Overview

HPE Storage SAN Director Switch

Today's enterprises are dealing with challenges stemming from unprecedented growth of data, mission critical workloads, ever-increasing VM densities, and getting the most out of investments in new technologies like flash and Non Volatile Memory express (NVMe) storage. With the unprecedented speed and increasing cost-effectiveness of these platforms, data centers are rapidly transforming and are required to deliver more scale, higher availability, and better reliability. In order to meet these challenges, the storage network has become more important and must provide greater value through performance, reliability, and automation of common tasks than ever before.

As a building block of modern data centers, HPE B-series Fibre Channel HPE Storage SAN Director Switch are the industry's leading SAN infrastructure solution for optimizing storage, simplifying operations, and automating SAN management tasks. With industry-leading low latency, increased bandwidth, and continuous availability organizations can have reliable access to data and applications while ensuring modern workloads run smoothly.

A modern SAN must also be self-learning, self-healing, and self-optimizing, with advanced analytics for real-time actionable insights. B-series Fibre Channel HPE Storage SAN Director Switch give organizations a faster, more intelligent, more resilient data network that maximizes the performance of server and storage resources as they scale to meet ever-changing business demands. In addition, HPE gives customers peace of mind and investment protection by allowing the upgrade of a 32Gb HPE SN8600B Director to a 64Gb HPE SN8700B Director via core blade upgrades without costly rip and replace.

Overview
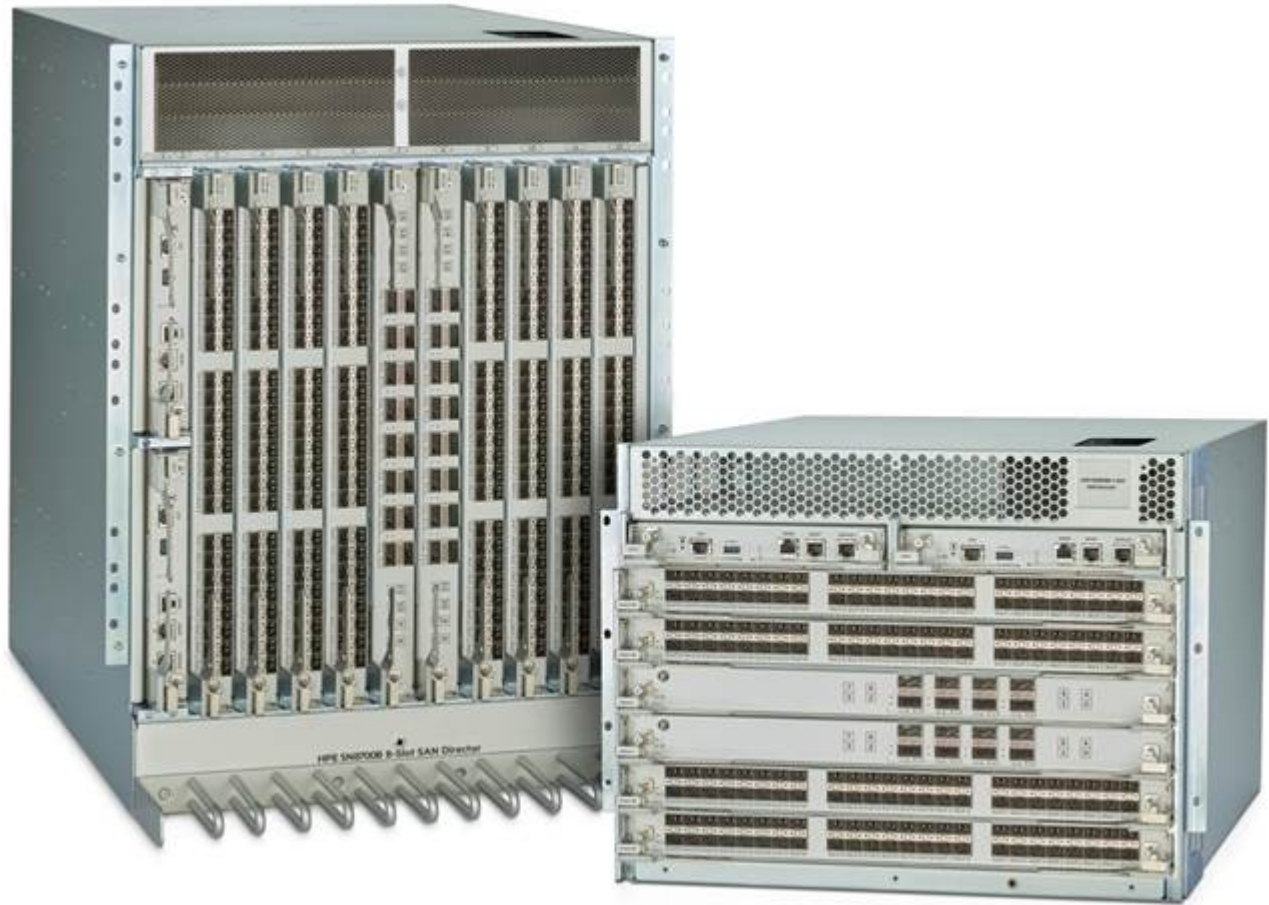
HPE SN8700B 64Gb 8-Slot and 4-Slot HPE Storage SAN Director Switch

