

### Overview

#### HPE C-series SN8500C Director Switch

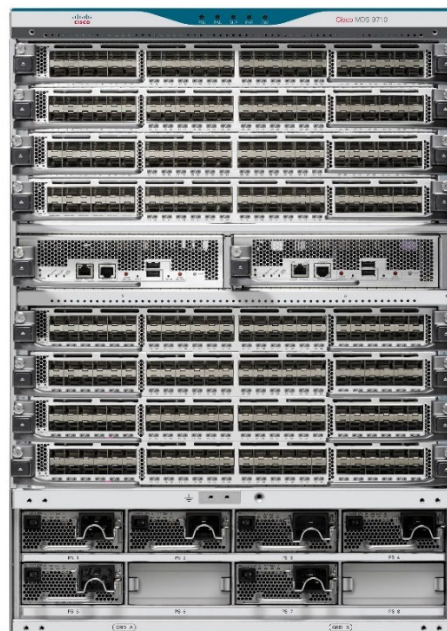
HPE C-series SN8500C Director Switch (MDS 9700), HPE C-series Family

For a converged and virtualized environment to exist, there is pressure on the IT organization to manage fewer devices, utilize less energy and resources, and transfer data faster, all while handling similar or higher volumes of work than a traditional environment. When large amounts of data need to be transferred between data centers, arrays, or sites, a faster link can allow the same tasks to be completed in less time.

With virtualization taking a strong hold in the datacenter, and the resulting increase in the storage networking traffic, customers want high performance, high capacity, and a reliable storage area network (SAN) enabling them to deploy enterprise class applications. This high density virtualization combined with new storage technologies is driving even higher I/O and bandwidth requirements in the SAN and this problem is solved with 32Gb Fibre channel switching products and solutions from HPE Storage.

The HPE C-series SN8500C Director delivers many unique innovations for constructing powerful, large scale storage networks. With these innovations, users can build highly scalable, always available, high performance storage network solutions with comprehensive security and unified management. The HPE C-series SN8500C 8-slot 16/32Gb FC Director delivers industry-leading scalability and performance (up to 24-Tbps front panel FC switching bandwidth), high port density (up to 384-ports in an SN8500C 8-Slot Director) and high availability to lower TCO and enable integrated SAN infrastructures. HPE delivers the C-series SN8500C 8-slot 16/32Gb FC Director with high availability features inherent in the design. The base units include an 8-slot modular chassis with 2 hot swappable redundant Supervisor 1 Modules, and 6 hot swappable redundant 3000W Power Supplies to help ensure smooth, continuous operation and non-disruptive upgrade capability. The HPE SN8500C 8-slot and 4-slot 16/32Gb FC Directors also include 3 hot swappable Fabric 1 Modules which provides full line rate performance across a full chassis of 384 and 192 ports, respectively. The open expansion slots of the SN8500C Directors can be filled by HPE C-series Family Modules, which include a 48-port 32Gb FC Module, a 48-port 16Gb FC Module and a 48-port FCoE Module.

Layered, intelligent features also include integration with fabric-based applications to fabric-wide services for a wide range of solutions for business continuance, storage virtualization, network assisted backup and information life cycle management.



**HPE C-series SN8500C Director Switch**

## Standard Features

### Key Features and Benefits

- **Reduced Total Cost of Ownership (TCO) for SAN Infrastructure**
  - Enables storage consolidation, simplified management of SAN environment
- **High Port Density**
  - Up to 384 Fibre Channel ports (auto-sensing 32/16/8/4 or 10Gbps) in single chassis
    - Up to 1152 4/8/16/32-Gbps Fibre Channel ports in a standard rack
  - Up to 384 FCoE Channel ports (autosensing 10Gbps) in single chassis
    - Up to 1152 10-Gbps FCoE ports in a standard rack
- **Scalable**
  - Supports throughput up to 256Gb in a single PortChannel 'ISL Trunk'
    - Offers 48 to 384 Fibre Channel ports in a single chassis
    - Offers 48 to 384 FCoE Channel ports in a single chassis
- **Highly Available**
  - Grid Redundancy on Power Supply and 1+1 redundant Supervisors
  - Combines non-disruptive software upgrades, stateful process restart and failover, and full redundancy of all major components
  - Provides full 32Gbps line rate performance (1536 Gbps each direction) for each slot in the chassis
- **Interoperable**
  - Broad range of Hewlett Packard Enterprise servers and operating systems
  - Disk and tape storage devices
  - Common architectural platform across all SN8500C and MDS9700 family products
- **Integrated Management**
  - Unified SAN management: includes built-in storage network management with all features available through a command-line interface (CLI)
  - Provides intelligent diagnostics, protocol decoding, and network analysis tools
  - Embedded Device Manager
  - Integration with Cisco Works Resource Manager Essentials (RME)
- **Hardware Assisted Encryption Security**
- **Comprehensive network security framework**

Comprehensive security framework consisting of RADIUS and TACACS+, Fibre Channel Security Protocol (FC-SP), Secure File Transfer Protocol (SFTP), Secure Shell (SSH) Protocol, and Simple Network Management Protocol Version 3 (SNMPv3). Please note that the SN8500C Enterprise Package License may be required.

