage Specialist or Business Partner.

What's New

This version is dated August 5, 2005 and has been updated as noted below. It replaces the version dated June 30, 2005. Unless stated otherwise, these items require DS6000 LMC level 5.0.0, or later.

General

- Restriction has been lifted for LUNs greater than or equal to 32 GB in size only on VERITAS Volume Manager and Cluster Server

Operating Systems, Path Management, and Clustering

- IBM pSeries AIX 5.3 ML1 support for VERITAS Volume Manager and VERITAS Cluster Server
- Sun Solaris 10 support for MPxIO, VERITAS Volume Manager and VERITAS Cluster Server

Servers

- IBM eServer BladeCenter LS20 Model 8830

Fabric Support

- IBM eServer BladeCenter P/N 32R1790 (Intel (Linux, and Windows))

DS6000 INTEROPERABILITY SUMMARY

For convenience, the following table summarizes the interoperable environments and configurations for the DS6000 series. Refer to the individual server pages for additional information, including prerequisites and limitations.

Table 1: Open Systems

	DS6800 (1750-511)	Fibre Channel	Clustering (Fibre Channel)	Boot device support	Subsystem Device Driver (SDD)	DS Application Programming Interface (API)	DS Command Line Interface (DS CLI)
Fujitsu Primepower	✓	✓					
Hewlett-Packard (HP-UX)	✓	✓	✓	✓	✓		✓
Hewlett-Packard AlphaServer (OpenVMS)	✓	✓					✓
Hewlett-Packard AlphaServer (Tru64 UNIX)	✓	✓	✓	✓			✓
IBM iSeries (AIX)	✓	✓			✓		✓
IBM iSeries (OS/400, and i5/OS)	✓	✓					✓
IBM iSeries (Linux)	✓	✓			✓		
IBM pSeries (i5/OS)	✓	✓					✓
IBM pSeries (Linux)	✓	✓		✓	✓		
IBM pSeries, RS/6000, and RS/6000 SP (AIX)	✓	✓	✓	✓	✓	✓	✓
Intel Servers (Linux)	✓	✓	✓	✓	✓		✓
Intel Servers (NetWare)	✓	✓	✓		✓		✓
Intel Servers (VMware)	✓	✓					
Intel Servers (Windows)	✓	✓	✓	✓	✓	✓	✓
Apple Macintosh (OSX)	✓	✓					
SGI Origin Servers (IRIX)	✓	✓					
Sun (Solaris)	✓	✓	✓		✓		✓

Table 2: IBM zSeries and S/390

	DS6600 Model 511	Fibre Channel Protocol (FCP)	FICON
z/OS	✓		✓
z/VM	✓	✓	✓
VSE/ESA	✓		✓
Transaction Processing Facility (TPF)	✓		✓
Linux	✓	✓	✓

DS6000 Licensed Machine Code (LMC)

This document contains references to minimum DS LMC levels. In many cases, the minimum level listed does not represent the latest available LMC level.

Customers are encouraged to keep their DS6000 series at the latest LMC level to take advantage of quality, reliability, and serviceability enhancements and to receive problem determination and fix support.

All items listed in this version of the document require DS6000 series LMC level 5.0.0 or later, unless otherwise noted.

Host Systems Attachment Guide

The *IBM TotalStorage DS6000 Host Systems Attachment Guide* should be referenced to obtain detailed information on attaching servers to the DS6000 series.

Host Adapters

This document contains only limited information regarding host adapter driver levels and other prerequisites. Host adapter firmware, driver, and fix level information is documented in the Fibre Channel Host Bus Adapter (HBA) Support Matrix. This matrix can be found at:

<http://knowledge.storage.ibm.com/HBA/HBASearchTool>

Additionally, review host adapter vendor documentation and web pages to obtain information regarding host adapter configuration planning, hardware and software requirements, driver levels, and release notes.

ATTO: <http://www.attotech.com>
Emulex: <http://www.emulex.com/ts/dds.html>
AMCC/JNI: <http://www.jni.com/OEM/oem.cfm?ID=4>
QLogic: http://www.qlogic.com/support/oem_detail_all.asp?oemid=22

SAN Fabric Products

Fabric product vendor documentation and web pages should be reviewed to obtain information regarding configuration planning, hardware and software requirements, firmware and driver levels, and release notes.

IBM: <http://www.ibm.com/storage/ibmsan/products/sanfabric.html>
CNT (INRANGE): <http://www.cnt.com/ibm/>
McDATA: http://www.ibm.com/servers/storage/san/m_type
Cisco: <http://www.cisco.com/go/ibm/storage>

Channel Extension Technology Products

Channel extension technology product vendor documentation and web pages should be reviewed to obtain information regarding configuration planning, hardware and software requirements, firmware and driver levels, and release notes.

Cisco: <http://www.cisco.com/go/ibm/storage>
CNT: <http://www.cnt.com/ibm/>

IBM TotalStorage SAN Volume Controller

The IBM TotalStorage SAN Volume Controller is supported with the DS6800. The SAN Volume Controller is not interoperable with DS Copy Services. Refer to the following web page for specific interoperability information on the SAN Volume Controller:

<http://www.ibm.com/storage/support/2145>

IBM TotalStorage SAN File System

The IBM TotalStorage SAN File System supports the DS6800. For more information on support, please refer to the following web page:

<http://www.ibm.com/support/docview.wss?rs=575&uid=ssg1S1002299>

IBM TotalStorage Multi-path Subsystem Device Driver (SDD)

The SDD is designed to provide load balancing and enhanced data availability capability in configurations with more than one I/O path between the host server and the DS6800 system. Load balancing can reduce or eliminate I/O bottlenecks that occur when many I/O operations are directed to common devices via the same I/O path. SDD also helps eliminate a potential single point of failure by automatically rerouting I/O operations when a path failure occurs, thereby supporting enhanced data availability capability. The SDD is provided with the DS6000 series at no additional charge.

Refer to the individual server pages within this document for operating system level requirements and for DS6000 series LMC prerequisites.

Refer to the *IBM TotalStorage Multi-path Subsystem Device Driver User's Guide* for additional information.

Additional SDD information is also available at:

<http://www.ibm.com/servers/storage/support/software/sdd/index.html>

IBM TotalStorage DS Open Application Programming Interface (API)

The DS Open API supports routine LUN management activities, such as LUN creation, mapping, and masking, and the management of point in time copy and remote mirroring. It supports these activities through the use of a standard interface as defined by the Storage Networking Industry Association (SNIA) Storage Management Initiative Specification (SMI-S). It is implemented through the IBM TotalStorage Common Information Model Agent (CIM Agent) for the DS6000 series, a middleware application that provides a CIM-compliant interface. The DS Open API and CIM Agent are provided with the DS6800 at no additional charge.

- The DS API coordinates with Microsoft Volume Shadow (VSS) Copy Service and the DS6000 series FlashCopy function to create a consistent, point-in-time shadow copy of Windows Server 2003 volume or group of volumes. This ensures consistency for VSS aware applications.
- The DS API also coordinates with Microsoft Virtual Disk Service (VDS). Microsoft VDS is a software interface that manages block storage virtualization. This interface module makes it possible for the DS6000 series to interoperate with applications that utilize the VDS Application Programming Interface in a Windows 2003 environment.

Refer to the individual server pages within this document for operating system level requirements and for DS6000 series LMC prerequisites. While the CIM Agent is available for only selected operating system environments, it can be used to manage all LUNs within a DS6000 series.

Refer to the *IBM TotalStorage DS Open Application Programming Interface Reference* for additional information.

IBM TotalStorage DS Command Line Interface (CLI)

The DS CLI is a single CLI that has the ability to perform a full set of commands for both configuration and copy services activities. The DS CLI is provided with the DS6000 series at no additional charge.

Refer to the individual server pages within this document for operating system level requirements and for DS6000 series LMC prerequisites. Refer to the *IBM TotalStorage DS Command-Line Interface User's Guide* for additional information.

IBM TotalStorage Continuous Availability

IBM TotalStorage Continuous Availability for Windows (formerly IBM TotalStorage Geographically Dispersed Clusters for Microsoft Cluster Server) is designed to allow Microsoft Cluster installations to span geographically dispersed sites and help protect clients from site disasters or storage subsystem failures. It is designed to enable a tier 7 disaster recovery solution and provide high availability for applications and data running in Windows clustered server environments by extending the distance that cluster nodes and storage can be separated, mirroring data between DS6000 series systems. Support for IBM TotalStorage Continuous Availability is available via an IBM services contract to implement and customize the solution for your environment. Contact your local IBM representative or Business Partner and request IBM RPQ.

