

### Overview

#### HPE C-series SN6620C Fibre Channel Switch

The HPE C-series SN6620C Fibre Channel Switch (MDS 9148T) is the next generation 48-port 32Gbps Fibre Channel Switch providing high-speed Fibre Channel connectivity from the server rack to the SAN core. It empowers small, midsize, and large enterprises that are rapidly deploying cloud-scale applications providing the benefits of greater bandwidth, scale, and consolidation. The switch allows seamless transition to Fibre Channel Non-Volatile Memory Express (FC-NVMe) workloads whenever available without any hardware upgrade in the SAN. For flexibility, the HPE SN6620C Fibre Channel Switch scales from 24-48 ports. Additionally, investing in this switch for the lower-speed (8 or 16 Gbps) server rack gives you the flexibility to upgrade to 32 Gbps performance in the future.

The SN6620C can be provisioned, managed, monitored, and troubleshot using Cisco Data Center Network Manager (DCNM), which currently manages the entire suite of Cisco data center products. Powered by C-series MDS 9000 NX-OS Software, it includes storage networking features and functions and is compatible with C-series SN8500C (MDS 9700) Series Multilayer Directors, C-series SN6610C (MDS 9132T) Multilayer Fabric Switches, C-series SN6010C (MDS 9148S) Multilayer Fabric Switches and C-series SN6500C (MDS 9250i) Multi-service Fabric Switches, providing transparent, end-to-end service delivery in core-edge deployments.



HPE C-series SN6620C FC Switch

## Standard Features

### Key Features and Benefits

- **High Performance for AFA and virtualized workloads**
  - Up to 1536 Gbps of aggregate bandwidth in a 1 rack unit (RU)
  - Up to 48 autosensing Fibre channel ports capable of speeds of 4/8/16/32 Gbps
  - Pay as you grow flexibility in increments of 8 ports with on-demand port activation licenses
  - Allow users to deploy them with 32Gb, 16Gb or 8Gb optics to accommodate their budget while being fully prepared for tomorrow.
- **Intelligent network services for modern SAN**
  - N-Port ID Virtualization (NPIV) technology to provide independent management for each virtual machine
  - N-Port Virtualization (NPV) and fabric-port (F-port) channeling features to enable scaling of SANs without reaching Fibre Channel domain ID limits
  - Representational State Transfer (REST) and NX-API capabilities to enable flexible and rapid programming of utilities for the SAN.
- **High Availability Platform**
  - Designed for environments in which downtime is unacceptable
  - Non-disruptive software upgrades, dual hot swappable power supplies, and hot swappable fans
  - VSANs for fault isolation and PortChannels for Inter-Switch Link (ISL) resiliency
- **Simplified Management**
  - Supports SAN plug and play capability
  - Centralized management tool with task-based wizards that simplifies management of a standalone switch or multiple switches and fabrics. Reduced total cost of ownership

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### Industry leading 32-Gb Performance Capability

The switch offers full non-blocking 32-Gbps Fibre Channel performance on 48 line-rate ports and an aggregate bandwidth of 1536 Gbps in each direction in a 1 Rack unit form factor.

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### Scalability

The HPE SN6620C Fibre Channel Switch provides an option to deploy as few as twenty-four 32-Gbps Fibre Channel ports in the entry-level variant, which can grow in increments of 8 ports to 48 ports.

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### Cost Effective Intelligent Storage networking

The SN6620C switch comes standard in a compact, extremely cost-effective design that simplifies deployment and administration of small and medium-scale storage-area networks (SANs) and as an edge switch in a larger enterprise. Please note that some services listed require the optional SN6000C Enterprise Package License.

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### N-Port ID Virtualization (NPIV)

N-Port ID Virtualization (NPIV), a standard Fibre Channel protocol feature, individual virtual machines assume a full identity on the SAN so that Fibre Channel services such as zoning, Quality of Service (QoS), performance monitoring, and security can be provided to each virtual machine.

