

### Overview

#### HPE 8/8 Base SAN Switch and 8/8 SAN Switch Family

The 8/8 Base SAN Switch and 8/8 SAN Switch are targeted for small to medium sized enterprises and are ideal for entry-level SANs, and as an edge switch for core-to-edge SAN environments. The 8/8 Base SAN Switch and 8/8 SAN Switch provide SAN connectivity that simplifies IT management infrastructures, improves system performance, maximizes the value of virtual server deployments, and reduces overall storage costs.

The 8/8 SAN Switch integrates innovative hardware and software features that make it easy to deploy, manage, and integrate into a wide range of IT environments. The 8 Gbit/sec Fibre Channel 8/8 Base SAN Switch provides a simple, affordable, single-switch solution for a new, small SAN installation and connects to storage and servers only. An optional Full Fabric SAN scaling license provides connectivity to other switches. The 8/8 SAN Switch has 8 active ports and can be connected to multiple switches and scale to full fabric limits as defined in the SAN Design Guide. Both new 8 port switches provide growth options with Ports On Demand, the ability to activate additional ports in 8 port increments to a maximum of 24 ports. This provides the flexibility to start small and grow storage networks in a non-disruptive manner. 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 8/8 SAN Switch significantly increases performance and functionality for SANs at an entry-level price. The 8/8 SAN Switch provides auto-sensing 1, 2, 4, and 8 Gbit/sec full duplex performance to enable up to 128 Gbit/sec of uncongested throughput. Auto-sensing and speed-matching of data traffic provides interoperability with previous 1, 2, and 4 Gbit/sec devices. To provide more targeted performance, enhanced Inter-Switch Link (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/sec of throughput. The evolutionary design provides these capabilities while consuming less than 2.5 watts of power per port for exceptional power and cooling efficiency.

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.



**The 8 port 8 Gb/s 8/8 Base SAN Switch**

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## Overview

### What's New

- Updated product SKUs (Suffix roll over from A to B)
- New 2016 RoHS compliant HPE SAN switches
- Updated HPE B-series Network Advisor SKUs to the next suffix (A to B) and added 3 Network Advisor E-LTU SKUs (suffix AE)

**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.

### Models

#### Description

#### SKU

#### HPE 8/8 SAN Switch Models

HPE 8/8 and 8/24 SAN Switch 8-port Upgrade LTU	T5518A
HPE B-series 4/8 SAN Switch Full Fabric LTU	T4261A
HPE B-series Entry Switch Power Pack+ E-LTU	T5521BAE
<ul style="list-style-type: none"> <li>• (Physical License - T5521B)</li> </ul>	

**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.



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## Standard Features

### Key Features and Benefits

- **Superior Performance**
  - 8Gb/s full duplex performance to enable up to 128 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
- **Superior Scalability**
  - Eight 8Gb/s ports expandable to 16 or 24 ports with the purchase of optional 8 port upgrade license
  - "pay as you grow" scalability from single-switch to full fabric connectivity
- **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 the more than 3.0 Million port 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 - highest throughput between switches
  - Proactive threshold monitor (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
- **Flexible storage connectivity**
  - The only SAN solutions providing the complete HPE SAN Switch functionality from Embedded to Enterprise. The HPE SAN Switch value line 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.

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### 24 non-blocking ports

Eight enabled ports with expandability to 16 or 24 ports; auto-sensing 2, 4, or 8 Gb universal, self-configuring ports (F, FL, E). Can be programmed to fixed 2 Gb, 4Gb, or 8Gb speed.

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### Configuration support

8/8 SAN Switch will interoperate with 1Gb, 2Gb, 4Gb, 8Gb/s B-Series SAN Switches running the firmware version as defined in the [SAN Design Guide](#).

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### High-availability features

Hot Code Load Activation

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## Standard Features

### Advanced Fabric Services

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

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### Manageability

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

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### Scalability

- 8/8 Base SAN Switch has zero e-port connectivity and connects to storage or servers only (single-switch connectivity). An optional Full Fabric SAN scaling license provides connection to switches
- 8/8 SAN Switch scales to the maximum limits defined in the [SAN Design Guide](#).