IBM TotalStorage FlashCopy

IBM TotalStorage FlashCopy is designed to provide a point-in-time copy capability for DS6000 series logical volumes. FlashCopy creates a physical point-in-time copy of the data, with minimal interruption to applications, and makes it possible to access both the source and target copies immediately. FlashCopy is an optional capability, and is available with the point-in-time features on the DS6000 series.

Remote Mirror and Copy Solutions

The D6000 series supports several hardware-based remote mirror and copy solutions. They are optional capabilities on the DS6000 series and are available with the remote mirror and copy features on the DS6000 series. IBM supports the following remote mirror and copy solutions. Refer to Table 3 for DS6000 series model support and LMC prerequisites. The DS6000 series system can participate in remote mirror and copy solutions with the Enterprise Storage Server (ESS) Model 750, ESS Model 800, and DS8000 series systems.

IBM TotalStorage Metro Mirror

Metro Mirror is designed to provide real time mirroring between two systems that can be located up to 300 km from each other. It is a synchronous copy solution where write operations are completed on both copies (local and remote site) before they are considered to be done.

Extending distances beyond 300 km is also possible however, due to network configuration variability, the customer must work with the channel extender vendor to determine the appropriate configuration to meet their performance requirements. IBM support approval for these longer distances can be requested by submitting a Request for Price Quotation (RPQ). The RPQ should include information on distance between sites, the channel extension technology, the type of telecom line, the amount of network bandwidth, the DS6800 system capacity, and a general description of the workload.

IBM TotalStorage Global Copy

Global Copy is a non-synchronous long-distance copy option for data migration and backup. With a non-synchronous operation, the distance between the primary and secondary DS6000 series system will have only a minimal effect on the application response time. Therefore, Global Copy can operate at very long distances.

IBM TotalStorage Global Mirror

Global Mirror is a high performance, asynchronous remote-mirroring copy solution. It is designed to provide a two-site disaster recovery and backup solution at virtually unlimited distances.

Since the distance between the primary and secondary DS6000 series system has little impact to host applications at the primary site, the remote site can be located at distances from the local site well beyond those supported with Metro Mirror. The distances are typically limited only by the capabilities of the network and channel extension technologies.

Remote Mirror and Copy Channel Extension, DWDM, and Network Connectivity

Distances beyond 300 km will require the use of channel extension technology, and the channel extender vendor will determine the maximum distance supported. The vendor should be contacted for its distance capability, line quality requirements, and WAN attachment capabilities.

IBM supports the use of the following products, in Table 3, with remote mirror and copy. Additionally, the product vendors should also be consulted regarding hardware and software prerequisites when using their products in a DS6000 series remote mirror and copy configuration. IBM is not responsible for third-party products.

When using remote mirror and copy with channel extenders, IBM supports the use of remote mirror and copy over all the network technologies that are currently supported by the channel extender products, including Fibre Channel, Ethernet/IP, ATM-OC3, and T1/T3. Evaluation, qualification, approval, and support of remote mirror and copy configurations using channel extender products are the sole responsibility of the channel extender vendor. The vendor should be contacted for its distance capability, line quality requirements, as well as SAN and WAN attachment capabilities.

Table 3: Minimum LMC levels for remote mirror and copy over Fibre Channel (FCP)

	Metro Mirror	Global Copy	Global Mirror
DS6800 (1750-511)	5.0.0	5.0.0	5.0.0
Cisco IP Storage Service Modules	5.0.0	5.0.0	5.0.0
Cisco ONS 15530 / 15540	5.0.0	5.0.0	5.0.0
CNT Edge Storage Router	5.0.0	5.0.0	5.0.0
CNT UltraNet Storage Director-eXtended	5.0.0	5.0.0	5.0.0

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HEWLETT-PACKARD SERVERS – HP-UX

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
<p>HP Server</p> <ul style="list-style-type: none"> • rp2400 series • rp3400 series • rp4400 series • rp5400 series • rp7400 series • rp8400 series • Superdome <p>HP 9000 Enterprise Servers</p> <ul style="list-style-type: none"> • L-Class • N-Class • V-Class <p>Itanium II Servers</p> <ul style="list-style-type: none"> • rx1600 series • rx2600 series • rx4600 series • rx5600 series • rx7600 series • rx8600 series 	<p>HP-UX</p> <ul style="list-style-type: none"> • 11i <ul style="list-style-type: none"> • PVLINKS • MC/Serviceguard 11.12, 11.13, and 11.14 • 11iv2 (11.23) <ul style="list-style-type: none"> • PVLINKS • MC/Serviceguard 11.16 	<p>Hewlett-Packard</p> <ul style="list-style-type: none"> • A5158A • A6684A • A6685A • A6795A • A6826A • A9782A 	<p>Cisco</p> <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216, 9216A, 9216I • MDS 9506 • MDS 9509 <p>CNT (Inrange)</p> <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000- 256 • 2042-N16 <p>IBM</p> <ul style="list-style-type: none"> • 2005 Model B32 • 2005 Models H08 and H16 • 2026 Model E12, 224 • 2027 Models 140 and 232 • 2045 Model N16 • 2109 Models F16 and F32 • 2109 Model M12 • 2109 Model M14 • 2109 Models S08 and S16 • 3534 Model F08 <p>McDATA</p> <ul style="list-style-type: none"> • ED-5000 • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

General notes:

DS Open API – (CIM Agent): Not available for HP-UX.

DS CLI: Available for HP-UX 11i and 11iV2.

SDD:

- Available for HP-UX 11i and 11iV2.
- Not interoperable with MC/Serviceguard.
- Multi-path support is natively available in HP-UX (PVLINKS).

HEWLETT-PACKARD SERVERS – OPENVMS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
AlphaServer <ul style="list-style-type: none">• 800• 1200• 4000, 4000A• 4100• 8200, 8400• DS10, DS20, DS20E• ES40, ES45, ES47, ES80• GS60, GS60E, GS140• GS80, GS160, GS320• GS1280	OpenVMS <ul style="list-style-type: none">• 7.3• 7.3-1• 7.3-2	StorageWorks <ul style="list-style-type: none">• KGPSA-CA• KGPSA-DA• KGPSA-EA	IBM <ul style="list-style-type: none">• 2109 Model F16• 2109 Model F32• 2109 Models S08 and S16• 3534 Model F08

HEWLETT-PACKARD SERVERS - OPENVMS

General notes:

DS Open API – (CIM Agent): Not available for HP OpenVMS.

DS CLI: Available for HP OpenVMS.

SDD: Not available for HP OpenVMS.

HEWLETT-PACKARD SERVERS – TRU64 UNIX

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
AlphaServer <ul style="list-style-type: none">• 800• 1200• 2100• 4000, 4000A• 4100• 8200, 8400• DS10, DS20, DS20E• ES40, ES45, ES47, ES80• GS60, GS60E, GS140• GS80, GS160, GS320• GS1280	Tru64 UNIX <ul style="list-style-type: none">• 5.0A<ul style="list-style-type: none">• TruCluster 5.0A• 5.1<ul style="list-style-type: none">• TruCluster 5.1• 5.1A<ul style="list-style-type: none">• TruCluster 5.1A• 5.1B<ul style="list-style-type: none">• TruCluster 5.1B	StorageWorks <ul style="list-style-type: none">• KGPSA-CA• KGPSA-DA• KGPSA-EA	IBM <ul style="list-style-type: none">• 2109 Model F16• 2109 Model F32• 2109 Models S08 and S16• 3534 Model F08

HEWLETT-PACKARD SERVERS – TRU64 UNIX

General notes:

DS Open API – (CIM Agent): Not available for HP Tru64 UNIX.

DS CLI: Available for HP Tru64 UNIX.

SDD:

- Not available for HP Tru64 UNIX.
- Multi-path support is natively available in Tru64 UNIX.

Boot device support:

- The DS6000 can be used as a boot device on servers running Tru64 UNIX 5.0A and 5.1. Refer to the *IBM TotalStorage DS6000 Host Systems Attachment Guide* for additional information.