# of Fabric Modules SN8500C Director	Front-Panel FC Bandwidth per Slot	Max # of Line-Rate Ports per Module
3	768 Gbps	24 x 32G FC 48 x 16G FC
4	1024 Gbps	32 x 32G FC 48 x 16G FC
5	1280 Gbps	40 x 32G FC 48 x 16G FC
6	1536 Gbps	48 x 32G FC 48 x 16G FC

### SN8500C Director

- Supports up to 384 ports capable of 32/16/8/4 Gbps (with the use of the SN8500C 48 port FC Modules).
- Supports up to 384 FCoE ports capable of 10-Gbps (with the use of the SN8500C 48 port FCoE Modules).



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## Standard Features

### Network-based Intelligent Storage Applications

- Integrated hardware-based VSANs and Inter-VSAN Routing (IVR) (with optional SN8500C Enterprise Package license activated)
  - Data replication and backup
  - Smart Zoning
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### Security

Supports role-based access control, VSANs, hardware-enforced Zoning, FC-SP, ACLs, RADIUS authentication and TACACS+, SNMPv3, SSH, SFTP, and IPsec. Please note that the SN8500C Enterprise Package license may be required.

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### High Performance

- Up to 24 Terabits/sec front-panel Fibre-Channel switching bandwidth and 21 Tbps of FCoE bandwidth
  - Port Channel: Up to 16 ports (the channel can span any speed-matched port on any module in the chassis)
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### Intelligent network services

Please note that some services require the optional SN8500C Enterprise Package license to be activated.

- Integrated hardware-based VSANs and Inter-VSAN Routing (IVR):
  - SAN device virtualization
  - Data replication
  - Network-Assisted Back-up IP and FC network acceleration Virtual SANs (VSANs and Inter-VSAN routing)
  - Quality of Service (QoS)
  - Management Security
  - Embedded Diagnostics
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### High Availability

- Online non-disruptive software upgrades
  - Stateful process restart/failover
  - Redundancy of all major components
  - Hot swappable components including switch fabric modules
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### Embedded Diagnostics

Provides intelligent diagnostics, protocol decoding and network analysis tools including Fibre Channel ping and trace route, SPAN, Zone and VSAN merge analysis.

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### Port Channels

Allows users to aggregate up to 16 physical links into one logical bundle. The bundle can consist of any port in the chassis, ensuring that the bundle remains active in the event of a port, ASIC, or module failure. The bundle can sustain the failure of any physical link without causing a reset. Additionally, Fabric Shortest Path First (FSPF) multipath provides the intelligence to load balance across up to 16 FC equal cost paths and, in the event of a switch failure, to dynamically reroute traffic.

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### Access Control

- Hardware-based intelligent frame processing
  - Role based access control within VSANs
  - Hardware-enforced zoning
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## Standard Features

### Traffic management

- Virtual Output Queue (VOQ)
  - Buffer credits: 48-port line-rate 32Gbps advanced Fibre Channel modules:
    - Up to 500 per port (dedicated-mode ports) standard
    - Up to 4095 on an individual port (dedicated-mode ports with optional SN8500C Enterprise Package license activated)
  - Port Channels (up to 16 ISLs)
  - Fabric Shortest Path (FSPF) based multipathing
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### Management modes

- Cisco MDS 9000 Family Command Line Interface (CLI)
  - Cisco Device Manager
  - Integration with third-party management tools
  - Cisco Data Center Network Manager
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### Interoperability

Offers compatibility with a broad range of Hewlett Packard Enterprise servers and operating systems, as well as disk and tape storage devices.

