



IBM SAN Fabric Interoperability Matrix

Storage area network (SAN)

Scalable, flexible storage infrastructure

IBM SAN products and solutions provide integrated Enterprise and SMB SAN solutions with multi-protocol local, campus, metropolitan and global storage networking.

CNT FC/9000 Fibre Channel Director 2042-001, 2042-128 and 2042-256 FICON & FCP IBM Storage and Server Interoperability Matrix

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Notes:

- 1 Recommended firmware level is **5.0.4**. The latest supported EM is **9.5.0**. Please call IBM for details.
- 2 FC/9000 Fibre Channel Director 2042-001, 2042-128 and 2042-256 (FICON and FCP) 1 & 2 Gbps must be at minimum firmware package 4.1.0.6 to support FCME and FWI modules and XFIO2 blade.
- 3 FC/9000 Fibre Channel Director 2 Gbps 2042-001 and 2042-128 (FICON and FCP) 256 capable minimum at firmware package 4.0.2 or 4.0.3 to support new XFIO2 blade.
- 4 FC/9000 Fibre Channel Director 2042-256 (FICON) and 2042-001 and 2042-128 (FICON and FCP 2 Gbps ready) 256 capable, minimum at firmware package 3.2.1 to support new FCME and FWI modules.
- 5 FC/9000 Fibre Channel Director 2042-001 and 2042-128 with FCM and FSW modules are supported with firmware package 3.0.2, firmware 3.0.5 (E-port addressing modes only) are recommended for both FCP and FICON.
- 6 FC/9000 1 Gbps Fibre Channel Director 2042-001, 2042-128 using FSW modules can be updated with the 4.3.0 codeset after replacing the FCM modules with FCME modules.
- 7 For items **2, 3 & 4** the recommended firmware level is 5.0.4. Please call IBM for details.
- 8 The latest supported EM is 9.5.0.
- 9 The FC/9000 directors at the minimum firmware version of 5.0.0 provide full interoperability with the CNT UltraNet Multi-service directors (UMD).
- 10 The minimum firmware level is 4.1.3 for iSeries (System i) support.
- 11 Intermixing FICON (with or without CUP) and FCP attachment on the same Director (1 & 2GB) requires ESS Licensed Internal Code (LIC) level 1.5.1 or later.
- 12 The minimum supported versions:
 - 1 HACMP 4.4
 - 2 PSSP/RVSD 3.2
 - 3 GPFS 1.3
- 13 FCP maximum fabric size tested is three inter-switch hops with four FC/9000 Directors.
- 14 Maximum of one longwave or extended longwave link inter-switch hop per fabric path.
- 15 Maximum of one hop is supported for FICON cascading. Minimum required firmware level 4.1.0.6.
- 16 Maximum of the two cascaded directors with FICON/FCP intermix is supported.
- 17 The 'Auto Sense Arbitrated Loop Enabled' box should be unchecked for all ports which are attached to the listed HP HBAs.
- 18 Information on the Coarse Wave Division Multiplex (CWDM) can be found at: http://www.ibm.com/common/ssi/rep_ca/4/897/ENUS103-354/ENUS103-354.PDF.
- 19 Technical support on SAN File System can be found at: [IBM TotalStorage support: SAN File System](#).
- 20 Technical support on SAN Volume Controller (SVC) can be found at: [IBM TotalStorage support: SAN Volume Controller](#).
- 21 Planned availability dates represent current estimates and are subject to change or withdrawal at any time without notice.

About this document:

This document lists interoperability environments and configurations for the IBM TotalStorage FC9000 SAN Director.

This document is for informational and planning purposes only and may change at any time. This version supersedes and replaces all previous versions.

Not all combinations created from interoperability 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 bus adapter and SAN fabric product combination) is a valid and supported configuration by each of the vendors whose products are included in the configuration.