HPE SN8700B 64Gb SAN Directors

HPE SN8700B Directors provide up to 512 64Gbps ports, enabling organizations to scale more devices, applications, and workloads. With diverse deployment options, multiprotocol flexibility, and mixed blade capability, organizations can adapt and optimize their businesses to meet next-generation storage and server requirements. The HPE SN8700B Director supports the concurrent use of both traditional Fibre Channel and NVMe storage traffic, allowing organizations to seamlessly integrate HPE SN8700B Fibre Channel networks with next generation NVMe-based storage, without a disruptive rip-and-replace.

The HPE SN8700B Director modular design provides flexibility with two customizable chassis (available in both: port-side intake and port-side exhaust airflow models) that can scale on-demand for more devices, applications, and workloads. Both chassis utilize Brocade Ultra Scale ICL technology to scale out modular SANs while preserving blade ports for device connectivity and allowing flexible SAN design that supports core-edge or mesh topologies. This also provides our customers the flexibility to rack-install data center equipment suitable to their hot/cold aisle network designs.

- The 14U HPE SN8700B 8-slot PP+ Director Switch is built for large enterprise networks and has eight vertical blade slots to provide up to 512 ports for device connectivity. An additional 32 UltraScale InterChassis Link (ICL) connections provide 128 ports for chassis-to-chassis interconnect.
- The 8U HPE SN8700B 4-slot PP+ Director Switch is built for midsize networks and has four horizontal blade slots to provide up to 256 ports for device connectivity. An additional 16 UltraScale ICL connections provide 64 ports for chassis-to-chassis interconnect.

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- Each blade slot within the SN8700B 4-slot and 8-slot PP+ Director Switch chassis can be populated with optional port or extension blades. For device connectivity, the following blades are available:

  - HPE SN8700B 64Gb 48p SW SFP28 Blade Fibre Channel port blade provides 48 x 64Gbps Fibre Channel ports with backward-compatibility support for 8, 10, 16, and 32Gbps Fibre Channel connectivity.
  - HPE SN8700B 32Gb 48p Fibre Channel port blade provides 48 x 32Gbps Fibre Channel ports with backward-compatibility support for 4, 8, 10, and 16Gbps Fibre Channel connectivity.
  - HPE SN8700B 64Gb 64p Fibre Channel port blade provides 64 x 64Gbps Fibre Channel ports utilizing 32 Double Density ports with backward-compatibility support for 8, 10, 16, and 32Gbps Fibre Channel connectivity
  - HPE SN8600B 32Gb 48p Fibre Channel port blade provides 48 x 32Gbps Fibre Channel ports with backward compatibility support for 4, 8, 10, and 16Gbps Fibre Channel connectivity in addition to supporting secure and non-secure optics.
  - HPE SN8600B 32Gb 64-port Fibre Channel port blade provides 64 x 32Gbps Fibre Channel ports with backward-compatibility support for 4, 8, and 16Gbps Fibre Channel connectivity as well as support for 10, 25, and 40GbE FCoE connectivity.
    HPE SN8600B 32Gb SAN Extension Blade providing 16-ports for 32 Gbps Fibre Channel connectivity, 16-ports for 1/10 Gigabit Ethernet (GbE) connectivity, and 2-ports for 40 GbE connectivity for Fibre Channel and IP replication traffic to support disaster recovery and data protection storage solutions over long distances,

