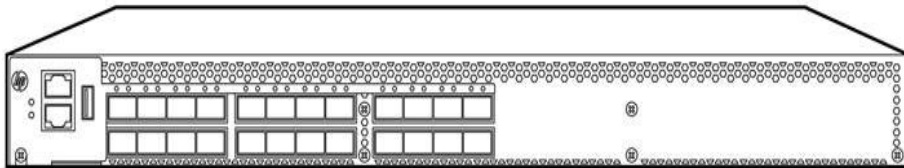## Overview

To remain competitive, IT organizations must keep pace with ever-increasing workloads without a similar increase in their budgets or resources. While virtualization has provided some relief by enabling the benefits of faster deployment and consolidation, it also tends to put additional stress on data center networks. In addition, the move toward cloud computing, which promises greater efficiency and a more service-oriented business model, means that these networks will face even greater demands.

The HP SN3000B Fibre Channel Switch meets the demands of hyper-scale, private cloud storage environments by delivering market-leading 16 Gb Fibre Channel technology and capabilities that support highly virtualized environments. Designed to enable maximum flexibility and investment protection, the SN3000B Switch is configurable in 12 or 24 ports and supports 4, 8, or 16 Gbps speeds in an efficiently designed 1U package. It also provides a simplified deployment process and a point-and-click user interface-making it both powerful and easy to use. The SN3000B Switch offers low-cost access to industry-leading Storage Area Network (SAN) technology while providing "pay-as-you-grow" scalability to meet the needs of an evolving storage environment.

The SN3000B is available in two models:

- HP SN3000B 16Gb 24-port/24-port Active Fibre Channel Switch
- HP SN3000B 16Gb 24-port/12-port Active Fibre Channel Switch

Features and Benefits

Key Features and Benefits

- Delivers 16 Gbps performance with up to 24 ports in an energy-efficient, 1U form factor, providing maximum flexibility for diverse deployment and cooling strategies
- Features Ports on Demand (PoD) capabilities for fast, easy, and cost-effective scaling from 12 to 24 ports in a 12-port increment
- Provides a flexible, simple, and easy-to-use SAN solution with industry-leading technology
- Supports highly virtualized, private cloud storage with multi-tenancy and non-stop operations
- Offers best-in-class port density and scalability for entry SAN switches, along with hot-pluggable components and non-disruptive software upgrades
- Yields exceptional price/performance value, exceeding comparable Ethernet storage-based alternatives

Models

HP SN3000B 16Gb	HP SN3000B 16Gb 24-port/24-port Active Fibre Channel Switch	QW938A
FC Switch Models	HP SN3000B 16Gb 24-port/12-port Active Fibre Channel Switch	QW937A

Product Highlights

SN3000B 16Gb FC Switch	• Simplifies enterprise SAN deployment by combining higher edge switch port density with exceptional scalability, performance and reliability • Delivers 12 or 24-ports in a 1U enclosure • Provides 4 Gb/s, 8 Gb/s, and 16 Gb/s* performance • Employs optional Inter-Switch Link (ISL) Trunking to provide a high-speed data path between switches which enables a high speed data path between 16 Gb/s switches up to 128 Gb/s * 16 Gb/s ISL performance can be obtained between two 16 Gb/s switches.
Configuration Support	http://h18000.www1.hp.com/products/storageworks/san/documentation.html
High-availability features	• Optional integrated redundant, hot swappable power supply with integrated cooling fans • Enhanced Fault Detection Logic • Parity protection on all data paths and system memory
Advanced Fabric Services	• Hardware Enforced Zoning • Frame Filtering • Built-in Web browser management tools • Enhanced Group Management (EGM) • HP B-series SAN Network Advisor software (optional)
Cabinet Support	• HP 22U, 36U and 42U 9000 and 10000 G1 Series, HP 25U, 33U and 41U System/e, HP 22U, 36U, and 42U 10000 G2 Series, and Intelligent Series racks. **NOTE:** To order factory integration, add 0D1 after the part number on your sales order.

Software Components, Standard, Base Models

Frame Filtering	An ASIC based capability that enables new applications and features. The switch 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	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	Web Tools is an intuitive and easy-to-use graphical interface that enables organizations to monitor and manage 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.

HP SAN Network Advisor Professional, Professional Plus, 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.

Adaptive Networking

Adaptive Networking (AN) is an optional 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.