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
iSeries <ul style="list-style-type: none"> • 270 • 820, 830, 840, 890 • 800, 810, 825, and 870 	AIX ³ <ul style="list-style-type: none"> • Version 5 <ul style="list-style-type: none"> • 5.2 ML5 • 5.3 ML1 	IBM iSeries <ul style="list-style-type: none"> • FC 0612¹ • FC 0625^{1,3} • FC 0626¹ • FC 0646^{1,3} • FC 2766 • FC 2787 	Cisco <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216, 9216A, 9216I • MDS 9506 • MDS 9509
eServer i5 <ul style="list-style-type: none"> • 520, 550, 570 and 595 	i5/OS <ul style="list-style-type: none"> • Version 5 <ul style="list-style-type: none"> • V5R3 		CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16
	OS/400 <ul style="list-style-type: none"> • Version 5 <ul style="list-style-type: none"> • V5R2 		
	Red Hat Enterprise Linux ^{1,2} <ul style="list-style-type: none"> • 3.0 		IBM <ul style="list-style-type: none"> • 2005 Model B32 • 2005 Models H08 and H16 • 2026 Model E12, 224 • 2027 Models 140 and 232 • 2045 Model N16 • 2109 Model F16 • 2109 Model F32 • 2109 Model M12 • 2109 Model M14 • 2109 Models S08 and S16 • 3534 Model F08
	SuSE ^{1,2} <ul style="list-style-type: none"> • SLES 9 		McDATA <ul style="list-style-type: none"> • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

¹ Linux is only supported on the eServer i5 series. FC0612, FC0625, FC0626, and FC0646 host adapters are supported with Linux operating systems.

² Refer to the following link for details on Linux kernel levels:
http://www.ibm.com/support/docview.wss?rs=540&context=ST52G7&dc=D430&uid=ssg1S4000107&loc=en_US&cs=utf-8&lang=en

³ AIX 5.2 ML5 (or later), and 5.3 ML1 (or later) is supported with eServer i5, and the iSeries host adapter FC0625, and FC 0646.

General notes:

DS Open API – (CIM Agent):

- Not available.

DS CLI:

- Available for iSeries AIX, OS/400 V5R2, and i5/OS V5R3 platforms running Copy Services.

SDD:

- Not available. Multi-path support is provided in i5/OS V5R3.
- Available when running the eServer i5 platforms with supported AIX and Linux operating systems.

IBM P SERIES AND RS/6000 SERVERS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
<p>pSeries</p> <ul style="list-style-type: none"> 610 Models 6C1, 6E1 615 Models 6C3, 6E3 620 Models 6F0, 6F1 630 Models 6C4, 6E4 640 Model B80 650 Model 6M2 655 Model 651 660 Models 6H0, 6H1, 6M1 670 Model 671 680 Model S85 690 Model 681 <p>eServer p5³</p> <ul style="list-style-type: none"> 510, 520, 550, 570, 590, 595 710, 720 <p>IBM eServer BladeCenter¹</p> <ul style="list-style-type: none"> BladeCenter JS20 <ul style="list-style-type: none"> 8842 <p>RS/6000</p> <ul style="list-style-type: none"> 7013: S70, S7A 7015: S70, S7A 7017: S70, S7A, S80 7025: F50, F80, H70 7026: H50, H70, H80, M80 7043: 270 7044: 170, 270 	<p>AIX⁵</p> <ul style="list-style-type: none"> Version 5 <ul style="list-style-type: none"> 5.1 ML7 <ul style="list-style-type: none"> VERITAS Volume Manager with DMP <ul style="list-style-type: none"> 4.0 VERITAS Cluster Server <ul style="list-style-type: none"> 4.0 5.2 ML5 <ul style="list-style-type: none"> VERITAS Volume Manager with DMP <ul style="list-style-type: none"> 4.0 VERITAS Cluster Server <ul style="list-style-type: none"> 4.0 5.3 ML1 <ul style="list-style-type: none"> VERITAS Volume Manager with DMP <ul style="list-style-type: none"> 4.0 VERITAS Cluster Server <ul style="list-style-type: none"> 4.0 <p>HACMP</p> <ul style="list-style-type: none"> 5.1.0 5.2.0 <p>i5/OS⁷</p> <ul style="list-style-type: none"> Version 5 <ul style="list-style-type: none"> V5R3 <p>IBM Virtual I/O Server (VIOS)⁶</p> <ul style="list-style-type: none"> 1.1 <p>Red Hat Enterprise Linux⁴</p> <ul style="list-style-type: none"> 3.0 <p>SUSE⁴</p> <ul style="list-style-type: none"> SLES 8 SLES 9 	<p>IBM pSeries and RS/6000</p> <ul style="list-style-type: none"> FC 1977 FC 5716 FC 6228 FC 6239 	<p>Cisco²</p> <ul style="list-style-type: none"> MDS 9120 and 9140 MDS 9216, 9216A, 9316I MDS 9506 and 9509 <p>CNT (Inrange)</p> <ul style="list-style-type: none"> FC/9000-64 FC/9000-128 FC/9000-256 2042-N16 <p>IBM</p> <ul style="list-style-type: none"> 2005 Model B32 2005 Models H08 and H16 2026 Model E12, 224 2027 Models 140 and 232 2045 Model N16 2109 Models F16 and F32 2109 Model M12 2109 Model M14 2109 Models S08 and S16 3534 Model F08 <p>IBM eServer BladeCenter¹</p> <ul style="list-style-type: none"> P/N 02R9080 <p>McDATA</p> <ul style="list-style-type: none"> ED-5000 ES-3016 ES-3032 Intrepid <ul style="list-style-type: none"> 6064 6140 Sphereon <ul style="list-style-type: none"> 3216 3232 4300 4500

¹ BladeCenter is supported with AIX 5.2 ML5 (or later), and Linux operating systems only. For more information on BladeCenter SAN support, refer to the following website: <http://www.pc.ibm.com/us/compat/eserver.html>

² Supports the IP Storage Service Module for iSCSI on Cisco MDS fabric products. Refer to the following link for more details: <ftp://service.boulder.ibm.com/storage/san/cisco/ipStorServMod.pdf>

³ Linux support on the IBM eServer p5 models is limited to SuSE SLES 9, and Red Hat 3.0 and 4.0. The IBM eServer p5 models 710 and 720 are supported with Linux and host adapter FC 1977 only.

⁴ Refer to the following link for details on Linux kernel levels:

http://www.ibm.com/support/docview.wss?rs=540&context=ST52G7&dc=D430&uid=ssg1S4000107&loc=en_US&cs=utf-8&lang=en

⁵ Refer to the most current APARs for AIX 5.2 ML5 (or later) and AIX 5.3 ML1 (or later).

⁶ Refer to the following link for details on IBM VIOS: <http://techsupport.services.ibm.com/server/virtualization/vios/documentation/datasheet.html>

⁷ The i5/OS operating systems are only supported with eServer p5 servers, and iSeries host adapter FC2787.

IBM pSERIES AND RS/6000 SERVERS

General Notes:

DS Open API – (CIM Agent): Available for AIX 5.1 ML7 (or later).

DS CLI: Available for AIX 5.1 ML7 (or later), 5.2 ML5 (or later), and 5.3 ML1 (or later), and i5/OS operating systems.

DS Copy Services: HACMP running with Remote Mirror and Copy functions is not available.

SDD:

- Available for AIX 5.1 ML7 (or later), 5.2 ML5 (or later), and 5.3 ML1 (or later).
- Available for SuSE SLES 8, SLES 9, and Red Hat RHEL 3.0.
- Not available with i5/OS operating systems.

Path Control Module:

- MPIO 2.1.0 Path Control Module: Available for AIX 5.2 ML5 (or later) and 5.3 ML1 (or later) with latest released maintenance levels. (Default PCM not supported.)

Boot device support:

- The DS6800 is supported as a boot device on RS/6000, pSeries, and eServer p5 servers that support Fibre Channel boot capability. Boot support is available for AIX and SLES 9 operating systems with SDD. Refer to the *IBM TotalStorage DS6000 Host Systems Attachment Guide* for additional information.