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### VSANs

VSAN, an industry standard for fabric virtualization capabilities, enables more efficient storage network use by creating hardware-based isolated environments within a single physical SAN fabric or switch. Up to 32 VSANs are supported per switch. Each VSAN can be zoned as a typical SAN and maintains its own fabric services and management domains for added scalability and resilience. VSANs allow the cost of SAN infrastructure to be shared among more users, while helping ensure segregation of traffic and retaining independent control of configuration on a VSAN-by-VSAN basis.

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## Standard Features

### PortChannels

PortChannels allow users to aggregate up to 16 physical ISLs into a single logical bundle, providing optimized bandwidth use across all links. The bundle can consist of any port from the switch, helping ensure that the bundle remains active even in the event of a port failure.

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### FlexAttach

The FlexAttach feature gives SN6620C switch customers the flexibility to add, move, or replace servers easily without the need to reconfigure SAN switches or storage arrays. It provides this flexibility by virtualizing the SAN identity of a server, which enables a server to retain its SAN identity even if the server is moved or replaced.

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### Quality of Service (QoS)

The Quality of Service (QoS) feature allows traffic to be classified into four distinct levels for service differentiation. QoS can be applied to help ensure that Fibre Channel data traffic for latency-sensitive applications receives higher priority over throughput-intensive applications such as data warehousing.

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### F-port trunking and channeling

The F-port trunking feature enables multiple VSANs to be transported on the uplink from a SN6620C switch operating in NPV mode to the core switch. This feature will allow the consolidation of uplinks ports necessary for extending VSAN connectivity to the NP device.

The F-port channeling feature enables up to 16 physical uplinks between a SN6620C switch operating in NPV mode and the core switch to be bundled into a PortChannel.

Advanced traffic management features, such as fabricwide quality of service (QoS) and Inter-VSAN Routing (IVR), among others, are included with the optional HPE SN6000C Enterprise Package License.

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### IVR (MDS 9000 NX-OS Software Release 8.3(1) or later)

VSANs and Inter-VSAN routing (IVR) enable deployment of large-scale multisite and heterogeneous SAN topologies. Integrated VSANs in port-level hardware allow any port in a system or in a fabric to be partitioned into any VSAN. Integrated IVR provides line-rate routing between any of the ports in a system or in a fabric without the need for external routing appliances.

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### High Availability

The SN6620C switch is designed for environments in which downtime is unacceptable. It offers:

- Non-disruptive software upgrades
  - Process monitoring and stateful process restart
  - Per-VSAN fabric services
  - Hot-swappable C-series SFP and SFP+ optics
  - Optional redundancy on all major components such as the power supply and fan
  - PortChannels for Inter-Switch Link (ISL) resiliency
  - F-port Channeling for resiliency on uplinks from a SN6620C switch operating in NPV mode
  - Online diagnostics
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## Standard Features

### Simplified Storage Management

#### Single-pane management

The SN6620C can be provisioned, managed, monitored, and troubleshot using Cisco Data Center Network Manager, which currently manages the entire suite of Cisco data center products.

### Interoperability

Offers compatibility with a broad range of Hewlett Packard Enterprise servers and operating systems, as well as disk and tape storage devices; see current compatibility matrix. Please refer to the Spock website below for more details.

### Diagnostics

- Embedded diagnostics
- Network analysis

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## Software Components, Included

### NX-OS

SN6620C includes the Cisco MDS 9000 NX-OS Software operating system version 8.3(1) or higher, Cisco Data Center Network Manager (Essentials Edition), and a set of configuration, maintenance and diagnostics tools. It also includes VSAN support, PortChannels, extended fabrics, and hardware-enforced zoning.

### 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 the HPE DCNM SN6000C license mentioned below.

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## Software Components, Optional

### HPE SN6620C 8-Port Upgrade E-LTU

The flexibility of the SN6620C switch is provided by the C-series SN6620C 8-port 32Gb FC Upgrade license, which allows the addition of eight 32-Gbps ports.