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

Software Components, Optional

SN3000B 16Gb Switch Power Pack+ Software Upgrade

The Power Pack+ Software Upgrade LTU includes the following:

● Fabric Vision
● Fabric Watch
● Advanced Performance Monitor
● Extended Fabric
● ISL Trunking

NOTE: Power Pack+ Software titles listed above are only available as a package with the Power Pack+ Software Upgrade.

Fabric Vision

Fabric Vision offers innovative diagnostic, monitoring and management capabilities to help accelerate new application deployments, address SAN problems before they impact operations and reduce operational costs. It Includes

● Monitoring and Alerting Policy Suite: A policy-based monitoring tool with pre-built rules and automation that simplifies fabric-wide threshold configuration and monitoring.
● Flow Vision: A comprehensive tool that enables administrators to identify, monitor, and analyze specific application data flows without using taps to ensure optimized performance
● Health and performance dashboard: A single customizable screen displayed in HP SAN Network Advisor that contains all critical SAN information for convenient review and analysis

Fabric Vision will be included by default in all HP StoreFabric B-series Fibre Channel switches and Directors bundled with Power Pack+ (with FOS 7.2.0a and later). In all other cases, Fabric Vision can be enabled on HP StoreFabric B-series Fibre Channel switches and Directors in any one of the following ways

● Application of the Fabric Vision LTU (FOS 7.2.0a and later)
● Application of the Power Pack+ LTU (FOS 7.2.0a and later)
● Upgrading existing Switch/Director loaded with Power Pack+ to FOS 7.2.0a or later
● Upgrading existing Switch/Director loaded with both Advanced Performance Monitor (APM) and Fabric Watch (FW) licenses to FOS 7.2.0a or later

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Fabric Watch

Fabric Watch is an optional license which 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.

Product Highlights

Advanced Performance Monitor	This optional 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.
Extended Fabric	Optional license which 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.
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 16Gb switch needs its own license. The switch operating system views the trunk as a single, high bandwidth resource (up to 128Gb) when routing connections between 16Gb switches. Connections are load-balanced across the individual links, which comprise the logical trunk group.
SAN Network Advisor Professional	HP SAN Network Advisor Professional is a server based management application available at no-charge that 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) ● Performs group switch management beyond the scope of Web Tools ● Does not offer management for the DC SAN Backbone Director, the SN8000B 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 SAN Network Advisor Professional and have a small SAN environment may over time feel the need for an enterprise-class product (SAN Network Advisor 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 SAN Network Advisor Professional to SAN Network Advisor Enterprise.
SAN Network Advisor Enterprise and Professional+	HP SAN Network Advisor Enterprise and Professional+ are the enterprise-class products that support FOS products. SAN Network Advisor Enterprise provides complete B-series Directors Management including enterprise-class features/environments such as FICON, Fibre Channel Routing, FCIP, adaptive networking, etc while SAN Network Advisor Professional+ provides the same feature set except for support for the DC SAN Backbone Director, SN8000B 8-Slot Director, and FICON. SAN Network Advisor Enterprise delivers unprecedented scalability, up to 24 fabrics and 9,000 switch ports, while SAN Network Advisor Professional+ scales to 4 SAN Fabrics and 2560 switch ports. There is an upgrade available from SAN Network Advisor Professional Plus to SAN Network Advisor Enterprise.

Service and Support

Warranty	(1-1-1) Hardware Warranty; 1-year parts; 1-year on-site (standard business hours, next business day response) and 1-year labor.
	NOTE: The hardware warranty covers firmware and embedded non-saleable software. For extended hardware installation and maintenance information, click the link below: http://www.hp.com/hps/carepack/services/.
	NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center for details. Hardware or Software product installation is not included in the warranty, but is available and highly recommended.

Service and Support	**Technology Services for increased uptime, productivity and ROI** TRUST HP storage technology experts for every level of service and support. Our integrated portfolio of Services for storage help customers reduce costs, optimize data, streamline storage management, and improve backup and recovery. Capitalizing on HP Storage Systems' capabilities requires a service partner who understands your increasingly complex environment. Team with the people who know HP infrastructure hardware and software best-the experienced professionals at HP Services. **Protect your business beyond warranty** Warranty protects against manufacturer defects, however warranty uplifts, such as HP Care Pack Services protect the business-by reducing downtime risks and providing operational consistency for mission-critical and standard business computing. **What HP Storage Technology Services can do for you** HP Storage Technology Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. HP storage lifecycle support services offers a full spectrum of customer care-from technology support to complex migrations to complete managed services. **Choose the right level of support, deployment and integration services** HP support recommendations are designed to help you enhance technology operations and lower risk-and make it easier for you to seek the right balance between affordability and service-level commitments. Depending on your individual support needs, choose from three levels of care that cover the entire lifecycle to better address your needs-Optimized Care, Standard Care, and Basic Care. If none of our support recommendations meet your needs, we can tailor a service solution for your unique support requirements. Only HP brings together deep expertise, proactive and business critical support and a strong partner network-plus, a full set of infrastructure services designed to power a Converged Infrastructure.