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### Product Family Models

- HPE SN8500C/SN8700C 8-slot 16/32Gb FC Director (MDS 9710)
    - Intelligent, multi-protocol 8-slot Director with up to 384 64/32/16/8/4 Gb Fibre Channel ports in a single chassis. Also, the HPE SN8500C 48-port 16Gb or 32Gb FC Module (2 separate modules) provide up to 384 ports of full 16/32/64Gbps line-rate performance across all ports or 384 10GbE FCoE ports in a single chassis or up to 1152 FCoE ports in a single rack with the use of the SN8500C FCoE module. In either case, the appropriate number of Fabric 1 modules must be configured to support full line rate across all ports.
  - HPE SN8500C/SN8700C 4-slot 16/32Gb FC Director (MDS 9706)
    - Intelligent, multi-protocol 4-slot Director with up to 192 64/32/16/8/4 Gb Fibre Channel ports in a single chassis. Also, the HPE SN8500C 48-port 16Gb or 32Gb FC Module (2 separate modules) provide up to 192 ports of full 16/32/64 Gbps line-rate performance across all ports or 192 10GbE FCoE ports in a single chassis. In either case, the appropriate number of Fabric 1 modules must be configured to support full line rate across all ports.
  - HPE SN6500C 16Gb Multi-service Switch (MDS 9250i)
    - Intelligent multi-protocol Fabric Switch with twenty active fixed 16Gb Fibre Channel ports, two fixed 1/10 Gigabit Ethernet FCIP ports, and eight fixed 10 Gigabit Ethernet FCoE ports. Provides up to forty active 16/8/4 Gb Fibre Channel ports through a port upgrade license.
  - HPE SN6010C 16Gb Fabric Switch (MDS 9148S)
    - With up to 48 Auto-Sensing 16/8/4 Gb Fibre Channel ports
    - "Pay as you grow" scalability starting at 12 ports
  - HPE SN6610C 32Gb Fabric Switch (MDS 9132T)
    - With up to 32 Auto-Sensing 32/16/8 Gb Fibre Channel ports
    - "Pay as you grow" scalability starting at 8 ports
  - HPE SN6620C 32Gb Fabric Switch (MDS 9148T)
    - With up to 48 Auto-Sensing 32/16/8 Gb Fibre Channel ports
    - "Pay as you grow" scalability starting at 24 ports
  - HPE SN6630C 32Gb Fabric Switch (MDS 9396T)
    - With up to 96 Auto-Sensing 32/16/8/4 Gb Fibre Channel ports
    - "Pay as you grow" scalability starting at 48 ports
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## Standard Features

### Software Components, Standard

#### NX-OS

New MDS 9000 NX-OS provides deterministic hardware performance and a comprehensive feature set that allows virtual machines to have the same SAN attributes as a physical server. The SN8500C Director with 2 Supervisor 1 modules supports NX-OS 6.2(1) or later. The SN8500C 48port FCoE Module requires NX-OS 6.2(7) or later. The SN8500C 48port 32Gb FC Module requires NX-OS 8.2(1) or later.

#### Cisco Data Center Network Manager

Cisco Data Center Network Manager (Essentials Edition) is a responsive, easy-to-use Java application that simplifies management across multiple switches and fabrics. Cisco Data Center Network Manager enables administrators to perform vital tasks such as topology discovery, fabric configuration and verification, LUN security, monitoring, and fault resolution. All functions are available through a secure interface, which enables remote management from any location. Cisco Data Center Network Manager may be used independently or in conjunction with third-party management applications. Cisco provides an extensive API for integration with third-party and user developed management tools. Additional advanced features are available with HPE's DCNM SN8500C license mentioned below.

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### Software Components, Optional

#### HPE SN8500C Enterprise Package E-LTU

Cisco MDS switches have a set of advanced traffic engineering and advanced security features that are recommended for all Enterprise SANs. These features are bundled together in a management application called the HPE SN8500C Enterprise Package E-LTU. Please refer to Cisco's MDS Enterprise Package Data Sheet for more information:

[http://www.cisco.com/c/en/us/products/collateral/storage-networking/mds-9000-software-licensing/product\\_data\\_sheet09186a00801ca6ac.html](http://www.cisco.com/c/en/us/products/collateral/storage-networking/mds-9000-software-licensing/product_data_sheet09186a00801ca6ac.html)

#### HPE SN8500C Data Center Network Manager E-LTU

The "Standard" Cisco Data Center Network Manager (Essentials Edition) software that is included at no charge with the SN8500C Switch provides basic switch configuration and troubleshooting capabilities. HPE's C-series Data Center Network Manager (DCNM) License extends Cisco Data Center Network Manager by advanced features such as historical performance data collection for network traffic hot-spot analysis, centralized management services and advanced application integration. By default, a 30-day trial license (with advanced features) is enabled on the switch. Customers must purchase the HPE SN8500C DCNM E-LTU (server-based or switch-based license) to continue to utilize the advanced DCNM features.

#### HPE SN8500C Mainframe FICON E-LTU

The HPE SN8500C Mainframe FICON License is required for using the SN8500C 8-slot 16Gb Directors (MDS 9710) or the SN8500C 4-slot 16Gb Directors (MDS 9706) in mainframe storage networks, including FICON protocol and CUP management, switch cascading, fabric binding, and intermixing. Please check Spock for the required firmware version for FICON support for your director.

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## Standard Features

### HPE C-series SAN Insights (Cisco SAN Analytics)

Cisco SAN Analytics solution offers end-to-end visibility into Fibre Channel block storage traffic. The solution is natively available on the storage area network due to its integrated-by-design architecture with the HPE SN8500C 32Gb FC Director Module. Cisco SAN Analytics delivers deep visibility into I/O traffic between the compute and the storage infrastructure. This information is in addition to the already-available visibility obtained from individual ports, switches, servers, virtual machines, and storage arrays that are integrated with Cisco Data Center Network Manager. Cisco SAN Analytics, once enabled via the *feature analytics* CLI command, provides a 120-day trial license. To continue the use of these features after the trial period ends, customers must purchase the HPE SN8500C SAN Insights 1-year/3-year/5-year term E-LTU (switch-based-license) for on-board Analytics, Streaming Telemetry and SAN Insights on Data Center Network Manager and other telemetry receivers.

