

### Overview

HP simplifies SANs by combining 8 Gbps Fibre Channel performance with a complete SAN management system. Your future is protected today with an infrastructure capable of supporting emerging technologies at today's 4 Gbps prices.

The HP StorageWorks 8Gb Simple SAN Connection portfolio makes installing your first SAN (or your hundredth) easy. An entire SAN may now be deployed in minutes. SAN novices and seasoned experts alike will appreciate the simplicity and power of the included Simple SAN Connection Manager (SSCM) software, working seamlessly with both HP StorageWorks Enterprise Virtual Arrays (EVA) and HP StorageWorks Modular Storage Arrays (MSA) to handle common cross-platform management and maintenance tasks quickly.

The 8Gb Simple SAN Connection Kit consists of an enterprise-class 8 Gbps switch, four 81Q HBAs, and SSCM - along with all the cables, 8 Gbps SFPs and documentation you need.

The 8Gb Simple SAN Connection portfolio offers enterprise-class functionality and value.

#### What's New:

Interoperability with HP StorageWorks B-series fabrics with the innovative Transparent Routing (TR) feature enables cost-effective SAN expansion with management simplicity at the remote site.

An 8-port standalone model is now available for the lowest cost of entry for small SAN deployment.

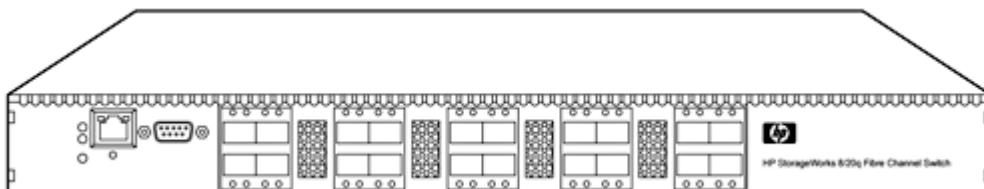
MSA2000fc and MSA2000fc G2 support enables wizard-based configuration and provisioning with the same user interface used for the EVA, HBAs and 8/20q switch. A single interface simplifies SAN configuration.

Application-based provisioning wizard enables automatic SAN configuration for typical Microsoft Exchange deployments and a custom template allows you to create your own 'best practices' wizards.

HP BladeSystem c-Class support added through connection support for the HP 4Gb Virtual Connect Fibre Channel Module, HP 4Gb Fibre Channel Pass-Thru Module, and QLogic and Emulex 4Gb mezzanine HBAs.

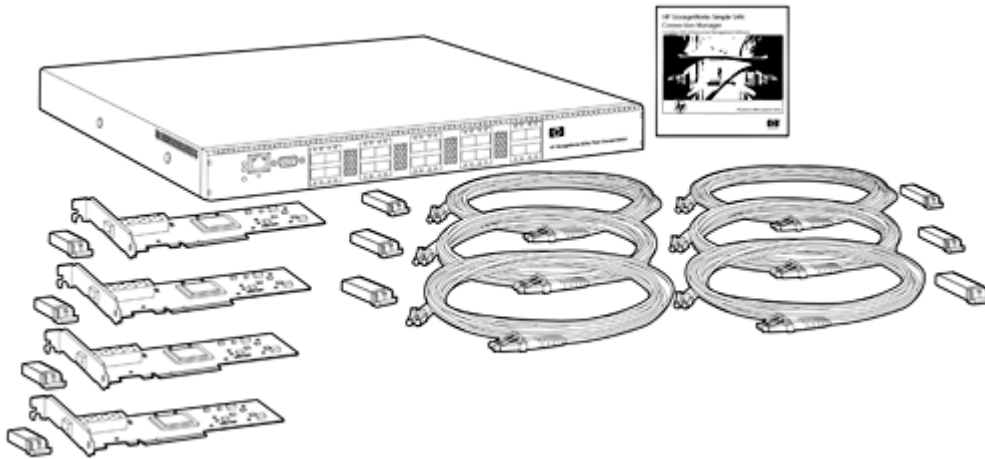
Next generation IPv6 support added - already a requirement for government and private enterprises.

HP Integrity servers are now supported connecting to the HP StorageWorks 8/20q Fibre Channel Switch with 2Gb and 4Gb HBA's.