Optimized Care - delivers best performance and stability through deployment and proactive management practices	**HP Proactive Care 24x7-** for a higher return on your storage investment, Proactive Care delivers hardware and software support services designed specifically for your technology; rapid access to Advanced Solution Center Specialists plus, Firmware/Software management and best practice advice. Customers can optimize the return on their IT investment and realize the advantage of running their business critical applications on virtualized/x86 infrastructure. **Plus,40 credits per year,** select from an extensive menu of consultancy and technical services, such as onsite firmware upgrades, health checks, assessments, and education.

Standard Care - maintains high level of uptime, along	**HP Proactive Care 24x7-** for a higher return on your storage investment, Proactive Care delivers hardware and software support services designed specifically for your technology; rapid access to Advanced

Service and Support

with expert help to cut the cost and complexity of implementation and support	Solution Center Specialists plus, Firmware/Software management and best practice advice. Customers can optimize the return on their IT investment and realize the advantage of running their business critical applications on virtualized/x86 infrastructure. **Plus, 30 credits per year**, select from an extensive menu of consultancy and technical services, such as onsite firmware upgrades, health checks, assessments, and education.
Basic Care - Minimum recommended support	**3-Year Support Plus 24-**For a higher return on your server and 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. Plus, 10 credits per year, select from an extensive menu of consultancy and technical services, such as onsite firmware upgrades, health checks, assessments, and education.

HP Proactive Select: Accelerate the ROI of your technology investment
HP Proactive Select is a flexible way to purchase services to fit your particular environment or situation. Working with an HP Account Support Manager, you select a 'package' of services, from a wide range of proactive services offered by HP spanning many technologies and processes-- such as onsite firmware upgrades, health checks, assessments, and education. You tailor the service delivery to improve time-to-production, optimize performance, or build in continuous improvements

The link to the datasheet is as follows:
http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA2-3842ENW.pdf

Proactive Care 24x7 - with 40 HP Proactive Select credits:
Specifically designed for complex environments, this offers an end-to-end environment support solution that covers servers, operating systems, hypervisors, storage and SANs.Service provides rapid response to incidents, addressed 24x7x365, through HP's advanced solution center support and proactive reports for problem prevention |
| **Implement right from the start** | **Whichever level of care you select, it includes:**
HP Enhanced Implementation Service for SANs-HP delivers complete design and implementation services for Fibre Channel, FCoE, FCIP, SAS, and iSCSI SAN connectivity components.
http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-8527EN.pdf |
| **Remote Support Tools** | **HP Insight Remote Support -** Count on proven technology to deliver secure, reliable 24x7 remote monitoring, diagnosis, and problem resolution, all available at no extra charge if you have an existing warranty, service agreement, or HP Care Pack Service with HP.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-4676ENW.pdf |
| **Additional service to meet your needs** | **HP Assessment Service for SANs -** We offer customized technical and operational guidance to customers employing HP storage subsystems and the interconnecting storage area network (SAN), with recommendations to help improve availability levels and ongoing environment management.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA1-2941ENW.pdf |

Service and Support

For more information

www.hp.com/services/storage

To learn more on HP Storage Services, please contact your HP sales representative or HP Authorized Channel Partner

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 www.hp.com/go/lookuptool

Family Information

Features	8/8 SAN Switch Base and 8/8 SAN Switch	8/24 SAN Switch Base	8/80 SAN Switch and 8/80 SAN Switch Power Pack+	SN3000B 16Gb FC Switch	SN6000B 16Gb FC Switch and SN6000B 16Gb FC Power Pack+
Targeted Environment	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments
Fibre Channel Port Bandwidth	8Gbit/sec	8Gbit/sec	8Gbit/sec	16Gbit/sec	16Gbit/sec
Aggregate device bandwidth	128 - 384 Gbit/sec full duplex	256 - 384 Gbit/sec full duplex	768 - 1280 Gbit/sec full duplex	384 - 768 Gbit/sec full duplex	768 - 1536 Gbit/sec full duplex
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	**3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**				
FC Ports	8 Enabled 24 Max	16 Enabled 24 Max	48 Enabled 80 Max	12 or 24 Enabled 24 Max	24 or 48 Enabled 48 Max
SFP	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+ Upgrade	Included with Power Pack+ or Optional Upgrade
Adaptive Networking	Included	Included	Included	Included	Included
Form factor	1U	1U	2U	1U	1U
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	No	No	Yes	Optional	Yes
Hot plug fans	No	No	Yes	Yes (integrated with power supply)	Yes (integrated with power supply)