IBM pSERIES AND RS/6000 SERVERS

Table 4: AIX and HACMP Support Matrix

	DS6800 (1750-511)	SDD
AIX 5.1 ML7 with HACMP 5.1.0	Yes	Yes
AIX 5.2 ML5 with HACMP 5.1.0	Yes	Yes
AIX 5.1 ML7 with HACMP 5.2.0	Yes	Yes
AIX 5.2 ML5 with HACMP 5.2.0	Yes	Yes
AIX 5.3 ML1 with HACMP 5.2.0	Yes	Yes

Table 5: AIX Clustering for IBM pSeries servers

	DS6800 (1750-511)	SDD Level	MPIO Level
AIX 5.1 ML7 with: <ul style="list-style-type: none"> • PSSP 3.4, 3.5 • GPFS 2.2 	Yes	1.6.0	--
AIX 5.2 ML5 with: <ul style="list-style-type: none"> • GPFS 2.2, or 2.3 • RVSD 3.5 or 4.1 	Yes	1.6.0	2.1.0
AIX 5.3 ML1 with: <ul style="list-style-type: none"> • CSM 1.3.n • GPFS 2.3 • RVSD 4.1 	Yes	1.6.0	2.1.0

IBM RS/6000 SP SERVERS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
9076 Models 2xx, 3xx, 4xx, 50x, 55x, and T70 with the following PCI nodes: <ul style="list-style-type: none">FC 2050: 332 MHz SMP Single Thin NodeFC 2051: 332 MHz SMP Wide NodeFC 2052: POWER3 SMP Thin NodeFC 2053: POWER3 SMP Wide NodeFC 2054: POWER3 SMP High NodeFC 2055: SP Expansion I/O UnitFC 2056: POWER3 375MHz SMP Thin NodeFC 2057: POWER3 375MHz SMP Wide NodeFC 2058: POWER3 375MHz SMP High Node	AIX ¹ <ul style="list-style-type: none">Version 55.1 ML75.2 ML55.3 ML1	IBM RS/6000 <ul style="list-style-type: none">FC 6228FC 6239FC 5716	Cisco <ul style="list-style-type: none">MDS 9120MDS 9140MDS 9216, 9216A, 9216IMDS 9506MDS 9509 CNT (Inrange) <ul style="list-style-type: none">FC/9000-64FC/9000-128FC/9000-2562042-N16 IBM <ul style="list-style-type: none">2005 Model B322005 Models H08 and H162026 Model 2242027 Models 140 and 2322045 Model N162109 Models F16 and F322109 Model M122109 Model M142109 Models S08 and S163534 Model F08 McDATA <ul style="list-style-type: none">ED-5000ES-3016 and ES-3032Intrepid<ul style="list-style-type: none">60646140Sphereon<ul style="list-style-type: none">3216323243004500

¹ Refer to the most current APARs for AIX 5.2 ML5 (or later) and AIX 5.3 ML1 (or later).

IBM RS/6000 SP SERVERS

General Notes:

DS Open API – (CIM Agent): Available for AIX 5.1 ML7 (or later).

DS CLI: Available for AIX 5.1 ML7 (or later), 5.2 ML5 (or later), and 5.3 ML1 (or later).

SDD:

- Available for AIX 5.1 ML7 (or later), 5.2 ML5 (or later), and 5.3 ML1 (or later).

Path Control Module:

- Available for AIX 5.2 ML5 (or later) and AIX 5.3 ML1 (or later) MPIO with latest released maintenance levels.

Boot device support:

- The DS6800 is supported as a boot device on RS/6000 SP servers that support Fibre Channel boot capability. Refer to the *IBM TotalStorage DS6000 Host Systems Attachment Guide* for additional information.

Table 6: AIX Clustering for RS/6000 SP

	DS6800 (1750-511)	SDD Level	MPIO Level
AIX 5.1 ML7 with: <ul style="list-style-type: none">• PSSP 3.4, 3.5• GPFS 2.2	Yes	1.6.0	--
AIX 5.2 ML5 with: <ul style="list-style-type: none">• GPFS 2.2, or 2.3• RVSD 3.5 or 4.1	Yes	1.6.0	2.1.0
AIX 5.3 ML1 with: <ul style="list-style-type: none">• CSM 1.3.n• GPFS 2.3• RVSD 4.1	Yes	1.6.0	2.1.0

IBM zSERIES AND S/390 SERVERS

FICON

Servers	Operating Systems	Host Adapters	Fabric Support
zSeries z800 <ul style="list-style-type: none"> IBM 2066 	z/OS <ul style="list-style-type: none"> Version 1 Release 4 Version 1 Release 5 Version 1 Release 6 	zSeries <ul style="list-style-type: none"> FC 2315 FC 2318 FC 2319 FC 2320 FC 3319¹ FC 3320¹ 	Cisco <ul style="list-style-type: none"> MDS 9216, 9216A, 9216I MDS 9506 MDS 9509
zSeries z890 <ul style="list-style-type: none"> IBM 2086 	z/OS.e <ul style="list-style-type: none"> Version 1 Release 4 Version 1 Release 5 Version 1 Release 6 	S/390 <ul style="list-style-type: none"> FC 2314 FC 2316 	CNT (Inrange) <ul style="list-style-type: none"> FC/9000-64 FC/9000-128 FC/9000-256 2042-N16
zSeries z900 and z990 ² <ul style="list-style-type: none"> IBM 2064 IBM 2084 	z/VM <ul style="list-style-type: none"> Version 4 Release 4 Version 5 Release 1 		IBM <ul style="list-style-type: none"> 2027 Models 140, and 232 2045 Model N16 2109 Model F32 2109 Model M12 2109 Model M14
S/390 Parallel Enterprise Server <ul style="list-style-type: none"> IBM 9672 Generation 5 IBM 9672 Generation 6 	z/VSE <ul style="list-style-type: none"> Version 3 Release 1 		McDATA <ul style="list-style-type: none"> ED-5000 Intrepid <ul style="list-style-type: none"> 6064 6140 Sphereon <ul style="list-style-type: none"> 3232
	VSE/ESA <ul style="list-style-type: none"> Version 2 Release 7 		
	Transaction Processing Facility (TPF) <ul style="list-style-type: none"> Version 4 Release 1 		
	Red Hat Enterprise Linux <ul style="list-style-type: none"> 3.0 		
	SuSE <ul style="list-style-type: none"> SLES 8 		

¹ FC 3319 and FC 3320 host adapters are supported only on the IBM zSeries 890 and IBM zSeries 990 servers.

² The zSeries 990 requires driver level 55.

IBM zSERIES AND S/390 SERVERS

Fibre Channel Protocol (FCP)

Servers	Operating Systems	Host Adapters	Fabric Support
zSeries z800 <ul style="list-style-type: none"> • IBM 2066 	z/VM <ul style="list-style-type: none"> • Version 4 Release 4 • Version 5 Release 1 	zSeries <ul style="list-style-type: none"> • FC 2315 • FC 2318 • FC 2319 • FC 2320 • FC 3319 ² • FC 3320 ² 	Cisco <ul style="list-style-type: none"> • MDS 9216, 9216A, 9216I • MDS 9506 • MDS 9509
zSeries z890 <ul style="list-style-type: none"> • IBM 2086 	z/VSE <ul style="list-style-type: none"> • Version 3 Release 1 		CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16
zSeries z900 and z990 ¹ <ul style="list-style-type: none"> • IBM 2064 • IBM 2084 	SuSE <ul style="list-style-type: none"> • SLES 8 Submarine 		IBM <ul style="list-style-type: none"> • 2045 Model N16 • 2109 Model F16 • 2109 Models S08 and S16
			McDATA <ul style="list-style-type: none"> • Intrepid 6064

¹ The zSeries 990 requires driver level 55.

² FC 3319 and FC 3320 host adapters are supported only on the IBM zSeries 890 and IBM zSeries 990 servers.

General Notes:

DS Open API – (CIM Agent): Not available for zSeries.

DS CLI: Not available for zSeries.

Fibre Channel Protocol (FCP):

- Multi-path support is available with LVM.