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### 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 OD1 after the part number on your sales order.

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### Software Components

#### Frame Filtering

An ASIC based capability in the 8Gb 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

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.



## Standard Features

### 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 SAN Network Advisor 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 - 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

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## Software Components, Optional

### SAN Switch 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.



## Standard Features

### 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

- 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 8 Gb switch needs its own license. The switch operating system views the trunk as a single, high bandwidth resource (up to 64 Gbit/s) 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 Vision 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.



## Standard Features

### 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 Fabric OS (FOS) fabric (up to a 300 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 on 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.

### 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.

### Full Fabric License for 8/8 SAN Switch

Provides connectivity from zero e-ports to full fabric scaling. Please see the following web site for further information on supported configurations and SAN scalability: <https://h20566.www2.hpe.com/hpsc/doc/public/display?docId=c00403562>

### HPE 8/8 8 port upgrade license

Optional 8 port increments on demand licenses for additional connectivity. Enables the 8, 16, and 24 universal (E, F and FL) port progression to scale up.

### 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.



## Services 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.

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### 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
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### HPE Pointnext - Service and Support

**Get the most from your HPE Products.** Get the expertise you need at every step of your IT journey with **HPE Pointnext Services**. We help you lower your risks and overall costs using automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. HPE Pointnext **Advisory Services** focus on your business outcomes and goals, partnering with you to design your transformation and build a roadmap tuned to your unique challenges. Our **Professional** and **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Pointnext specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike.

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### Consume IT on your terms

**HPE GreenLake** brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake accelerates digital transformation in a distributed, edge-to-cloud world.

- Get Faster time to market.
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

### Managed services to run your IT operations

**HPE GreenLake Management Services** provides services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

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## Services and Support

### Free up resources with Operational Services from HPE Pointnext

HPE delivers services for IT by using proven best practices as well as automation and methodologies that have been tested and refined by HPE experts and artificial intelligence through thousands of deployments globally. Choose from the recommended services for customers purchasing from Hewlett Packard Enterprise or an authorized reseller. Services are quoted using Hewlett Packard Enterprise order configuration tools.

#### Recommended Services

##### HPE Pointnext Tech Care.

HPE Pointnext Tech Care is the new operational service experience for HPE products. Tech Care goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Pointnext Tech Care has been reimagined from the ground up to support a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Pointnext Tech Care is available in three response levels. Basic, which provides 9x5 business hour availability and a 2 hour response time. Essential which provides a 15 minute response time 24x7 for most enterprise level customers, and Critical which includes a 6 hour repair commitment where available and outage management response for severity 1 incidents.

<https://www.hpe.com/services/techcare>

##### HPE Pointnext Complete Care

HPE Pointnext Complete Care is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric experience. All delivered by an assigned team of HPE Pointnext Services experts. HPE Pointnext Complete Care provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

<https://www.hpe.com/services/complecare>

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### Related services from HPE Pointnext

#### HPE Basic Installation Service

Provides for the basic hardware installation of HPE branded storage devices to assist you in bringing your new hardware into operation in a timely and professional manner.

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=5981-9356enw>

#### 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 Service Credits

Offers flexible services and technical skills to meet your IT demands as your business evolves. With a menu of services, you can access additional resources and specialist skills to help you maintain peak performance of your IT. HPE Service Credits help you proactively respond to your dynamic IT and business needs.

#### HPE Education Services

Provides comprehensive training designed to expand the skills of your IT staff and keep them up to speed with the latest technologies.



## Services and Support

Consult your Hewlett Packard Enterprise Sales Representative or Authorized Channel Partner of choice for any additional questions and support options.

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### Parts and Materials

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 QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

### Defective Media Retention

An option available with HPE Pointnext Complete Care and HPE Pointnext Tech Care and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

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### AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a brand-new digital and data driven customer experience.

