Overview

HPE 8/24 SAN Switch

The HPE 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 Fabric Vision, Fabric Watch, ISL Trunking, Extended Fabric and Advanced Performance Monitor. 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. Power Pack+ software enables infrastructure management through a single-pane-of-glass.

HPE 8/24 SAN Switch

What's New

- Updated HPE B-series Network Advisor SKUs to the next suffix (A to B) and added 3 Network Advisor E-LTU SKUs (suffix AE)
- HPE 8/24 8Gb Bundled Fibre Channel switch
- New RoHS 2016 compliant HPE SAN switches

Notes: Restriction of Hazardous Substances Directive or RoHS is a directive adopted by the European Union that restricts the use of certain hazardous materials in the manufacture of various types of electronic and electrical equipment. The RoHS compliant products with new part numbers listed in this document are functionally equivalent to the corresponding products with old part numbers and are fully interchangeable.

Overview

Models

HPE 8/24 SAN Switch

Description	SKU
HPE 8/8 and 8/24 SAN Switch 8-port Upgrade E-LTU	T5518AAE
• (Physical License - T5518A)	
HPE B-series Entry Switch Power Pack+ E-LTU	T5521BAE
• (Physical License - T5521B)	

Notes: Some HPE B-series software licenses are now available through the Electronic Delivery (E-Delivery) mechanism. The E-Delivery software licenses with new part numbers listed in this document are functionally equivalent to the corresponding physical licenses with different part numbers. Some software licenses in this document are represented by two part numbers, the first of which is the E-Delivery version (ending with AAE) and the second is the physical version.

Standard Features

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 HPE SAN Switch functionality from Embedded to Enterprise. The HPE 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 Hewlett Packard Enterprise.
- 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 HPE SAN solutions
    - Interoperability with more than 3 Million HPE SAN Switch installed base
- HPE Power Pack+ Software Bundle (Optional) - Rich, feature packed software that provides the highest supported modular functionality. It includes
    - Fabric Vision
    - Trunking
    - Fabric Watch
    - Advanced Performance Monitor
    - Extended Fabric
- Broadest Range of HPE 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
- Unique Bundle model
    - The HPE 8/24 8Gb Bundled Fibre Channel switch model facilitates ease of ordering with more affordability by offering the HPE 8/24 Base SAN switch along with sixteen 8Gb optical transceivers in one package
    - The HPE 8/24 8Gb Bundled Fibre Channel switch model is offered at a lower price than the sum of the list prices of the HPE 8/24 Base SAN switch and the 8Gb optical transceiver

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: **https://h20566.www2.hpe.com/hpsc/doc/public/display?docId=c00403562**

High-availability features

Hot Code Load Activation

Standard Features

Advanced Fabric Services
- Adaptive Networking
- ISL Trunking (optional)
- Hardware Enforced Zoning
- Web Tools
- Enhanced Group Management (EGM)
- Fabric Watch (optional)
- Extended Fabric (optional)
- Server Application Optimization (SAO)
- SAN Network Advisor (optional)

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

Scalability
The SAN Switch 8/24 scales to the maximum limits defined in the SAN Design Guide.
https://h20566.www2.hpe.com/hpsc/doc/public/display?docId=c00403562

Cabinet Support
HPE (22U, 36U and 42U) 10000 G2 Series, the Intelligent Series racks and   HPE (14U, 22U, 36U, 42U, and 47U) 11000 G2 Series.
Notes: 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.

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.

Standard Features

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 - SAN Network Advisor Professional, Professional Plus, or Enterprise.

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.

Server Application Optimization
Server Application Optimization (SAO) 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 requires B-series HBA installed in the server

Software Components, Optional

Power Pack+ Software Bundle
Includes bundled license for:
- Fabric Vision
- Fabric Watch
- Advanced Performance Monitoring
- Extended Fabric
- ISL Trunking

Notes: Starting with FOS 7.4.0a, Fabric Watch and Advanced Performance Monitor are replaced by MAPS and Flow Vision respectively. Both are included in Fabric Vision.

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 HPE SAN Network Advisor that contains all critical SAN information for convenient review and analysis.

Fabric Vision will be included by default in all HPE 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 HPE B-series Fibre Channel switches and Directors in any one of the following ways

Standard Features

- 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

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 Monitoring
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.
Notes: Advanced Performance Monitoring has been obsoleted in FOS 7.4.0 and later. Users can utilize the Fabric Vision licensed Flow Vision features for performance monitoring.