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INTEL-BASED SERVERS – LINUX

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Intel Pentium II Xeon and above <ul style="list-style-type: none"> • 900 Mhz or faster • 2 – 16 processors • 512 MB RAM or higher 	Red Hat Enterprise Linux ⁴ <ul style="list-style-type: none"> • 2.1 • 3.0 <ul style="list-style-type: none"> • VERITAS Volume Manager with DMP ⁵ • 4.0 • VERITAS Cluster Server ⁵ <ul style="list-style-type: none"> • 4.0 	Emulex <ul style="list-style-type: none"> • LP9002L / LP9002DC • LP9402DC • LP9802 • LP10000 / LP10000DC 	Cisco ² <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216, 9216A, 9216I • MDS 9506 • MDS 9509
IBM eServer ¹ <ul style="list-style-type: none"> • 325 / 326 • BladeCenter HS20 <ul style="list-style-type: none"> • 8678 • 8832 • 8843 • BladeCenter HS40 <ul style="list-style-type: none"> • 8839 • BladeCenter LS20 <ul style="list-style-type: none"> • 8850 	SuSE ⁴ <ul style="list-style-type: none"> • SLES 8 • SLES 9 ³ 	IBM Netfinity/xSeries <ul style="list-style-type: none"> • P/N 19K1246 • P/N 24P0960 	CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16
IBM xSeries Servers ¹ <ul style="list-style-type: none"> • 206 • 225 / 226 • 235 / 236 • 255 • 306 • 335 / 336 • 345 / 346 • 360 / 365 • 366 • 440 / 445 • 450 / 455 	Asianux 1.0 ⁴ <ul style="list-style-type: none"> • Red Flag Linux DataCenter <ul style="list-style-type: none"> • v4.1 ³ 	QLogic <ul style="list-style-type: none"> • QLA2310F / QLA2310FL • QLA2340/L / QLA2342/L 	IBM <ul style="list-style-type: none"> • 2005 Model B32 • 2005 Models H08 and H16 • 2026 Model E12, 224 • 2027 Models 140 and 232 • 2045 Model N16 • 2109 Models F16 and F32 • 2109 Model M12, M14 • 2109 Models S08 and S16 • 3534 Model F08
	Red Flag Linux Advanced Server ⁴ <ul style="list-style-type: none"> • v4.1 ³ 		IBM eServer BladeCenter ¹ <ul style="list-style-type: none"> • P/N 02R9080 • P/N 26K5601 • P/N 32R1790 • P/N 90P0165
			McDATA <ul style="list-style-type: none"> • ED-5000, ES-3016, ES-3032 • Intrepid 6064 • Intrepid 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

¹ For more information on OS and HBA support, refer to the following link: <http://www.pc.ibm.com/us/compat/indexsp.html>

² Supports the IP Storage Service Module for iSCSI on Cisco MDS fabric products with. Refer to the following link for more details: <ftp://service.boulder.ibm.com/storage/san/cisco/ipStorServMod.pdf>

³ Supported with Qlogic adapters only.

⁴ Refer to the following link for details on Linux kernel levels:

http://www.ibm.com/support/docview_wss?rs=540&context=ST52G7&dc=D430&uid=ssg1S4000107&loc=en_US&cs=utf-8&lang=en

⁵ Support is delayed for VERITAS Volume Manager and Cluster Server on all Linux operating systems.

General Notes:

DS Open API – (CIM Agent): Available with Red Hat Enterprise Linux 3.0.

DS CLI: Available with Red Hat Enterprise Linux 2.1, 3.0, and SuSE SLES 8 and 9.

SDD:

- Available for 32-bit with Red Hat Enterprise Linux 2.1, Red Hat Enterprise Linux 3.0, SuSE SLES 8, SuSE SLES 9, Asianux, and Red Flag.
- Available for 64-bit with Red Hat Enterprise Linux 3.0, and SuSE SLES 9
- SDD is not supported on the eServer 325, 326, and x86_64 kernels.
- Not available for IBM eServer BladeCenter LS20.

Boot device support:

- The DS6800 is supported as a boot device on Red Hat Enterprise Linux 2.1, 3.0, SuSE SLES 8, and SuSE SLES 9 that supports Fibre Channel boot capability. This support is only available with Qlogic adapters: QLA 2310F/QLA2310FL, QLA2340/L/QLA2342/L.

INTEL-BASED SERVERS – NETWARE

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Intel Pentium II Xeon and above <ul style="list-style-type: none"> • 900 Mhz or faster • 2 – 16 processors • 512 MB RAM or higher 	Novell NetWare <ul style="list-style-type: none"> • 5.1 SP 7 <ul style="list-style-type: none"> • Cluster Services 1.01 • 6.0² <ul style="list-style-type: none"> • Cluster Services 1.6 • 6.5 SP 2 <ul style="list-style-type: none"> • Cluster Services 1.70 	Emulex <ul style="list-style-type: none"> • LP9002L / LP9002DC • LP9402DC • LP9802 • LP10000 / LP10000DC 	Cisco <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216, 9216A, 9216I • MDS 9506 • MDS 9509
IBM eServer ¹ <ul style="list-style-type: none"> • BladeCenter HS20 <ul style="list-style-type: none"> • 8678 • 8832 • BladeCenter HS40 <ul style="list-style-type: none"> • 8839 		IBM xSeries / Netfinity <ul style="list-style-type: none"> • P/N 19K1246 • P/N 24P0960 	CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256
IBM xSeries Servers ¹ <ul style="list-style-type: none"> • 206 • 225 / 226 • 235 / 236 • 255 • 306 • 335 / 336 • 345 / 346 • 360 / 365 • 366 • 440 / 445 • 450 / 455 		QLogic <ul style="list-style-type: none"> • QLA2310F / QLA2310FL • QLA2340/L / QLA2342/L 	IBM <ul style="list-style-type: none"> • 2026 Model E12, 224 • 2027 Models 140 and 232 • 2045 Model N16 • 2109 Models F16 and F32 • 2109 Model M12 • 2109 Models S08 and S16 • 3534 Model F08
			IBM eServer BladeCenter ¹ <ul style="list-style-type: none"> • P/N 02R9080 • P/N 26K5601
			McDATA <ul style="list-style-type: none"> • ED-5000 • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

¹ For information on OS and HBA support, refer to the following link: <http://www.pc.ibm.com/us/compat/indexsp.html>

² Supported via RPQ only.

General Notes:

DS Open API – (CIM Agent): Not Available

DS CLI: Available with NetWare 5.1, 6.0, and 6.5.

SDD:

- Available with NetWare 5.1, 6.0, and 6.5.
- Clustering Support: Available with NetWare 5.1, 6.0, and 6.5.

INTEL-BASED SERVERS – VMWARE

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Intel Pentium II Xeon and above ¹ <ul style="list-style-type: none"> • 900 Mhz or faster • 2 – 16 processors • 512 MB RAM or higher 	VMware <ul style="list-style-type: none"> • ESX 2.5.0 • ESX 2.5.1 VMware guest support ² <ul style="list-style-type: none"> • Windows 2000 • Windows 2003 • SuSE SLES 8 • Red Hat Enterprise Linux 2.1, 3.0 	Emulex ³ <ul style="list-style-type: none"> • LP9402DC • LP9802 IBM Netfinity / xSeries <ul style="list-style-type: none"> • P/N 19K1246 • P/N 24P0960 QLogic <ul style="list-style-type: none"> • QLA2310F / QLA2310FL • QLA2340/L / QLA2342/L 	Cisco <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216, 9216A, 9216I • MDS 9506 • MDS 9509 IBM <ul style="list-style-type: none"> • 2026 Model E12, 224 • 2027 Models 140 and 232 • 2109 Models F16 and F32 • 2109 Model M12 • 2109 Models S08 and S16 • 3534 Model F08 McDATA <ul style="list-style-type: none"> • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

¹ For more information on server minimum requirements, refer to: http://www.vmware.com/products/server/esx_specs.html

² Clustering for guest operating systems is supported on Windows 2000 and Windows 2003.

³ Supported via RPQ only.

INTEL-BASED SERVERS – VMWARE

General Notes:

DS Open API – (CIM Agent): Not available with VMware.

DS CLI: Not available for VMware.

SDD: Not available for VMware.