To utilize the features of the HPE SAN Insights license and visualize the available Analytics and Telemetry data through the DCNM interface, customers must have both the HPE DCNM and HPE SAN Insights licenses installed, and be using DCNM version 11.1(1) or later and NX-OS 8.4(1) or later.

**Notes:** HPE SAN Insights Software License-to-Use (E-LTU) includes maintenance and support for the duration of the license. At the end of the license period, customer will need to purchase a new license to continue using the software. Software renewal via HPE PointNext Pointnext Services is not allowed/supported.

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## Service and Support

### Warranty

The SN8500C 16/32Gb Director offers (3-3-3) Hardware Warranty – Three-year warranty, 24x7, 4-hour remote response, installation not included.

The SN8500C FCoE Module, SN8500C FC Module (3-3-3) Hardware Warranty – Three-year warranty, 24x7, 4-hour remote 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 HPE 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 HPE in the country in which you obtained the software.

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### Achieve maximum return from your IT investment

Get the expertise you need at every step of your IT journey with **HPE Pointnext services and support**. We help you lower your risks and costs using proven best practices, automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. With **Advisory Services**, we 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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### 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 24x7 monitoring, 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>

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### Consume IT on your terms

#### HPE GreenLake Flex Capacity

Combines the simplicity, agility, and economics of public cloud with the security and performance benefits of on-premises IT. You determine your own “Right Mix” of Hybrid IT and workload placement without having to use.

With its agile pay-per-use service, HPE GreenLake Flex Capacity can help your IT organization:

- Avoid IT expenses stemming from overprovisioning
- Improve time to market by maintaining a safe buffer of capacity, ready for use when you need it
- Keep capacity ahead of demand with regular monitoring—and a simple change order to replenish
- Pay for only the capacity used, not the capacity deployed
- Reduce IT risk with tailored support

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

Choose from the recommended services for customers purchasing from Hewlett Packard Enterprise or an authorized reseller are quoted using Hewlett Packard Enterprise order configuration tools.



## Service and Support

### **HPE Datacenter Care**

Helps customers to address the pressing needs of IT today and smoothly transform to a more agile cloud-like IT operations model. We help run and monitor your IT by offloading the day to day routine tasks, helping customers be more predictive and proactive, and saving time with one place to call with for all of their IT. Datacenter Care is available as both tailored statement of work and as a packaged service for 3, 4, and 5 year terms.

For HPE SN8500C SAN Insights Software with the 1-year term LTU, Datacenter Care is available as a tailored statement of work service. For HPE SN8500C SAN Insights Software with the 3-years, or 5-years term LTUs, Datacenter Care is available as both a tailored statement of work, and also as a 3-years, or 5-years term packaged service (matching the SW LTU term).

Partner with an assigned account team backed by local and global experts, access HPE enhanced call experience with priority access, use specialized support for complex, technologies, choose hardware and software support for your devices, implement proactive monitoring to stay ahead of issues, and access HPE IT best practices and IP. HPE Datacenter Care advantage options are available to add to your agreement to give you specialized expertise for performance, security, back up analysis, and much more.

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### **HPE Proactive Care**

Gives customers an enhanced call experience. When your products are connected to HPE, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice.

For HPE SN8500C SAN Insights Software with the 3-years, or 5-years term LTUs, Proactive Care is available as a 3-years, or 5-years term packaged service (matching the SW LTU term).

<https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

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### **HPE Proactive Care Advanced**

Incorporates all the deliverables of HPE Proactive Care plus includes personalized support from a local, assigned Account Support Manager who will share best practice advice and personalized recommendations designed to help improve availability and performance to help increase stability and reduce unplanned downtime. Leverage your system's ability to connect to HPE for pre-failure alerts, automatic call logging and parts dispatch. For business critical incidents, Proactive Care Advanced offers critical event management to help reduce mean time to resolution. HPE Service Credits are included to redeem for technical and operational services. For HPE SN8500C SAN Insights Software with the 3-years, or 5-years term LTUs, Proactive Care Advanced is available as a 3-years, or 5-years term packaged service (matching the SW LTU term).

<https://www.hpe.com/h20195/v2/getdocument.aspx?docname=4AA5-3259ENW>

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

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### **HPE Foundation Care** – (choose the response level that meets your needs)

HPE Foundation Care helps to simplify your support experience and make HPE your first call to help resolve hardware or software problems.

For HPE SN8500C SAN Insights Software with the 3-years, or 5-years term LTUs, Foundation Care is available as a 3-years, or 5-years term packaged service (matching the SW LTU term).

<https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>





## Service and Support

### Other related services from HPE Pointnext

#### HPE SAN Deployment Service

Hewlett Packard Enterprise delivers complete design and implementation services for Fibre Channel, FCoE, FCIP, SAS, and iSCSI SAN connectivity components.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-8527ENW.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

Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment. <http://www.hp.com/ww/learn>

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

Defective Media Retention is an option available with HPE Datacenter Care, HPE Proactive Care, Proactive Care Advanced, and HPE Foundation Care and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

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### 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 HPE experts, access support resources or collaborate with peers.