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.
Notes: Fabric Watch has been obsoleted in FOS 7.4.0 and later. Users can migrate their Fabric Watch settings to the Fabric Vison licensed Monitoring and Performance Suite (MAPS) prior to upgrading.

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.

SAN Network Advisor Professional
HPE SAN Network Advisor Professional is a management application available at no-charge and comes with B-series SAN Switches and:
- Allows management of up to two SAN Fabric OS (FOS) fabrics (up to a 300 B-series switch ports and 1000 devices) at a time
- Performs group switch management beyond the scope of Web Tools
- Does not offer management of the SN8000B 8-Slot or DC SAN Backbone Directors

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

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 Professional+ or 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 Professional+ or SAN Network Advisor Enterprise.

Standard Features

SAN Network Advisor Enterprise and Professional+

HPE SAN Network Advisor Enterprise and Professional+ are the enterprise-class products that support FOS products as well as FOS and M-EOS products together. SAN Network Advisor Enterprise provides complete SN8000B 8-Slot Director and DC SAN Backbone Director management including enterprise-class features/environments such as FICON, Fibre Channel Routing, FCIP, adaptive networking, etc while HPE SAN Network Advisor Professional+ provides the same feature set except for support for the SN8000B 8-Slot Director, DC SAN Backbone Director, and FICON.

HPE SAN Network Advisor Enterprise delivers unprecedented scalability, up to 100 fabrics and 15,000 switch ports, while HPE SAN Network Advisor Professional+ scales to 36 SAN Fabrics and 2560 switch ports. To accommodate growth, there is an upgrade available to SAN Network Advisor Enterprise from SAN Network Advisor Professional Plus.

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

HPE Smart SAN for 3PAR

HPE Smart SAN, optional software for HPE 3PAR, makes end-to-end SAN configuration and management simple and reduces the probability of errors through automation. It is an application embedded in SAN components (array, hosts and switches) that enables 3PAR arrays to orchestrate configuration, settings and policies across the SAN. Smart SAN is only supported with B-series Switches, HPE Fibre Channel Adapters (HBAs) and 3PAR storage. HPE Smart SAN for 3PAR through its Target Driven Peer Zoning (TDPZ) feature enables customers to automate peer zoning, resulting in the creation of fewer zones and enables configuration of zones in minutes and not in hours. Through automation, it reduces the probability of errors and potential downtime. Additional information can be found here: **http://www.hpe.com/storage/3par**

Notes:
– Supports B-series Brocade 16/8Gb FC switches with FOS 7.4.0a or later.
– A list of supported HPE FC Adapters can be found at **http://www.hpe.com/storage/spock**
– Supports 3PAR StoreServ storage with 3.2.2 or later with only 16Gb target ports on HPE 3PAR StoreServ storage.

Service and Support

Warranty

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

Notes:

– The hardware warranty covers firmware and embedded non-saleable software. Saleable software carries its own warranty, see below.
– Software Warranty – Hewlett Packard Enterprise 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 Hewlett Packard Enterprise 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 Hewlett Packard Enterprise in the country in which you obtained the software.

For bundled Software Support

Your HPE 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

Service and Support

Protect your business beyond warranty with HPE Support Services

HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation. From the onset of your transformation journey, Advisory and Transformational Services focus on designing the transformation and creating a solution roadmap. Professional Services specializes in creative configurations with flawless and on-time implementation, and on-budget execution.   Finally, operational services provides innovative new approaches like Flexible Capacity and Datacenter Care, to keep your business at peak performance. HPE is ready to bring together all the pieces of the puzzle for you, with an eye on the future, and make the complex simple.

Connect your devices

Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Reduce down time, increase diagnostic accuracy and have a single consolidated view of your environment. By connecting, you will receive 24x7monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to HPE support. Learn more about getting connected at **http://www.hpe.com/services/getconnected**

Optimized Care

HPE Proactive Care* with 6 hour call-to-repair commitment, three year Support Service

HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing tailored, proactive reports with recommendations and advice when your products are connected to Hewlett Packard Enterprise. This Service combines three years' proactive reporting and advice with our highest level of hardware support - The Hewlett Packard Enterprise 24x7, six hour hardware call-to-repair. Hewlett Packard Enterprise is the only leading manufacturer who makes this level of coverage available as a standard service offering for your most valuable storage systems.
https://www.hpe.com/h20195/v2/getpdf.aspx/4aa3-8855enw.pdf

Service and Support

Standard Care
HPE Proactive Care* with 24x7 coverage, three year Support Service
HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice when your products are connected to Hewlett Packard Enterprise. This Service combines three years' proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. **https://www.hpe.com/h20195/v2/getpdf.aspx/4aa3-8855enw.pdf**

Notes: *HPE Proactive Care and HPE Proactive Care Advanced require that the customer connect their devices to make the most of these services and receive all the deliverables.