Sign into the customer engagement platform, featuring modern self-serve case creation and management capabilities with inline knowledge recommendations. You will find powerful troubleshooting support through a new intelligent virtual agent with seamless transition when needed to a live support agent. <https://support.hpe.com/hpesc/public/home/signin>

### 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>

Hewlett Packard Enterprise 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

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### 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 HPE 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/>
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## Configuration Information

### Step 1 - Base Configuration

Select one:

#### Description

	SKU
HPE 8/8 and 8/24 SAN Switch 8-port Upgrade E-LTU	T5518AAE
<ul style="list-style-type: none"> <li>(Physical License - T5518A)</li> </ul>	
HPE B-series 4/8 SAN Switch Full Fabric LTU	T4261A
License for 8/8 Base (0) e-port SAN Switch (AM866B, AM866C) to increase connectivity to Full Fabric connectivity	

#### 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
<ul style="list-style-type: none"> <li>(Physical License -T5521B)</li> </ul>	
Fabric Vision, Fabric Watch, ISL Trunking, Advanced Performance Monitoring and Extended Fabric	
<b>Notes:</b> 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
<ul style="list-style-type: none"> <li>(Physical License - TC509B)</li> </ul>	
HPE B-series Entry Switch ISL Trunking E-LTU	T5527AAE
<ul style="list-style-type: none"> <li>(Physical License -T5527A)</li> </ul>	

#### 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.
- 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

HPE B-series 8Gb Shortwave Fibre Channel 1 Pack SFP+ Transceiver SKU  
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	SN3000B 16Gb FC Switch	SN3600B 32Gb FC Switch and SN3600B 32Gb FC Power Pack+
<b>Targeted Environment</b>	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments
<b>Fibre Channel Port Bandwidth</b>	8Gbps	8Gbps	16Gbps	32Gbps
<b>Aggregate device bandwidth</b>	64-192 Gbps	128-192 Gbps	192-384 Gbps	768 Gbps
<b>OS Support</b>	<b>Notes: Please Refer to SPOCK <a href="https://www.hpe.com/storage/spock">https://www.hpe.com/storage/spock</a></b>			
<b>Storage system support</b>	3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA			
<b>FC Ports</b>	8 Enabled 24 Max	16 Enabled 24 Max	12 or 24 Enabled 24 Max	8 or 24 Enabled 24 Max
<b>SFP</b>	B-series	B-series	B-series	B-series
<b>Advanced Trunking</b>	Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ Upgrade	Included with Power Pack+ or Optional Upgrade
<b>Adaptive Networking</b>	Included	Included	Included	Included
<b>Form factor</b>	1U	1U	1U	1U
<b>Zoning Software</b>	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)
<b>Hot plug, redundant power supplies</b>	No	No	Optional	No
<b>Hot plug fans</b>	No	No	Yes (integrated with power supply)	Yes (integrated with power supply)



