

Overview

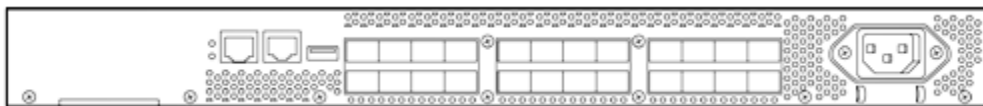
The new HP StorageWorks 8/24 SAN Switch delivers affordable and flexible 8 Gb/s connectivity and can be incorporated into an extensive core fabric or placed as an edge switch for SAN environments. The 8/24 SAN Switch is ideal for entry and SMB customers requiring a simple, yet flexible networked storage connectivity solution that will meet evolving requirements. The 8/24 SAN Switch provides the needed connectivity and flexibility at a price point that is affordable, while delivering industry-leading performance for long-term investment protection. It is a solution that is easy to deploy and requires little management time, reducing operational costs.

The 8/24 Base SAN Switch delivers sixteen high performance auto Sensing 1, 2, 4, and 8 Gb/s Fibre Channel ports. With powerful yet flexible capabilities—such as Ports On Demand scalability to 24 ports in an 8-port increment—the 8/24 SAN Switch enables organizations to start small and grow their storage networks in a non-disruptive manner. A fully populated 8/24 SAN Switch with 24 enabled ports provides 384 Gb switching (8 Gb full duplex) capacity for un-congested sustained, 8 Gb full duplex throughput. In addition, organizations can choose to initially deploy 4 Gbit/sec SFPs and upgrade to 8 Gbit/sec SFP+ at a later date when necessary.

The 8/24 SAN Switch with 24 enabled ports may be deployed as a full-fabric switch or in Access Gateway mode, which provides connectivity into any SAN (the default mode setting is a switch). Access Gateway mode utilizes N_Port ID Virtualization (NPIV) switch standards to present Fibre Channel connections as logical devices to SAN fabrics. Attaching through NPIV-enabled switches and directors, the 8/24 SAN Switch with 24 enabled ports in Access Gateway mode can connect to Brocade, McDATA, Cisco, or other SAN fabrics. Key benefits of Access Gateway mode include:

- Improved scalability for large or rapidly growing server and virtual server environments
- Simplified management through the reduction of domains and management tasks
- Fabric interoperability for mixed-vendor SAN configurations that require full functionality

An optional enhanced Power Pack+ software bundle can be purchased separately and includes Adaptive Networking, Fabric Watch, ISL Trunking, Extended Fabric, Advanced Performance Monitor, and Server Application Optimization. The software bundle provides the SAN administrator with the necessary tools to proactively monitor the health and performance thresholds of the network, while also ensuring the highest levels of security, scalability and manageability. Enhanced capabilities are based on the new Adaptive Networking software, a suite of tools for optimizing fabric behavior and ensuring ample bandwidth for mission-critical applications. Power Pack+ software enables infrastructure management through a single-pane-of-glass.



HP StorageWorks 8/24 SAN Switch

Features and Benefits

Key Features and Benefits

- Superior Performance
 - 8Gb/s full duplex performance to enable up to 384 Gbit/s of uncongested throughput
 - Optional enhanced ISL Trunking combines up to eight ISLs between a pair of switches into a single, logical high-speed trunk capable of up to 64 Gbit/s of throughput
- Flexible storage connectivity
 - The only SAN solutions providing the complete HP SAN Switch functionality from Embedded to Enterprise. The HP B-series line of products allows the capability to apply the complete SAN Switch functionality to an affordable entry level SAN deployment and then to grow that deployment to the largest SAN fabric solutions supported by HP.
- Reduced Total Cost of Ownership for SAN Infrastructure
 - Enables storage consolidation, simplified management of data center SAN environment
- Broadest range of compatibility with SAN products
 - Multi-vendor server and storage environment
 - Widest range of HP SAN solutions
 - Backward compatible with previously installed 1Gb, 2Gb, 4Gb, and 8Gb SAN Switches
 - Interoperability with more than 3 Million HP SAN Switch installed base
- HP Power Pack+ Software Bundle (Optional) - highest supported modular functionality
 - Adaptive Networking -optimizes fabric behavior
 - Trunking - highest throughput between switches (64Gb/sec)
 - Proactive threshold monitor (Fabric Watch)
 - Advanced Performance Monitor
 - Extended Fabric
 - Server Application Optimization - server/edge switch Quality of Server
- Broadest Range of HP Packaged SAN Services
 - Mission critical SAN Services SAN-ES
 - Assessment and installation services for security
- Highest integration with Storage Essentials via:
 - SAN Switch API
 - SAN Switch element managers
 - HP StorageWorks Fabric Manager