What's New:

General

Re-branding for IBM eServer products: IBM system **z**, IBM System **p**, IBM System **i** and IBM System **x**

Fabric Support

FC 9000 FW level has been upgraded to recommended firmware level **5.04.00**

Enterprise Disk Systems Connectivity

Please see **IBM TotalStorage Enterprise Storage Server** [Interoperability Matrix](#) for Licensed Internal Code (LIC) level.

IBM System z9 109, zSeries z990, z900 and S/390 G5/G6

Description	Operating Systems	Additional Information
<p>IBM TotalStorage Enterprise Disk Systems</p> <p>IBM DS 8000 Family</p> <p>IBM DS 6000 Family</p> <p>IBM 2105 Model</p> <ul style="list-style-type: none"> • 750 • 800 • F10/F20 	<p>IBM z/OS level 1.6 or later</p> <p>FICON, FICON Express or FICON Express 2 Channel:</p> <p>Longwave: G5/G6:</p> <ul style="list-style-type: none"> • FC-2314 • FC-2315 • FC-2319 <p>System z9:</p> <ul style="list-style-type: none"> • FC-2319 • FC-3319 <p>Shortwave: G5/G6:</p> <ul style="list-style-type: none"> • FC-2316 • FC-2318 • FC-2320 <p>System z9:</p> <ul style="list-style-type: none"> • FC-2320 • FC-3320 	<p>Supported.</p> <p>IBM TotalStorage DS8000 Interoperability Guide</p> <p>IBM TotalStorage DS6000 Interoperability Guide</p> <p>IBM TotalStorage Enterprise Storage Server Interoperability Matrix</p> <p>z9 and System z I/O Connectivity</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

IBM [System z](#) Servers Models z800, z890, z900 and z990

Description	Operating Systems	Additional Information
<p>IBM TotalStorage Enterprise Disk Systems</p> <p>IBM DS 8000 Family</p> <p>IBM DS 6000 Family</p> <p>IBM 2105 Model</p> <ul style="list-style-type: none"> • 750 • 800 • F10/F20 	<p>Linux on IBM System z</p> <ul style="list-style-type: none"> • SuSE • TurboLinux • RedHat <p>Longwave</p> <ul style="list-style-type: none"> • FC 2315 • FC 2319 <p>Shortwave</p> <ul style="list-style-type: none"> • FC 2318 • FC 2320 	<p>Supported.</p> <p>z9 and System z I/O Connectivity</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p>

IBM [System p](#) , RS/6000 Servers and RS6000 SP

Description	Operating Systems	Additional Information
<p>IBM TotalStorage Enterprise Disk Systems</p> <p>IBM DS 8000 Family</p> <p>IBM DS 6000 Family</p> <p>IBM 2105 Model</p> <ul style="list-style-type: none"> • 750 • 800 • F10/F20 	<p>AIX</p> <ul style="list-style-type: none"> • Version 4 <ul style="list-style-type: none"> • 4.3.3 ¹ • 5L <ul style="list-style-type: none"> • Version 5.1 • Version 5.2 • Version 5.3 <p>HACMP ²</p>	<p>Supported.</p> <p>IBM System p5 Technical Support Reference</p> <p>IBM TotalStorage DS8000 Interoperability Guide</p> <p>IBM TotalStorage DS6000 Interoperability Guide</p> <p>IBM TotalStorage Enterprise Storage Server</p> <p>Interoperability Matrix</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>
	<p>SuSE Linux Enterprise Server</p> <ul style="list-style-type: none"> • SLES 8 • SLES 9 <p>RedHat Enterprise Linux</p> <ul style="list-style-type: none"> • RHEL 3 • RHEL 4 	<p>Supported.</p>

¹ AIX 4.3.3 supported only on EOS 6.1 Build 18 or earlier.

² See **ESS** Interoperability matrix for **AIX, HACMP, PSSP, and SDD** support information.