## Technical Specifications

<b>Features</b>	<b>SN6000B 16 Gb FC Switch and SN6000B 16 Gb FC Power Pack+</b>	<b>SN6600B 32 Gb FC Switch and SN6600B 32 Gb FC Power Pack+</b>	<b>SN6600B 32 Gb Bundled (SFP+) FC Switch and SN6600B 32 Gb Power Pack+ Bundled (SFP+) FC Switch</b>
<b>Targeted Environment</b>	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments
<b>Fibre Channel Port Bandwidth</b>	16 Gbps	32 Gbps	32 Gbps
<b>Aggregate device bandwidth</b>	384- 768 Gbps	2 Tbps	2 Tbps
<b>OS Support</b>	<b>Notes: Please Refer to SPOCK <a href="https://www.hpe.com/storage/spock">https://www.hpe.com/storage/spock</a></b>		
<b>Storage system support</b>	3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA		
<b>FC Ports</b>	24 or 48 Enabled 48 Max	24 or 48 enabled 64 Max	24 or 48 Enabled 64 Max
<b>SFP</b>	B-series	B-series (16 Gb or 32 Gb)	B-series, 24 or 48 32 Gb SFP+ included in the box
<b>Advanced Trunking</b>	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade
<b>Adaptive Networking</b>	Included	Included	Included
<b>Form factor</b>	1U	1U	1U
<b>Zoning Software</b>	Yes (Included)	Yes (Included)	Yes (Included)
<b>Hot plug, redundant power supplies</b>	Yes	Yes	Yes
<b>Hot plug fans</b>	Yes (integrated with power supply)	Yes (integrated with power supply)	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
<b>Targeted Environment</b>	Workgroups, Departments	Data Centers; long distance replication, multiprotocol SAN Fabrics	Data Centers
<b>Fibre Channel Port Bandwidth</b>	16Gbps	16Gbps	8Gbps
<b>Ethernet</b>	N/A	1/10/40 Gbps Ethernet	1Gbps Ethernet
<b>Aggregate device bandwidth</b>	768-1536-Gbps		
<b>OS Support</b>	<b>Notes: Please Refer to SPOCK <a href="https://www.hpe.com/storage/spock">https://www.hpe.com/storage/spock</a></b>		
<b>Storage system support</b>	3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA		
<b>FC Ports</b>	48 or 96 Enabled 96 Max	24 FC Ports Enabled 24 Max	4 or 16 Enabled 16 Max
<b>Ethernet Ports</b>	N/A	16 Enabled	2 or 6 Enabled 6 Max
<b>SFP</b>	B-series	B-series	B-series
<b>Advanced Trunking</b>	Included with Power Pack+ or Optional Upgrade	Included	Included with Power Pack+ or Optional Upgrade
<b>Adaptive Networking</b>	Included	Included	Included
<b>Form factor</b>	2U	2U	1U
<b>Zoning Software</b>	Yes (Included)	Yes (Included)	Yes (Included)
<b>Hot plug, redundant power supplies</b>	Yes	Yes	Yes
<b>Hot plug fans</b>	Yes	Yes	Yes



## Technical Specifications

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





## Technical Specifications

Features	SN800B 4-Slot SAN Director and 4-Slot SAN Director Power Pack+	SN8600B 4-slot SAN Director Power Pack+
<b>Targeted Environment</b>	Cloud Optimized Data Centers	Cloud Optimized Data Centers
<b>Port Bandwidth</b>	Up to 16Gbps	Up to 32Gbps
<b>Aggregate device bandwidth</b>	5.1 Tbps	10.24 Tbps
<b>OS Support</b>	<b>Notes: Please Refer to SPOCK <a href="https://www.hpe.com/storage/spock">https://www.hpe.com/storage/spock</a></b>	
<b>Storage system support</b>	3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA	
<b>Ports</b>	Up to 256 SFP	Up to 256 32 Gbps ports or a 320-port equivalent with 16 ICL ports.
<b>SFP</b>	B-series	B-Series
<b>Advanced Trunking</b>	Included with Power Pack or Optional Upgrade	Included with Power Pack
<b>Adaptive Networking</b>	Included	Included
<b>Form factor</b>	9U	9U
<b>Zoning Software</b>	Yes (included)	Yes (Included)
<b>Hot plug, redundant power supplies</b>	Yes	Yes
<b>Hot plug fans</b>	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
<b>Targeted Environment</b>	Enterprise, Datacenters, Workgroups, Departments	Workgroups, Departments	Enterprise, Datacenters, Workgroups, Departments
<b>Port Bandwidth</b>	16Gbit/sec	8Gbit/sec	16 Gbit/sec
<b>Aggregate device bandwidth</b>	448 Gbit/sec (24 ports x 16Gb/s)	192 Gbit/sec	576 Gb/s (36 ports x 16 Gb/s)
<b>OS Support</b>	<b>Notes: Please Refer to <a href="#">SAN Design Guide</a></b>		
<b>Storage system Support</b>	3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA		
<b>Ports</b>	12 external /16 internal	4 or 8 external / 8 or 16 internal	8 SFP+ external, 4 QSFP external /12 internal
<b>SFP</b>	B-series	B-series	B-series
<b>Advanced Trunking</b>	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade
<b>Adaptive Networking</b>	Included	Included	Included
<b>Form factor</b>	Embedded	Embedded	Embedded
<b>Zoning Software</b>	Yes (Included)	Yes (Included)	Yes (Included)
<b>Hot plug, redundant power supplies</b>	Yes, in BladeSystem Enclosure	Yes, in BladeSystem Enclosure	Yes, in Synergy Frame
<b>Hot plug fans</b>	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