Models

HP StorageWorks 8/24 SAN Switch	HP Storage Works 8/24 Base (16) Full Fabric Ports Enabled SAN Switch	AM868A
	HP Storage Works 8/8 and 8/24 SAN Switch 8Gb 8-port Upgrade LTU	T5518A
	HP Storage Works B-series 8-24 Port SAN Switch Power Pack+ Upgrade LTU	T5521A

Product Highlights

24 non-blocking ports Sixteen enabled ports with expandability to 24 ports; auto-sensing 1, 2, 4, or 8 Gb universal, self-configuring ports (F, FL, E). Can be programmed to fixed 1 Gb, 2 Gb, 4Gb, or 8Gb speed.

Configuration support SAN Switch 8/24 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>

High-availability features

- Hot Code Load Activation

Advanced Fabric Services

- Adaptive Networking (optional)
- ISL Trunking (optional)
- Hardware Enforced Zoning
- Web Tools
- Enhanced Group Management (EGM)
- Fabric Watch (optional)
- Extended Fabric (optional)
- Server Application Optimization (SAO)
- Data Center Fabric Manager (optional)

Manageability

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

Scalability

- The SAN Switch 8/24 scale to the maximum limits defined in the SAN Design Guide.
<http://www.hp.com/go/sandesignguide>

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 OD1 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.

Product Highlights

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.

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, Professional Plus, or Enterprise.

Software Components, Optional

Power Pack+ Software Bundle Includes bundled license for:

- Adaptive Networking
- ISL Trunking
- Advanced Performance Monitoring
- Fabric Watch
- Extended Fabric
- Server Application Optimization (SAO)

Adaptive Networking

Adaptive Networking (AN) is a family of technologies which allow flexible control of traffic movement within the fabric which deliver application aware management of fabric resources. Applications may be used with multiple protocols and multiple classes of service. It includes the following features:

Ingress Rate Limiting:

Allows the ingress bandwidth of a port to be throttled to a rate lower than negotiated with the SAN node. This could be very useful for enterprises offering stepped levels of service and enforcing SLAs.

Quality of Service (QoS):

Enables zones with high, medium, and low priorities within a fabric on a zone by zone basis. This can be very useful for prioritizing array replication over MANs and WANs over less critical traffic.

Traffic Isolation Zones:

Defines paths through a fabric for some or all nodes. Failover allows a non-preferred path to be used if the preferred fails. TIZs use failover by default but it can be disabled if traffic should stop if a preferred path fails. TIZ can be used to manually map out traffic flows within a fabric based on application, priority, and topology.

Product Highlights

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.

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.

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.

Extended Fabric

Extends all of the scalability, reliability, and performance benefits of Fibre Channel Storage Area Networks (SANs) beyond the native 10 km distance specified by the Fibre Channel standard.

Server Application Optimization

Server Application Optimization (SAO) license improves overall application performance for physical servers and virtual machines. SAO, when deployed with B-Series Fibre Channel HBAs, extends B-Series Adaptive Networking from the B-series SAN fabric to the server infrastructure. This delivers application-level, fine-grain Quality of Service (QoS) management to the HBAs and related server applications.

Solution Requirements:

- SAO license must be installed on the edge (server connected) switch
- Adaptive Networking (AN) license must be installed on the edge (server connected) switch
- SAO requires B-series HBA installed in the server

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 or FICON

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.

Data Center Fabric Manager Enterprise and Professional+

HP StorageWorks DCFM Enterprise and Professional+ are the enterprise-class products that support FOS and M-EOS products. HP DCFM Enterprise provides complete DC SAN Backbone Director management including enterprise-class features/environments such as FICON, Fibre Channel Routing, FCIP, adaptive networking, etc while HP DCFM Professional+ provides the same feature set except for support for the DC SAN Backbone Director and FICON.

HP DCFM Enterprise delivers unprecedented scalability, up to 24 fabrics and 9,000 switch ports, while HP DCFM Professional+ scales to 4 SAN Fabrics and 2560 switch ports.

