Overview

HPE Storage Director Switch C-series SN8700C

HPE Storage Director Switch C-series SN8700C (MDS 9700 “V2” & “V3” Directors), HPE C-series Family

Today’s mission-critical storage environments require greater consistency, predictability, and performance to keep pace with growing business demands. Faced with explosive data growth, data centers need more IO capacity to accommodate the massive amounts of data, applications, and workloads. In addition to this surge in data, collective expectations for availability continue to rise. Users expect applications to be available and accessible from anywhere, at any time, on any device. To meet these dynamic and growing business demands, organizations need to deploy and scale up applications quickly. As a result, many are moving to higher Virtual Machine (VM) densities to enable rapid deployment of new applications and deploying flash storage to help those applications scale to support thousands of users.

These developments of next-gen, more capable servers, increased server virtualization, adoption of Flash-based Storage and emerging technologies like NVMe, could cause the existing networking infrastructure to bottleneck.

To increase agility, reduce expenses, and realize the full benefits of flash-based architectures, organizations need the network to deliver the performance required by today’s server and storage environments. In addition, storage networks are becoming increasingly important to application performance, which means that they also must become easier to administer and manage. By treating the network as a strategic part of a highly virtualized environment, organizations can increase optimization and efficiency even as they rapidly scale their environments.

Data Center modernization requires faster Fabric infrastructure. We have it now with 64Gb Directors.

The HPE C-series SN8700C Directors are the next-gen MDS 9700 V2/V3 Directors that 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 Storage Director Switch C-series SN8700C supports 4/8/16/32/64 Gb FC and delivers industry-leading scalability and performance (up to 48-Tbps front panel FC switching bandwidth), high port density (up to 768-ports in an SN8700C 16-Slot Director) and high availability to lower TCO and enable integrated SAN infrastructures. HPE delivers the C-series SN8700C 16-slot FC Director with high availability features inherent in the design. All the major components, Supervisor-4, Fabric-3 and Power Supplies are redundant.

The HPE Storage Director Switch C-series SN8700C provides redundancy on all major hardware components, including the supervisor and fabric modules as well as the power supplies. The 16-slot chassis comes with 2 hot swappable redundant Supervisor-4 Modules, and 8 hot swappable redundant 3000W Power Supplies and 6 hot swappable Fabric-3 Modules. The 8-slot chassis comes with 2 hot swappable redundant Supervisor-4 Modules, and 4 hot swappable redundant 3000W Power Supplies and 3 hot swappable Fabric-3 Modules. The 4-slot chassis comes with 2 hot swappable redundant Supervisor-4 Modules, and 4 hot swappable redundant 3000W Power Supplies and 3 hot swappable Fabric-3 Modules. The open expansion slots of the SN8700C Directors can be filled by HPE C-series FC Modules, which include a 48-port 32Gb or 64Gb FC Modules.

Overview



HPE Storage Director Switch C-series SN8700C

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 768 Fibre Channel ports (auto-sensing 64/32/16/8/4) in a single chassis
    - Up to 1152 4/8/16/32/64-Gbps Fibre Channel ports in a standard rack
- **Scalable**
  - Supports throughput up to 256Gb in a single PortChannel 'ISL Trunk'
    - Offers 48 to 768 Fibre 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
- **Interoperable**
  - Broad range of Hewlett Packard Enterprise servers and operating systems
  - Disk and tape storage devices
  - Common architectural platform across all SN8700C and C-series 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
- **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/SN8700C Enterprise Package License, SN8700C Advanced or SN8700C Premier Subscription Licenses may be required.

Scalable Ports

- Supports up to 768 ports capable of 64/32/16/8/4 Gbps (with the use of the SN8500C/SN8700C 48 port FC Modules)

Network-based Intelligent Storage Applications

- Integrated hardware-based VSANs and Inter-VSAN Routing (IVR) (with optional SN8500C/SN8700C Enterprise Package license, SN8700C Advanced or SN8700C Premier Subscription Licenses activated)
- Data replication and backup
- Smart Zoning

Security

Supports VSANs, hardware-enforced zoning, ACLs, per-VSAN Role-Based Access Control (RBAC), RADIUS and TACACS+, FC-SP, SFTP, SSH, and SNMPv3. Please note that the SN8500C/SN8700C Enterprise Package license, SN8700C Advanced or SN8700C Premier Subscription Licenses may be required.