INTEL-BASED SERVERS – WINDOWS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
<p>Intel Pentium II Xeon and above</p> <ul style="list-style-type: none"> • 900 Mhz or faster • 2 – 16 processors • 512 MB RAM or higher 	<p>Microsoft Windows 2000</p> <ul style="list-style-type: none"> • Server • Advanced Server including Cluster service • Datacenter Server 	<p>Emulex</p> <ul style="list-style-type: none"> • LP9002L / LP9002DC • LP9402DC • LP9802 • LP10000 / LP1000DC 	<p>Cisco²</p> <ul style="list-style-type: none"> • MDS 9120 and 9140 • MDS 9216, 9216A, 9216I • MDS 9506 and 9509
<p>IBM eServer¹</p> <ul style="list-style-type: none"> • 325 / 326 • BladeCenter HS20 <ul style="list-style-type: none"> • 8678 • 8832 • 8843 • BladeCenter HS40 <ul style="list-style-type: none"> • 8839 • BladeCenter LS20 <ul style="list-style-type: none"> • 8850 	<p>Microsoft Windows Server 2003</p> <ul style="list-style-type: none"> • Standard Edition • Enterprise Edition including cluster service • Datacenter Edition including cluster service 	<p>IBM Netfinity/xSeries</p> <ul style="list-style-type: none"> • P/N 19K1246 • P/N 24P0960 	<p>CNT</p> <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16
<p>IBM xSeries Servers¹</p> <ul style="list-style-type: none"> • 206 • 225 / 226 • 235 / 236 • 255 • 306 • 335 / 336 • 345 / 346 • 360 / 365 • 366 • 440 / 445 • 450 / 455 • 460 		<p>QLogic</p> <ul style="list-style-type: none"> • QLA2310F / QLA2310FL • QLA2340L / QLA2342L 	<p>IBM</p> <ul style="list-style-type: none"> • 2005 Model B32 • 2005 Models H08 and H16 • 2026 Model E12, 224 • 2027 Models 140 and 232 • 2045 Model N16 • 2109 Models F16 and F32 • 2109 Model M12, M14 • 2109 Models S08 and S16 • 3534 Model F08
			<p>IBM eServer BladeCenter¹</p> <ul style="list-style-type: none"> • P/N 02R9080 • P/N 26K5601 • P/N 32R1790 • P/N 90P0165
			<p>McDATA</p> <ul style="list-style-type: none"> • ED-5000 • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 and 6140 • Sphereon <ul style="list-style-type: none"> • 3216 and 3232 • 4300 • 4500

¹ For more information on OS and HBA support, refer to the following link: <http://www.pc.ibm.com/us/compat/indexsp.html>

² Supported with the IP Storage Service Module for iSCSI on Cisco fabric products. Refer to the following link for more details: <ftp://service.boulder.ibm.com/storage/san/cisco/ipStorServMod.pdf>

INTEL-BASED SERVERS – WINDOWS

General Notes:

DS Open API – (CIM Agent): Available for Microsoft Windows 2000.

DS CLI: Available for Microsoft Windows 2000 and Microsoft Windows Server 2003 (32-bit only).

SDD:

- Available for Microsoft Windows 2000 and Microsoft Windows Server 2003 (SP1). For more information on SDD support with Windows 2003 SP1, refer to the following website:
<http://www.ibm.com/servers/storage/support/software/sdd/downloading.html>
- Not supported on 64-bit AMD or EM64T servers.
- Not supported with IBM eServer BladeCenter LS20.

Boot device support:

- The DS6800 is supported as a boot device on Windows 2000 (32 bit) or Windows Server 2003 (32 bit or 64 bit) servers that support Fibre Channel boot capability (Windows 2003 SP 1 is not supported). It is supported with host adapters QLA 23xx (32 bit or 64 bit) and LP9xxx (32 bit support only). Refer to the *IBM TotalStorage DS6000 Host Systems Attachment Guide* for additional information.

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Enterprise <ul style="list-style-type: none"> • 220R, 250, 420R, 450 • 3000, 4000, 5000, 6000 • 3500, 4500, 5500, 6500 • 10000 	Solaris <ul style="list-style-type: none"> • 8 <ul style="list-style-type: none"> • Sun Cluster 3.1 <ul style="list-style-type: none"> • MPxIO 4.4.3 ² • VERITAS Volume Manager with DMP <ul style="list-style-type: none"> • 4.0 • VERITAS Cluster Server <ul style="list-style-type: none"> • 4.0 • 9 ¹ <ul style="list-style-type: none"> • Sun Cluster 3.1 <ul style="list-style-type: none"> • MPxIO 4.4.3 ² • VERITAS Volume Manager with DMP <ul style="list-style-type: none"> • 4.0 • VERITAS Cluster Server <ul style="list-style-type: none"> • 4.0 	AMCC / JNI ³ <ul style="list-style-type: none"> • FCX-6562 / FCX2-6562 • FCE-1473-N • FCE-6460-N Emulex <ul style="list-style-type: none"> • LP9002L / LP9002DC • LP9002S • LP9402DC • LP9802 • LP10000 / LP10000DC QLogic <ul style="list-style-type: none"> • QLA2310F/QLA2310F • QLA2340/L / QLA2342/L Sun <ul style="list-style-type: none"> • 6727A • 6757A • 6767A (SG-XPCI1FC-QF2) • 6768A (SG-XPCI2FC-QF2) • 6799A 	Cisco <ul style="list-style-type: none"> • MDS 9120 and 9140 • MDS 9216, 9216A, 9216I • MDS 9506 • MDS 9509 CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16 IBM <ul style="list-style-type: none"> • 2005 Model B32 • 2005 Models H08 and H16 • 2026 Model E12, 224 • 2027 Models 140 and 232 • 2045 Model N16 • 2109 Models F16 and F32 • 2109 Model M12, M14 • 2109 Models S08 and S16 • 3534 Model F08 McDATA <ul style="list-style-type: none"> • ED 5000 • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 and 3232 • 4300 • 4500
Netra <ul style="list-style-type: none"> • 1125 			
SPARCcenter / SPARCserver <ul style="list-style-type: none"> • 1000, 1000E • 2000, 2000E 			
Sun Fire <ul style="list-style-type: none"> • V120 • V210 • V240 • V250 • V280R • V440 • V480 • V490 • V880 • V890 • V1280 • 3800 • 4800, 4810, 6800 • 12,000, 15,000 			
Ultra <ul style="list-style-type: none"> • 1,2, 5, 10, 20, 30, 60, 80 			

¹ The Sun filesystem requires patch 113454-14.

² MPxIO is supported only with the Sun host adapters.

³ Not interoperable with DS6800 Fibre Channel ports shared with remote mirror and copy configurations.

General Notes:

DS Open API – (CIM Agent): Not available for Solaris.

DS CLI: Available for Solaris 8, 9, and 10.

SDD:

- Available for Solaris 8 and 9. (Not available for Solaris 10.)
- SDD is not supported in Sun Cluster environments.
- SDD does not support Sun adapters.

ADDITIONAL STORAGE ATTACHMENT

APPLE MACINTOSH SERVERS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Macintosh G4 and G5	OS X 10.3	Apple <ul style="list-style-type: none">• Fibre Channel PCI-X card• 065-5136 ATTO ¹ <ul style="list-style-type: none">• 3300• 3321	IBM <ul style="list-style-type: none">• 2109 Model F16• 2109 Model M12 McDATA <ul style="list-style-type: none">• Intrepid• 6064

General Notes:

DS Open API – (CIM Agent): Not available.

DS CLI: Not available.

SDD: Not available.

¹ Only one PCI slot on the G5 can be used with the ATTO Host Adapter.

FUJITSU PRIMEPOWER SERVERS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Primepower <ul style="list-style-type: none">• 200, 250• 400,450• 650• 800, 850• 900• 1000, 1500• 2000, 2500	Solaris <ul style="list-style-type: none">• 8	Emulex <ul style="list-style-type: none">• LP9002L	IBM <ul style="list-style-type: none">• 2109 Model F16• 2109 Model S16

General Notes:

DS Open API – (CIM Agent): Not available.

DS CLI: Not available.

SDD: Not available.

NETWORK ATTACHED STORAGE (NAS)

NAS Gateway	Fabric Support
NAS Gateway 500 <ul style="list-style-type: none">• 5198 Model 001	Cisco <ul style="list-style-type: none">• MDS 9120, 9140, 9506, 9509, 9216 CNT <ul style="list-style-type: none">• FC/9000-64• FC/9000-128• FC/9000-256 IBM <ul style="list-style-type: none">• 2109 Models F16, and F32• 2109 Model M12• 3534 Model F08 McDATA <ul style="list-style-type: none">• Intrepid 6064 and 6140• Sphereon 3216, 3232, 4300, and 4500

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Origin Servers <ul style="list-style-type: none">• 200• 2100• 2200• 2400• 2800	IRIX <ul style="list-style-type: none">• 6.5.13• 6.5.14• 6.5.15• 6.5.16• 6.5.17	SGI <ul style="list-style-type: none">• PCI-FC-1P-OPT• PCI-FC-1P-OPT-A• PCI-FC-1POPT-B• PCX-FC-2POPT-B	IBM <ul style="list-style-type: none">• 2109 Model M12• 2109 Models S08 and S16• 2109 Model F16• 3534 Model F08

General Notes:

DS Open API – (CIM Agent): Not available for SGI Servers.