HP StorageWorks 8/20q Fibre Channel Switch

### Overview



HP StorageWorks 8Gb Simple SAN Connection Kit

### Key Features and Benefits

- Today's performance at yesterday's prices:
  - High performance at affordable pricing - The future is within your reach today with state-of-the-art 8 Gbps Fibre Channel technology offering the bandwidth today that you will need for support of emerging technologies. 8 Gbps speed extends the useful life of your purchase. Migrate at your own pace.
  - Enterprise-class functionality - Powerful features such as Adaptive Trunking (optimizes fabric speed), drag-and-drop zoning, I/O StreamGuard (uninterrupted dataflow), automatic firmware notifications and downloads and non-disruptive upgrades give you the winning edge and help you get the most out of your SAN.
  - Integrated end-to-end management - No need to master separate interfaces to control HP switches, HBAs and storage. Configure and monitor them all from a convenient unified dashboard.
- Simplicity at its finest:
  - Ease of deployment - Setting up your first SAN is now fast, easy and fool-proof. Eliminate the risk of expensive configuration errors with point-and-click wizards. Ensure full optimization and "best practices" with minimal training and expertise.
  - Application-based wizards - Application-based wizard enables your SAN to be quickly and easily provisioned based on published best practices. Included is a Microsoft Exchange wizard sized for a variety of typical configurations as well as a custom template to create your own for fast deployment of other applications.
  - Aggressively priced bundle - Ordering and deploying your first SAN couldn't be any easier or a better value. The 8Gb Simple SAN Connection Kit includes everything required for a 4-host SAN infrastructure, including 8Gb HBAs, cables and SFPs--just add your choice of HP storage!
- Built with the future in mind:
  - Scalability - Start with an 8-port switch and as your needs change, simply expand via four-port license keys up to 20 ports per chassis. Then link additional switches to create a larger high-performance enterprise SAN of any topology.
  - Investment protection - Although the 8Gb Simple SAN Connection portfolio delivers 8 Gbps performance capabilities and a cross-platform GUI, it is priced competitively with 4 Gbps switches. On a "Cost per throughput" basis, its aggregate platform bandwidth of 320 Gbps makes it the price/performance leader in the market.
  - Long term value - Whether your needs involve email/database scalability, server/storage consolidation or automated backup/disaster recovery, an HP 8/20q Fibre Channel Switch can provide accelerated ROI for your company.
  - Interoperability with HP StorageWorks B-series fabrics using new Transparent Routing (TR) feature enables low cost SAN expansion with simplification of management at remote sites

### Models

HP StorageWorks 8/20q Fibre Channel Switch and 8Gb Simple SAN Connection Kit	HP StorageWorks 8/20q Fibre Channel Switch (8 switch ports active)	AQ233A*
	HP StorageWorks 8/20q Fibre Channel Switch (16 switch ports active)	AK242A*
	HP StorageWorks 8Gb Simple SAN Connection Kit (8 switch ports active)	AK241A
	HP StorageWorks 8/20q 4-port Upgrade LTU	T5463A

\*#0D1 may appear after this part number on your sales order when factory integration is indicated.

### Product Highlights

**Configuration support** The 8/20q Fibre Channel Switch will interoperate with other 8/20q Fibre Channel Switches running the firmware version defined in the SAN Design Guide:  
<http://www.hp.com/go/sandesignguide>

The 8/20q Fibre Channel Switch will also interoperate with HP StorageWorks B-series fabrics using Transparent Routing (TR) technology. For details and supported firmware versions, refer to the SAN Design Guide:  
<http://www.hp.com/go/sandesignguide>

---

**High-availability features**

- Hot-swappable 8 Gbps SFP+ optical transceivers
- Non-Disruptive Code Load and Activation (NDCLA)
- Non-Disruptive Port License Activation
- Two switches for redundancy

---

**Security features**

- User Security
  - User Accounts
  - RADIUS Authentication
- Connection security
  - SSH (CLI)
  - SSL (EFS and SMI-S)
- Device security
  - FC-SP DH-CHAP
  - FC-GS-4 CT Authentication