Learn more <https://support.hp.com/hpsc/public/home>

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.hp.com/services>

<https://www.hp.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.hp.com/us/en/contact-hpe.html>

HPE Support Services are sold by HPE 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.hp.com/portal/site/ssc/>



## Configuration Information

### Step 1 - Base Configurations (Select one)

Description	SKU
HPE SN8500C 8-slot 16/32Gb Fibre Channel Director Switch	C8S71B
<b>Notes:</b> Base unit includes a 14U, (8) slot chassis with 2 hot swappable redundant Supervisor 1 Modules, three hot swappable redundant SN8500C 8-slot Fabric-1 Modules, 6 hot swappable redundant 3000W Power Supplies, fans, six wall power cords and six PDU power cords, firmware, accessory kit and documentation. Supports up to eight optional expansion port modules.	
HPE SN8500C 4-slot 16/32Gb Fibre Channel Director Switch	K2Q18A
<b>Notes:</b>	
<ul style="list-style-type: none"> <li>– Base unit includes a 9U, (4) slot chassis with 2 hot swappable redundant Supervisor 1 Modules, three hot swappable redundant SN8500C 4-slot Fabric-1 Modules, 4 hot swappable redundant 3000W Power Supplies, fans, four wall power cords and four PDU power cords, firmware, accessory kit and documentation. Supports up to four optional expansion port modules.</li> <li>– ** Appropriate country power cords and PDU cords will be included for each AC power supply for the SN8500C Director based on Ship To destination information.</li> </ul>	

### Step 2 - Options

Select each type of required options with quantities specified:

**Notes:** For a complete list of supported switching modules in the SN8500C Director, please refer to the C-series FC Switch Connectivity Stream on the Single Point of Connectivity Knowledge (SPOCK) website at:

<https://h20272.www2.hpe.com/spock/>

HPE SN8500C/SN8700C 48-port 32Gb Fibre Channel Director Module	Q9D32A
<b>Notes:</b>	
<ul style="list-style-type: none"> <li>– SFPs required; supports 8, 10, 16 and 32Gb FC SFPs.</li> <li>– Please reference to the table below to determine if additional Fabric-1 modules for your HPE SN8500C director are required to meet your bandwidth and line-rate requirements.</li> </ul>	
<b>Notes:</b> SFPs required; supports 8, 10 and 16Gb FC SFPs.	
HPE C-series 32 Gb Fibre Channel Short Wave SFP+ Transceiver	Q9D30A
<b>Notes:</b> Compatible with SFP28 MSA spec.	
HPE C-series 32 Gb Fibre Channel Long Wave SFP+ Transceiver	Q9D31A
<b>Notes:</b> Compatible with SFP28 MSA spec.	
HPE C-series 16 Gb Fibre Channel SW SFP+ Transceiver	C8S72A
HPE C-series 16 Gb Fibre Channel LW SFP+ Transceiver	C8S73A
HPE MDS 9000 8Gb FC SFP+ Short Range Transceiver	AJ906A
HPE MDS 9000 8Gb FC SFP+ Long Range Transceiver	AJ907A
HPE SN8500C 8-slot Director Fabric-1 Module	C8S74B
HPE SN8500C 4-slot Director Fabric-1 Module	K2Q19A
HPE SN8500C 3000 Watt Power Supply	K2Q20A
HPE SN8500C/SN8700C 48-port FCoE Module	E7Y66A
<b>Notes:</b> SFPs required; supports 10GE SR & LR SFPs, shown here.	
HPE C-series 10GbE Short Range SFP+ Transceiver	AP783A
HPE C-series 10GbE Long Range SFP+ Transceiver	E7Y65A
<b>Notes:</b> Please reference this table to determine if additional Fabric-1 modules for your HPE SN8500C director are required to meet your bandwidth and line-rate requirements.	

## Configuration Information

### Description

### SKU

#### Optional Software Licenses

HPE SN8500C/SN8700C Enterprise Package E-LTU TC459AAE

**Notes:** Set of advanced traffic-engineering and advanced security features.

HPE SN8500C/SN8700C Data Center Network Manager E-LTU TC470AAE

HPE SN8500C/SN8700C DCNM Switch E-LTU R4F91AAE

HPE SN8500C/SN8700C Mainframe FICON E-LTU D4U61AAE

HPE SN8500C/SN8700C SAN Insights 1-year E-LTU R5Z94AAE

HPE SN8500C/SN8700C SAN Insights 3-year E-LTU R4F93AAE

HPE SN8500C/SN8700C SAN Insights 5-year E-LTU R5Z95AAE

#### Installation Services

For complete design and implementation of Fibre Channel connectivity components, select **HPE SAN Deployment Service**

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

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-8527ENW.pdf>

For basic hardware installation, select the service noted below.