High Performance

- Up to 48 Terabits/sec front-panel Fibre-Channel switching bandwidth
- Port Channel: Up to 16 ports (the channel can span any speed-matched port on any module in the chassis)

Standard Features

Intelligent network services

Please note that some services require the optional SN8500C/SN8700C Enterprise Package license, SN8700C Advanced or SN8700C Premier Subscription Licenses 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

High Availability

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

Embedded Diagnostics

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

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.

Access Control

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

Traffic management

- Virtual Output Queue (VOQ)
  - Buffer credits: 48-port line-rate 64Gbps advanced Fibre Channel modules:Up to 1000 per port (dedicated-mode ports) standard
- Up to 16,000 maximum credits on an individual port (with optional SN8500C/SN8700C Enterprise Package license, SN8700C Advanced or SN8700C Premier Subscription Licenses activated)Buffer credits: 48-port line-rate 32Gbps advanced Fibre Channel modules:
  - Up to 500 per port (dedicated-mode ports) standard
  - Up to 8,270 maximum credits on an individual port (with optional SN8500C/SN8700C Enterprise Package license, SN8700C Advanced or SN8700C Premier Subscription Licenses activated)
- Port Channels (up to 16 ISLs)
- Fabric Shortest Path (FSPF) based multipathing

Standard Features

Management modes

- Cisco MDS 9000 Family Command Line Interface (CLI)
- Cisco Device Manager
- Integration with third-party management tools
- Cisco Data Center Network Manager, DCNM is renamed as Nexus Dashboard Fabric Controller (NDFC) from Release 12.0.1a

Interoperability

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

Product Family Models

- **HPE SN8700C 16-slot 16/32/64Gb FC Director (MDS 9718)**
  - Intelligent, multi-protocol 16-slot Director with up to 768 64/32/16/8/4 Gb Fibre Channel ports in a single chassis. Also, the HPE SN8700C 48-port 32Gb FC Module or 64G FC Module provides up to 768 ports of full 16/32/64Gbps line-rate performance across all ports in a single chassis.
    Notes: Base unit includes a 26U, (16) slot chassis with two hot swappable redundant Supervisor-4 Modules, six hot swappable Fabric-3 Modules, eight hot swappable redundant 3000W Power Supplies, fans, firmware, accessory kit, and documentation. Supports up to sixteen optional expansion port modules. The 6 Fabric 3 modules provide full line rate 32Gb or 64Gb performance.
- **HPE SN8700C 8-slot 16/32/64Gb 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 SN8700C 48-port 32Gb FC Module or 64G FC Module provides up to 384 ports of full 16/32/64Gbps line-rate performance across all ports. The appropriate number of Fabric 3 modules must be configured to support full line rate across all ports.
    Notes: Base unit includes a 13U, (8) slot chassis with two hot swappable redundant Supervisor-4 Modules, three hot swappable Fabric-3 Modules, four hot swappable redundant 3000W Power Supplies, fans, firmware, accessory kit, and documentation. Supports up to eight optional expansion port modules. The 3 Fabric 3 Modules included provide full line rate 32Gb performance. For full line rate 64Gb, 6 Fabric 3 modules are required.
- **HPE SN8700C 4-slot 16/32/64Gb 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 32Gb FC Module or 64Gb FC Module provide up to 192 ports of full 16/32/64 Gbps line-rate performance across all ports. The appropriate number of Fabric 3 modules must be configured to support full line rate across all ports.
    Notes: Base unit includes a 9U, (4) slot chassis with two hot swappable redundant Supervisor-4 Modules, three hot swappable Fabric-3 Modules, two hot swappable redundant 3000W Power Supplies, fans, firmware, accessory kit, and documentation. Supports up to four optional expansion port modules. The 3 Fabric 3 Modules included provide full line rate 32Gb performance. For full line rate 64Gb, 6 Fabric 3 modules are required.
- **HPE SN6010C 16Gb Fabric Switch (MDS 9148S)**
  - With up to 48 autosensing 16/8/4/2 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 32/16/8/4 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 32/16/8/4 Gb Fibre Channel ports
  - "Pay as you grow" scalability starting at 24 ports
- **HPE SN6630C 32Gb Fabric Switch (MDS 9396T)**
  - With up to 96 autosensing 32/16/8/4 Gb Fibre Channel ports
  - "Pay as you grow" scalability starting at 48 ports