To create high-scale fabrics, the new HPE SN8700B 64Gb 64p FC blade scales the SN8700B 8-slot Director up to 512 x 64G ports and the SN8700B 4-slot Director up to 256 x 64G ports. This blade increases the total system bandwidth up to 39.6Tb/s to handle more workloads, making it ideal for large-scale enterprise infrastructures. The HPE SN8700B 64Gb 64p FC blade utilizes SFP-DD transceivers, enabling 33% more device connectivity in a very dense footprint. Each SFP-DD port provides two ports for device or ISL connectivity with SN connectors, port speed is configurable independently for each port. These ports are capable of 2×64G, 32G, or 16G utilizing the SFP-DD transceivers or 64G, 32G, 16G, or 8G using SFP+ transceivers. Leveraging this efficient, high-density designed blade, organizations can consolidate more device connectivity into a single fabric and reduce capital expenses by consuming less rack space. By utilizing fewer chassis, it lowers operational cost by reducing power consumption, cooling, and management. With industry-leading port density and increased bandwidth, organizations can effectively scale to meet data growth demands and drive efficiency by maximizing space utilization with room for future scaling of demanding IT applications.

The chassis connectivity leverages optical Inter-Chassis Links (ICLs), which provide 128 Gbps bandwidth through a QSFP link. These links can support up to 2 kilometers and connect up to 9 SN8700B chassis in a full-mesh topology or up to 12 SN8700B chassis in a core-edge topology enabling flatter, faster, and simpler fabrics that increase consolidation while reducing network complexity and costs.

UltraScale ICLs are QSFP-based and enable scalable core-edge and mesh chassis topologies. These high-density chassis topologies reduce inter-switch cabling by 75%. With the UltraScale ICL connections residing on the core routing blades instead of consuming ports on the port blades, up to 33% more device ports are available for server and storage connectivity. This maximizes overall port density within the smallest amount of rack space while freeing up front-facing device ports for server and storage connectivity.

The SN8700B 8-slot Director supports 32 4X50Gb ICL ports, providing the equivalent of 128 ports, and the SN8700B 4-slot Director supports 16 4X50Gb ICL ports, providing the equivalent of 64 ports. SN87000B ICLs

Overview

are backward-compatible and can connect to SN8600B ICL ports, including connectivity with 2 km QSFPs at speeds of 32 Gbps (4×32) or the SN8000B at speeds of 16Gbps (4x16).

HPE Power Pack+ set of tools provide a breakthrough hardware and software solution that helps simplify fabric monitoring, increase operational stability, and dramatically reduce costs by continual monitoring of the fabric's health and performance with actionable insights to remedy network problems quickly. Power Pack+ is pre-configured on every SN8700B 8-Slot Director and SN8700B 4-Slot Director.

Fabric Vision technology (Included in HPE PowerPack+ Software) is the building block to realize the autonomous SAN for the on-demand data center and simplifies monitoring, while maximizing network availability, and dramatically reducing costs.

