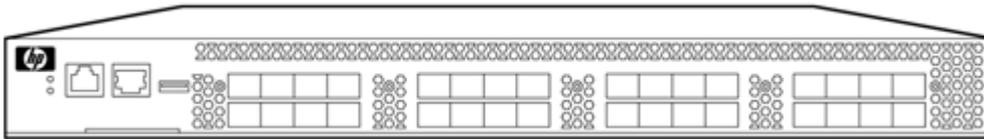


### Overview

The HP 2408 FCoE Switch provides a reliable platform that helps reduce cable clutter, equipment acquisition costs, and operational costs associated with power consumption and cooling. The switch features a 1U form factor and low power consumption, delivering a "greener" data center.

The HP 2408 Switch features 8 Fibre Channel ports for 8 Gbit/sec performance along with 24 Ethernet ports for 10 Gbit/sec performance. The 10 Gbit Ethernet ports support Converged Enhanced Ethernet (CEE) which increase the reliability, efficiency, and scalability of Ethernet networks. These features allow support of multiple traffic classes over lossless Ethernet fabric, thus enabling consolidation of LAN, SAN, and cluster environments.

The consolidated SAN and LAN server ports and corresponding cables simplify configuration and cabling in server cabinets to reduce acquisition costs. With fewer components using power or requiring cooling, organizations can save significant operating costs as well.



**HP StorageWorks 2408 FCoE CN Switch**

### *Features and Benefits*

#### Highlights

##### **Fibre Channel performance:**

- 1/2/4/8 Gbit/sec fibre channel auto sensing line speed
- 10Gbit Ethernet performance
- Full duplex

##### **Unified Management**

- Integrated FCoE and FC management
- Protects customers' FC investments without disrupting data center operations
- No need for new training or learning of new tools

##### **Increased Consolidation**

- Reduces number of server ports, cables, and switch ports
- Reduces CapEx and OpEx while simplifying data center configurations
- Reduces power consumption

##### **Investment Protection**

- Built from the same HP Fabric OS that supports the B-series 4Gb and 8Gb product family
- Backward compatibility with existing B-Series family
- Leverages existing B-Series management tools

### Models

<b>HP StorageWorks 2408 FCoE CN Switch</b>	HP StorageWorks 2408 FCoE Base Converged Network Switch	AP801A
	HP StorageWorks 2408 FCoE Power Pack+ Converged Network Switch	AP802A

### Product Highlights

**Fibre Channel ports** Eight Fibre Channel universal, self configuring (E, F, M, and FL) ports; auto-sensing 1, 2, 4, or 8 Gb. Can be programmed to fixed 1 Gb, 2 Gb, 4Gb, or 8Gb speed.

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**Converged Enhanced Ethernet (CEE) ports** 24 ports with 10 Gigabit Ethernet

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**FCoE Features** Complete T11 FCoE entity and FCoE bridging

The FCoE translation entity built into the hardware engine provides:

- Detection of Fibre Channel encapsulation and redirection of FCoE fabric login frames
- Encapsulation of Fibre Channel frames in FCoE Ethernet packets (FC > FCoE)
- Extraction of Fibre Channel frames from FCoE Ethernet packets (FCoE > FC)
- Mapping of Fibre Channel destination Virtual Fabrics and destination FC\_ID to Ethernet Virtual LAN and destination MAC addresses

Fabric-Provided MAC Addresses (FPMAs) enable new Ethernet MAC addresses to be created using the FC\_ID assigned by the fabric

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**CEE Features**

- Data Center Bridging eXchange (DCBX)
- Priority-based Flow Control (PFC) - IEEE 802.1Qbb
- Enhanced Transmission Selection (ETS) - IEEE 802.1Qaz

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**Configuration support** FCoE CN Switch will interoperate with 1Gb/s, 2Gb/s, 4 Gb/s, and 8 Gb/s B-Series SAN Switches running the firmware version defined in the SAN Design Guide:  
<http://www.hp.com/go/sandesignguide>

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**High-availability features**

- Hot Code Load Activation

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**Advanced Fabric Services**

- ISL Trunking (optional)
- Hardware Enforced Zoning
- Web Tools
- Enhanced Group Management (EGM)
- Fabric Watch (optional)
- Data Center Fabric Manager (optional)

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**Manageability**

- Web Tools
- Enhanced Group Management (EGM)
- OpenView
- API
- IP
- SNMP
- Radius

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## Product Highlights

### Scalability

- The 2408 FCoE CN Switch scale to the maximum limits defined in the SAN Design Guide. <http://www.hp.com/go/sandesignguide>

### Consolidated Adapters

HP partners have developed CNAs that present both an Ethernet NIC and a Fibre Channel HBA to the server operating system, allowing IT departments to deploy FCoE in a completely transparent manner, using the same operating system drivers, management software, and best practices they use with both networks today. These adapters participate in auto-negotiation with the switch, simplifying administration while helping reduce configuration errors.