Basic Care
HPE Foundation Care 24x7, three-year Support Service
HPE Foundation Care 24x7 gives you access to Hewlett Packard Enterprise 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. Simplify your support experience and make Hewlett Packard Enterprise your first call to help resolve hardware or software problems.
https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA4-8876ENW

Related Services
HPE Installation Service
Provides for the basic hardware installation of Hewlett Packard Enterprise branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/5981-9356EN.pdf

HPE SAN Deployment Service
Hewlett Packard Enterprise delivers complete design and implementation services for Fibre Channel, FCoE, FCIP, SAS, and iSCSI SAN connectivity components.
https://h20195.www2.hpe.com/V2/GetPDF.aspx/5981-8527ENW.pdf

HPE Datacenter Care service
HPE Datacenter Care helps improve IT stability and security, increase the value of IT, and enable agility and innovation. It is a structured framework of repeatable, tested, and globally available services "building blocks." You can deploy, operate, and evolve your datacenter wherever you are on your IT journey. With HPE Datacenter Care, you benefit from a personalized relationship with Hewlett Packard Enterprise via a single point of accountability for HPE and others' products. For more information, visit
http://www.hpe.com/services/datacentercare

HPE Flexible Capacity
With Flexible Capacity, you get the speed, scalability, and economics of the public cloud in the privacy of your data center. Gain the advantages of the public cloud—consumption-based payment, rapid scalability without worrying about capacity constraints. Reduce the "heavy lifting" needed to operate a data center. And retain the advantages that IT provides the business (i.e., control, security). Deliver the right user experience, choose the right technology for the business, manage privacy and compliance, and manage the cost of IT. And, you have the option to use the public cloud when needed.

Service and Support

Parts and Material
Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

HPE Support Center
The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers.

Learn more **http://www.hpe.com/support/hpesc**

The HPE Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.

HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.
Notes: *HPE Support Center Mobile App is subject to local availability.

For more information
http://www.hpe.com/services
https://www.hpe.com/us/en/services/operational.html

To learn more on HPE Storage Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE" **https://www.hpe.com/us/en/contact-hpe.html**

HPE Support Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:
- Services for customers purchasing from Hewlett Packard Enterprise or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find HPE Support Services at **https://ssc.hpe.com/portal/site/ssc/**

Configuration Information

Step 1 - Base Configuration(Select one)

Description	SKU
HPE 8/24 Base 16-port Enabled SAN Switch	AM868C

8/24 Base (16) Full Fabric Ports 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, single power supply, serial cable, base software of Full Fabric, Advanced Fabric OS, Advanced Web Tools, and Advanced Zoning
Notes: Requires optical transceivers listed below.

HPE 8/8 and 8/24 SAN Switch 8-port Upgrade E-LTU	T5518AAE

Notes: (Physical License - T5518A)

8/24 SAN Switch 8Gb 8-port Upgrade LTU

8 port upgrade license for 8/24 SAN Switch (AM868B, AM868C) and 8/24 Bundled Fibre Channel Switch (C8R07A)

Add Software

For Fabric OS (FOS) minimum requirements, please refer to: **http://www.hpe.com/storage/spock**

B-series 8-24 Port SAN Switch Power Pack+ Upgrade LTU

HPE B-series Entry Switch Power Pack+ E-LTU	T5521BAE

- Physical License T5521B

Notes: 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

Optional Software

HPE 8/16Gb Entry Switch Fabric Vision E-LTU	TC509AAE

- Physical License - TC509B

HPE B-series Entry Switch ISL Trunking E-LTU	T5527AAE

- Physical License - T5527A

Notes:
- Some HPE B-series software licenses are now available through the Electronic Delivery (E-Delivery) mechanism. The E-Delivery software licenses with new part numbers listed in this document are functionally equivalent to the corresponding physical licenses with different part numbers. Some software licenses in this document are represented by two part numbers, the first of which is the E-Delivery version (ending with AE) and the second is the physical version.
- HPE SAN Network Advisor software will no longer be shipped as a DVD to customers. Instead, customers will be able to access and download the software from The HPE Product Download web site.
- Universal Temporary Licenses (UTLs) are available for trial usage or to test select features before purchasing permanent licenses. These UTLs enable optional features on B-series Directors and Switches on a temporary basis for one-time usage.
- Additional information can be found at the following URL using your HPE Passport credentials: **https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=BROCADETRIAL**