New Fabric Vision enhancements take advantage of IO Insight and VM Insight (included with Fabric Vision), which provides organizations with deeper visibility throughout a storage fabric or into the performance of their environments at a VM level. This enhanced visibility enables administrators to quickly identify the source of degraded application or VM performance at the host and storage tiers, reducing time to resolution. The SN8700B Director can optimize the performance of NVMe over Fibre Channel by leveraging integrated, non-intrusive, real-time monitoring and alerts. This proactive monitoring of NVMe over Fibre Channel traffic and VMs provides administrators with key insights for maintaining optimal network health and performance. IO Insight proactively monitors IO performance and behavior through integrated network sensors, providing deep insight into problems and helping to ensure service levels. These features non-disruptively and non-intrusively gather IO statistics from any device port, then feeds them to a monitoring policy that sets thresholds and generates alerts. VM Insight applies IO Insight visibility for each VM. Integrated VM, application-, and device-level IO latency and IOPS monitoring enables administrators to set the baseline for application performance and identify the VM or physical layer responsible for the degraded performance.

Fabric Operating System (FOS) 9.0.1
HPE FOS 9.0.1 is the building block for the autonomous SAN and drastically simplifies and automates SAN management. With FOS 9.0.1, SANs leverage new self-learning capabilities through comprehensive data collection and analytics to understand the impacts of current SAN trends or issues. Additionally, the SAN becomes self-optimizing through incorporating actionable insights about traffic behavior. The SAN is able to automate network management and maximize performance by prioritizing traffic and managing congestion to ensure optimal storage and application performance. Finally a 64Gb SAN raises the bar for availability through automatic avoidance and recovery capabilities. When potential disruptions or outages are detected, the network will automatically mitigate or resolve issues without intervention. Together, Self-Learning, Self-Optimizing, and Self-Healing SANs are a crucial building block that deliver unparalleled SAN performance and reliability.

Overview

HPE SN8600B 8-slot 32Gb SAN Director

HPE SN8600B 4-slot 32Gb SAN Director

HPE SN8600B 32Gb SAN Directors

HPE offers the most complete and comprehensive 32GbSAN Director products. The SN8600B 32Gb SAN Directors combines innovative hardware, software, and integrated network sensors, ensuring the industry's highest level of operational stability, easy manageability and redefining application performance. Breakthrough 32 Gbps performance accelerates application response time, eliminating I/O bottlenecks and unleashes the full performance of flash and next generation NVMe-based storage. They consistently deliver five-9s availability in the world's most demanding data centers. And with non-disruptive, hot-pluggable components and a no-single-point-of-failure design, the SN8600B is truly the enterprise-class director for today's storage infrastructure.

The HPE SN8600B SAN Director is available in two modular form factors (available in both: port-side intake and port-side exhaust airflow models) to increase business agility with seamless storage connectivity and flexible deployment offerings.

- Built for large enterprise networks, the SN8600B 8-slot Director is a 14U chassis and has eight vertical blade slots to provide up to 384 32 Gbps Fibre Channel device ports and 32 additional 128 Gbps Inter-Chassis Link (ICL) ports. This provides up to 20.48 Tbps of chassis bandwidth to address next-generation I/O- and bandwidth-intensive applications.
- Built for midsize networks, the SN8600B 4-slot Director has four horizontal blade slots to provide up to 192 32 Gbps Fibre Channel device ports and 16 additional 128 Gbps ICL ports. This provides up to 10.24 Tbps of aggregate chassis bandwidth and are ideal foundation for highly virtualized environments.
- Each blade slot can be populated with the following optional blades :
  - HPE SN8600B 32Gb 64-port Fibre Channel Blade provides 64 ports of 32Gbps Fibre Channel or 10Gb/25Gb/40Gb Fibre Channel over Ethernet (FCoE) connectivity via 16 front QSFP ports and is NVMe-ready. The blade comes pre-bundled with 8 32Gb QSFP optics.
  - HPE SN8600B 32Gb 48-port Fibre Channel port blade provides 48 32 Gbps Fibre Channel ports and is NVMe-ready. This is available in 2 options - Bundled with 48 32Gb SFP+ and Standard configuration (without SFP+).
  - HPE SN8600B 32Gb SAN Extension Blade provides 16-port for 32 Gbps Fibre Channel connectivity, 16-port for 1/10 Gigabit Ethernet (GbE) connectivity, and 2-ports for 40 GbE connectivity for Fibre Channel and IP replication traffic to support disaster recovery and data protection storage solutions

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over long distances, This is available in 2 options - Bundled with (16) 32Gb SFP+ and Standard configuration (without SFP+).