Emulex LP21000 CNAs have been tested in conjunction with the HP 2408 FCoE CN Switch family with HP storage. These products can be obtained from the manufacturer or Emulex resellers. More information on these products and how purchase them can be obtained from the Emulex web site at the following url:

<http://www.emulex.com/products/converged-network-adapters/emulex-branded.html>

### Media type

Fibre Channel media type: Hot-pluggable, Small Form Factor Pluggable (SFP) and SFP+, LC connector; Short-Wave Laser (SWL) and Long-Wave Laser (LWL); distance depends on fiber optic cable and port speed; supports SFP+ (2, 4, and 8 Gbit/sec) and SFP (1, 2, and 4 Gbit/sec) optical transceivers.

CEE media type: Hot-pluggable, 10 Gigabit Ethernet SFP+ supports any combination of Short-Reach (SR) and Long-Reach (LR) optical transceivers; copper twinax cables of one, three, or five meters.

### Cabinet Support

- HP StorageWorks (22U, 36U and 42U) 9000 and 10000 G1 Series, (25U, 33U and 41U) HP System/e, and the new 42U HP 10000 G2 Series  
**NOTE:** To order factory integration, add 0D1 after the part number on your sales order.

## Software Components

### Frame Filtering

An ASIC based capability in the B-series family of switches that enables new applications and features. The switch now has the ability to "view" the first 64 bytes of the Fibre Channel frame. At this time, Frame Filtering enables advanced capabilities such as Advanced Zoning and Advanced Performance Monitoring.

### Advanced Zoning

In the 8 Gb generation of switches, WWN Zoning and Access Control are enforced by hardware that provides the same simple administration previously enforced only with software. Administrators can organize a physical fabric into logical groups and prevent unauthorized access by devices outside the Zone.

### Web Tools

Enables organizations to monitor and manage single Fibre Channel switches and small SAN fabrics. Tasks can be performed through a Java-capable Web browser from a standard laptop, desktop PC or workstation from any location within the enterprise.

## Product Highlights

### EGM

Enhanced Group Management (EGM) is a FOS license that is included with all B-Series switches and enables multi-switch operations. It helps automate operations across multiple switches to save time and streamline repetitive operations, which are typically prone to error. EGM drives consistency across fabrics, while minimizing the risk associated with potential downtime due to configuration mismatches. EGM provides streamlined troubleshooting for more effective fabric monitoring and diagnosis.

Both Data Center Fabric Manager Professional and Enterprise enable EGM functionality. Customers have EGM functionality enabled within the hardware product and need only to make the decision around which management application is right for them - Data Center Fabric Manager Professional or Enterprise.

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## Software Components, Optional

**Power Pack+ Software Bundle** Includes bundled license for:

- ISL Trunking
- Advanced Performance Monitoring
- Fabric Watch

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### ISL Trunking

For high performance enhanced Trunking, this optional license logically groups up to eight E-ports to provide a high bandwidth trunk between two switches. Each 8Gb switch needs its own license. The switch operating system views the trunk as a single, high bandwidth resource (up to 64 Gb) when routing connections between switches. Connections are load-balanced across the individual links, which comprise the logical trunk group.

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**Advanced Performance Monitor** This enabling technology helps administrators monitor and watch specific fabric metrics -- from a SID (Source ID) to a DID (Destination ID) -- so they can fine-tune and scale the fabric more efficiently. Plus, Advanced Performance Monitoring includes the ability for early warning detection of hot spots within the fabric, a powerful tool for maintaining overall balanced performance.

Top Talkers is a component of Advanced Performance Monitoring and tracks the top traffic flows for hosts and targets for a switch port or a switch. Top Talkers can help identify the ports that need certain Quality of Service (QoS) attributes or it can help determine portions of the physical topology that need reconfiguration.