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### 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
- Brocade 8Gb SAN Switch for HPE BladeSystem c-Class
- Brocade 4Gb SAN Switch for c-class HPE BladeSystem
- 400 MP Router
- HPE MP-Router
- SN8000B Director
- SN6500B Fibre Channel Switch
- SN6000B Fibre Channel Switch
- SN3000B Fibre Channel Switch



## Technical Specifications

### System Architecture

<b>Fibre Channel ports</b>	8 active with optional license to activate 24 universal ports		
<b>Scalability</b>	0 E-port (8/8 Base) and scalable to Full fabric architecture with optional license: <a href="https://h20566.www2.hp.com/hpsc/doc/public/display?docId=c00403562">https://h20566.www2.hp.com/hpsc/doc/public/display?docId=c00403562</a>		
<b>Certified maximum</b>	Refer to SAN Design Guide for current configuration information: <a href="https://h20566.www2.hp.com/hpsc/doc/public/display?docId=c00403562">https://h20566.www2.hp.com/hpsc/doc/public/display?docId=c00403562</a>		
<b>Performance</b>	8 Gbit/sec line speed, full duplex		
<b>Switch core</b>	Non-blocking		
<b>Fabric latency</b>	700 nanoseconds with no contention, cut-through routing at 8 Gbit/sec		
<b>Maximum frame size</b>	2112-byte payload		
<b>Classes of service</b>	Class 2, Class 3, Class F (inter-switch frames)		
<b>Port types</b>	FL_Port, F_Port, and E_Port; self-discovery based on switch type (U_Port)		
<b>USB</b>	One USB port for system log file downloads or firmware upgrades		
<b>Data traffic types</b>	Fabric switches supporting unicast, multicast (255 groups), and broadcast		
<b>Media types</b>	B-Series Branded Small Form-Factor Pluggable (SFP)		
<b>Laser</b>	Short-wave up to 1,640 ft (500 m); long-wave up to 18.6 mi (30 km)		
<b>Fabric services</b>	Simple Name Server, Registered State Change Notification (RSCN), Alias Server (multicast); and Zoning, Web Tools, Enhanced group Management, Optional Fabric Watch, ISL Trunking, Adaptive Networking, Extended Fabric, Advanced Performance Monitor, and Server Application Optimization.		
<b>Options</b>	SFP media, USB Device		
<b>Supported software</b>	Telnet, RADIUS,SNMP, Web Tools, Enhanced Group Management, Advanced Zoning, Fabric Watch, Extended Fabric, Adaptive Networking, Advanced Performance Monitoring, ISL Trunking, Server Application Optimization, Fabric Manager, SAN Network Advisor		
<b>Management access</b>	10/100 Ethernet (RJ-45), serial port		
<b>Diagnostics</b>	POST and embedded online/offline diagnostics		
<b>Back-to-front airflow, power inlet on port side</b>	1U		
<b>Dimensions</b>	<b>Width</b>	42.88 cm (16.88 inches)	
	<b>Height</b>	4.29 cm (1.69 inches)	
	<b>Depth</b>	30.66 cm (12.07 inches)	
	<b>Weight</b>	9.3 lbs with single power supply, without SFP/SFP+	
<b>Environment</b>	<b>Temperature</b>	<b>Operating</b>	0° to 40° C
		<b>Non-operating</b>	-25° to 70° C
	<b>Humidity</b>	<b>Operating</b>	10% to 85% (non-condensing)
		<b>Non-operating</b>	10% to 90% (non-condensing)
	<b>Altitude</b>	Up to 9,800 ft (3,000 m)	
	<b>Shock</b>	20 G, 6 ms, half sine	
	<b>Vibration</b>	<b>Operating</b>	.5 G sine, .4grms random 5-500Hz
<b>Non-operating</b>		2 G sine, 5-500Hz	
<b>Power</b>	<b>AC Input</b>	100 to 240 VAC nominal	
	<b>Supported power range</b>	<b>Nominal</b>	48 Watts
		<b>Maximum</b>	57 Watts
	<b>Frequency</b>	47 to 63 Hz	