Both offerings provide brand-new features including Adaptive Networking features for quality of service, ingress rate limiting and traffic isolation zones.

While DCFM provides increased functionality, not all features available in FM or HAFM are available in DCFM Enterprise and Professional+, 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.

For bundled Software Support Your HP storage product includes comprehensive support and software updates to enhance the performance and availability of your software. Experienced Response Center engineers provide trustworthy advice on issues such as software features and use, problem diagnosis and resolution, and software defect identification.

Software support benefits include:

- Improved productivity of system managers and operators
- Improved system performance and reduced downtime due to software defects
- Expedited problem resolution through expert-level technical resources
- Software and documentation updates
- Electronic access to essential product and support information

For increased uptime, productivity and ROI -HP Care Pack packaged services for Storage

These days, you need to get the most out of your storage investment-you can't afford not to. When you buy HP storage products and solutions, it's also a good time to think about what levels of service and support you may need. To help take the worry out of deploying, designing, maintaining, and managing your environment, we've designed a portfolio of service options that are as flexible, reliable and scalable as your storage. Unlike storage-only vendors, we take a holistic approach to your entire environment, bridging storage, servers, blades, software and network infrastructures with our HP Care Pack packaged services for Storage.

Protect your business beyond the warranty

When it comes to robustness and reliability, standard warranties on today's computing equipment have matured just as the technologies have matured. Good news on some fronts-but also a source of potential problems and subsequent consequences that come from depending on standard warranties alone. Standard warranty protects against product defects and some causes of downtime- but not the business. By using a standard approach to warranty uplifts, such as HP Care Pack Services, you can reduce downtime risks and be more certain of operational consistency for both mission-critical and standard business computing. Simply put, HP Care Pack Services normalize the warranty of combined products - helping you proactively guard against unplanned downtime.

Extending warranties with HP Care Pack Services

For cost-effective upgrading or extending your standard warranty, HP Care Pack Services offer a suite of standard reactive hardware and software support services that are sold separately, or combined as with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition, with HP Proactive Select we offer an innovative approach to service delivery that gives you the flexibility to acquire the specific proactive services you need today, then add services as your needs evolve. HP Proactive Select offers a broad set of technical or per-event type service options - including server, storage, and network, SAN device, and software, environment, installation and education services. Services that you can mix and match depending on your specific requirements, from preliminary planning and equipment delivery to installation, configuration, integration, and testing, through every level of on-going support. Our

Service and Support, HP Care Pack, and Warranty Information

HP Care Pack packaged services for Storage assures help when you need it most. And for many products, post-warranty HP Care Pack Services are available when your original warranty has expired.

HP Storage Services: Offering reliability, flexibility and value-just like your storage

HP Storage Services offers a full spectrum of customer care, from technology support to complex migrations to complete completely managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education offers flexible, comprehensive training on storage networking, disk storage systems, and storage software to help your IT staff get the most out of your investments. And HP Financial solutions extend innovative financing and asset management programs to cost-effective buy, manage and eventually retire your older equipment.

HP Storage 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.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at http://h30125.www3.hp.com/csn/salesmktg/elfpack/elf_nonlkup_etrylang.asp?code=ELNL

Recommended HP Care Pack Services for optimal satisfaction with your HP product.

Recommended Support 3-Year HP Support Plus 24

For a higher return on your storage investment, HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. Available 24x7, this 3-year combined reactive support option delivers onsite hardware support and over-the-phone software support around-the-clock. Leverage the full strength of HP Technology Services - customers can trust the services professionals at HP to work collaboratively with them, putting our strategic and technical know-how to work across their entire infrastructure.

- Improve uptime with responsive hardware and software services
- Cost-effectively obtain expert multivendor support
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP and selected third-party software at a predictable cost
- Take advantage of subscription savings on software updates
- Increase revenue-with access to world-class expertise without headcount implications
- Increase customer satisfaction-with no interoperability gaps

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf>

Recommended Deployment

HP Enhanced Implementation Service for SANs

For customers who are building a new SAN or expanding their existing one, we offer the HP Enhanced Implementation Service for SANs. This provides complete design and implementation services for Fibre Channel, FCOE, FCIP, SAS and iSCSI SAN connectivity components. Covering all major SAN connectivity technologies including virtual as well as physical hosts, no competitor offers a more complete end to end SAN design and implementation service, ensuring comprehensive optimal SAN connectivity tailored to your specific environment.