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### Fabric Watch

Fabric Watch enables each switch to monitor the SAN for potential faults-and automatically alert network managers to problems before they become failures. Fabric Watch tracks a variety of SAN fabric elements, events, and counters. Monitoring fabric-wide events, ports, SFPs, and environmental parameters permits early fault detection and isolation as well as performance measurement. Each switch in the SAN needs its own Fabric Watch license.

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### Product Highlights

#### Data Center Fabric Manager Professional

HP StorageWorks Data Center Fabric Manager Professional is a server based management application available at no-charge and comes with B-series SAN Switches and includes the following features:

- Allows management of a single Fabric OS (FOS) fabric (up to a 1,000 B-Series switch ports) at a time
- Performs group switch management beyond the scope of Web Tools
- Does not offer management of the DC SAN Backbone Director

It is targeted for SMB customers that use FOS based SAN fabrics and require a management solution for smaller SANs based on a single fabric.

SMB customers that initially start off with Data Center Fabric Manager Professional and have a small SAN environment may over time feel the need for an enterprise-class product (Data Center Fabric Manager Enterprise) as their environments start to grow in size and complexity, and as they start to uptake more enterprise-class functionality (such as Fibre Channel Routing, FCIP, etc.). A non-disruptive upgrade path is available from Data Center Fabric Manager Professional to Data Center Fabric Manager Enterprise.

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#### Data Center Fabric Manager Enterprise

HP StorageWorks Data Center Fabric Manager Enterprise is the enterprise-class product that supports FOS products as well as FOS and M-EOS products together. It provides complete DC SAN Backbone Director management including enterprise-class features/environments such as FICON, Fibre Channel Routing, FCIP, adaptive networking, etc.

It delivers unprecedented scalability (up to 24 fabrics and 9,000 switch ports) compared to the existing products.

Data Center Fabric Manager Enterprise requires at least one FOS based B-series SAN switch in the SAN. While DCFM provides increased functionality, not all features available in FM or HAFM are available in DCFM, and some functions may operate differently. Please refer to the Migration and Transition guide for additional information.

## 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.

**NOTE:** The hardware warranty covers firmware and embedded non-saleable software. Saleable software carries its own warranty, see below.  
Software Warranty - HP warrants only that the software media will be free of physical defects for a period of ninety (90) days from delivery.

**EXCLUSIVE REMEDY.** The entire liability of HP and its suppliers and your exclusive remedy for software that does not conform to this Limited Warranty shall be the repair or replacement of the defective media. This warranty and remedy are subject to your returning the defective media during the warranty period to HP in the country in which you obtained the software.

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### 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. Partner with HP Technology Services to boost availability and avoid costly downtime by mitigating technology-related business risks. To help take the worry out of deploying, supporting and managing your storage technologies, we've designed a portfolio of service options that are as flexible, scalable and affordable as our 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 certain 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. In the new world of business technology, when your technology has to work for your business to work, who can you trust to make your technology work? HP Technology Services, the trusted business technology experts who manage your technology in action, because when technology works, business works. <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

**HP Care Pack Services recommended for optimal satisfaction of all deployments of your product.**

**3-Year HP Support Plus 24** 3-Year HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. HP Services engineers deliver reactive onsite hardware support and over-the-phone software support around-the-clock.

**HP Installation Service** HP Hardware Installation provides initial hardware installation of your product into your technology environment (System configuration is not included)

Product Number	Product Name	Service Name	Care Pack Services Product # and Band	Alternate Care Pack Services Product #
		HP Installation Service	HA113A1	5GA
AP801A	HP 2408 FCoE Converged Switch	3-Year HP Support Plus 24 HP 3y 4h 24x7 2408 FCoE HW Supp	HA110A3	1LN

#### Related Services

**Services that will enhance the user experience in many product deployments.**

**3-Year HP Proactive 24** 3-Year HP Proactive 24 Service (P24) is an integrated hardware and software support solution, which combines industry leading technical assistance with proactive account services to cover the entire IT infrastructure and to improve the stability, availability, and operational effectiveness of the IT environment.

**HP SAN Solution Service** HP SAN Solution Service - a scalable service providing specialized expertise in storage area network planning and configuration. Service ensures your SAN is configured for high performance and availability and is integrated with your applications, management environment, and business processes.

**HP Assessment Service for SANs** HP Assessment Service for SANs offers customized technical and operational guidance to customers with a deployed storage area network (SAN) infrastructure, and provides recommendations to help improve availability levels and ongoing management of your SAN environment.