**Notes:** 1 per switch.

MDS9506/9509/SN8500C Install HA113A1#5D1

## Step 3 - Additional Options

### Recommended 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

#### HPE OM3 LC-LC Optical 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

#### Copper SFP+ Cables

HPE C-series 3M Passive Copper SFP+ Cable K2Q21A

HPE C-series 5M Passive Copper SFP+ Cable K2Q22A



## Technical Specifications

### Family Information

	Switch Type	Maximum ports	Number of slots per chassis
<b>HPE C-series SN8500C/SN8700C 4-slot/8-slot 16/32/64Gb FC Director</b>	Multilayer Director	4-slot: 192 16/32/64 Gbps Fibre Channel ports, 192 FCoE ports 8-slot: 384 16/32/64 Gbps Fibre Channel ports, 384 FCoE ports	Four/Eight
<b>HPE C-series SN6630C 32Gb Fabric Switch</b>	Multilayer Fabric Switch	Up to 96 32 Gbps Fibre Channel ports	One fixed
<b>HPE C-series SN6620C 32Gb Fabric Switch</b>	Multilayer Fabric Switch	Up to 48 32 Gbps Fibre Channel ports	One fixed
<b>HPE C-series SN6610C 32Gb Fabric Switch</b>	Multilayer Fabric Switch	Up to 32 32 Gbps Fibre Channel ports	One fixed and one expansion slot
<b>HPE C-series SN6010C 16Gb Fabric Switch</b>	Multilayer Fabric Switch	Up to 48 16 Gbps Fibre Channel ports	One fixed
<b>HPE C-series SN6500C 16Gb Multi-service Switch</b>	Multilayer Fabric Switch	Up to 40 16 Gbps FC ports, 2 fixed 10GbE FCIP ports, 8 fixed 10GbE FCoE ports	Two fixed

**Notes:** For additional switch support information, refer to the C-series FC Switch Connectivity Stream on the Single Point of Connectivity Knowledge (SPOCK) website at: <https://h20272.www2.hpe.com/spock/>. You must sign up for a Hewlett Packard Enterprise Passport to enable access. Once logged in, click Switches under Other Hardware in the last navigation panel of the window to access the Fibre Channel Switch Streams. Click on the C-Series FC Switch Connectivity Stream to open the document.

### Fibre Channel and FCoE Protocols

- FC-PH, Revision 4.3 (ANSI/INCITS 230-1994)
- FC-PH, Amendment 1 (ANSI/INCITS 230-1994/AM1 1996)
- FC-PH, Amendment 2 (ANSI/INCITS 230-1994/AM2-1999)
- FC-PH-2, Revision 7.4 (ANSI/INCITS 297-1997)FC-PH-3, Revision 9.4 (ANSI/INCITS 303-1998)
- FCP, Revision 12 (ANSI/INCITS 269-1996)
- FCP-2, Revision 8 (ANSI/INCITS 350-2003)
- FC-SB-2, Revision 2.1 (ANSI/INCITS 349-2001)
- FC-SB-3, Revision 1.6 (ANSI/INCITS 374-2003)
- FC-SB-3, Amendment 1 (ANSI INCITS 374-2003/AM1-2007)
- FC-SB-4, Revision 3.0 (ANSI INCITS 466-2011)
- FC-SB-5, Revision 2.00 (ANSI INCITS 485-2014)
- FC-BB-3, Revision 6.8 (ANSI INCITS 414-2006)
- FC-BB-4, Revision 2.7 (ANSI INCITS419-2008)
- FC-BB-5, Revision 2.0 (ANSI INCITS 462-2010)FC-PH-3, Revision 9.4 (ANSI/INCITS 303-1998)
- FC-PI, Revision 13 (ANSI/INCITS 352-2002)
- FC-FS, Revision 1.9 (ANSI/INCITS 373-2003)
- FC-AL-2, Amendment 1 (ANSI/INCITS 332-1999/AM1-2003)
- FC-SW-2, Revision 5.3 (ANSI/INCITS 355-2001)
- FC-SW-3, Rev. 6.6 (ANSI/INCITS 384-2004)
- FC-GS-3, Revision 7.01 (ANSI/INCITS 348-2001)
- FC-GS-4, Rev. 7.91 (ANSI/INCITS 387-2004)