Standard Features

- **HPE SN6640C 32Gb Fabric Switch (MDS 9220i)**
  - Intelligent multi-protocol Fabric Switch with twelve 32-Gbps Fibre Channel ports, four 1/10-, two 25-, and one 40-Ethernet IP storage services ports, in a fixed One-Rack Unit (1RU) form factor.
- **HPE SN6720C 64Gb Fabric Switch (MDS 9148V)**
  - With 48 Auto-Sensing 64/32/16/8 Gb Fibre Channel ports
- **HPE SN6710C 64Gb Fabric Switch (MDS 9124V)**
  - With 24 Auto-Sensing 64/32/16/8 Gb Fibre Channel ports

Software Components, Standard

NX-OS

NX-OS (Nexus Operating System) provides a rich set of software intelligent features (VSAN, Zoning, Inter-VSAN routing, IPSec encrytion, etc.) for a high-performance switch fabric. The Cisco MDS NX-OS operating system is shipped with the Cisco MDS 9000 Series switches and directors. The SN8700C Director with 2 Supervisor-4 modules and 3 Fabric-3 modules supports NX-OS 8.x or later.

Cisco Data Center Network Manager

Cisco Data Center Network Manager (Essentials Edition) is the network management platform for all NX-OS-enabled deployments, spanning new fabric architectures and storage networking deployments. Cisco Data Center Network Manager (DCNM) 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/SN8700C license mentioned below.

Notes: Cisco Data Center Network Manager (DCNM) is renamed as Cisco Nexus Dashboard Fabric Controller (NDFC) from Release 12.0.1a. Read more at:
https://www.cisco.com/c/en/us/products/collateral/cloud-systems-management/prime-data-center-network-manager/san-innovation-ndfc-so.html

Cisco Smart Licensing and Subscription Licenses

Starting from Cisco NX-OS 9.2(2), Smart Licensing Using Policy is available for HPE C-Series switches. This enables the customer to purchase subscription-based licenses for a period of time.

For more information, refer to Cisco MDS Licensing Guide, Smart Licensing Using Policy:
https://www.cisco.com/c/en/us/td/docs/dcn/mds9000/sw/9x/configuration/licensing/cisco-mds-9000-nx-os-licensing-guide-9x/smart-licensing-using-policy.html?dtid=osscdc000283

Software Components, Optional

HPE C-series 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/SN8700C 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

HPE C-series 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/SN8700C 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. From Cisco DCNM,

Standard Features

Release 11.3(1), the trial period is extended to 60 days and the number of licenses is 50. However, the trial period remains 30 days and the number of licenses remains 500 for inline upgrades. Customers must purchase the HPE SN8500C/SN8700C DCNM E-LTU to continue to utilize the advanced DCNM features**.**

Notes: Cisco Data Center Network Manager (DCNM) is renamed as Cisco Nexus Dashboard Fabric Controller (NDFC) from Release 12.0.1a. Read more at:
https://www.cisco.com/c/en/us/products/collateral/cloud-systems-management/prime-data-center-network-manager/san-innovation-ndfc-so.html

HPE C-series Mainframe FICON E-LTU

The HPE SN8500C/8700C Mainframe FICON License is required for using the SN8500C/SN8700C 8-slot 16/32/64Gb Directors (MDS 9710) or the SN8700C/SN8500C 4-slot 16/32/64Gb 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. Please note FICON support in not available on the SN8700C 16-slot chassis (MDS 9718).

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/SN8700C 32Gb FC Director Module or 64Gb FC 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/SN8700C 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 or they must purchase the HPE C-series Premier license, below.

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, the customer will need to purchase a new license to continue using the software. Software renewal via HPEServices is not allowed/supported.

Cisco Nexus Dashboard Fabric Controller Cisco Data Center Network Manager (DCNM) is renamed as Cisco Nexus Dashboard Fabric Controller (NDFC) from Release 12.0.1a. Cisco NDFC is designed with an HTML-based web User Interface (UI), which is the main interface for the product. There is also a fully integrated device manager used for visualizing and managing each individual switch or director.

The day-to-day SAN operations, such as In-Service Software Upgrades (ISSU), Zoning, Event management, Port Monitoring (PMON), etc., are managed and maintained from the simplified web UI. The application is a platform providing historical data that can be used to help during day-to-day troubleshooting, viewing analytics data, and looking for SAN congestion through slow-drain analysis. NDFC is also critically important for reviewing event data, SNMP traps, syslogs, and consolidated auditing and reporting. Customers having an existing DCNM license or the HPE C-series Advantage or Premier licenses below may use these features.