Family Information

Features	1606 Extension SAN Switch	Encryption SAN Switch
Targeted Environment	Data Centers	Data Centers
Fibre Channel Port Bandwidth	8Gbit/sec	8Gbit/sec
Ethernet	1Gbit/sec Ethernet	N/A
Aggregate device bandwidth		512 Gbit/sec full duplex
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	**3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**	
FC Ports	4 or 16 Enabled 16 Max	32 Enabled 32 Max
Ethernet Ports	2 or 6 Enabled 6 Max	N/A
SFP	B-series	B-series
Advanced Trunking	Included with Power Pack+ or Optional Upgrade	Optional Upgrade
Adaptive Networking	Included	Included
Form factor	1U	2U
Zoning Software	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes	Yes
Hot plug fans	Yes	Yes

Features	SN8000B 8-Slot SAN Director Power Pack+	SN8000B 4-Slot SAN Director and 4-Slot SAN Director Power Pack+	DC SAN Backbone Director Power Pack+	DC04 SAN Director and DC04 SAN Director Power Pack+
Targeted Environment	Cloud Optimized Data Centers	Cloud Optimized Data Centers	Traditional Data Centers	Traditional Data Centers
Port Bandwidth	Up to 16Gbit/sec	Up to 16Gbit/sec	8Gbit/sec	8Gbit/sec
Aggregate device bandwidth	16.4 Tbit/sec full duplex	8.2 Tbit/sec full duplex	4.1 Tbit/sec full duplex	2 Tbit/sec full duplex
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	**3PAR StoreServe, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**			
Ports	Up to 512 SFP	Up to 256 SFP	Up to 512	Up to 256
SFP	B-series	B-series	B-series	B-series

Family Information

Advanced Trunking	Included with Power Pack	Included with Power Pack or Optional Upgrade	Included with Power Pack+	Included with Power Pack+ or Optional
Adaptive Networking	Included	Included	Included	Included
Form factor	14U	9U	14U	9U
Zoning Software	Yes (included)	Yes (included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes	Yes	Yes	Yes
Hot plug fans	Yes	Yes	Yes	Yes

Features	Brocade 16Gb SAN Switch for HP c-Class BladeSystem	Brocade 8Gb SAN Switch for HP c-Class BladeSystem	B-Series Multi-protocol Router Blade	B-Series Multi-protocol Extension Blade
Targeted Environment	Datacenters, Workgroups, Departments	Workgroups, Departments	Data Centers	Data Centers
Port Bandwidth	16Gbit/sec	8Gbit/sec	4 Gbit/sec FC Ethernet: 1 Gbit/sec	8 Gbit/sec FC Ethernet: 1 or 10 Gbit/sec
Aggregate device bandwidth	896 Gbit/sec full duplex	384 Gbit/sec full duplex	N/A	N/A
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	**3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**			
Ports	12 external /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	B-series
Advanced Trunking	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	Included	Included	Included
Form factor	Embedded	Embedded	Blade in 4/256, DC SAN Back, or DC04 SAN Dir	Blade in SN8000B and DC SAN Directors
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes, in BladeSystem Enclosure	Yes, in BladeSystem Enclosure	Yes, in director chassis	Yes, in director chassis
Hot plug fans	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	Model Description	Part Number
SN3000B 16Gb 24/24 FC Switch	HP SN3000B 16Gb 24-port/24-port Active Fibre Channel Switch	QW938A
	16Gb 24/24 FC Switch with 24 active ports; rackmount kit; accessory kit (enterprise safety and regulatory information, installation guide, rack-mounting instructions), power cord, serial cable, base software of Advanced Fabric OS, Advanced Web Tools, Brocade EZ Switch, Advanced Zoning and SAN Network Advisor Professional. **NOTE:** Requires optical transceivers listed below.	
SN3000B 16Gb 24/12 FC Switch	HP SN3000B 16Gb 24-port/12-port Active Fibre Channel Switch	QW937A
	16Gb 24/12 FC Switch with 12 active ports; rackmount kit; accessory kit (enterprise safety and regulatory information, installation guide, rack-mounting instructions), power cord, serial cable, base software of Advanced Fabric OS, Advanced Web Tools, Brocade EZ Switch, Advanced Zoning, and SAN Network Advisor Professional. **NOTE:** Requires optical transceivers listed below.	
SN3000B 16Gb 24-12 12-port FC Upgrade LTU	HP SN3000B 16Gb 24/12 Fibre Channel Switch 12-port Upgrade LTU	TC391A
	12 port upgrade license for SN3000B 16Gb 24/12 FC Switch (QW937A)	
SN3000B 16Gb FC Switch Optional Power Supply	HP SN3000B Optional Power Supply	QW939A
	Optional, hot-swappable power supply for SN3000B 16Gb 24/24 FC Switch (QW938A) and SN3000B 16Gb 24/12 FC Switch (QW937A)	