Product Number	Product Name	Service Name	Care Pack Services Product # and Band	Alternate Care Pack Service Product #
		HP SAN Solution Service	Contact your HP sales rep or Channel Partner for assistance	Contact your HP sales rep or Channel Partner for assistance
		HP Assessment Service for SANs	HE807A1	

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

AP802A	HP 2408 FCoE PowerPack+ Converged Switch	3-Year HP Proactive 24	HA111A3	1LP
AP801A	HP 2408 FCoE Converged Switch	3-Year HP Proactive 24	HA111A3	1LN

#### 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. [www.hp.com/learn/storage](http://www.hp.com/learn/storage)

#### HP Service 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>.

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

#### **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" [www.hp.com](http://www.hp.com)

### Family Information

Features	2408 FCoE CN Switch Base and 2408 FCoE CN Switch Power Pack+	8/8 SAN Switch Base and 8/8 SAN Switch	8/24 SAN Switch Base	8/40 SAN Switch and 8/40 SAN Switch Power Pack+	8/80 SAN Switch and 8/80 SAN Switch Power Pack+	Encryption SAN Switch	DC04 SAN Director and DC04 SAN Director Power Pack+	DC SAN Backbone Director Power Pack+
<b>Targeted Environment</b>	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Data Centers	Data Centers	Data Centers
<b>Port Bandwidth</b>	FC: 8Gbit/sec CEE: 10Gbit/sec	8Gbit/sec	8Gbit/sec	8Gbit/sec	8Gbit/sec	8Gbit/sec	8Gbit/sec	8Gbit/sec
<b>Aggregate device bandwidth</b>	604 Gbit/sec end-to-end	128 - 384 Gbit/sec end-to-end	256 - 384 Gbit/sec end-to-end	384 - 640 Gbit/sec end-to-end	768 - 1280 Gbit/sec end-to-end	512 Gbit/sec end-to-end	3 Tbit/sec end-to-end	6.5 Tbit/sec end-to-end
<b>OS Support</b>	<b>NOTE: Please Refer to SAN Design Guide</b> <a href="http://www.hp.com/go/sandesign">http://www.hp.com/go/sandesign</a> or <a href="http://www.hp.com/go/sandesignguide">http://www.hp.com/go/sandesignguide</a>							
<b>Storage system support</b>	Does not support direct attach to storage	<b>XP, EVA, MSA</b>						
<b>Ports</b>	FC: 8 CEE: 24	8 Enabled 24 Max	16 Enabled 24 Max	24 Enabled 40 Max	48 Enabled 80 Max	32 Enabled 32 Max	Up to 192	Up to 384
<b>SFP</b>	B-series	B-series	B-series	B-series	B-series	B-series	B-series	B-series
<b>Advanced Trunking</b>	Included with Power Pack+ or Optional Upgrade	Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+
<b>Adaptive Networking</b>	Not supported	Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+
<b>Form factor</b>	1U	1U	1U	1U	2U	2U	7U	14U
<b>Zoning Software</b>	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)	Yes (included)	Yes (Included)	Yes (Included)
<b>Hot plug, redundant power supplies</b>	Yes	No	No	Yes	Yes	Yes	Yes	Yes
<b>Hot plug fans</b>	Yes	No	No	Yes	Yes	Yes	Yes	Yes

### Family Information

Features	4/8 SAN Switch Base and 4/8 SAN Switch	4/16 SAN Switch and 4/16 SAN Switch Power Pack	4/32B SAN Switch and 4/32B SAN Switch Power Pack	4/64 SAN Switch and 4/64 SAN Switch Power Pack	4/256 SAN Director and 4/256 SAN Director Power Pack
Targeted Environment	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Data Centers
Port Bandwidth	4Gbit/sec	4Gbit/sec	4Gbit/sec	4Gbit/sec	4Gbit/sec
Aggregate device bandwidth	64 Gbit/sec end-to-end	128 Gbit/sec end-to-end	128-256 Gbit/sec end-to-end	512 Gbit/sec end-to-end	3.2 Tbit/sec end-to-end
OS Support	<b>NOTE: Please Refer to SAN Design Guide</b> <a href="http://www.hp.com/go/sandesign">http://www.hp.com/go/sandesign</a> or <a href="http://www.hp.com/go/sandesignguide">http://www.hp.com/go/sandesignguide</a>				
Storage system support	XP, EVA, MSA				
Ports	8 Enabled 16 Max	16 Enabled	16 Min 32 Max	32 Min 64 Max	Up to 384
SFP	HP	HP	HP	HP	HP
Advanced Trunking	Optional Upgrade	Included with Power Pack or Optional Upgrade	Included with Power Pack or Optional Upgrade	Included with Power Pack or Optional Upgrade	Included with Power Pack or Optional Upgrade
Form factor	1U	1U	1U	2U	14U
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	No	No	Yes	Yes	Yes
Hot plug fans	No	No	Yes	Yes	Yes