HPE C-series Advantage License (Subscription License: 1/3/5 years)

The HPE C-series Advantage License is a combination of Nexus Dashboard Fabric Controller (NDFC) and Enterprise Package licenses. It comes with 1-, 3-, or 5-year terms and is provisioned through Cisco Smart Licensing.

Standard Features

HPE C-series Premier License (Subscription License: 1/3/5 years)

The HPE C-series Premier License is a combination of Nexus Dashboard Fabric Controller (NDFC), Enterprise Package and SAN Analytics licenses. It comes with 1-, 3-, or 5-year terms and is provisioned through Cisco Smart Licensing.

Notes:

- NX-OS 9.2(2) is the minimum required version for C-series Advantage and Premier Licenses.
- HPE C-series Advantage and Premier Licenses include 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 Services is not allowed/supported.

Service and Support

Warranty

The SN8500C/SN8700C 16/32/64Gb Director offers (3-3-3) Hardware Warranty – Three-year warranty, 24x7, 4-hour remote response, installation not included.

The SN8500C/SN8700C FCoE Module, SN8500C/SN8700C 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.

HPE Services

No matter where you are in your transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.
https://www.hpe.com/services

Consulting services

No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.
https://www.hpe.com/services/consulting

HPE Managed Services

HPE runs your IT operations, providing 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.
HPE Managed Services | HPE

Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.
https://www.hpe.com/services/operational

Recommended Services

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service 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 Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service 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

Service and Support

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service 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/completecare

Other related services from HPE Services

HPE Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

https://www.hpe.com/services/lifecycle

- For a list of the most frequently purchased services using service credits, see the **HPE Service Credits Menu**

HPE SAN Deployment Service

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

Learn more: **https://www.hpe.com/psnow/doc/5981-8527enw?jumpid=in_lit-psnow-red**

HPE Installation Service

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

Learn more: **https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=5981-9356enw**

HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.

https://www.hpe.com/services/training

Service and Support

Defective Media Retention

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

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options

Parts and Materials

HPE 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.

How to purchase services

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 services at **https://ssc.hpe.com/portal/site/ssc/**

AI Powered and Digitally Enabled Support Experience

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

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.

https://support.hpe.com/hpesc/public/home/signin

Consume IT on your terms

HPE GreenLake edge-to-cloud platform 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 edge-to-cloud platform 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

To learn more about HPE 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**

For more information: **http://www.hpe.com/services**

Configuration Information

Step 1 - Base Configurations (Select one)

Description	SKU
HPE SN8700C 16-slot 16/32/64Gb Fibre Channel Director Switch	R7L00B
Notes: Base unit includes a 26U, (16) slot chassis with two hot swappable redundant Supervisor-4 Modules, six hot swappable Fabric-3 Modules, eight hot swappable redundant 3000W Power Supplies, fans, firmware, accessory kit, and documentation. Supports up to sixteen optional expansion port modules.	
HPE SN8700C 8-slot 16/32/64Gb Fibre Channel Director Switch	R6M36B
Notes: Base unit includes a 14U, (8) slot chassis with 2 hot swappable redundant Supervisor-4 Modules, three hot swappable Fabric-3 Modules, 4 hot swappable redundant 3000W Power Supplies, fans, firmware, accessory kit, and documentation. Supports up to eight optional expansion port modules.	
HPE SN8700C 4-slot 16/32/64Gb Fibre Channel Director Switch	R6M35B

Notes:

- Base unit includes a 9U, (4) slot chassis with 2 hot swappable redundant Supervisor-4 Modules, three hot swappable Fabric-3 Modules, 2 hot swappable redundant 3000W Power Supplies, fans, firmware, accessory kit, and documentation. Supports up to four optional expansion port modules.
- **Please Note:** FICON support is available only on the SN8700C 4-slot and 8-slot chassis (MDS 9706/9710).

Step 2 – Options

Select each type of required options with quantities specified:
Notes: For a complete list of supported switching modules in the SN8700C 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/.