Configuration Information

Step 2 - Additional Options

Optical Transceivers

Description	SKU
HPE B-series 8Gb Shortwave Fibre Channel 1 Pack SFP+ Transceiver	AJ716B

Distance Maximum	OM3 Cable	PremierFlex Cable
8Gb performance:	150 meters	150 meters
4Gb performance:	380 meters	380 meters
2Gb performance:	500 meters	500 meters

HPE B-series 8Gb Long Wave 10km Fibre Channel 1 Pack SFP+ Transceiver	AJ717A

USB Device

HPE B-series 4G USB Drive	N9Y63A

Optical Cables

HPE PremierFlex OM4+ Fiber Optic Cables

HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A

OM3 LC-LC type cables

HPE LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
HPE LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HPE LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HPE LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A

Accessories

HPE B-Series Switch Rack-Mount Kit	A7511A

Notes: When any of the switch models listed above is ordered, an accessory kit which contains the Rack Mount Kit is included in the package by default. A7511A is required only when the original accessory kit or Rack Mount Kit is unavailable.

Technical Specifications

Family Information

Features	8/8 SAN Switch Base and 8/8 SAN Switch	8/24 SAN Switch Base	SN6000B 16Gb FC Switch and SN6000B 16Gb FC Power Pack+
Targeted Environment	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments
Fibre Channel Port Bandwidth	8Gbit/sec	8Gbit/sec	16Gbit/sec
Aggregate device bandwidth	64-192 Gbit/sec	128-192 Gbit/sec	384-768 Gbit/sec
OS Support	**Notes:** Please Refer to **SAN Design Guide**		
Storage system support	**3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**		
FC Ports	8 Enabled 24 Max	16 Enabled 24 Max	24 or 48 Enabled 48 Max
SFP	B-series	B-series	B-series
Advanced Trunking	Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade
Adaptive Networking	Included	Included	Included
Form factor	1U	1U	1U
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	No	No	Yes
Hot plug fans	No	No	Yes (integrated with power supply)

Technical Specifications

Features	8/24 Bundled FC Switch	SN6000B 16Gb Bundled FC Switch
Targeted Environment	Workgroups, Departments	Workgroups, Departments
Fibre Channel Port Bandwidth	8Gbit/sec	16Gbit/sec
Aggregate device bandwidth	128-192 Gbit/sec	384-768 Gbit/sec
OS Support	**Notes:** Please Refer to **SAN Design Guide**	
Storage system support	**3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**	
FC Ports	16 Enabled 24 Max	24 or 48 Enabled 48 Max
SFP	B-series, 16 units included in the box	B-series, 24 units included in the box
Advanced Trunking	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade
Adaptive Networking	Included	Included
Form factor	1U	1U
Zoning Software	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	No	Yes
Hot plug fans	No	Yes (integrated with power supply)

Technical Specifications

Features	SN6500B 16Gb FC Switch and SN6500B 16Gb FC Power Pack+	SN4000B Power Pack+ SAN Extension Switch	1606 Extension SAN Switch
Targeted Environment	Workgroups, Departments	Data Centers; long distance replication, multiprotocol SAN Fabrics	Data Centers
Fibre Channel Port Bandwidth	16Gbps	16Gbps	8Gbps
Ethernet	N/A	1/10/40 Gbps Ethernet	1Gbps Ethernet
Aggregate device bandwidth	768-1536-Gbps		
OS Support	**Notes:** Please Refer to SPOCK **https://www.hpe.com/storage/spock**		
Storage system support	3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA		
FC Ports	48 or 96 Enabled 96 Max	24 FC Ports Enabled 24 Max	4 or 16 Enabled 16 Max
Ethernet Ports	N/A	16 Enabled	2 or 6 Enabled 6 Max
SFP	B-series	B-series	B-series
Advanced Trunking	Included with Power Pack+ or Optional Upgrade	Included	Included with Power Pack+ or Optional Upgrade
Adaptive Networking	Included	Included	Included
Form factor	2U	2U	1U
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes	Yes	Yes
Hot plug fans	Yes	Yes	Yes