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- FC-GS-5, Revision 8.51 (ANSI INCITS 427-2007)
  - FC-GS-6, Revision 9.4 (ANSI INCITS 463-2010)
  - FCP-3, Revision 4 (ANSI INCITS416-2006)
  - FCP-4, Revision 2b (ANSI INCITS 481-2011)
  - FC-BB-2, Rev. 6.0 (ANSI/INCITS 372-2003)
  - FC-VI, Revision 1.84 (ANSI/INCITS 357-2002)
  - FC-FLA, Revision 2.7 (INCITS TR-20-1998)
  - FC-PLDA, Revision 2.1 (INCITS TR-19-1998)
  - FC-Tape, Revision 1.17 (INCITS TR-24-1999)
  - FC-MI, Revision 1.92 (INCITS TR-30-2002)
  - FC-SP, Revision 1.8
  - FC-SP-2, Revision 2.71 (ANSI INCITS 496-2012)
  - FAIS, Revision 1.03 (ANSI INCITS 432-2007)
  - FAIS-2, Revision 2.23 (ANSI INCITS 449-2008)
  - FC-IFR, Revision 1.06 (ANSI INCITS 475-2011)FC-DA, Revision 3.1(INCITS TR-36-2004)
  - FC-DA-2, Revision 1.06 (INCITS TR-49-2012)
  - FC-MSQS, Revision 3.2 (INCITS TR-46-2011)
  - IP over Fibre Channel (RFC 2625)
  - Extensive IETF-standards based TCP/IP, SNMPv3, and Remote Monitoring (RMON) MIBs
  - FC-PI-2, Revision 10 (ANSI INCITS 404-2006)
  - FC-PI-3, Revision 4 (ANSI INCITS 460-2011)
  - FC-PI-4, Revision 8 (ANSI INCITS 450-2008)
  - FC-PI-5, Revision 6 (ANSI INCITS 479-2011)
  - FC-FS-2, Revision 1.01 (ANSI INCITS 424-2007)
  - FC-FS-2, Amendment 1 (ANSI INCITS 424-2007/AM1-2007)
  - FC-FS-3, Revision 1.11 (ANSI INCITS 470-2011)
  - FC-LS, Revision 1.62 (ANSI INCITS433-2007)
  - FC-LS-2, Revision 2.21 (ANSI INCITS 477-2011)
  - FC-MI-2, Revision 2.6 (INCITS TR-39-2005)
  - FC-MI-3, Revision 1.03 (INCITS TR-48-2012)
- 



## Technical Specifications

HPE SN8500C 16Gb FC Weights, Dimensions, Environmental, Power and Packaging			
<b>Diagnostics</b>	Cisco GOLD (Generic Online Diagnostics) is a suite of diagnostic facilities to verify that hardware and internal data paths are operating as designed.		
	Boot-time diagnostics, continuous monitoring, standby fabric loopback tests, and on-demand and scheduled tests are part of the Cisco GOLD feature set. This industry-leading diagnostics subsystem enables the rapid fault isolation and continuous system monitoring critical in today's continuously operating environments.		
<b>Compatibility</b>	<b>Fibre Channel protocols</b>	See table above	
	<b>Classes of service</b>	Class 2, Class 3, Class F	
	<b>Port types</b>	Fibre Channel :E, F, FL, B, Enhanced SD, ST, TE; FCoE: VE, VF	
	<b>Internet standards</b>	RFC 2625, RFC 4338, IEEE 802.1Qbb-2011, IEEE 802.3db-2011, IEEE 802.1Qaz-2011, Extensive IETF-standards-based TCP/IP, SNMPv3, and remote monitoring (RMON) MIBs	
	<b>O/S Support</b>	MDS NX-OS Release 6.2(1)- Min. Revision; NX-OS 6.2(7) for FCoE Module	
<b>Performance</b>	<b>Transfer Rate</b>	<ul style="list-style-type: none"> <li>8/16 Gb/FC port</li> <li>10 Gb/FC port</li> <li>10 Gbps FCoE port</li> </ul>	
	<b>Devices/Ports</b>	<ul style="list-style-type: none"> <li>384 FC ports, 384 FCoE ports</li> </ul>	
	<b>Interface</b>	<ul style="list-style-type: none"> <li>4/8/10/16 Gb FC ports</li> <li>10 Gb FCoE Ports</li> <li>10/100/1000 Mb Ethernet port (management)</li> <li>RS-232 RJ-45 console port</li> </ul>	
<b>Connectors/Cables</b>	<b>Connectors</b>	<ul style="list-style-type: none"> <li>RJ-45 Interface Cable Connector</li> <li>LC-type-fiber optic SFP</li> </ul>	
	<b>Cables</b>	<ul style="list-style-type: none"> <li>RJ-45 to RJ-45 rollover cable</li> <li>RJ-45 to DB-25 female DTE adapter (labeled "Terminal ")</li> <li>RJ-45 to DB-25 male DCE adapter (labeled "Modem")</li> <li>LC-type cable</li> </ul>	
<b>Dimensions</b>	<b>Description</b>	<b>Out-of-box</b>	<b>Shipping</b>
	<b>8-Slot Base unit w/o ports(14U)</b>	24.35 x 17.3 x 34.0 in. (61.9 x 43.9 x 86.4 cm)	32 x 32 x 23 in (81.28 x 81.28 x 58.42 cm)
	<b>4-Slot Base unit w/o ports(9U)</b>	15.6 x 17.3 x 32.0 in. (39.62 x 43.9 x 81.3 cm)	n/a
	<b>3000W AC</b>	22.04 x 3.95 x 1.6 in. (55.98 x 10.03 x 4.06 cm)	n/a
<b>Environment</b>	<b>Non-operating temp</b>	40° to 158° F (-40° to 70° C), ambient non-operating and storage	
	<b>Non-operating Humidity</b>	10 to 95%, ambient (non-condensing) non-operating and storage	
	<b>Operating temp</b>	32° to 104° F (-40° to 70° C), ambient operating	
	<b>Operating Humidity</b>	10 to 90%, ambient (non-condensing) operating	