---

**Manageability**

- Simple SAN Connection Manager
- QuickTools
- Command Line Interface
- HP Systems Insight Manager
- SMI-S v1.1 provider
- GS-4 Management Server (including FDMI)
- SNMP
- FTP
- TFTP
- RADIUS

---

**Scalability**

- All topologies supported: cascade, ring, and mesh
- Supports up to six Inter-Switch links (ISLs) per switch
- Supports up to six switches in a fabric
- Adaptive trunking, intelligent path selection
- The 8/20q Fibre Channel Switch scales the maximum limits defined in the SAN Design Guide:  
<http://www.hp.com/go/sandesignguide>

---

**Cabinet Support**

- 22U, 36U, and 42U; 5000, 9000 and 10,000 series StorageWorks Cabinets

---

### Product Highlights

#### Disk Array Support

- HP StorageWorks MSA2000fc and MSA2000fc G2
- HP StorageWorks MSA1000 and MSA1500 (active/active failover only)
- HP StorageWorks EVA4400
- HP StorageWorks EVA4100, EVA6100, EVA8100
- HP StorageWorks EVA4000, EVA6000, EVA8000
- HP StorageWorks XP10000, XP20000, XP12000, XP24000\*

\* Simple SAN Connection Manager software does not support configuration or provisioning of XP storage; hardware connect support to the switch/HBA only at this time.

#### Server Support

- HP ProLiant ML, DL series servers
- HP Integrity servers
- HP BladeSystem c-Class ProLiant server blades
- HP BladeSystem c-Class Integrity server blades

#### Operating System Support

- Microsoft Windows Server 2008
- Microsoft Windows Server 2003 SP2 and R2
- Microsoft Windows Storage Server 2003
- VMware ESX v3.5 U1 and v3.5 U2
- Red Hat Enterprise Linux (RHEL) 4.5, 4.6, 5, 5.1, 5.2
- SUSE Linux Enterprise Server (SLES) 9 SP3 and SP4, 10 SP1 and SP2
- HP-UX 11.23, 11.31

For support details, see the SAN Design Guide: <http://www.hp.com/go/sandesignguide>

#### Enterprise Backup Support (EBS)

- MSL6000 with LTO4 drives
- MSL2024, MSL4048, and MSL8096 with LTO4 drives
- EML-e Series with LTO4 drives
- HP StorageWorks 6000 Virtual Library System
- HP StorageWorks 9000 Virtual Library System
- HP StorageWorks 12000 Virtual Library System EVA Gateway

### Software Components

**HP StorageWorks Simple SAN Connection Manager** Comprehensive SAN infrastructure lifecycle management software that includes configuration, management, and maintenance for switches, HBAs, and HP MSA/EVA storage in a single GUI. (included)

Features include:

- Topology views
- Drill-down device management
- Switch configuration
- HBA and storage drag-and-drop zoning administration
- EVA and MSA storage configuration and provisioning
- Application-based MSA/EVA setup and provisioning wizard for Microsoft Exchange deployment s and template for custom applications
- Automatic switch/HBA software/firmware update notifications and downloads for convenient upgrades
- Automatic EVA firmware notifications
- HBA failover configuration

### Product Highlights

- Event logs for switch & HBAs
- Change tracking
- Easy to follow software documentation

Simple SAN Connection Manager is supported on a management station running Microsoft Windows Server 2003 R2 SP2 or Microsoft Windows Storage Server 2003 R2 SP2.

#### System requirements:

- 512 MB memory
- 200 MB disk space
- 2.0 GHz processor
- CD ROM drive, Ethernet port
- JAVA Runtime Environment (JRE)
- Internet browser: Microsoft Internet Explorer, Netscape Navigator, or Mozilla Firefox

---

### QuickTools (included)

On-board graphical user interface allows administrators to access advanced switch management functionality using the switch's IP address.

### Service and Support, HP Care Pack, and Warranty Information

#### Warranty

(1-1-1) Hardware Warranty - One-year on-site warranty, normal business hours, next business day response, installation not included.

Software Warranty - HP warrants only that the software media will be free of physical defects for a period of ninety (90) days from delivery.

**NOTE:** During the warranty period HP will provide standard business hours, standard business days telephone support for firmware and embedded non-saleable software.

#### HP Care Pack Services

Scalable, Flexible, Dependable. Like your storage.