DS CLI: Not available for SGI Servers.

SDD: Not available for SGI Servers.

APPENDIX A: DS6000 Host Connectivity and Cables

Table 7: DS6000 Series Host Connectivity Ports

Feature Number	Features Description	Supported Models	Minimum LMC Level
1310	2Gb SW FCP/FICON SFP Pair	511	5.0.0
1315	2Gb LW FCP/FICON SFP Pair	511	5.0.0

Table 7: DS6000 Series Fibre Channel / FICON Cable Features

Feature Number	Feature Description	Cable Length	Supported Models
1350	50 um Fibre cable (LC)	2 meters	511
1351	50 um Fibre cable (LC)	7 meters	511
1352	50 um Fibre cable (LC)	31 meters	511
1360	9 um Fibre cable (LC)	2 meters	511
1361	9 um Fibre cable (LC)	7 meters	511
1362	9 um Fibre cable (LC)	31 meters	511
1370	50 um LC-SC interposer	2 meters	511
1371	9 um LC-SC interposer	2 meters	511
1380	50 um Fibre Cable (LC) Set (4 cables)	2 meters	EX1
1381	50 um Fibre Cable (LC) Set (4 cables)	7 meters	EX1
1382	50 um Fibre Cable (LC) Set (4 cables)	31 meters	EX1

APPENDIX B: HOST ADAPTERS AND CABLES

Table 8: Fibre Channel Host Adapters

Adapter	Description
AMCC/JNI FCX-6562	FibreStar PCI-X-to-Fibre Channel Host Bus Adapter (2Gb)
AMCC/JNI FCX2-6562	FibreStar PCI-X-to-Fibre Channel Host Bus Adapter (2Gb) (two ports)
AMCC/JNI FCE-1473-N	FibreStar 2Gb 64-bit SBus-to-Fibre Channel Host Bus Adapter
AMCC/JNI FCE-6460-N	FibreStar 2Gb 64-bit PCI-to-Fibre Channel Host Bus Adapter
Apple 065-5136	Apple PCI-X Fibre Channel Host Adapter
ATTO 3300	ATTO ExpressPCI Fibre Channel Host Adapter
ATTO 3321	ATTO ExpressPCI Fibre Channel Host Adapter
Emulex LP9002L	LightPulse Fibre Channel PCI Host Adapter (2Gb)
Emulex LP9002DC	Light Pulse Fibre Channel PCI Host Adapter (2Gb) (two ports)
Emulex LP9402DC	LightPulse Fibre Channel PCI-X Host Adapter (2Gb) (two ports)
Emulex LP9802	LightPulse Fibre Channel PCI-X Host Adapter (2GB)
Emulex LP10000	LightPulse Fibre Channel PCI-X Host Adapter (2Gb)
Emulex LP10000DC	LightPulse Fibre Channel PCI-X Host Adapter (2Gb) (two ports)
Hewlett-Packard A5158A	PCI Tachlite Fibre Channel Adapter
Hewlett-Packard A6684A	HSC Tachlite Fibre Channel Adapter
Hewlett-Packard A6685A	HSC Tachlite Fibre Channel Adapter
Hewlett-Packard A6795A	PCI Tachlite 2Gb Fibre Channel Adapter
Hewlett-Packard A6826A	PCI 2Gb Fibre Channel Adapter
Hewlett-Packard A9782A	PCI-x 2Gb Fibre Channel Adapter
IBM iSeries FC 0612	Linux Direct Attachment (PCI Fibre Channel Disk Controller)
IBM iSeries FC 0626	Linux Direct Attachment (PCI-X Fibre Channel Disk Controller)
IBM iSeries FC 2766	PCI Fibre Channel Disk Controller
IBM iSeries FC 2787	PCI-X Fibre Channel Disk Controller
IBM Netfinity P/N 19K1246	Netfinity FAStT FC2/66 Fibre Channel Adapter
IBM Netfinity P/N 24P0960	Netfinity FAStT FC2/133 Fibre Channel Adapter
IBM pSeries FC 5716	Fibre Channel Adapter 64-bit for PCI-x Bus (2 Gb)
IBM pSeries FC 6228	Fibre Channel Adapter 64-Bit for PCI Bus (2Gb)
IBM pSeries FC 6239	Fibre Channel Adapter 64-bit for PCI Bus (2Gb)
IBM zSeries FC 3319	FICON Express2 LX
IBM zSeries FC 3320	FICON Express2 SX
QLogic QLA2310F	66MHz PCI-X Fibre Channel Adapter
QLogic QLA2310FL	66MHz PCI-X Fibre Channel Adapter (low profile)
QLogic QLA2340/L	133MHz PCI-X Fibre Channel Adapter (low profile)
QLogic QLA2342/L	133MHz PCI-X Fibre Channel Adapter (two ports; low profile)
SGI PCI-FC-1P-OPT	Optical SW 1GB Fibre Channel Adapter
SGI PCI-FC-1P-OPT-A	Optical SW 1GB Fibre Channel Adapter
SGI PCI-FC-1POPT-B	Optical SW 2 GB Fibre Channel Adapter

Table 8: Fibre Channel Host Adapters (cont.)

Adapter	Description
SGI PCX-FC-2POPT-B	Optical SW 2GB Fibre Channel Adapter (two ports)
StorageWorks KGPSA-CA	64-bit / 33 MHz PCI-to-Fibre Channel Host Bus Adapter
StorageWorks KGPSA-DA	64-bit / 66MHz PCI 2Gb Fibre Channel Adapter
StorageWorks KGPSA-EA	PCI-x 2Gb Fibre Channel Adapter
Sun 6727A	64-Bit PCI-to-Fibre Channel Adapter (33MHz or 66 MHz) (dual port)
Sun 6757A	25 MHz SBus Fibre Channel Adapter (dual port)
Sun 6767A (SG-XPCI1FC-QF2)	66MHz PCI-X 2Gb Fibre Channel Adapter
Sun 6768A (SG-XPCI2FC-QF2)	133MHz PCI-X 2Gb Fibre Channel Adapter (two ports; low profile)
Sun 6799A	64-Bit PCI-to-Fibre Channel Adapter (33MHz or 66 MHz)

APPENDIX C: SAN FABRIC PRODUCTS

Fibre Channel / FICON Intermix

The DS6000 series supports Fibre Channel / FICON intermix. With intermix both FCP (Fibre Channel Protocol) and FICON upper level protocols can be supported within the same director when deployed independently by port.

For specific support, implementation details and operational information for using intermix refer to the Fibre Channel Director websites.