IBM [System i](#) Servers

Description	Platform/Operating Systems	Additional Information
<p>IBM TotalStorage Enterprise Disk Systems</p> <p>IBM DS 8000 Family</p> <p>IBM DS 6000 Family</p> <p>IBM 2105 Model</p> <ul style="list-style-type: none"> • 750 • 800 • F10/F20 	<p>IBM System i Models</p> <p>OS/400</p> <ul style="list-style-type: none"> • V5R2 or later. <p>I5/OS</p> <ul style="list-style-type: none"> • V5R3, V5R4 	<p>IBM System i Support information</p> <p>IBM TotalStorage DS8000 Interoperability Guide</p> <p>IBM TotalStorage DS6000 Interoperability Guide</p> <p>IBM TotalStorage Enterprise Storage Server Interoperability Matrix</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

IBM [System x](#) and other Intel-based Servers

Description	Operating Systems	Additional Information
<p>IBM TotalStorage Enterprise Disk Systems</p> <p>IBM DS 8000 Family</p> <p>IBM DS 6000 Family</p> <p>IBM 2105 Model</p> <ul style="list-style-type: none"> • 750 • 800 • F10/F20 	<p>Microsoft Windows 2000</p> <ul style="list-style-type: none"> • Server • Advanced Server <p>Microsoft Windows 2003</p> <ul style="list-style-type: none"> • Standard Edition • Enterprise Edition 	<p>IBM System x Product Reference</p> <p>IBM TotalStorage DS8000 Interoperability Guide</p> <p>IBM TotalStorage DS6000 Interoperability Guide</p> <p>IBM TotalStorage Enterprise Storage Server Interoperability Matrix</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>IBM Server Proven interoperability Matrix IBM eServer Blade Center</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>
	<p>Novell Netware</p> <ul style="list-style-type: none"> • 5.1 • 6.0 • 6.5 	Supported.
	<p>Red Hat Linux Advanced Server 3.0</p> <p>SuSE Linux Enterprise Server</p> <ul style="list-style-type: none"> • SLES 8 • SLES 9 	Supported.

SUN Microsystems Servers

Description	Operating Systems	Additional Information
<p>IBM TotalStorage Enterprise Disk Systems</p> <p>IBM DS 8000 Family</p> <p>IBM DS 6000 Family</p> <p>IBM 2105 Model</p> <ul style="list-style-type: none"> • 750 • 800 • F10/F20 	<p>Solaris</p> <ul style="list-style-type: none"> • 8 • 9 • 10 	<p>Supported.</p> <p>IBM TotalStorage DS8000 Interoperability Guide</p> <p>IBM TotalStorage DS6000 Interoperability Guide</p> <p>IBM TotalStorage Enterprise Storage Server Interoperability Matrix</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

Hewlett-Packard Servers

Description	Operating Systems	Additional Information
<p>IBM TotalStorage Enterprise Disk Systems</p> <p>IBM DS 8000 Family</p> <p>IBM DS 6000 Family</p> <p>IBM 2105 Model</p> <ul style="list-style-type: none"> • 750 • 800 • F10/F20 	<p>HP-UX</p> <ul style="list-style-type: none"> • 11.0 • 11i • 11i v2 	<p>Supported.</p> <p>IBM TotalStorage DS8000 Interoperability Guide</p> <p>IBM TotalStorage DS6000 Interoperability Guide</p> <p>IBM TotalStorage Enterprise Storage Server Interoperability Matrix</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p>

DS4000 Series Connectivity

- 1 We do not recommend attaching the **IBM DS4000 Series (FAStT)** on the same Intel server as the **TotalStorage Enterprise Storage Server**. Both devices may be attached to the same director.