Your storage is evolving. Get scalable support that evolves with it. HP Care Pack Services is an easy-to-buy, easy-to-use portfolio of packaged services covering your lifecycle needs. You can rely on our highly skilled, HP certified professionals to offer a breadth of expertise across leading storage technologies, and work side by side with you for optimal results. Push services beyond expectations and choose support that meets the changing needs of your business with the same reliability, scalability and flexibility you demand of your storage.

Protect your business beyond the warranty

Standard warranty protects against product defects and some causes of downtime. HP Care Pack Services helps you proactively guard against unplanned downtime which can reduce your productivity and profitability. By using a standard approach to warranty uplifts, such as HP Care Pack Services, customers can be more sure of consistency of operations for both mission-critical and standard business computing.

Extending warranties with HP Care Pack Services

The key to normalizing the warranty of combined solutions-is making service uplift simple: HP Care Pack Services. This portfolio of predefined packages, extending across the entire IT lifecycle, offering consulting, education, technical support, optimization, risk assessment, and more. It's entirely flexible allowing customers to extend the cover to the precise level of support required. Customer's standard hardware warranty, for example, can be upgraded to next-business-day response, to same-day coverage, or even to a committed six-hour call-to-repair service available 24 hours every day of the week.

- Provide consistent, predictable levels of support across your entire department or business
- Give you direct access to proven technical and problem-solving expertise
- Offer a choice of response-time and repair-time commitments
- Are available whenever and wherever you do business

For many products, post-warranty HP Care Pack Services are available when your original warranty has expired. Choose the support levels that meet your business requirements, from basic to mission-critical.

<http://www.hp.com/hps/storage>

**NOTE:** Care Pack Services availability may vary by product and country.

### Service and Support, HP Care Pack, and Warranty Information

Recommended Services	<b>HP Care Pack Services recommended for optimal satisfaction of all deployments of your product.</b>			
	<b>3-Year HP Support Plus 24</b>	<p>24x7x365 hardware and software services - plus cost-saving software updates and more</p> <p>HP Support Plus 24 helps you increase performance and availability with comprehensive, consistent hardware and software services. Working with your IT team, HP Services engineers deliver onsite hardware support and over-the-phone software support around-the-clock 365 days per year. Service coverage encompasses HP products and selected multivendor hardware and software.</p> <p>In addition, this convenient HP Care Pack packaged service makes software updates available to you at substantial savings.</p> <p>Choose Support Plus 24 when you need to:</p> <ul style="list-style-type: none"> <li>Improve uptime with responsive hardware and software services available anytime</li> <li>Cost-effectively obtain expert 24x7 multivendor hardware and software support</li> <li>Enjoy consistent service coverage across geographically dispersed sites</li> <li>Update HP and selected third-party software at a predictable cost</li> <li>Take advantage of subscription savings on software updates</li> </ul>		
	<b>HP SAN Solution Service</b>	<p>Get your SAN implementation right - right from the start.</p> <p>Storage has become essential to the growth and agility of your business. That's why choosing an HP SAN as your data management solution is a smart business decision. But your SAN can deliver the results you need only if it is implemented correctly and integrated with your business.</p> <p>SAN installation, startup, and integration call for specialized expertise in planning and design, hardware configuration, network software installation, and operability verification. Your SAN needs to be configured for high performance and availability. And it needs to be integrated with your applications, management environment, and business processes.</p>		
<b>Product Number</b>	<b>Product Name</b>	<b>Service Name</b>	<b>Care Pack Services Product # and Band</b>	<b>Alternate Care Pack Services Product #</b>
AQ233A	HP StorageWorks 8/20q 8-port enabled FC Switch	3-Year HP Support Plus 24	HA110A3-6Z6	UH145E
-	-	HP SAN Solution Service	Contact your HP sales rep or Channel Partner for assistance	Contact your HP sales rep or Channel Partner for assistance