Description	SKU
HPE SN8700C 64Gb 48-port Fibre Channel Director Module	S1V08A
Notes: SFPs required; supports 16, 32 and 64Gb FC SFPs. 64Gb FC SFPs require NX-OS 9.3(1) or later	
HPE SN8700C 64Gb 48-port 64Gb SFP+ Fibre Channel Director Module	S0W90A
Notes: 48 x 64Gb SFPs included, 64Gb FC SFPs require NX-OS 9.3(1) or later	
HPE SN8700C 64Gb 48-port 32Gb SFP+ Fibre Channel Director Module	R9F23B
Notes: 48 x 32Gb SFPs included, 32Gb FC SFPs require NX-OS 9.3(1) or later	
HPE SN8500C/SN8700C 48-port 32Gb Fibre Channel Director Module	Q9D32B
Notes: SFPs required; supports 8, 16 and 32Gb FC SFPs. Module requires NX-OS 8.1(1) or later	
HPE C-series 32 Gb Fibre Channel Short Wave SFP+ Transceiver	Q9D30A
Notes: Compatible with SFP28 MSA spec	
HPE C-series 64Gb SFP+ Short Wave Fibre Channel Transceiver	S0W91A
Notes: Compatible with SFP28 MSA spec, 64Gb FC SFPs require NX-OS 9.3(1)	
HPE C-series 32 Gb Fibre Channel Long Wave SFP+ Transceiver	Q9D31A
Notes: Compatible with SFP28 MSA spec, 32Gb FC SFPs requires NX-OS 8.1(1) or later	
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

Configuration Information

Description	SKU
HPE SN8700C Supervisor-4 Module	R6M32B
HPE SN8700C 8-slot Director Fabric-3 Module	R6M34B
HPE SN8700C 4-slot Director Fabric-3 Module	R6M33B
HPE SN8500C/SN8700C 3000W 240VAC Director Power Supply	K2Q20A

Notes: Please refer to the table below to determine if additional Fabric-3 modules for your HPE SN8700C director are required to meet your bandwidth and line-rate requirements.

# of Fabric Modules SN8700C Director	Front-Panel FC Bandwidth per Slot
1	512 Gbps
2	1024 Gbps
3	1536 Gbps (32Gb Line Rate Performance)
4	2048 Gbps
5	2560 Gbps
6	3072 Gbps (64Gb Line Rate Performance)

Optional Software Licenses

Description	SKU
HPE SN8700C Advantage 1-year E-LTU	R9N35AAE
HPE SN8700C Advantage 3-year E-LTU	R9N39AAE
HPE SN8700C Advantage 5-year E-LTU	R9N43AAE
Notes: Advantage license is a combination of Nexus Dashboard Fabric Controller (Data Center Network Manager) and Enterprise Package	
HPE SN8700C Premier 1-year E-LTU	R9N46AAE
HPE SN8700C Premier 3-year E-LTU	R9N49AAE
HPE SN8700C Premier 5-year E-LTU	R9N52AAE
Notes: Premier license is a combination of Nexus Dashboard Fabric Controller (Data Center Network Manager), Enterprise Package and SAN Analytics	
HPE SN8500C/SN8700C Enterprise Package E-LTU	TC459AAE
Notes: Set of advanced traffic-engineering and advanced security features.	
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
Notes: FICON support is not available on the SN8700C 16-slot chassis (MDS 9718).	

Installation Services

For complete design and implementation of Fibre Channel connectivity components, select HPE SAN Deployment Service **https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=5981-9356enw**
http://h20195.www2.hpe.com/V2/GetPDF.aspx/5981-8527ENW.pdf

For basic hardware installation, select the service noted below.
Notes: 1 per switch

Description	SKU
MDS9506/9509/SN8500C/SN8700C Install	HA113A1#5D1

Configuration Information

Step 3 - Additional Options

Recommended Cables

Description	SKU
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
HPE SN8700C 4-slot/8-slot/16-slot 16/32/64Gb FC Director	Multilayer Director	4-slot: 192 8/16/32/64 Gbps Fibre Channel ports 8-slot: 384 8/16/32/64 Gbps Fibre Channel ports 16-slot: 768 8/16/32/64 Gbps Fibre Channel ports	Four/Eight/Sixteen
HPE C-series SN6710C 64Gb Fabric Switch	Multilayer Fabric Switch	Twenty-four 64 Gbps Fibre Channel ports	One fixed
HPE C-series SN6720C 64Gb Fabric Switch	Multilayer Fabric Switch	Forty-eight 64 Gbps Fibre Channel ports	One fixed
HPE C-series SN6640C 32Gb Multi-service Switch	Multilayer Fabric Switch	Up to 12 32-Gbps Fibre Channel ports, four 1/10-, two 25-, and one 40- Ethernet IP storage services ports	One fixed
HPE SN6630C 32Gb Fabric Switch	Multilayer Fabric Switch	Up to 96 32 Gbps Fibre Channel ports	One fixed
HPE SN6620C 32Gb Fabric Switch	Multilayer Fabric Switch	Up to 48 32 Gbps Fibre Channel ports	One fixed
HPE SN6610C 32Gb Fabric Switch	Multilayer Fabric Switch	Up to 32 32 Gbps Fibre Channel ports	One fixed and one expansion slot
HPE SN6010C 16Gb Fabric Switch	Multilayer Fabric Switch	Up to 48 16 Gbps Fibre Channel ports	One 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.