- 2 For the most current supported **HACMP, PSSP, GPFS/RVSD** configurations see the **important notices and readme** posted on:
<http://www.ibm.com/servers/storage/disk/ds4000/pdf/interop-matrix.pdf>

IBM System p, RS/6000 and RS/6000 SP Servers

Description	Operating Systems	Additional Information
IBM TotalStorage Storage Servers <ul style="list-style-type: none"> • <u>DS4000</u> Series • <u>FAStT</u> <ul style="list-style-type: none"> • Dual Controller • Turbo 	AIX <ul style="list-style-type: none"> • 5L <ul style="list-style-type: none"> • Version 5.1 • Version 5.2 • Version 5.3 High Availability Cluster MultiProcessing <u>HACMP</u>, PSSP	IBM TotalStorage <u>DS4000</u> Storage Interoperability Matrix Fibre Channel <u>Host Bus Adapter</u> firmware and driver level matrix. For additional information visit the McDATA <u>FileCenter</u> at http://www.mcdata.com Refer to Page 4 NOTES for current supported McDATA firmware level(s)
	SuSE Linux Enterprise Server <ul style="list-style-type: none"> • SLES 8 • SLES 9 	

IBM [System x](#) and other Intel-based Servers

Description	Operating Systems	Additional Information
IBM TotalStorage Storage Servers <ul style="list-style-type: none"> • DS4000 Series • FASTT <ul style="list-style-type: none"> • Dual Controller • Single Controller • Turbo 	Microsoft Windows 2000 <ul style="list-style-type: none"> • Server • Advanced Server Microsoft Windows 2003 <ul style="list-style-type: none"> • Standard Edition • Enterprise Edition • Web Edition 	IBM TotalStorage DS4000 Storage Interoperability Matrix Fibre Channel Host Bus Adapter firmware and driver level matrix. For additional information visit the McDATA FileCenter at http://www.mcdata.com Refer to Page 4 NOTES for current supported McDATA firmware level(s)
	Novell Netware <ul style="list-style-type: none"> • 6.0 • 6.5 	Supported
	Red Hat Enterprise Linux <ul style="list-style-type: none"> • 3.0 • 4.0 SuSE Linux Enterprise Server <ul style="list-style-type: none"> • SLES 8 • SLES 9 	Supported

SUN Microsystems Servers

Description	Operating Systems	Additional Information
<p>IBM TotalStorage Storage Servers</p> <ul style="list-style-type: none"> • DS4000 Series • FAST <ul style="list-style-type: none"> • Dual Controller • Single Controller • Turbo 	<p>Solaris</p> <ul style="list-style-type: none"> • 8 • 9 • 10 	<p>Supported.</p> <p>IBM TotalStorage DS4000 Storage Interoperability Matrix</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

Hewlett-Packard Servers

Description	Operating Systems	Additional Information
<p>IBM TotalStorage Storage Servers</p> <ul style="list-style-type: none"> • DS4000 Series • FAST <ul style="list-style-type: none"> • Dual Controller • Single Controller • Turbo 	<p>HP-UX</p> <ul style="list-style-type: none"> • 11.0 • 11i • 11i V2 	<p>Supported.</p> <p>IBM TotalStorage DS4000 Storage Interoperability Matrix</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

[TAPE Connectivity](#)

IBM [System z](#) and [System z9](#)

Description	Operating Systems	Additional Information
<p>Enterprise Tape Controller Model J70: * TS1120 Tape Drive * 3590 * 3592</p> <p>TS3500 Tape Library with 3953 Tape System and 3592 J1A and TS1120 Tape Drives</p> <p>3494 Virtual Tape Server (VTS)</p> <p>3494 Enterprise Tape Library</p>	<p>IBM z/OS level 1.6 or later</p> <p>FICON, FICON Express or FICON Express 2</p> <p>Channel:</p> <p>Longwave: G5/G6:</p> <ul style="list-style-type: none"> • FC-2314 • FC-2315 <p>z9 109</p> <ul style="list-style-type: none"> • FC-2319 • FC-3319 <p>Shortwave: G5/G6:</p> <ul style="list-style-type: none"> • FC-2316 • FC-2318 <p>z9 109</p> <ul style="list-style-type: none"> • FC-2320 • FC-3320 	<p>Supported.</p> <p>IBM TotalStorage™ Enterprise</p> <p>Tape Storage for System z</p> <p>VTS Switch Support FAQ</p> <p>J70 Switch Support Matrix</p> <p>z9 and System z I/O Connectivity</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