Features	Embedded SAN Switch for EVA4400	Brocade 4Gb SAN Switch for HP c-Class BladeSystem	HP 400 Multi-protocol Router	B-Series Multi-protocol Router Blade
Targeted Environment	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Data Centers
Port Bandwidth	8Gbit/sec	4Gbit/sec	4 Gbit/sec Ethernet: 1 Gbit/sec	4 Gbit/sec Ethernet: 1 Gbit/sec
Aggregate device bandwidth	320 Gbit/sec end-to-end	192 Gbit/sec end-to-end	128 Gbit/sec end to end	N/A
OS Support	<b>NOTE: Please Refer to SAN Design Guide</b> <a href="http://www.hp.com/go/sandesign">http://www.hp.com/go/sandesign</a> or <a href="http://www.hp.com/go/sandesignguide">http://www.hp.com/go/sandesignguide</a>			
Storage system support	XP, EVA, MSA			
Ports	20 external per EVA Controller Pair	4 or 8 external / 8 or 16 internal	18 ports: 16 FC and 2 Gigabit Ethernet	18 ports: 16 FC and 2 Gigabit Ethernet
SFP	B-series	HP	HP	HP
Advanced Trunking	Optional Upgrade	Optional Upgrade	Optional Upgrade	Optional Upgrade to chassis
Adaptive Networking	Included with Power Pack+ or Optional Upgrade	No	No	Optional Upgrade to DC SAN Director Backbone Chassis
Form factor	Embedded	Embedded	1U	Blade in SAN Director
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)



### Family Information

<b>Hot plug, redundant power supplies</b>	Yes, in EVA 4400 Enclosure	Yes, in BladeSystem Enclosure	Yes	Yes, in SAN Director chassis
<b>Hot plug fans</b>	Yes, in EVA 4400 Enclosure	Yes, in BladeSystem Enclosure	Yes	Yes, in SAN Director chassis

### Configuration Information

#### Step 1 - Base Configuration

Select one:

Model Name	Model Description	Part Number
<b>StorageWorks 2408 FCoE Power Pack+ Converged Network Switch</b>	2408 FCoE CN Switch with 8 active fibre channel ports; 24 active CEE ports; base software (Full Fabric, Advanced Fabric OS, Advanced Web Tools, Advanced Zoning) and Power Pack+ software (ISL Trunking, Advanced Performance Monitoring, and Fabric Watch) <b>NOTE:</b> Fibre Channel connectivity requires optical transceivers and Converged Enhanced Ethernet (CEE) requires optical transceivers or copper cables listed below.	AP802A
<b>StorageWorks 2408 FCoE Base Converged Network Switch</b>	2408 FCoE CN Switch with 8 active fibre channel ports; 24 active CEE ports; base software (Full Fabric, Advanced Fabric OS, Advanced Web Tools, Advanced Zoning) <b>NOTE:</b> Fibre Channel connectivity requires optical transceivers and Converged Enhanced Ethernet (CEE) requires optical transceivers or copper cables listed below.	AP801A

Add Software		
	Fabric Watch	313454-B21
	ISL Trunking	313452-B21
	Advanced Performance Monitor	313450-B21
	Data Center Fabric Manager Enterprise	T5542A