Technical Specifications

Fibre Channel 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)
- FC-PI, Revision 13 (ANSI INCITS 352-2002)
- 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, Revision 1.9 (ANSI INCITS 373-2003)
- 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 INCITS 433-2007)
- FC-LS-2, Revision 2.21 (ANSI INCITS 477-2011)
- FC-SW-2, Revision 5.3 (ANSI INCITS 355-2001)
- FC-SW-3, Revision 6.6 (ANSI INCITS 384-2004)
- FC-SW-4, Revision 7.5 (ANSI INCITS 418-2006)
- FC-SW-5, Revision 8.5 (ANSI INCITS 461-2010)
- FC-GS-3, Revision 7.01 (ANSI INCITS 348-2001)
- FC-GS-4, Revision 7.91 (ANSI INCITS 387-2004)
- FCP, Revision 12 (ANSI INCITS 269-1996)
- FCP-2, Revision 8 (ANSI INCITS 350-2003)
- FCP-3, Revision 4 (ANSI INCITS 416-2006)
- FCP-4, Revision 2b (ANSI INCITS 481-2011)
- 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-6, Revision 2.00 (ANSI INCITS 509-2014)
- FC-BB-2, Revision 6.0 (ANSI INCITS 372-2003)
- FC-BB-3, Revision 6.8 (ANSI INCITS 414-2006)
- FC-BB-4, Revision 2.7 (ANSI INCITS 419-2008)
- FC-BB-5, Revision 2.0 (ANSI INCITS 462-2010)
- FC-VI, Revision 1.84 (ANSI INCITS 357-2002)
- FC-SP, Revision 1.8 (ANSI INCITS 426-2007)
- 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-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)

Technical Specifications

- FC-MI-2, Revision 2.6 (INCITS TR-39-2005)
- FC-MI-3, Revision 1.03 (INCITS TR-48-2012)
- 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)
- Fibre Channel classes of service: Class 2, Class 3, and Class F
- Fibre Channel standard port types: E, F, FL, and B
- Fibre Channel enhanced port types: SD, ST, and TE
- IEEE 802.1Qbb-2011: Priority-based Flow Control (PFC)
- IEEE 802.3db-2011: MAC address control frame for priority-based flow control
- IEEE 802.1Qaz-2011: Enhanced transmission selection for bandwidth sharing between traffic classes (ETS and DCBX)
- IP over Fibre Channel (RFC 2625)
- IPv6, IPv4, and Address Resolution Protocol (ARP) over Fibre Channel (RFC 4338)
- Extensive IETF-standards-based TCP/IP, SNMPv3, and Remote Monitoring (RMON) MIBs
- RFC 3643 and 3821 FCIP