- Ensures optimal SAN connectivity tailored to your specific environment.
- Allows your IT resources to stay focused on their core tasks and priorities

Service and Support, HP Care Pack, and Warranty Information

- Reduces implementation time, impact and risk to your storage environment
- Helps ensure a successful implementation for complex deployments by providing HP project management

<http://h20195.www2.hp.com/v2/GetPDF.aspx/5981-8527EN.pdf>

Related HP Care Pack Services that will enhance your HP product experience.

Related Services 3-Year HP Proactive 24 for SANs

As an alternative to our recommended support level, for customers who want improved SAN availability and access to a wide range of proactive and reactive services:

HP Proactive 24 Service for SANs is an integrated hardware and software support service that combines proactive problem prevention with responsive 24x7 assistance for rapid problem resolution.

A collaborative relationship with HP Services strengthens your IT team and gives you direct access to our technical expertise as issues arise.

Improve IT staff skills, increase SAN productivity.

Proactive 24 Service for SANs can help you:

- Enhance the skills and efficiency of your IT staff through knowledge transfer, shared best practices in storage management, and hands-on assistance
- Improve SAN availability through access to a wide range of proactive and reactive services
- Boost productivity through effective change management, configuration assistance, and performance optimization
- Increase the return on your SAN investment
- Enhance your overall operational effectiveness

Expert single-point-of-contact assistance 24x7

An assigned HP Services account manager is your primary contact for proactive services and access to HP's diverse technical resources. Your account manager works closely with your IT staff to understand your goals, document the components of your infrastructure, recommend changes to improve performance and stability, and monitor ongoing operations through HP's industry-leading remote monitoring and support tools.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/5982-6887EN.pdf>

HP Assessment Service for SANs

For customers interested in improving availability of their SAN and decreasing potential for unplanned downtime:

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.

Service and Support, HP Care Pack, and Warranty Information

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.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA1-2941ENW.pdf>

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

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://h20219.www2.hp.com/services/cache/433028-0-0-225-121.htm>

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" <http://www.hp.com>

Family Information

Features	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+	2408 FCoE CN Switch and 2408 FCoE CN Switch Power Pack+	1606 Extension SAN Switch	Encryption SAN Switch
Targeted Environment	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Data Centers	Data Centers
Fibre Channel Port Bandwidth	8Gbit/sec	8Gbit/sec	8Gbit/sec	8Gbit/sec	8Gbit/sec	8Gbit/sec	8Gbit/sec
Ethernet	N/A	N/A	N/A	N/A	10Gbit/sec Converged Enhanced Ethernet	1Gbit/sec Ethernet	N/A
Aggregate device bandwidth	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
OS Support	NOTE: Please Refer to SAN Design Guide http://www.hp.com/go/sandesign or http://www.hp.com/go/sandesignguide						
Storage system support	XP, EVA, MSA						
FC Ports	8 Enabled 24 Max	16 Enabled 24 Max	24 Enabled 40 Max	48 Enabled 80 Max	8 Enabled 8 Max	4 or 16 Enabled 16 Max	32 Enabled 32 Max
Ethernet Ports	N/A	N/A	N/A	N/A	24 Enabled 24 Max	2 or 6 Enabled 6 Max	N/A
SFP	B-series	B-series	B-series	B-series	B-Series	B-series	B-series
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	Included with Power Pack+ or Optional Upgrade	Optional Upgrade
Adaptive Networking	Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	No	Included with Power Pack+ or Optional Upgrade	Optional Upgrade
Form factor	1U	1U	1U	2U	1U	1U	2U
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	No	No	Yes	Yes	Yes	Yes	Yes
Hot plug fans	No	No	Yes	Yes	Yes	Yes	Yes

Family Information

Features	4/256 SAN Director and 4/256 SAN Director Power Pack	DC04 SAN Director and DC04 SAN Director Power Pack+	DC SAN Backbone Director
Targeted Environment	Data Centers	Data Centers	Data Centers
Port Bandwidth	4Gbit/sec	8Gbit/sec	8Gbit/sec
Aggregate device bandwidth	3.264 Tbit/sec end-to-end	3 Tbit/sec end-to-end	6.5 Tbit/sec end-to-end
OS Support	NOTE: Please Refer to SAN Design Guide http://www.hp.com/go/sandesign or http://www.hp.com/go/sandesignguide		
Storage system support	XP, EVA, MSA		
Ports	Up to 384 SFP	Up to 192	Up to 384
SFP	HP	B-series	B-series
Advanced Trunking	Included with Power Pack or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+
Adaptive Networking	Included with Power Pack or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+
Form factor	14U	7U	14U
Zoning Software	Yes (included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes	Yes	Yes
Hot plug fans	Yes	Yes	Yes