### Service and Support, HP Care Pack, and Warranty Information

Related Services	Services that will enhance the user experience in many product deployments.				
	3-Year HP Proactive 24	<p>HP Proactive 24 Service (P24) integrates hardware and software support to help you improve the stability and operational effectiveness of your IT environment. An HP Account Manager acts as your primary point of contact to ensure that HP meets your support needs effectively.</p> <p>P24 provides the maximum value when multiple technologies in the environment (e.g. servers, storage, SAN and the network), are all covered. It provides an environment-wide view and consistent support of all of these components which affect stability of your key applications.</p> <p>Choose P24 when you want to:</p> <ul style="list-style-type: none"> <li>● enhance operational effectiveness with proactive problem identification and recommendations from HP</li> <li>● partner with technical experts who help coordinate support, provide hands-on assistance, and share knowledge with your staff</li> <li>● rapidly access support and expertise spanning your environment</li> <li>● obtain personalized services tailored to your business environment and critical success factors</li> <li>● anticipate necessary change - and execute it correctly the first time</li> <li>● efficiently manage infrastructure resources to meet your performance objectives</li> </ul>			
HP Assessment Service for SANs	<p>The HP Assessment Service for SANs offers customized technical and operational guidance to customers employing HP storage subsystems and the interconnecting storage area network (SAN) infrastructure. In a typical engagement, HP or one of our authorized business partners will perform a detailed discovery using HP's proprietary toolset to gain an understanding of the configuration of your storage devices and SAN topology. The findings from this process will be compared to HP best practices and industry standards as defined by IT Service Management (ITSM) disciplines. The results of the evaluation will be quickly and efficiently processed into information you can leverage. This information, in the form of a comprehensive HP SAN Assessment report, will be summarized by HP or one of our authorized business partners with recommendations that are intended to improve availability levels and ongoing management of your storage and SAN environment.</p>				
	<b>Product Number</b>	<b>Product Name</b>	<b>Service Name</b>	<b>Care Pack Services Product # and Band</b>	<b>Alternate Care Pack Services Product #</b>
	AQ233A	HP StorageWorks 8/20q 8-port enabled FC Switch	3-Year HP Proactive 24	HA111A3-6Z6	-
	-	-	HP Assessment Service for SANs	HE807A1	-

### Service and Support, HP Care Pack, and Warranty Information

#### eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

#### Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit <http://www.hp.com/support>

#### Remote Support Technology (RST)-HP Remote Support Pack

Taking a more proactive approach to IT support, the HP Remote Support pack plug-in module easily integrates with HP Systems Insight Manager to provide a powerful, unified "single pane of glass" solution for onsite and remote management.

HP Remote Support Pack enhances HP Systems Insight Manager with intelligent event diagnosis plus the automatic submission of hardware event notifications securely to HP support, including acknowledgment and status returns. It adds remote configuration collections to allow the delivery of assessment and proactive services for your SAN storage and HP-UX environments.

---

#### Customer Technical Training

Consider education as an integral part of your strategy to get the best return on investment for your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centers worldwide to on-site training customized to your needs or online. <http://www.hp.com/learn/storage>

---

#### HP Services Awards

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit <http://h20129.www2.hp.com/services/cache/77318-0-0-225-121.html>.

---

#### Additional Services Information

For more information about HP Care Pack Services for Storage, please visit: <http://www.hp.com/hps/storage>

If you have specific questions, contact your local HP representative. Contact information for a representative in your area can be found at "Contact HP" <http://www.hp.com>

### Configuration Information

#### Step 1 – Base Configuration

Select one:

Model Name	Model Description	Part Number
HP StorageWorks 8/20q 8 port active Fibre Channel Switch	20-port Fibre Channel Switch with 8 active ports, Simple SAN Connection Manager software, country-specific power cord, serial cable, licenses, rack mount kit, and docs. <b>NOTE:</b> Requires optical transceivers listed below.	AQ233A
HP StorageWorks 8/20q 16 port active Fibre Channel Switch	20-port Fibre Channel Switch with 16 active ports, Simple SAN Connection Manager software, country-specific power cord, serial cable, licenses, rack mount kit, and docs. <b>NOTE:</b> Requires optical transceivers listed below.	AK242A
HP StorageWorks 8Gb Simple SAN Connection Kit	20-port Fibre Channel Switch with 8 active ports and bundled with Simple SAN Connection Manager software, four 81Q PCI-e FC HBA, ten HP 8 Gbps Short Wave FC SFP+ (four dedicated to the HBAs), six 5m LC-LC multi-mode Fibre Channel cables (221692-B22), country-specific power cord, serial cable, licenses, rack mount kit, and docs. <b>NOTE:</b> Additional optical transceivers listed below may be purchased separately.	AK241A