Technical Specifications

HPE SN8700C FC Weights, Dimensions, Environmental, Power and Packaging			
Diagnostics	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 rapid fault isolation and continuous system monitoring critical in today's continuously operating environments.		
Compatibility	**Fibre Channel protocols**	See table above	
	Classes of service	Class 2, Class 3, Class F	
	Port types	Fibre Channel: E, F, FL, B, Enhanced SD, ST, TE; VE, VF	
	Internet standards	RFC 2625, RFC 4338, IEEE 802.1Qbb-2011, IEEE 802.3db-2011, EEE 802.1Qaz-2011, Extensive IETF-standards-based TCP/IP, SNMPv3, and remote monitoring (RMON) MIBs	
	O/S Support	MDS NX-OS Release 8.4(1)- Min. Revision;	
Performance	**Transfer Rate**	• 8/16/32/64 Gb FC port	
	Devices/Ports	• 768 FC ports	
	Interface	• 4/8/16/32/64 Gb FC ports • 10/100/1000 Mb Ethernet port (management) • RS-232 RJ-45 console port	
Connectors/Cables	**Connectors**	• RJ-45 Interface Cable Connector • LC-type-fiber optic SFP	
	Cables	• RJ-45 to RJ-45 rollover cable • RJ-45 to DB-25 female DTE adapter (labeled "Terminal ") • RJ-45 to DB-25 male DCE adapter (labeled "Modem") • LC-type cable	
Dimensions	**Description**	**Out-of-box**	**Shipping**
	16-Slot Base unit w/o ports(26U)	45.25 x 17.3 x 35 in. (114.9 x 43.9 x 88.9 cm)	60.75 x 43.5 x 48 in (154.30 x 110.49 x 121.92 cm)
	8-Slot Base unit w/o ports(14U)	24.35 x 17.3 x 34.0 in. (61.9 x 43.9 x 86.4 cm)	353 x 30 x 42 in (134.6 x 76.2 x 106.7 cm)
	4-Slot Base unit w/o ports(9U)	15.6 x 17.3 x 32.0 in. (39.62 x 43.9 x 81.3 cm)	45 x 30 x 40 in (114.3 x 76.2 x 101.6 cm)
	3000W AC	22.04 x 3.95 x 1.6 in. (55.98 x 10.03 x 4.06 cm)	N/A
Environment	**Non-operating temp**	-40° to 158° F (-40° to 70° C), ambient non-operating and storage	
	Non-operating Humidity	10 to 95%, ambient (non-condensing) non-operating and storage	
	Operating temp	32° to 104° F (0° to 40° C), ambient operating	
	Operating Humidity	10 to 90%, ambient (non-condensing) operating	

Technical Specifications

Electrical	**Line Voltage**	3000W AC: 100 to 240 VAC ±10%	
	Line Frequency	3000W AC: 50 to 60 Hz (nominal) (±3% for full range)	
	Typical Input Current	3000W AC: • 16A max at 200 to 240 VAC at 3051W output • 16A max at 100 to 120 VAC at 1451W output	
	LED Indicators (On front panel)	**Switch System**	• Power Supply Status • Fan Status • Supervisor Module Status • Fabric Module Status • I/O Modules Status
		Supervisor	• Supervisor ID • Supervisor Status • System Status • Active/Standby • Power Management • Ethernet Activity (management) • USB Flash Activity • Slot 0 Activity
	LED Indicators (On back)	**Power Supply**	• Input Power • Output Power • PSU Fault Indicator • PSU ID
		Fan	• Fan Tray ID • Fan status • Left Fabric Module Status • Right Fabric Module Status

Notes:

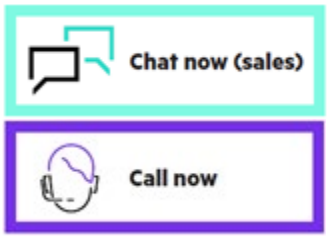
- Dimension convention is as follows:
  - H (Height) is the vertical dimension when looking at the front of the component, as it would be seen in the chassis. Exception is the compact flash where H is when looking at the identification label on the part.
  - W (Width) is the horizontal (left to right) 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.
  - 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 referenced 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
16-Oct-2023	Version 12	Changed	Overview, Standard Features, Service and Support and Configuration Information and Technical Specifications sections were updated. Removed FCoE and 10GbE Transceiver mentions. Overview and Configuration information updated.
02-Oct-2023	Version 11	Changed	HPE Re-branding - Series name and HPE Services information updated
07-Aug-2023	Version 10	Changed	Standard Features, Service and Support, Configuration Information and Technical Specifications sections were updated. Added new program PNs
06-Mar-2023	Version 9	Changed	Overview, Standard Features, Service and Support and Configuration Information sections were updated. Updated 64G FC switch and director module program information
01-Aug-2022	Version 8	Changed	Service and Support and Configuration Information sections were updated.
04-Apr-2022	Version 7	Changed	Added NDFC, subscription licenses
07-Feb-2022	Version 6	Changed	Added 64GFC Module
04-Oct-2021	Version 5	Changed	Service and Support section was updated Obso SKU was removed
02-Aug-2021	Version 4	Changed	Service and Support section was updated.
01-Mar-2021	Version 3	Changed	Added SN8700C 16-slot chassis information
14-Dec-2020	Version 2	Changed	Overview and Configuration Information sections were updated.
03-Aug-2020	Version 1	New	New QuickSpecs

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