IBM [System p](#), RS/6000 and RS/6000 SP Servers

Description	Operating Systems	Additional Information
<p>IBM Systems Storage Enterprise Tape Systems</p> <ul style="list-style-type: none"> • TS1120 Tape Drive • TS3500 Tape Library • TS7510 Virtualization Engine • 3494 Tape Library • 3952 Tape Drive • 3590 Tape Drive <p>Midrange Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • TS3200 Tape Library • TS3310 Tape Library • TS1120 Tape Drive • 3582 Tape Library • 3583 Tape Library • 3584 Tape Library • TS3500 Tape Library • TS7510 Virtualization Engine <p>Entry Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • TS3200 Tape Library • 3581 Tape Autoloader 	<p>AIX</p> <ul style="list-style-type: none"> • 5L <ul style="list-style-type: none"> • Version 5.1 • Version 5.2 • Version 5.3 <p>SuSE Linux Enterprise</p> <ul style="list-style-type: none"> • SLES 8 • SLES 9 <p>RedHat Enterprise Linux</p> <ul style="list-style-type: none"> • RHEL 3 • RHEL 4 	<p>Available System p Tape Support</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

(FC-AL) Fibre channel – arbitrated loop drives require using SAN16M-2, SAN32M-2, SAN12M-1, SAN24M-1, McDATA ES-4300 or McDATA ES-4500 attachment.

IBM **System i** Servers

Description	Platform/Operating Systems	Additional Information
<p>IBM Systems Storage</p> <p>Enterprise Tape Systems</p> <ul style="list-style-type: none"> • TS1120 Tape Drive • TS3500 Tape Library <p>Midrange Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • TS3310 Tape Library • TS3500 Tape Library • TS1120 Tape Drive <p>Entry Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • 3581 Tape Autoloader 	<p>IBM System i Models</p> <p>OS/400</p> <ul style="list-style-type: none"> • V5R2 or later. <p>I5/OS</p> <ul style="list-style-type: none"> • V5R3 • V5R4 	<p>Supported</p> <p>System i Tape Drive Support Information</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>System i SAN information</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

(FC-AL) Fibre channel – Arbitrated loop attachment requires using the SAN16M-2, SAN32M-2, SAN12M-1, SAN24M-1, McDATA ES-4300 or McDATA ES-4500

IBM [System x](#) and other Intel-based Servers

Description	Operating Systems	Additional Information
<p>IBM Systems Storage Enterprise Tape Systems</p> <ul style="list-style-type: none"> • TS1120 Tape Drive • TS3500 Tape Library • TS1120 Tape Drive • 3494 Tape Library • 3952 Tape Drive • 3590 Tape Drive <p>Midrange Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • TS3310 Tape Library • TS1120 Tape Drive • TS7510 Virtualization Engine • 3582 Tape Library (LTO) • 3583 Tape Library • 3584 Tape Library <p>Entry Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • 3581 Tape Autoloader 	<p>Microsoft Windows 2000</p> <ul style="list-style-type: none"> • Server • Advanced Server • Datacenter Server <p>Microsoft Windows 2003 Server</p> <ul style="list-style-type: none"> • Standard Edition • Enterprise Edition • Datacenter Edition • Web Edition <p>Red Hat Enterprise Linux</p> <ul style="list-style-type: none"> • RHEL 3.0 • RHEL 4.0 <p>SuSE Linux Enterprise Server</p> <ul style="list-style-type: none"> • SLES 8 • SLES 9 	<p>Supported</p> <p>IBM TotalStorage Tape Products for System x</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p> <p>Supported</p> <p>Supported</p>

(FC-AL) Fibre channel –Arbitrated Loop requires drives require using the SAN16M-2, SAN32M-2, SAN12M-1, SAN24M-1, McDATA ES-4300 or McDATA ES-4500