#### Step 2 – Additional Options

Port Upgrades	HP StorageWorks 8/20q 4-Port Upgrade LTU	T5463A
8Gb Optical Transceivers (SFP+)	HP 8 Gbps Short Wave FC SFP+	AJ718A
4Gb Optical Transceivers (SFP)	HP 4 Gbps Short Wave FC SFP	A7446B

#### Optical cables

##### OM3 LC-LC type cables

.5 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ833A
1 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ834A
2 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ835A
5 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ836A
15 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ837A
30 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ838A
50 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ839A

##### OM2 LC-LC type cables

2 m LC-LC Multi-Mode Fibre Channel Cable	221692-B21
5 m LC-LC Multi-Mode Fibre Channel Cable	221692-B22
15 m LC-LC Multi-Mode Fibre Channel Cable	221692-B23
30 m LC-LC Multi-Mode Fibre Channel Cable	221692-B26
50 m LC-LC Multi-Mode Fibre Channel Cable	221692-B27

### Technical Specifications

<b>Fibre Channel Standards And Revisions</b>	Physical Interface (FC-PI-3, FC-PI-4) Line Services (FC-LS) Framing & Signaling (FC-FS-3) Generic Services (FC-GS-6) Switch Fabric (FC-SW-5), except for enhanced zoning Arbitrated Loop-2 Rev. 7.0 (FC-AL-2) Fibre Channel Device Attach (FC-DA) Fibre Channel Methodologies for Interconnects (FC-MI-2) Tape Technical Report (FC-Tape) Virtual Interface Architecture Mapping (FC-VI) Fabric Element MIB Specification (RFC 2837) Fibre Alliance MIB Specification (Version 4.0) Security Protocols (FC-SP)																				
<b>Fibre Channel ports</b>	20 universal ports																				
<b>Scalability</b>	Full fabric architecture: <a href="http://www.hp.com/go/SANDesignGuide">http://www.hp.com/go/SANDesignGuide</a>																				
<b>Certified maximum</b>	Refer to SAN Design Guide: <a href="http://www.hp.com/go/SANDesignGuide">http://www.hp.com/go/SANDesignGuide</a>																				
<b>Interoperability</b>	HP StorageWorks 8/20q Fibre Channel Switch																				
<b>Performance</b>	8 Gbit/sec line speed, full duplex																				
<b>Switch core</b>	Non-blocking																				
<b>Form Factor</b>	1U																				
<b>Fabric latency</b>	<0.2 $\mu$ sec., cut-through routing																				
<b>Maximum frame size</b>	2148 bytes (2112 byte payload)																				
<b>Classes of service</b>	Class 2, Class 3, Class F (inter-switch frames) connectionless Fibre Channel protocol support																				
<b>Port types</b>	FL_Port, F_Port, and E_Port; G_Port, GL_port (auto-configuring)																				
<b>Data traffic types</b>	Fabric switches support unicast and broadcast																				
<b>Media types</b>	8 Gbps Small Form-Factor Pluggable Plus (SFP+) optical transceivers																				
<b>Laser</b>	Distance using short-wave 8 Gbps optical transceivers at 2 Gbps, 4 Gbps, and 8 Gbps connection speed: <table><tr><td>8 Gbps:</td><td>OM3 fiber: 150 m</td></tr><tr><td></td><td>OM2 fiber: 50 m</td></tr><tr><td>4 Gbps:</td><td>OM3 fiber: 270 m</td></tr><tr><td></td><td>OM2 fiber: 150 m</td></tr><tr><td>2 Gbps:</td><td>OM3 fiber: 500 m</td></tr><tr><td></td><td>OM2 fiber: 300 m</td></tr></table> Distance using short-wave 4Gb optical transceivers at 2Gb and 4Gb connection speed: <table><tr><td>4 Gbps:</td><td>OM3 fiber: 270 m</td></tr><tr><td></td><td>OM2 fiber: 150 m</td></tr><tr><td>2 Gbps:</td><td>OM3 fiber: 500 m</td></tr><tr><td></td><td>OM2 fiber: 300 m</td></tr></table>	8 Gbps:	OM3 fiber: 150 m		OM2 fiber: 50 m	4 Gbps:	OM3 fiber: 270 m		OM2 fiber: 150 m	2 Gbps:	OM3 fiber: 500 m		OM2 fiber: 300 m	4 Gbps:	OM3 fiber: 270 m		OM2 fiber: 150 m	2 Gbps:	OM3 fiber: 500 m		OM2 fiber: 300 m
8 Gbps:	OM3 fiber: 150 m																				
	OM2 fiber: 50 m																				
4 Gbps:	OM3 fiber: 270 m																				
	OM2 fiber: 150 m																				
2 Gbps:	OM3 fiber: 500 m																				
	OM2 fiber: 300 m																				
4 Gbps:	OM3 fiber: 270 m																				
	OM2 fiber: 150 m																				
2 Gbps:	OM3 fiber: 500 m																				
	OM2 fiber: 300 m																				
<b>Fabric services</b>	Simple name server Hardware based zoning Registered State Change Notification (RSCN)																				