### HPE SN6000C Data Center Network Manager E-LTU

The "Standard" Cisco Data Center Network Manager (Essentials Edition) software that is included at no charge with the SN6620C Switch provides basic switch configuration and troubleshooting capabilities. The HPE C-series Data Center Network Manager (DCNM) License (for the SN6000C Fabric Switches) 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 SN6000C DCNM E-LTU license (server-based or switch-based license) to continue to utilize the advanced DCNM features.



## Standard Features

### HPE SN6000C Enterprise Package E-LTU

The HPE C-series 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 SN6000C Enterprise Package. Please refer to the Cisco 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 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 SN6620C 32Gb FC Switch. 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 SN6600C 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

(1-1-1) Hardware Warranty; 1-year parts; 1-year on-site (8x5, next business day response) and 1-year labor.

**Notes:** The hardware warranty covers firmware and embedded non-saleable software. Hardware or Software product installation is not included in the warranty, but is available and highly recommended.

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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.

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### 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 SN6600C SAN Insights Software with the 1-year term LTU, Datacenter Care is available as a tailored statement of work service. For HPE SN6600C 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



## Service and Support

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 SN6600C 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 SN6600C 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>

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**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 SN6600C 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>

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### **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.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**

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.hpe.com/ww/learn>

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## Service and Support

### 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 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.hpe.com/hpesc/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.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 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.hpe.com/portal/site/ssc/>

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## Configuration Information

The SN6620C Switch comes preconfigured with 24 or 48 autosensing Fibre Channel ports capable of 32, 16, 8Gb and 4Gb in a compact 1RU form factor chassis. An On-Demand Port Activation license is available for "pay as you grow" expansion in 8-port increments for up to 48 Fibre Channel ports. Customers can choose between standalone models or 32Gb SFPs bundled configuration.

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

#### Description

#### SKU

#### HPE SN6620C 48/24 32Gb Fibre Channel Switch

HPE SN6620C 32Gb 48/24 Fibre Channel Switch R0P12A

- 48-Port Fabric Switch with 24 active ports, Dual Power Supplies, Power Cords (configurable by ship-to country) and 4 Fans, VSANs, PortChannels, Cisco Data Center Network Manager, firmware, accessory kit and documentation.

#### HPE SN6620C 32Gb 24-port 32Gb SFP+ Fibre Channel Switch

HPE SN6620C 32Gb 24-port 32Gb SFP+ Fibre Channel Switch R0P13A

- 48-Port Fabric Switch with 24 active ports bundled with 24x32Gb SW SFP+, Dual Power Supplies, Power Cords (configurable by ship-to country) and 4 Fans, VSANs, PortChannels, Cisco Data Center Network Manager, firmware, accessory kit and documentation.

#### HPE SN6620C 32Gb 48-port 32Gb SFP+ Fibre Channel Switch

HPE SN6620C 32Gb 48-port 32Gb SFP+ Fibre Channel Switch R0P14A

- 48-Port Fabric Switch with 48 active ports bundled with 48x32Gb SW SFP+, Dual Power Supplies, Power Cords (configurable by ship-to country) and 4 Fans, VSANs, PortChannels, Cisco Data Center Network Manager, firmware, accessory kit and documentation.

**Notes:** To order factory integration, add OD1 after the part number on your sales order

### Step 2 - Optional Software

#### On Demand Port Activation License

HPE SN6620C 32Gb 8-port Fibre Channel Upgrade E-LTU R0Z10AAE

#### Management Software

HPE SN6000C Data Center Network Manager E-LTU TC364AAE

HPE C-series SN6000C DCNM Switch E-LTU R4F89AAE

HPE SN6000C Enterprise Package E-LTU A7515AAE

HPE C-series SN6600C SAN Insights 1yr E-LTU R5Z90AAE

HPE C-series SN6600C SAN Insights 3yr E-LTU R4F92AAE

HPE C-series SN6600C SAN Insights 5yr E-LTU R5Z91AAE

### Step 3 - Options

Select each required option with quantities specified:

#### 32Gb FC Transceivers\*

HPE C-series 32 Gb Fibre Channel Short Wave SFP+ Transceiver Q9D30A

HPE C-series 32 Gb Fibre Channel Long Wave SFP+ Transceiver Q9D31A

**Notes:**\* Compatible with SFP28 MSA spec

#### 16 Gb FC Transceivers

HPE C-series 16 Gb Fibre Channel SW SFP+ Transceiver C8S72A

HPE C-series 16 Gb Fibre Channel LW SFP+ Transceiver C8S73A



## Configuration Information

### Description

### SKU

#### 8Gb FC Transceivers

HPE MDS 9000 8Gb FC SFP+ Short Range Transceiver

AJ906A

HPE MDS 9000 8Gb FC SFP+ Long Range Transceiver

AJ907A

**Notes:** Each port on the SN6620C may be configured to accept Short or Long Wave SFP optical transceivers. There are two SN6620C switch bundles available: one populated with 24 32Gb SW SFPs and one populated with 48 32Gb SW SFPs. For the standalone switch, please use only the above Cisco SFP optical transceivers; no substitutions allowed. Using other transceivers may void product warranty.

#### Installation and Deployment Services

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

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

For basic hardware installation, select **HPE Installation Service**

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

### 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



## 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.hp.com/spock/](https://h20272.www2.hp.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.

### Minimum software requirements

MDS 9000 NX-OS Software Release 8.3(1)

### Performance and port configuration

- Port speed: 32, 16 and 8 Gbps autosensing with 32 Gbps of dedicated bandwidth per port
- Buffer credits: Up to 8300 for a group of 16 ports, with a default of 500 buffer credits per port and a maximum of 8270 buffer credits for a single port in
  - the group
- Ports per chassis: Up to 48 32-Gbps ports
- Base configuration with 24 ports; additional configuration for up to 48 ports available
- Upgrade ports in 8-port increments from any configuration with the port activation license
- PortChannel: Up to 16 ports in a PortChannel

### Security

- VSANs
- Zoning
  - Hardware-enforced zoning
  - Logical-unit-number (LUN) zoning and read-only zones
- FC-SP for host-to-switch and switch-to-switch authentication
- Port security
- Management access
  - SSHv2
  - SNMPv3
  - IP ACLs

## Technical Specifications

### Fabric Services

- Name server
- Registered state change notification (RSCN)
- Login services
- Broadcast
- In-order delivery

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### Compatibility

#### 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-PI-6 (ANSI INCITS 512-2015)
- 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-FS-4
- FC-LS, Revision 1.62 (ANSI INCITS 433-2007)
- FC-LS-2, Revision 2.21 (ANSI INCITS 477-2011)
- FC-LS-3, Includes revision 3.53
- 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-SW-6
- FC-GS-3, Revision 7.01 (ANSI INCITS 348-2001)
- FC-GS-4, Revision 7.91 (ANSI INCITS 387-2004)
- FC-GS-5, Revision 8.51 (ANSI INCITS 427-2007)
- FC-GS-6, Revision 9.4 (ANSI INCITS 463-2010)
- FC-GS-7, Includes revision 10.8
- 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)



## Technical Specifications

- 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)
- 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, and B
- Fibre Channel enhanced port types: SD, ST, and TE
- FC-NVMe
- In-band management using IP over Fibre Channel (RFC 2625)
- IPv6, IPv4, and Address Resolution Protocol (ARP) over Fibre Channel (RFC 4338)
- Extensive IETF-standards-based TCP/IP, Simple Network Management Protocol Version 3 (SNMPv3), and Remote Monitoring (RMON) MIBs

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## Advanced Services

### Diagnostic and Troubleshooting

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

- NPIV
- VSAN
- PortChannels
- NPV mode
- FlexAttach
- F-port trunking and channeling
- Flow-based and zone-based QoS
- IVR (in Cisco MDS 9000 NX-OS Software Release 8.3(1) or later)
- SPAN
- POST diagnostics
- Online diagnostics
- Internal loopbacks
- Fibre Channel traceroute
- Fibre Channel ping
- Fibre Channel debug
- Cisco Fabric Analyzer
- Syslog
- Port-level statistics