#### Step 2 - Additional Options

<b>Fibre Channel Optical Transceivers</b>	HP 8Gb Short Wave B-Series FC SFP+ 1 Pack	AJ716A																
	<table border="1"> <thead> <tr> <th>Distance Maximum</th> <th>OM2 Cable</th> <th>OM3 Cable</th> <th>PremierFlex Cable</th> </tr> </thead> <tbody> <tr> <td>8Gb performance:</td> <td>50 meters</td> <td>150 meters</td> <td>150 meters</td> </tr> <tr> <td>4Gb performance:</td> <td>150 meters</td> <td>380 meters</td> <td>380 meters</td> </tr> <tr> <td>2Gb performance:</td> <td>300 meters</td> <td>500 meters</td> <td>500 meters</td> </tr> </tbody> </table>	Distance Maximum	OM2 Cable	OM3 Cable	PremierFlex Cable	8Gb performance:	50 meters	150 meters	150 meters	4Gb performance:	150 meters	380 meters	380 meters	2Gb performance:	300 meters	500 meters	500 meters	
Distance Maximum	OM2 Cable	OM3 Cable	PremierFlex Cable															
8Gb performance:	50 meters	150 meters	150 meters															
4Gb performance:	150 meters	380 meters	380 meters															
2Gb performance:	300 meters	500 meters	500 meters															
	HP 8Gb Long Wave B-series 10km FC SFP+ 1 Pack	AJ717A																
	HP 8Gb Long Wave B-Series 25km FC SFP+ 1 Pack	AW538A																
	HP 4Gb Short Wave B-Series FC SFP 1 Pack	AJ715A																
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Distance Maximum	OM2 Cable	OM3 Cable	PremierFlex Cable															
4Gb performance:	150 meters	380 meters	380 meters															
2Gb performance:	300 meters	500 meters	500 meters															
1Gb performance:	500 meters	860 meters	860 meters															
	HP 4Gb Long Wave B-Series FC SFP 1 Pack - 10km	AK870A																
	HP 4Gb Long Wave B-Series FC SFP 1 Pack - 30km	AN211A																
<b>Converged Enhanced Ethernet (CEE) Copper Twinax Cables</b>	HP 1m B-series Active Copper SFP+ Cable	AP818A																
	HP 3m B-series Active Copper SFP+ Cable	AP819A																
	HP 5m B-series Active Copper SFP+ Cable	AP820A																
	<b>NOTE:</b> For in-rack or adjacent-rack cabling, the copper Twinax cables integrate transceivers with Twinax cables into an energy-efficient, low-cost, and low-latency solution.																	

### Configuration Information

<b>Converged Enhanced Ethernet (CEE) Optical Transceivers</b>	HP 10GbE SR B-series CEE SFP+ 1 Pack	AP823A			
	HP 10GbE LR B-series CEE SFP+ 1 Pack	AP824A			
<hr/>					
<b>USB Device</b>	2Gb USB Device	AK864A			
<b>Optical Cables</b>	<b>PremierFlex OM3+ type cables</b>				
	0.5m PremierFlex LC/LC Multi-Mode Optical Cable	BK837A			
	1m PremierFlex LC/LC Multi-Mode Optical Cable	BK838A			
	2m PremierFlex LC/LC Multi-Mode Optical Cable	BK839A			
	5m PremierFlex LC/LC Multi-Mode Optical Cable	BK840A			
	15m PremierFlex LC/LC Multi-Mode Optical Cable	BK841A			
	30m PremierFlex LC/LC Multi-Mode Optical Cable	BK842A			
	50m PremierFlex LC/LC Multi-Mode Optical Cable	BK843A			
	<b>OM3 LC-LC type cables</b>				
	.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			
	<b>OM2 LC-LC type cables</b>				
	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				
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<b>Fibre Channel Standards And Revisions</b>	FC-AL Rev. 4.5	FC-GS-2 Rev 5.3	FC-PH Rev 4.3	FC-PLDA Rev 2.1	FC-VI Rev 1.5
	FC-AL-2 Rev 7.0	FC-FG Rev 3.5	FC-PH-2 Rev 7.4	FC-SW Rev 3.3	IPFC RFC 2625
	FC-FLA Rev 2.7	FC-FH Rev 1.7	FC-PH-3 Rev 9.4		