Technical Specifications

Features	SN8000B 8-Slot SAN Director Power Pack+	SN8600B 8-Slot SAN Director Power Pack+
Targeted Environment	Cloud Optimized Data Centers	Cloud Optimized Data Centers
Port Bandwidth	Up to 16Gbps	Up to 32 Gbps
Aggregate device bandwidth	10.2Tbps	20.48 Tbps
OS Support	**Notes:** Please Refer to SPOCK **https://www.hpe.com/storage/spock**	
Storage system support	3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA	
Ports	Up to 512 SFP	512 32 Gbps ports or a 640-port equivalent with 128 Gbps (32 Gbps×4 QSFP ports)
SFP	B-series	B-series
Advanced Trunking	Included with Power Pack	Included with Power Pack
Adaptive Networking	Included	Included
Form factor	14U	14U
Zoning Software	Yes (included)	Yes (included)
Hot plug, redundant power supplies	Yes	Yes
Hot plug fans	Yes	Yes

Technical Specifications

Features	SN8000B 4-Slot SAN Director and 4-Slot SAN Director Power Pack+	SN8600B 4-slot SAN Director Power Pack+
Targeted Environment	Cloud Optimized Data Centers	Cloud Optimized Data Centers
Port Bandwidth	Up to 16Gbps	Up to 32Gbps
Aggregate device bandwidth	5.1 Tbps	10.24 Tbps
OS Support	**Notes:** Please Refer to SPOCK **https://www.hpe.com/storage/spock**	
Storage system support	3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA	
Ports	Up to 256 SFP	Up to 256 32 Gbps ports or a 320-port equivalent with 16 ICL ports.
SFP	B-series	B-Series
Advanced Trunking	Included with Power Pack or Optional Upgrade	Included with Power Pack
Adaptive Networking	Included	Included
Form factor	9U	9U
Zoning Software	Yes (included)	Yes (Included)
Hot plug, redundant power supplies	Yes	Yes
Hot plug fans	Yes	Yes

Technical Specifications

Features	Brocade 16Gb SAN Switch for HPE c-Class BladeSystem	Brocade 8Gb SAN Switch for HPE c-Class BladeSystem	Brocade 16Gb Fibre Channel SAN Switch Module for HPE Synergy
Targeted Environment	Enterprise, Datacenters, Workgroups, Departments	Workgroups, Departments	Enterprise, Datacenters, Workgroups, Departments
Port Bandwidth	16Gbit/sec	8Gbit/sec	16 Gbit/sec
Aggregate device bandwidth	448 Gbit/sec (24 ports x 16Gb/s)	192 Gbit/sec	576 Gb/s (36 ports x 16 Gb/s)
OS Support	**Notes:** Please Refer to **SAN Design Guide**		
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	8 SFP+ external, 4 QSFP external /12 internal
SFP	B-series	B-series	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
Adaptive Networking	Included	Included	Included
Form factor	Embedded	Embedded	Embedded
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes, in BladeSystem Enclosure	Yes, in BladeSystem Enclosure	Yes, in Synergy Frame
Hot plug fans	Yes, in BladeSystem Enclosure	Yes, in BladeSystem Enclosure	Yes, in Synergy Frame

Technical Specifications

Fibre Channel Standards And Revisions

- 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

Interoperability

- 4/8 SAN Switch
- 4/16 SAN Switch
- 4/32 SAN Switch
- 4/64 SAN Switch
- Core Switch 4/64
- DC04 SAN Director
- DC SAN Backbone Director
- 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
- Brocde 8Gb SAN Switch for HPE BladeSystem c-Class
- Brocade 4Gb SAN Switch for c-class HPE BladeSystem
- 400 MP Router
- HPE MP-Router Blade
- SN8000B Director
- SN6500B Fibre Channel Switch
- SN6000B Fibre Channel Switch
- SN3000B Fibre Channel Switch

Technical Specifications

System Architecture

Fibre Channel ports	16 active with optional license to activate 24 universal ports
Scalability	Full fabric architecture: **https://h20566.www2.hpe.com/hpsc/doc/public/display?docId=c00403562**
Certified maximum	Refer to SAN Design Guide for current configuration information: **https://h20566.www2.hpe.com/hpsc/doc/public/display?docId=c00403562**
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
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, SAN Network Advisor, 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	