Table 9: SAN Fabric Products

Product	IBM Machine Type and Model or Part Number	Description
Cisco MDS 9120	IBM 2061 Model 020	Cisco 9120 Multilayer Fabric Switch (2Gb, 20-port)
Cisco MDS 9140	IBM 2061 Model 040	Cisco 9140 Multilayer Fabric Switch (2Gb, 40-port)
Cisco MDS 9216	IBM 2062 Model D01	Cisco 9216 Multilayer Fabric Switch (2Gb, 48-port)
Cisco MDS 9216A		Cisco 9216A Multilayer Fabric Switch (2Gb, multi-port)
Cisco MDS 9216I		Cisco 9216I Multilayer Fabric Switch (2Gb, multi-port)
Cisco MDS 9506	IBM 2062 Models D04 / T04	Cisco 9506 Multilayer Director (2Gb, 128-port)
Cisco MDS 9509	IBM 2062 Models D07 / T07	Cisco 9509 Multilayer Director (2Gb, 224-port)
CNT (INRANGE) FC/9000-64	IBM 2042 Model 001	CNT (INRANGE) FC/9000 Fibre Channel Director (2Gb, 64-port)
CNT (INRANGE) FC/9000-128	IBM 2042 Model 128	CNT (INRANGE) FC/9000 Fibre Channel Director (2Gb, 128-port)
CNT (INRANGE) FC/9000-256	IBM 2042 Model 256	CNT (INRANGE) FC/9000 Fibre Channel Director (2Gb, 256-port)
CNT UMD	IBM 2042 Model N16	CNT Ultranet Multi-service Director (2Gb, 256-port)
IBM 2005 Model B32	P/N2005B32	IBM TotalStorage SAN32B-2 (4Gb, 32-port)
IBM 2005 Model H08	P/N 2005H08	IBM TotalStorage SAN Switch H08 (2Gb, 8-port)
IBM 2005 Model H16	P/N 2005H16	IBM TotalStorage SAN Switch H16 (2Gb, 16-port)
IBM 2026 Model 224	P/N 2026224	IBM TotalStorage SAN24M-1 (2Gb, 24-port)
IBM 2026 Model E12		IBM TotalStorage SAN12 (2Gb, 124-port)
IBM 2027 Model 140	P/N 2027140	IBM TotalStorage SAN140M (2Gb, 140-port)
IBM 2027 Model 232	P/N 2027232	IBM TotalStorage SAN32M-1 (2Gb, 32-port)
IBM 2045 Model N16	P/N 2045N16	IBM TotalStorage SAN256N (2Gb, 256-port)
IBM 2109 Model F16	P/N 2109F16	IBM TotalStorage SAN Switch F16 (2Gb, 16-port)
IBM 2109 Model F32	P/N 2109F32	IBM TotalStorage SAN Switch F32 (2Gb, 32-port)
IBM 2109 Model M12	P/N 2109M12	IBM TotalStorage SAN Switch M12 (2Gb, 64-port)
IBM 2109 Model M14	P/N 2109M14	IBM TotalStorage SAN Switch M14 (2Gb, 128-port)
IBM 2109 Model S08	P/N 2109S08	IBM TotalStorage SAN Switch S08 (1Gb, 8-port)
IBM 2109 Model S16	P/N 2109S16	IBM TotalStorage SAN Switch S16 (1Gb, 16-port)
IBM 3534 Model F08	P/N 3534F08	IBM TotalStorage SAN Switch F08 (2Gb, 8-port)
IBM eServer BladeCenter	P/N 48P7062	BladeCenter 2 Pt Fibre Channel Switch Module
IBM eServer BladeCenter	P/N 02R9080	BladeCenter HS20 Optical Pass Thru Module
IBM eServer BladeCenter	P/N 90P0165	BladeCenter Internal Brocade Switch
McDATA ES-3016	IBM 2031 Model 016	McDATA ES-3016 Fabric Switch (1Gb, 16-port)
McDATA ES-3032	IBM 2031 Model 032	McDATA ES-3016 Fabric Switch (1Gb, 32-port)
McDATA Sphereon 3216	IBM 2031 Model 216	McDATA Sphereon 3216 Fabric Switch (2Gb, 16-port)
McDATA Sphereon 3232	IBM 2031 Model 232	McDATA Sphereon 3232 Fabric Switch (2Gb, 32-port)

Table 9: SAN Fabric Products (cont.)

Product	IBM Machine Type and Model or Part Number	Description
McDATA Sphereon 4300	IBM 2034 Model 212	McDATA Sphereon 4300 Fabric Switch (2Gb, 12-port)
McDATA Sphereon 4500	IBM 2031 Model 224	McDATA Sphereon 4500 Fabric Switch (2Gb, 24-port)
McDATA ED-5000	IBM 2032 Model 001	McDATA ED-5000 Fibre Channel Director
McDATA Intrepid 6064	IBM 2032 Model 064	McDATA Intrepid 6064 Director (2Gb, 64-port)
McDATA Intrepid 6140	IBM 2032 Model 140	McDATA Intrepid 6140 Director (2Gb, 140-port)

APPENDIX D: REVISION HISTORY

June 30, 2005

This version is dated June 30, 2005 and has been updated as noted below. It replaces the version dated May 27, 2005. Unless stated otherwise, these items require DS6000 LMC level 5.0.0, or later.

General

- Support is delayed for VERITAS Volume Manager on all Linux operating systems

Operating Systems, Path Management, and Clustering

- DS CLI support available for HP OpenVMS and HP Tru64 UNIX
- DS CLI support available for Intel Linux SuSE SLES 9
- GPFS 2.3 and RVSD 4.1 support on pSeries and RS/6000 SP servers
- IBM pSeries AIX support for VERITAS Volume Manager and Cluster Server
- Sun Solaris 10
- TruCluster support available on HP Tru64 UNIX

Servers

- Hewlett Packard AlphaServer ES80 and GS 1280 (HP OpenVMS and HP Tru64 UNIX)
- IBM xSeries 366 (Windows, Linux, NetWare)
- IBM xSeries 460 (Windows)

May 27, 2005

Unless stated otherwise, these items require DS6000 LMC level 5.0.0, or later.

General

- DS CLI support on iSeries platforms running Copy Services now available

SAN Fabric

- zSeries FCP support for Cisco MDS 9216, 9216A, 9216I, 9506, and 9509
- zSeries FICON support for IBM Model F32

Host Adapters

- IBM pSeries FC 1977

Operating Systems, Path Management, and Clustering

- IBM Virtual I/O Server (pSeries)
- VMware ESX 2.5.1
- zSeries Linux SLES 8 (FICON)
- zSeries Red Hat Linux 3.0 (FICON)

Channel Extension and Network Connectivity

- CNT UltraNet Storage Director-eXtended (FCP support)

April 29, 2005

Unless stated otherwise, these items require DS6000 LMC level 5.0.0, or later.

General

- Planned availability date change for selected DS6000 series interoperability support:
 - Global Mirror (May 27, 2005)
- Hewlett Packard OpenVMS interoperability now available
- Hewlett Packard Tru64 UNIX interoperability now available
- IBM 2005 Model B32 interoperability now available
- Intel Linux with VERITAS Volume Manager and Cluster Server interoperability now available
- SGI Server interoperability now available
- Sun Servers with VERITAS Volume Manager with DMP now available
- zSeries Linux FCP interoperability now available.

SAN Fabric

- Cisco MDS 9216A and MDS 9216I
- BladeCenter P/N 26K5601 (Intel (Linux, Windows, and NetWare))

Servers

- pSeries eServer p5 model 510, and 710

Host Adapters

- FC0625 (iSeries)

Operating Systems, Path Management, and Clustering

- HP-UX support for PVLINKS, and MC/Serviceguard
- IBM TotalStorage Continuous Availability RPQ support (formerly called GDS)
- iSeries AIX 5.2 ML5
- Microsoft Volume Shadow (VSS) support
- Microsoft Virtual Disk Service (VDS) support
- SLES 9 SDD support (pSeries, Intel (Linux))
- zSeries FCP z/VM Version 4 Release 4

March 25, 2005

Unless stated otherwise, these items require DS6000 LMC level 5.0.0, or later.

General

- Planned availability date change for selected DS6000 series interoperability support:
 - Hewlett Packard OpenVMS (April 29, 2005)
- Metro Mirror between DS6000 series and DS8000 series systems now available.

SAN Fabric

- IBM 2026 Model E12 (HP-UX, iSeries, pSeries, RS/6000 SP, Intel (Linux, NetWare, VMware, Windows) Sun)

Servers

- Sun Fire Servers V490 and V890

Operating Systems, Path Management, and Clustering

- SuSE SLES 9 (iSeries, pSeries, Intel (Linux))
- zSeries z/VSE Version 3 Release 1

March 14, 2005

Unless stated otherwise, these items require DS6000 LMC level 5.0.0, or later.

General

- Planned availability date changes for selected DS6000 series interoperability support:
 - Intel NetWare (February 25, 2005)
 - Intel Linux support for VERITAS Volume Manager and VERITAS Cluster Server (April 29, 2005)
 - zSeries VSE support for FlashCopy (March 25, 2005)

February 25, 2005

Unless stated otherwise, these items require DS6000 LMC level 5.0.0, or later.

General

- RPQ support added for selected DS6000 series interoperability support:
 - Emulex host bus adapter (VMware)
 - IBM 2005 Model B32 SAN Fabric
 - VERITAS Volume Manager with DMP (Sun)

Servers

- IBM eServer Model 326 (Intel (Linux, and Windows))
- IBM xSeries Server Models 2xx, 3xx, and 4xx (Intel (Linux, NetWare, and Windows))

Adapters

- Netfinity / xSeries adapters: PN 19K1246 and PN 24P0960 (VMware)

Operating Systems, Path Management, and Clustering

- AIX 5.3: iSeries