The HPE SN8600B 32Gb SAN Director is available in both air-flow models: Non-port side Intake (NPI) and Non-port side Exhaust (NPE or reverse air-flow) to support our customer with their cooling strategy. This also provides our customers the flexibility to rack-install data center equipment suitable to the cooling needs augmenting the decision for hot/cold aisle network designs.

The chassis connectivity leverages optical Inter-Chassis Links (ICLs), which provide 128 Gbps bandwidth through a QSFP link. These links can support up to 2 kilometers and connect up to 8 SN8600B Directors, enabling flatter, faster, and simpler fabrics that increase consolidation while reducing network complexity and costs.

ICLs enable scalable core-edge and active-active mesh chassis topologies. These high-density chassis topologies reduce inter-switch cabling by 75 percent and free up to 25 percent of ports for servers and storage. This maximizes overall port density within the smallest amount of rack space while freeing up front-facing device ports for server and storage connectivity.

The SN8600B 8-slot Director supports 32 ICL ports, providing the equivalent of 128 32 Gbps ports (4.096 Tbps), and the SN8600B 4-slot Director supports 16 ICL ports, providing the equivalent of 64 32 Gbps ports (2.048 Tbps). SN86000B ICLs are backward-compatible and can connect to SN8000B ICL ports, including connectivity with 2 km QSFPs at speeds of 16 Gbps (4×16). Also, SN8600B ICLs allow multi-director connectivity without the Enterprise ICL license anymore.

The HPE Power Pack+ set of tools provide a breakthrough hardware and software solution that helps simplify fabric monitoring, increase operational stability, and dramatically reduce costs by continual monitoring of the fabrics health and performance with actionable insight to remedy network problems quickly. It is pre-configured on every SN8600B 8-Slot Director and SN8600B 4-Slot Director. Power Pack+ also provides the foundation for integration into HPE storage management tools, enabling infrastructure management through a single-pane-of-glass.

The Fabric Vision technology (Included in HPE PowerPack+ Software) is the building block to realize the autonomous SAN for the on-demand data center and helps simplify monitoring, maximize network availability, and dramatically reduce costs. Beyond IO Insight and VM Insight, Fabric Vision features innovative monitoring, management, and diagnostic capabilities that enable administrators to avoid problems before they impact operations, helping their organizations meet Service Level Agreements (SLAs).
New Fabric Vision enhancements take advantage of IO Insight and VM Insight (included with Fabric Vision), which provides organizations with deeper visibility throughout a storage fabric or into the performance of their environments at a VM level. This enhanced visibility enables administrators to quickly identify the source of degraded application or VM performance at the host and storage tiers, reducing time to resolution. The SN8600B Director can optimize the performance of NVMe over Fibre Channel by leveraging integrated, non-intrusive, real-time monitoring and alerts. This proactive monitoring of NVMe over Fibre Channel traffic and VMs provides administrators with key insights for maintaining optimal network health and performance. IO Insight proactively monitors IO performance and behavior through integrated network sensors, providing deep insight into problems and helping to ensure service levels. This capability non-disruptively and non-intrusively gathers IO statistics from any device port, then feeds them to a monitoring policy that sets thresholds and generates alerts. VM Insight applies IO Insight visibility for each VM. Integrated VM, application-, and device-level IO latency and IOPS monitoring enables administrators to set the baseline for application performance and identify the VM or physical layer responsible for the degraded performance.

Overview

For investment protection, HPE SN8600B Directors offer three generations of backward-compatibility support for connectivity to 4, 8, and 16 Gbps Fibre Channel products. Furthermore, the SN8600B Directors supports future Fibre Channel generations as a 64Gb-ready storage networking platform and allows for current 32Gb and future generation switch blade modules to be added within the chassis.