Step 2 - Options

Select each type of required options with quantities specified:

	Model Description	Part Number
Fibre Channel Transceivers	HP B-series 16Gb SFP+ Short Wave Transceiver	QK724A
	HP 8Gb Short Wave B-series FC SFP+ 1 Pack	AJ716B*
	HP B-series 16Gb Long Wave 25km Fibre Channel SFP+ 1 Pack	H6Z29A

*__NOTE:__ AJ716A is not supported with the SN3000B 16Gb FC Switch

Distance - Maximum	HP Standard OM2 Cable	HP Standard OM3 Cable	HP PremierFlex OM3+ Cable	HP PremierFlex OM4 Cable
16Gb performance:	35 meters	100 meters	100 meters	125 meters
8Gb performance:	50 meters	150 meters	150 meters	190 meters
4Gb performance:	150 meters	380 meters	380 meters	400 meters

	Model Description	Part Number
	HP B-series 16Gb SFP+ Long Wave 10km Transceiver	QK725A
	HP 8Gb Long Wave B-series 10km Fibre Channel 1 Pack SFP+ Transceiver	AJ717A
	HP B-series 8Gb Extended Long Wave 25km Fibre Channel SFP+ Transceiver 1 Pack	AW538A
USB	HP B-series 2G USB Drive	AK864B
Optical Cables	**HP PremierFlex OM4+ Fiber Optic Cables**	

Configuration Information

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A
HP OM3 LC-LC Optical Cables	
HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
HP LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A

Step 3 - Optional Software*

* For Fabric OS (FOS) minimum requirements, please refer to: http://spock.corp.hp.com/

Software for SN3000B 16Gb FC Switch	HP B-series SAN Network Advisor Enterprise LTU	TC352A
	HP B-series SAN Network Advisor Professional Plus LTU	TC353A
	HP B-series SAN Network Advisor Professional Plus Upgrade LTU	TC354A
	HP B-series 8-24-port SAN Switch Power Pack+ Upgrade LTU	T5521A

NOTE: The Power Pack+ Software Bundle kit includes Fabric Vision, Fabric Watch, ISL Trunking, Extended Fabric and Advanced Performance Monitor.

NOTE: Adaptive Networking and Server Application Optimization features are included by default in the switch firmware (FOS 7.2.0a or later) and do not require a separate license

	HP B-series 8-24-port SAN Switch Adaptive Networking RTU	T5524A
	HP B-series 8-24 Port SAN Switch ISL Trunking LTU	T5527A
	HP SN3000B 16Gb 24/12 Fibre Channel Switch 12-port Upgrade LTU	TC391A
	HP StoreFabric B-series 8Gb and 16Gb Entry Switch Fabric Vision LTU	TC509A
Optional Software	HP Intelligent Infrastructure Analyzer Software v2 LTU	TC472A
	HP Intelligent Infrastructure Analyzer Software v2 E-LTU	TC472AAE