SUN Microsystems Servers

Description	Operating Systems	Additional Information
<p>IBM Systems Storage Enterprise Tape Systems</p> <ul style="list-style-type: none"> • TS1120 Tape Drive • TS3500 Tape Library • TS7510 Virtualization Engine • 3494 Tape Library • 3952 Tape Drive • 3590 Tape Drive <p>Midrange Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • TS3200 Tape Library • TS3310 Tape Library • TS1120 Tape Drive • 3582 Tape Library • 3583 Tape Library • 3584 Tape Library • TS3500 Tape Library • TS7510 Virtualization Engine <p>Entry Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • TS3200 Tape Library • 3581 Tape Autoloader 	<p>Solaris</p> <ul style="list-style-type: none"> • 8 • 9 • 10 	<p>Supported</p> <p>IBM TotalStorage Tape Products Information</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

(n) [Refer to Page 4 NOTES for current supported McDATA firmware level\(s\)](#)

(FC-AL) Fibre Channel - Arbitrated Loop drives require using the SAN16M-2, SAN32M-2, SAN12M-1, SAN24M-1, McDATA ES-4300 or McDATA ES-4500

Hewlett-Packard Servers

Description	Operating Systems	Additional Information
<p>IBM Systems Storage Enterprise Tape Systems</p> <ul style="list-style-type: none"> • TS1120 Tape Drive • TS3500 Tape Library • TS7510 Virtualization Engine • 3494 Tape Library • 3952 Tape Drive • 3590 Tape Drive <p>Midrange Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • TS3200 Tape Library • TS3310 Tape Library • TS1120 Tape Drive • 3582 Tape Library • 3583 Tape Library • 3584 Tape Library • TS3500 Tape Library • TS7510 Virtualization Engine <p>Entry Tape Systems</p> <ul style="list-style-type: none"> • TS3100 Tape Library Express • TS3200 Tape Library • 3581 Tape Autoloader 	<p>HP-UX</p> <ul style="list-style-type: none"> • 11.0 • 11i • 11i v2 	<p>Supported</p> <p>IBM TotalStorage Tape Products Information</p> <p>Fibre Channel Host Bus Adapter firmware and driver level matrix.</p> <p>For additional information visit the McDATA FileCenter at http://www.mcdata.com</p> <p>For specific device driver details and restrictions please see the readme file.</p> <p>Refer to Page 4 NOTES for current supported McDATA firmware level(s)</p>

(FC-AL) Fibre Channel - Arbitrated Loop drives require using the SAN16M-2, SAN32M-2, SAN12M-1, SAN24M-1, McDATA ES-4300 or McDATA ES-4500

FICON and FCP InterMix Support Statement

FCP fabric zoning and FICON connectivity control must be properly managed to permit both protocols to intermix in the same director(s). Intermix traffic is supported.

Neither FICON Management Server nor the FCP zone management software provides the capability to manage both protocols. The user must be aware that separate management servers are required to properly manage a FICON / FCP Intermix environment, and the system administrator must be alert to which ports are assigned to the FICON zone and which are assigned to FCP zone(s). Multiple FCP zones are permitted.

NETWORK ATTACHED STORAGE ([NAS](#))

IBM System Storage N Series

IBM TotalStorage SAN256M (2027-256) and SAN140M Directors (2027 Model 140) interoperable with IBM Network Attached Storage products.

- IBM System Storage N5200, N5500
- IBM System Storage N3700
- IBM System Storage N series Software
- IBM System Storage N series Solutions

[Additional information on Network Attached Storage interoperability](#)

IBM TotalStorage SAN Volume Controller ([SVC](#))

Technical support on **SAN Volume Controller (SVC)** can be found at:

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

IBM [BladeCenter](#) Connectivity

[BladeCenter Product Reference](#)