## Technical Specifications

<b>Electrical</b>	<b>Line Voltage</b>	3000W AC: 100 to 240 VAC $\pm$ 10%		
	<b>Line Frequency</b>	3000W AC: 50 to 60 Hz (nominal) ( $\pm$ 3% for full range)		
	<b>Typical Input Current</b>	3000W AC: <ul style="list-style-type: none"> <li>• 16A max at 200 to 240 VAC at 3000W output,</li> <li>• 16A max at 100 to 120 VAC at 1451W output</li> </ul>		
	<b>LED Indicators</b> (On front panel)	<b>Switch System</b>	<ul style="list-style-type: none"> <li>• Power Supply Status</li> <li>• Fan Status</li> <li>• Supervisor Module Status</li> <li>• Fabric Module Status</li> <li>• I/O Modules Status</li> </ul>	
		<b>Supervisor</b>	<ul style="list-style-type: none"> <li>• Supervisor ID</li> <li>• Supervisor Status</li> <li>• System Status</li> <li>• Active/Standby</li> <li>• Power Management</li> <li>• Ethernet Activity (management)</li> <li>• USB Flash Activity</li> <li>• Slot 0 Activity</li> </ul>	
<b>LED Indicators</b> (On back)	<b>Power Supply</b>	<ul style="list-style-type: none"> <li>• Input Power</li> <li>• Output Power</li> <li>• PSU Fault Indicator</li> <li>• PSU ID</li> </ul>		
	<b>Fan</b>	<ul style="list-style-type: none"> <li>• Fan Tray ID</li> <li>• Fan status</li> <li>• Left Fabric Module Status</li> <li>• Right Fabric Module Status</li> </ul>		

### Notes:

- Dimension convention is as follows:
  - o H (Height) is the vertical dimension when looking at the front of the component, as it would be seen in the chassis. Exception is the compact flash where H is when looking at the identification label on the part.
  - o W (Width) is the horizontal (left to right) dimension when looking at the front of the component, as it would be seen in the chassis. Exception is the compact flash where W is when looking at the identification label on the part.
  - o D (Depth) is the front to back dimension when looking at the front of the component, as it would be seen in the chassis. Exception is the compact flash where D is when looking at the identification label on the part.
- Packaging dimensions are reference as if you were looking at the front of the chassis in the packaging, if you could see through the packaging.



## Summary of Changes

Date	Version History	Action	Description of Change
17-Aug-2020	Version 28	Changed	Added SN8700C product family information
03-Aug-2020	Version 27	Changed	QuickSpecs layout was updated and Branding Refresh was applied.
04-May-2020	Version 26	Changed	Added SAN Insights 1 /5 yr licenses
03-Feb-2020	Version 25	Changed	SAN Insights and DCNM Switch based licenses are added
15-Jul-2019	Version 24	Changed	Family Information and Configuration Information sections were updated.
03-Dec-2018	Version 23	Changed	DCNM information was updated Product Highlights and Service and Support sections were revised.
01-Oct-2018	Version 22	Changed	Configuration Information was updated.
02-Jul-2018	Version 21	Changed	Added 48-port 32Gb Module.
02-Apr-2018	Version 20	Changed	Configuration Information was updated.
06-Nov-2017	Version 19	Changed	Updated software license part numbers and product names to e-licenses for November launch. Updated branding.
11-Nov-2016	Version 18	Changed	Removed references to SN8000C Directors as products are, now, obsolete. Updated some urls and added clarity where Enterprise Package License is required.
08-Apr-2016	Version 17	Changed	Removed references to MDS 8Gb Fabric Switch for HP BladeSystem as products are, now, obsolete.
18-Mar-2016	Version 16	Changed	Updated SPOCK url to HPE. Added SN8500C Fabric1 Modules as they are supported for both directors. Added SN8500C 3000W power supply for MDS9710 director.
21-Aug-2015	Version 15	Changed	Added FICON support for SN8500C 4-slot Director (MDS 9706) Removed SN6000C Switch due to be obsolete Sep'15
20-Feb-2015	Version 14	Changed	Removed references to MDS9222i as switch is obsolete. Removed extraneous Fabric-1 modules for both 4-slot and 8-slot SN8500C directors as obsolete. Updated Spock info.
01-Dec-2014	Version 13	Changed	Changes made throughout the QuickSpecs.
26-Sep-2014	Version 12	Changed	Changes made throughout the QuickSpecs.
18-Aug-2014	Version 11	Changed	Changes made throughout the Technical Specifications, Configuration Info and Product Highlights
18-Mar-2014	Version 5	Changed	Changes made throughout the QuickSpecs.
03-Mar-2014	Version 4	Changed	Changes made throughout the QuickSpecs
07-Feb-2014	Version 3	Changed	Changes made in Step 2.
26-Aug-2013	Version 2	Added	Added the Overview image.
21-Aug-2013	Version 1	New	New QuickSpecs.





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