Features	Embedded SAN Switch for EVA4400	Brocade 8Gb SAN Switch for HP c-Class BladeSystem	Brocade 4Gb SAN Switch for HP c-Class BladeSystem	B-Series Multi-protocol Router Blade	B-Series Multi-protocol Extension Blade
Targeted Environment	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Data Centers	Data Centers
Port Bandwidth	8Gbit/sec	8Gbit/sec	4Gbit/sec	4 Gbit/sec FC Ethernet: 1 Gbit/sec	8 Gbit/sec FC Ethernet: 1 or 10 Gbit/sec
Aggregate device bandwidth	320 Gbit/sec end-to-end	384 Gbit/sec end-to-end	192 Gbit/sec end-to-end	N/A	N/A
OS Support	NOTE: Please Refer to SAN Design Guide pointer http://www.hp.com/go/SANdesign or http://www.hp.com/go/SANdesignguide				
Storage system Support	XP, EVA, MSA				
Ports	20 external per EVA Controller Pair	4 or 8 external / 8 or 16 internal	4 or 8 external / 8 or 16 internal	18 ports: 16 FC and 2 Gigabit Ethernet	16 8Gb FC and 10 1GbE or 2 10GbE
SFP	B-series	B-Series	HP	HP	B-Series
Advanced Trunking	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Optional Upgrade to chassis	Optional Upgrade to chassis
Adaptive Networking	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Optional Upgrade to chassis	Optional Upgrade to chassis
Form factor	Embedded	Embedded	Embedded	Blade in 4/256, DC SAN Back, or DC04 SAN Dir	Blade in DC SAN Back or DC04 SAN Dir
Zoning Software	Embedded	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)



Family Information

Hot plug, redundant power supplies	Yes (Included)	Yes, in BladeSystem Enclosure	Yes, in BladeSystem Enclosure	Yes, in director chassis	Yes, in director chassis
Hot plug fans	Yes, in EVA 4400 Enclosure	Yes, in BladeSystem Enclosure	Yes, in BladeSystem Enclosure	Yes, in director chassis	Yes, in director chassis

Configuration Information

Step 1 - Base Configuration

Select one:

Model Name	Model Description	Part Number
StorageWorks 8/24 Base (16) Full Fabric Enabled SAN Switch	8/24 SAN Switch with 16 active ports; rackmount kit; accessory kit (enterprise safety and regulatory information, installation guide, rack-mounting instructions), power cords, serial cable, base software of Full Fabric, Advanced Fabric OS, Advanced Web Tools, Advanced Zoning, NOTE: Requires optical transceivers listed below.	AM868A
StorageWorks 8/24 SAN Switch 8Gb 8-port Upgrade LTU	8 port upgrade license for 8/24 SAN Switch (AM868A)	T5518A

Add Software	For Fabric OS (FOS) minimum requirements, please refer to: http://spock.corp.hp.com/	
Storage Works B-series 24 Port SAN Switch Power Pack+ Upgrade LTU	Adaptive Networking, Fabric Watch, ISL Trunking, Advanced Performance Monitoring, Extended Fabric, Server Application Optimization	T5521A
Optional Software:	Adaptive Networking	T5524A
	Fabric Watch	324504-B21
	ISL Trunking	T5527A
	Advanced Performance Monitor	324507-B21
	Extended Fabric	324505-B21
	Server Application Optimization	TA756A
	Data Center Fabric Manager Enterprise	T5542A
	Data Center Fabric Manager Professional Plus	TA754A

Step 2 - Additional Options

Optical Transceivers

HP 8Gb Short Wave B-Series FC SFP+ 1 Pack		AJ716A												
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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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HP 4Gb Long Wave B-Series FC SFP 1 Pack - 10km		AK870A												
HP 4Gb Long Wave B-Series FC SFP 1 Pack - 30km		AN211A												
HP 8Gb Short Wave B-Series FC SFP+ 1 Pack		AJ716A												