## Summary of Changes

Date	Version History	Action	Description of Change
04-Oct-2021	Version 33	Changed	Service and Support and Configuration Information sections were updated.
02-Aug-2021	Version 32	Changed	Service and Support and Configuration Information sections were updated.
05-Oct-2020	Version 31	Changed	Updated physical license
03-Aug-2020	Version 30	Changed	QuickSpecs layout was updated and Branding Refresh was applied
06-Apr-2020	Version 29	Changed	QuickSpecs layout was updated
05-Nov-2018	Version 28	Changed	Overview, Models, Service and Support, Standard Features, and, Configuration Information, sections were updated. SKU descriptions were updated.
23-Oct-2017	Version 27	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
07-Jun-2016	Version 26	Changed	Updated SAN Network Advisor SKU/E-LTU and added SMART SAN details
08-Apr-2016	Version 25	Changed	Changed made to the Services Section
16-Feb-2016	Version 24	Changed	Content Updated on the entire document
10-Jun-2014	Version 23	Changed	Changes were made to the entire document
28-Feb-2014	Version 22	Changed	Updated the following: added to Step 2, Additional Options A7511A, HPE B-Series Switch Rack Mount Kit and NOTE
09-Dec-2013	Version 21	Changed	Model descriptions and product descriptions were revised throughout Configuration Information Removed: HPE 8/40 SAN Switch and 8/40 SAN Switch Power Pack+ was removed from Family Information
15-Oct-2013	Version 20	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 19	Changed	Optional Software was revised.
22-Mar-2013	Version 18	Changed	Configuration Information: Updated Optical Cables section.
08-Mar-2013	Version 17	Changed	Family Information: Updated Storage System support sections.
15-Feb-2013	Version 16	Changed	Changes were made to Family Information Sections.
12-Oct-2012	Version 15	Changed	Change made to URL in Service and Support, HPE Pointnext operational and Warranty Information section.
14-Sep-2012	Version 14	Changed	Changes were made in Configuration Information section.
13-Aug-2012	Version 13	Changed	Changes were made in Overview, Models and Configuration Information sections.
18-May-2012	Version 12	Changed	Updated the following: Additional Options added AJ816B
06-Apr-2012	Version 11	Changed	Cabinet Support was revised.
26-Sep-2011	Version 10	Changed	Key Features and Benefits, Models, 24 non-blocking ports, Cabinet Support, Family Information, Optical Cables and Interoperability were revised.
08-Jul-2011	Version 9	Changed	Data Center Fabric Manager was changed to SAN Network Advisor and Optional Software was revised in Step 1.
09-Jun-2011	Version 8	Removed	Removed "StorageWorks" from the document.
27-Sep-2010	Version 7	Added	PremierFlex Cable was added Step 2.
04-Dec-2009	Version 6	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

14-Sep-2009	Version 5	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.
<b>Date</b>	<b>Version History</b>	<b>Action</b>	<b>Description of Change</b>
26-Jan-2009	Version 4	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 3	Added	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
		Changed	Optional Software in Step 1 of the Configuration Information section.
25-Jul-2008	Version 2	Changed	The charts in the Family Information section were completely rewritten.
		Removed	1Gb Performance from HPE 8Gb Short Wave B-series FC SFP+ 1 Pack in Step 2 of the Configuration Information section.
16-Jun-2008	Version 1	New	New QuickSpecs



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