QuickSpecs

Technical Specifications

System Architecture	**Fibre Channel ports**	Switch mode (default): 12- and 24-port configurations (12-port increment through Ports on Demand [PoD] license); universal (E, F, M, EX, D) ports
	Scalability	Full fabric architecture: http://h18006.www1.hp.com/products/storageworks/san/documentation.html
	Certified maximum	Refer to SAN Design Guide for current configuration information: http://h18006.www1.hp.com/products/storageworks/san/documentation.html
	Interoperability	• 4/256 SAN Director • 4/64 SAN Switch • 4/32 SAN Switch • 4/32B SAN Switch • 4/8 SAN Switch • 4/16 SAN Switch • 8/8 SAN Switch • 8/24 SAN Switch • 8/40 SAN Switch • 8/80 SAN Switch • Encryption SAN Switch • 2408 FCoE Converged Network Switch • 1606 Extension SAN Switch • DC04 SAN Director • DC SAN Backbone Director • SN8000B 8-Slot SAN Backbone Director • SN8000B 4-Slot SAN Director • SN6500B Fibre channel Switch • SN3000B Fibre channel Switch • SN6000B 16Gb FC Switch • Brocade 4Gb SAN Switch for HP c-Class BladeSystem • Brocade 8Gb SAN Switch for HP BladeSystem c-Class • HP 400 MP-Router
	Performance	Auto-sensing of 4, 8, and 16 Gbps port speeds.
	ISL Trunking	Frame-based trunking with up to eight 16 Gbps ports per ISL trunk; up to 128 Gbps per ISL trunk. Exchange-based load balancing across ISLs with DPS included in Fabric OS. There is no limit to how many trunk groups can be configured in the switch.
	Aggregate bandwidth	768 Gbit/sec full duplex
	Fabric latency	Latency for locally switched ports is 700 ns; encryption/compression is 5.5 sec per node; Forward Error Correction (FEC) adds 400 ns between E_Ports (enabled by default).
	Maximum frame size	2112-byte payload
	Classes of service	Class 2, Class 3, Class F (inter-switch frames)
	Port types	D_Port (Diagnostic Port), E_Port, EX_Port, F_Port, M_Port (Mirror Port); self-discovery based on switch type (U_Port); optional port type control Access Gateway mode: F_Port and NPIV-enabled N_Port
	Data traffic types	Fabric switches supporting unicast

Technical Specifications

	Media types	Hot-pluggable, B-Series Branded Small Form Factor Pluggable (SFP), LC connector; Short-Wave Laser (SWL), Long-Wave Laser (LWL); distance depends on fiber-optic cable and port speed. Supports SFP+ (16/8 Gbit/sec) optical transceivers.
	USB	One USB port for system log file downloads or firmware upgrades
	Fabric services	Simple Name Server (SNS); Registered State Change Notification (RSCN), NTP, RADIUS, RCS (Reliable Commit Service), Dynamic Path Selection (DPS), Brocade Advanced Zoning, WEB TOOLS™. Optional Fabric Services include: Fabric Watch™, Extended Fabrics, ISL Trunking, End-to-End Performance Monitoring (APM) and Adaptive Networking with QoS.
	Options	SFP media, USB Device
Management	**Management software supported**	SSH v2, HTTP/HTTPS, SNMP v1/v3, Telnet; SNMP; WEBTOOLS, B-series SAN Network Advisor, SMI-S, RADIUS, LDAP.
	Management access	10/100 Mbps Ethernet (RJ-45), in-band over Fibre Channel, serial port (RJ-45), and one USB port
	Diagnostics	POST and embedded online/offline diagnostics including FCPing, Pathinfo (FCTraceroute), Forward Error Correction (FEC), etc. Diagnostic Port (D-Port) diagnostic features for physical link trouble shooting
Mechanicals	**Enclosure**	Back-to-front airflow; power from back; 1U
	Size	Width: 438 mm (17.23 in.) Height: 43 mm (1.7 in.) Depth: 443 mm (17.45 in.)
	System Weight	7.82 kg (17.25 lb) with one power supply, without transceivers
Environment	**Temperature**	Operating: 0° to 40° C (32° to 104° F) Non-operating: -25° to 70° C (-13° to 158° F)
	Humidity	Operating: 10 to 85 percent non-condensing
	Altitude	Operating: Up to 3000 meters (9,842 feet) Storage: Up to 12 kilometers (39,370 feet)
	Shock	Operating: 20 g, 6 ms half-sine Non-operating: Half sine, 33G 11ms. 3/eg Axis
	Vibration	Operating: 0.5 g sine, 0.4 grms random, 5 to 500 Hz Non-operating: 2.0 g sine, 1.1 grms random, 5 to 500 Hz
Power	**Power Supply**	Single power supply with integrated system cooling fan; Optional hot-swappable dual redundant power supply
	AC input	85 V to 264 V ~5 A to 2.5 A
	Input line frequency	47 Hz to 63 Hz
	Power Consumption	80 watts with all 24 ports populated with 16 Gbps SWL optics 60 watts for empty chassis with no optics

Technical Specifications