## Technical Specifications

### Management

- Access methods
    - Out-of-band 10/100/1000 Ethernet port
    - EIA/TIA-232 serial console port
    - In-band Fibre Channel over IP (FCIP)
  - Access protocols
    - CLI
    - SNMP
    - SMI-S
  - Security
    - RBAC using RADIUS or TACACS+ authentication, authorization, and accounting (AAA) functions
    - VSAN-based roles
    - SSHv2
    - SNMPv3
- 

### Management Applications

- Zero-touch deployment with DHCP (in Cisco MDS 9000 NX-OS Software Release 6.2.9 or later)
  - Cisco MDS 9000 Family CLI
  - Cisco Data Center Network Manager
  - C-series Data Center Network Manager (optional; requires C-series Data Center Network Manager license)
- 

### Availability

- Non-disruptive software upgrades
  - Process monitoring and stateful process restart
  - Per-VSAN fabric services
  - Hot-swappable SFP and SFP+ optics
  - PortChannels aggregating up to 16 ports
  - F-port Channeling
  - Online diagnostics
- 

### Safety

- CE Marking
  - UL 60950 -1
  - CAN/CSA-C22.2 No. 60950 -1
  - EN 60950 -1
  - IEC 60950 -1
  - TS 001
  - AS/NZS 3260
  - IEC 60825
  - EN 60825
  - 21 CFR 1040
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## Technical Specifications

### EMC

- FCC Part 15 (CFR 47) Class A
- ICES-003 Class A
- EN55022 Class A
- CISPR22 Class A
- AS/NZS 3548 Class A
- VCCI Class A
- EN55024
- EN50082-1
- EN61000-3-2
- EN61000-3-3
- EN61000-6-1

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### Serviceability

- Configuration file management
- Call Home
- Port beaconing
- System LEDs
- SNMP traps for alerts

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### Environmental

- Physical dimensions (H x W x D) of 1RU: 1.72 x 17.3 x 22.3 in. (4.37 x 43.9 x 56.6 cm)
- Weight of fully configured chassis: 19.1 lb (8.6 kg)
- Ambient operating temperature: 32 to 104°F (0 to 40°C)
- Ambient non-operating temperature: -40 to 158°F (-40 to 70°C)
- Humidity (RH), ambient (noncondensing) operating: 10 to 90%
- Humidity (RH), ambient (noncondensing) non-operating and storage: 10 to 95%
- Operating altitude: -197 to 6500 ft (-60 to 2000 m)

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### Power and Cooling

- Power supplies (650W AC) (maximum of 2 per switch)
- AC Input: 100 to 240 VAC nominal (+/-10% for full range)
- Frequency: 50 to 60 Hz nominal (+/-3 Hz for full range)
- Typical power consumption:
  - ◦ 217W for Idle 48-Port switch without optics modules
  - ◦ 251W for 48-Port switch with 24 32G SW optics modules under typical conditions
  - ◦ 297W for 48-Port switch with 48 32G SW optics modules under typical conditions
- 125W (on fully populated config running 16G 100% traffic load at 25C) Airflow: Rear to front (toward ports)
- Cisco recommends maintaining a minimum air space of 2.5 in. (6.4 cm) between walls and chassis air vents and a minimum horizontal separation of 6 in. (15.2 cm) between two chassis to prevent overheating



## Summary of Changes

Date	Version History	Action	Description of Change
17-Aug-2020	Version 6	Changed	Added SN8700C product family information
03-Aug-2020	Version 5	Changed	QuickSpecs layout was updated and Branding Refresh was applied.
04-May-2020	Version 4	Changed	Added SAN Insights 1 and 5 yr licenses
03-Feb-2020	Version 3	Changed	Overview, Standard Features and Service and Support sections were updated.
02-Apr-2019	Version 2	Changed	Configuration Information section was updated.
03-Dec-2018	Version 1	New	New QuickSpecs





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