Configuration Information

USB Device	2Gb USB Device	AK864A
Optical Cables	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
	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
	LC-SC for between a 1 Gb and a 2 Gb device	
	2 m LC-SC Multi-Mode Fibre Channel Cable	221691-B21
	5 m LC-SC Multi-Mode Fibre Channel Cable	221691-B22
	15 m LC-SC Multi-Mode Fibre Channel Cable	221691-B23
	30 m LC-SC Multi-Mode Fibre Channel Cable	221691-B26
	50 m LC-SC Multi-Mode Fibre Channel Cable	221691-B27

Fibre Channel Standards	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
And Revisions	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

Fibre Channel ports	16 active with optional license to activate 24 universal ports
Scalability	Full fabric architecture: http://www.hp.com/go/sandesignguide
Certified maximum	Refer to SAN Design Guide for current configuration information: http://www.hp.com/go/sandesignguide
Interoperability	<ul style="list-style-type: none">• SAN Switch 8• SAN Switch 16• SAN Switch 8-EL• SAN Switch 2/8V• 4/8 SAN Switch• SAN Switch 16-EL• SAN Switch 2/16V• SAN Switch 2/16N FF• 4/16 SAN Switch• Integrated /32• SAN Switch 2/32• 4/32 SAN Switch• 4/64 SAN Switch• Core Switch 4/64• SAN Director 2/128• DC04 SAN Director• DC SAN Backbone Director• SAN Switch 2/16• SAN Switch 1/16-EL• MSA SAN Switch 2/8• SAN Switch 8/8• SAN Switch 8/24• SAN Switch 8/40• SAN Switch 8/80• Encryption SAN Switch• 1606 Extension SAN Switch• 2408 FCoE Converged Network Switch• Brocade 4Gb SAN Switch for p-class HP BladeSystem• Brocade 4Gb SAN Switch for c-class HP BladeSystem• 400 MP Router• HP MP-Router Blade
Performance	8 Gbit/sec line speed, full duplex
Switch core	Non-blocking
Fabric latency	700 nanoseconds with no contention, cut-through routing at 8 Gbit/sec
Maximum frame size	2112-byte payload
Classes of service	Class 2, Class 3, Class F (inter-switch frames)
Port types	FL_Port, F_Port, and E_Port; self-discovery based on switch type (U_Port)
USB	One USB port for system log file downloads or firmware upgrades
Data traffic types	Fabric switches supporting unicast, multicast (255 groups), and broadcast
Media types	B-Series Branded Small Form-Factor Pluggable (SFP)
Laser	Short-wave up to 1,640 ft (500 m); long-wave up to 6.2 mi (10 km) when available

Technical Specifications

Fabric services	Simple Name Server, Registered State Change Notification (RSCN), Alias Server (multicast); and Zoning, Web Tools, Enhanced group Management, Optional Fabric Watch, ISL Trunking, Adaptive Networking, Extended Fabric, Advanced Performance Monitor, and Server Application Optimization.		
Options	SFP media, USB Device		
Supported software	Telnet, RADIUS,SNMP, Web Tools, Enhanced Group Management, Advanced Zoning, Fabric Watch, Extended Fabric, Adaptive Networking, Advanced Performance Monitoring, ISL Trunking, Fabric Manager,, Data Center Fabric Manager, Server Application Optimization		
Management access	10/100 Ethernet (RJ-45), serial port		
Diagnostics	POST and embedded online/offline diagnostics		
Back-to-front airflow, power inlet on port side	1U		
Dimensions	Width	42.88 cm (16.88 inches)	
	Height	4.29 cm (1.69 inches)	
	Depth	30.66 cm (12.07 inches)	
	Weight	9.3 lbs with single power supply, without SFP/SFP+	
Environment	Temperature	Operating	0° to 40° C
		Non-operating	-25° to 70° C
	Humidity	Operating	10% to 85% (non-condensing)
		Non-operating	10% to 90% (non-condensing)
	Altitude	Up to 9,800 ft (3,000 m)	
	Shock	20 G, 6 ms, half sine	
	Vibration	Operating	.5 G sine, .4grms random 5-500Hz
Non-operating		2 G sine, 5-500Hz	
Power	AC Input	100 to 240 VAC nominal	
	Supported power range	Nominal	48 Watts
		Maximum	57 Watts
	Frequency	47 to 63 Hz	

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