Summary of Changes

Date	Version History	Action	Description of Change
05-Oct-2020	Version 34	Changed	Updated physical license
03-Aug-2020	Version 33	Changed	QuickSpecs layout was updated and Obso SKUs were removed
06-Apr-2020	Version 32	Changed	QuickSpecs layout was updated and Obso SKUs were removed
05-Nov-2018	Version 31	Changed	Overview, Models, Service and Support, Standard Features and Configuration Information, sections were updated. SKU descriptions were updated.
23-Oct-2017	Version 30	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
07-Jun-2016	Version 29	Changed	Changes made to the Overview and Product Highlights sections.
08-Apr-2016	Version 28	Changed	Service Section was updated.
16-Feb-2016	Version 27	Changed	Content updated throughout the QuickSpecs
10-Jun-2014	Version 26	Changed	Changes were made throughout the QuickSpecs.
28-Feb-2014	Version 25	Changed	Updated the following: added to Step 2, Additional Options A7511A, HPE B-Series Switch Rack Mount Kit and NOTE
09-Dec-2013	Version 24	Changed	Model descriptions and product descriptions were revised throughout Configuration Information. HPE 8/40 SAN Switch and 8/40 SAN Switch Power Pack+ was removed from Family Information
15-Oct-2013	Version 23	Changed	Fabric Vision was added to Product Highlights SN3000B and SN6500B Fibre Channel Switches were added to Interoperability 2408 FCoE CN Switch and 2408 FCoe CN Switch Power Pack+ was removed from Family Information chart
30-Sep-2013	Version 22	Changed	Optional Software was revised.
22-Mar-2013	Version 21	Changed	Configuration Information: Updated Optical Cables section.
08-Mar-2013	Version 20	Changed	Family Information: Updated the Storage system support sections.
18-Feb-2013	Version 19	Changed	Updated the Family Information Section.
21-Dec-2012	Version 18	Changed	Updated the descriptions of two of the model names.
04-Dec-2012	Version 17	Changed	Changes were made throughout the QuickSpecs.
12-Oct-2012	Version 16	Changed	Change was made to URL in Service and Support, HPE Pointnext operational, and Warranty Information section.
14-Sep-2012	Version 15	Changed	Changes were made in Configuration Information section.
13-Aug-2012	Version 14	Changed	Changes were made in Overview, Models, Service Support, HPE Pointnext operational and Warranty Information and in Configuration Information sections.
25-May-2012	Version 13	Changed	Updated the following: Additional Options added AJ816B
06-Apr-2012	Version 12	Changed	Cabinet Support was revised.
26-Sep-2011	Version 11	Changed	Key Features and Benefits, Models, Advanced Fabric Services, Cabinet Support, EGM, Family information, Optical Cables and Interoperability were revised.
08-Jul-2011	Version 10	Changed	Updated the following sections: Product Highlights - Advanced Fabric Services; Software Components - EGM, and Software Components optional - SAN Network Advisor; Configuration Information - Step 1 Add Software; Technical Specifications - Management software supported; Technical Specifications - Supported Software. Replaced DCFM references with SAN Network Advisor.
09-Jun-2011	Version 9	Removed	Removed "StorageWorks" from the document.
27-Sep-2010	Version 8	Added	PremierFlex Cable was added to Step 2.
04-Dec-2009	Version 7	Added	HPE 8Gb Long wave B-Series 25km FC SFP+1 Pack was added to Step 2 of the Configuration Information section.

Summary of Changes

Date	Version History	Action	Description of Change
14-Sep-2009	Version 6	Changed	All mentions of Server Application Optimization and Data Center Fabric Manager Professional Plus (+) throughout the QuickSpecs and Encryption SAN Switch, 1606 Extension SAN Switch and 2408 PCoE Converged Network Switch to the Technical Specifications section. Completely revised Service and Support, HPE Pointnext operational and Warranty Information and Family Information sections.
26-Jan-2009	Version 5	Changed	DC04 SAN Director and DC04 SAN Director Power Pack + to the Family Information chart. Completely revised Data Center Fabric Manager Enterprise in the Product Highlights section and Interoperability in the Technical Specifications section.
17-Nov-2008	Version 4	Changed	Enhanced Group Management (EGM) and Data Center Fabric Manager throughout the QuickSpecs and HPE 8Gb Long Wave B-Series 10km FC SFP +1 Pack to Step 2 in the Configuration Information section. Optional Software in Step 1 of the Configuration Information section.
01-Aug-2008	Version 3	Added	Extended Fabric to StorageWorks B-series 8-24 Port SAN Switch Power Pack+ Upgrade LTU in Step 1 of the Configuration Information section.
11-Jul-2008	Version 2	Changed	Family Information Charts were rewritten and 1Gb performance was removed from Optical Transceivers in Step 2 of the Configuration Information section.
16-Jun-2008	Version 1	New	New QuickSpecs

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