### Technical Specifications

	I/O StreamGuard™		
	Multi-chassis in-order delivery		
	Automatic path selection		
	FDML support		
<b>Options</b>	8 Gbps SFP+ and 4 Gbps SFP optical transceivers, port upgrade license (4-port increments)		
<b>Supported software</b>	Simple SAN Connection Manager, QuickTools		
<b>Management access</b>	10/100 Ethernet Base T (RJ-45), serial port (RS-232 with DB9), in-band (Fibre Channel)		
<b>Diagnostics</b>	Power-on self test POST		
<b>Back-to-front airflow</b>	RoHS compliant		
<b>Dimensions</b>	<b>Width</b>	17 in (43.2 cm)	
	<b>Height</b>	1.7 in (4.32 cm)	
	<b>Depth</b>	18.75 in (47.6 cm)	
	<b>Weight</b>	14 lb (6.4 kg)	
<b>Environment</b>	<b>Temperature</b>	<b>Operating</b>	32° to 113° F (0° to 45° C)
		<b>Non-operating</b>	-40° to 158° F (-40° to 70° C)
	<b>Humidity</b>	<b>Operating</b>	15% to 80% non-condensing at 104° F (40° C)
		<b>Non-operating</b>	5% to 90% , non condensing at 149° F (65° C)
	<b>Altitude</b>	<b>Operating</b>	0 to 10,000 ft.
		<b>Non-Operating</b>	0 to 50,000 ft.
	<b>Shock</b>	<b>Operating</b>	4 G, 11 ms, 20 repetitions
		<b>Non-Operating</b>	30 G, 13 ms, trapezoidal
	<b>Vibration</b>	<b>Operating</b>	5-500-5 Hz, random, 0.21 G, 10 minutes
		<b>Non-operating</b>	5-500 Hz, random, 2.09 G, 10 minutes
<b>Power consumption</b>	<b>Supported power range</b>	<b>Operational</b>	100 to 240 VAC
	<b>Frequency</b>	50 to 60 Hz	
	<b>Heat output</b>	60 watts nominal	
		70 watts typical maximum	
<b>Emissions</b>	FCC subpart B section 15 - Class A (United States)		
	ICES-003, Issue 4:2004 - Class A (Canada)		
	AS/NZS CISPR22 - Class A (Australia/New Zealand)		
	VCCI V-3/2006.04 - Class A (Japan)		
	CISPR/EN 55022:1998 + A1:2000 and A2:2003 - Class A (EU)		
	EN 61000-3-2: 2000 + A2: 2005		
	EN 61000-3-3: 1995 + A1: 2001		
	*KN22 with RRL notice No. 2005-85 - Class A (Korea)		
<b>Safety</b>	US: UL Listed, UL 60950-1		
	CANADA, CSA C22.2 No. 60950-1 - cUL Listed		
	Europe: EN60950-1		
	CB Scheme-IEC 60950-1		
	European Union CE		
	German GS Mark through UL/DEMKO		
	DEMKO		
	VCCI-A		
	Russia: GOST R		

### *Technical Specifications*

© Copyright 2009 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.