## Technical Specifications

<b>Fibre Channel ports</b>	8 active ports
<b>CEE ports</b>	24 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 for current configuration information: <a href="http://www.hp.com/go/sandesignguide">http://www.hp.com/go/sandesignguide</a>
<b>Interoperability</b>	<ul style="list-style-type: none"><li>• SAN Switch 8</li><li>• SAN Switch 16</li><li>• SAN Switch 8-EL</li><li>• SAN Switch 2/8V</li><li>• 4/8 SAN Switch</li><li>• SAN Switch 16-EL</li><li>• SAN Switch 2/16V</li><li>• SAN Switch 2/16N FF</li><li>• 4/16 SAN Switch</li><li>• Integrated /32</li><li>• SAN Switch 2/32</li><li>• 4/32 SAN Switch</li><li>• 4/32B SAN Switch</li><li>• 4/64 SAN Switch</li><li>• Core Switch 4/64</li><li>• SAN Director 2/128</li><li>• SAN Director 4/256</li><li>• DC04 SAN Director</li><li>• DC SAN Backbone Director</li><li>• SAN Switch 2/16</li><li>• SAN Switch 1/16-EL</li><li>• MSA SAN Switch 2/8</li><li>• SAN Switch 8/8</li><li>• SAN Switch 8/24</li><li>• SAN Switch 8/40</li><li>• SAN Switch 8/80</li><li>• Brocade 4Gb SAN Switch for p-class HP BladeSystem</li><li>• Brocade 4Gb SAN Switch for c-class HP BladeSystem</li><li>• Brocade 8Gb SAN Switch for c-class HP BladeSystem</li><li>• EVA4400 with embedded switch</li><li>• 400 MP Router</li><li>• HP MP-Router</li></ul>
<b>Fibre Channel Performance</b>	8 Gbit/sec line speed, full duplex
<b>CEE Performance</b>	10 Gbit/sec line speed
<b>Switch core</b>	Non-blocking
<b>Fabric latency</b>	700 nanoseconds with no contention, cut-through routing at 8 Gbit/sec
<b>Maximum frame size</b>	2112-byte fibre channel payload; 9048-byte Ethernet frame
<b>Classes of service</b>	Class 2, Class 3, Class F (inter-switch frames)
<b>FC Port types</b>	FL_Port, F_Port, and E_Port; self-discovery based on switch type (U_Port)
<b>USB</b>	One USB port for system log file downloads or firmware upgrades
<b>Data traffic types</b>	Fabric switches supporting unicast, multicast (255 groups), and broadcast
<b>Media types</b>	Fibre Channel media type: Hot-pluggable, industry-standard Small Form Factor Pluggable (SFP) and SFP+, LC connector; Short-Wave Laser (SWL) and Long-Wave Laser (LWL); distance

### Technical Specifications

	depends on fiber optic cable and port speed; supports SFP+ (2, 4, and 8 Gbit/sec) and SFP (1, 2, and 4 Gbit/sec) optical transceivers		
	CEE media type: Hot-pluggable, 10 Gigabit Ethernet SFP+ supports any combination of Short-Reach (SR) and Long-Reach (LR) optical transceivers; copper twinax cables of one, three, or five meters		
<b>Laser</b>	Short-wave up to 1,640 ft (500 m); long-wave up to 6.2 mi (10 km) when available		
<b>Fabric services</b>	Simple Name Server, Registered State Change Notification (RSCN), Alias Server (multicast); and Zoning, Web Tools, Enhanced group Management, Optional Fabric Watch, ISL Trunking, and Advanced Performance Monitor.		
<b>Options</b>	SFP media, USB Device		
<b>Supported software</b>	Telnet, RADIUS,SNMP, Web Tools, Enhanced Group Management, Advanced Zoning, Fabric Watch, Advanced Performance Monitoring, ISL Trunking, Fabric Manager,, Data Center Fabric Manager		
<b>Management access</b>	10/100 Ethernet (RJ-45), serial port		
<b>Diagnostics</b>	POST and embedded online/offline diagnostics		
<b>Back-to-front airflow, power inlet on port side</b>	1U		
<b>Dimensions</b>	<b>Width</b>	42.9 cm (16.9 inches)	
	<b>Height</b>	4.3 cm (1.7 inches)	
	<b>Depth</b>	63.4 cm (25.0 inches)	
	<b>Weight</b>	28.6 lbs with two power supply, without SFP/SFP+	
<b>Environment</b>	<b>Temperature</b>	<b>Operating</b>	0° to 40° C
		<b>Non-operating</b>	-25° to 70° C
	<b>Humidity</b>	<b>Operating</b>	10% to 85% (non-condensing)
		<b>Non-operating</b>	10% to 90% (non-condensing)
	<b>Altitude</b>	Up to 9,800 ft (3,000 m)	
	<b>Shock</b>	20 G, 6 ms, half sine	
	<b>Vibration</b>	<b>Operating</b>	.5 G sine, .4grms random 5-500Hz
		<b>Non-operating</b>	2 G sine, 5-500Hz
<b>Power</b>	<b>AC Input</b>	85 to 264 VAC nominal	
	<b>Supported power rangeMaximum</b>	350 Watts	
	<b>Frequency</b>	47 to 63 Hz	

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