Description	Blade Switch Module Firmware	SAN Director / Switch Firmware Level Operation Mode
IBM BladeCenter Optical Pass-thru Module	n/a	05.04.00
Qlogic 2-port FC Switch Module	2.0.1.09	05.04.00
Qlogic 6-port FC Switch Module 4Gb Support	5.2.0.7 5.5.0.22	05.04.00
Qlogic 10-port FC Switch Module 4Gb Support	5.5.0.22	05.04.00
Qlogic 20-port FC Switch Module 4Gb Support	5.5.0.22	05.04.00
McData 6-port FC Switch Module 2Gb Support	5.5	<i>Not Supported</i>
McData 10-port FC Switch Module 4Gb Support	5.5	<i>Not Supported</i>
McData 20-port FC Switch Module 4Gb Support	5.5	<i>Not Supported</i>
Brocade 10-port FC Switch Module (32R1813)	5.0.3a, 5.0.2 4.4.1a and 4.2.1	<i>Not Supported</i>
Brocade 20-port FC Switch Module (32R1812)	5.0.3a, 5.0.2 4.4.1a and 4.2.1	<i>Not Supported</i>
Brocade Enterprise FC Switch Module (90P0165)	5.0.3a	<i>Not Supported</i>
Brocade Entry FC Switch Module (26K5601)	5.0.3a	<i>Not Supported</i>

Information on interoperability and Technical support on can be found at:
[IBM Server Proven Blade Center](#)

Switch Parameters

Operating Modes:

- Open Mode - passes FICON traffic, no CUP, passes Open traffic, no allow/prohibit matrix
- FICON Mode - passes FICON traffic, CUP, passes Open traffic, allow/prohibit matrix

Fabric Modes:

- Open Fabric - cascades to other vendor's switches, no port zoning

Port Control:

- Soft Zoning – used in both Open Mode and FICON Mode for Soft Zoning
- Allow/Prohibit Matrix – FICON Mode only, hard zoning
- Port Blocking – available in both Open and FICON modes
- Port Swapping – Supported only in FICON mode
- Default Zone – Available in native Fabric Mode

Configuration Parameters

Maximum Serially Cascaded “Hops”

- FICON - 2 switches, 1 “Hop”
- Open - 4 switches, 3 Hops

Maximum number of switches in the fabric

- 24 switches, 3 hops max

Distance

- ISL's – ISLs can be shortwave or longwave

FICON Devices

- DASD – ESS, DS8000 and DS6000
- Tapes - with J70 Control Unit
- Printer – 3170 Advanced Function Printer

FICON Systems

- G5/G6 – Non cascading FICON channels, no FCP
- Freeway/T-rex – Cascading, FICON/FCP channels Supported

Open System Devices

- DASD – ESS, DS8000, DS6000 and DS4000
- Tape – 3590, 3584, 3583 and 3582

Open System Hosts

- System **p** (Series **p**)
- System **i** (Series **i**)
- System **x** (Series **x**)
- Sun
- HP
- WINTEL (Windows 2000, Windows Server 2003, Linux, Novell)

Switch Management:

FICON connectivity is address centric, and requires a host resident program to manage port/device relationships between host and ESS storage.

FCP functions through fabric attachment and allows the host to query the switch Name Server to determine which storage devices are accessible.

EM – manages switch from special GUI application, manages both FICON and Open Mode
 CLI - manages only Open Systems
 Open System Management Mode (OSMS) – Used for SAN Management
 FICON Management Server – Used for CUP in conjunction with SA/390

Addressing Considerations:

FICON relies on address specific device communication. All port attributes are attached to the port address and a link is assigned between port address and port number (port address abstraction).

FCP relies on name centric (WWN) and fabric port zoning information for device communication. (Port abstraction is not possible for FCP management.)

Environment	DS 8000 DS 6000 Family	ESS Models 800 F10 / F20	ESCON	FICON
IBM zSeries and S/390 (zOS and OS/390)	Yes	Yes	Yes	Yes
IBM zSeries and S/390 (z/VM and VM/ESA)	Yes	Yes	Yes	Yes
IBM zSeries and S/390 (VSE/ESA)	Yes	Yes	Yes	Yes
IBM zSeries and S/390 (Linux for IBM System z; S/390)	Yes	Yes	Yes	
IBM zSeries and S/390 (TPF)	Yes	Yes	Yes	Yes