Standard Features

HPE Storage SAN Director Switch Highlights

HPE SN8700B 64Gb SAN Director
Purpose-built for scalability to accommodate growth and power large-scale storage environments. With a 50% latency reduction compared to the previous generation, HPE SN8700B Directors maximize the performance of NVMe storage and high transaction workloads, eliminating IO bottlenecks and unleashing the full performance of next generation storage. In addition, the HPE SN8700B Director lays the foundation for the autonomous SAN. With autonomous SAN technology, the director harnesses the power of analytics and the simplicity of automation to optimize performance, ensure reliability, and simplify management.
Key Features

- Scale more devices, applications, and workloads with 64Gbps links.
- Maximize NVMe and high transaction workloads with 50% lower network latency.
- Greater workload bandwidth with total system bandwidth up to 31Tbps
- Transform telemetry data into actionable insights to optimize performance and ensure reliability.
- Automate actions to simplify management and resolve issues without intervention.
- Increase visibility and simplify operations with a modern SAN management tool.
- Seamlessly integrate next generation NVMe into the storage fabric without a disruptive rip-and replace.
- Design flexible architectures to increase agility with concurrent Fibre Channel, NVMe, FICON, FCIP,or FCoE connectivity
- Extend replication over distance with a highly-scalable extension solution for Fibre Channel, IP, and FICON

HPE SN8600B 32Gb SAN Director
Purpose-built for large Enterprise deployments to meet relentless growth, mission-critical application demands, and maximize space utilization with industries highest FC port density. SN8600B with 32Gb Fibre Channel, delivers unmatched 32Gb performance, reduced latency and futureproofed for slower FC speeds, NVMe storage and future 64Gb technologies.
Key Features

- Enhances operational stability, maximizes application performance, and increases business agility with enterprise-class 32Gb directors Consolidates infrastructure with 128 Gbps ICL connectivity for simpler, flatter, low-latency fabrics, and scales up to 512 ports and more using ICL ports.
- Greater workload bandwidth with total system bandwidth up to 20Tbps
- Simplifies end-to-end management of large-scale environments by automating monitoring and diagnostics.
- Automatically detects degraded application or device performance through integrated network sensors.
- Extends replication over distance with a highly scalable extension solution for Fibre Channel, IP, and FICON
- Simplifies configuration automation and enables integrated advanced services across the Fabric with standard REST APIs, PyFOS and Ansible support to automate repetitive tasks error free, these features are available in FOS 8.2.0a
- Seamlessly integrates next-generation NVMe over Fabrics with 32Gb Fibre Channel networks without a disruptive rip and replace, and with the HPE SN6800B 32Gb 64-Port Blade and SN8600B Director you can optimize the performance of NVMe over Fibre Channel by leveraging integrated, non-intrusive, real-time monitoring and alerts.
- Mitigates risk with backward-compatibility while further protecting future investments with 64Gb -ready support

Standard Features

Performance

- **SN8700B 64Gb 8-slot SAN Director**
  - With 48-port 64Gbps port blades: 30.9Tb/s of aggregate chassis bandwidth (384 device ports with a 64Gb/s data rate plus 32 4x50Gb ICLs)
  - With 64 64G port blades: 39.6Tb/s of aggregate chassis bandwidth (512 device ports with a 64G data rate plus 32 4xGen7 ICLs)
  - With 64-port 32Gbps port blades: 22.8Tb/s of aggregate chassis bandwidth (512 device ports with a 32Gbps data rate plus 32 4x50Gb ICLs)

- **SN8700B 64Gb 4-Slot SAN Director**
  - With 48-port 64Gbps port blades: 15.5Tb/s of aggregate chassis bandwidth (192 device ports with a 64Gbps data rate plus 16 4x50Gb ICLs)
  - With 64 64G port blades: 39.6Tb/s of aggregate chassis bandwidth (512 device ports with a 64G data rate plus 32 4xGen7 ICLs)
  - With 64-port 32Gbps port blades: 11.4Tb/s of aggregate chassis bandwidth (256 device ports with a 32Gbps data rate plus 16 4x50Gb ICLs)

- **SN8600B 32Gb 8-slot SAN Director**
  - Up to 512 ports (equivalent to 640 with ICLs) at 32 Gb speed
  - 20.48 Tbps aggregate chassis bandwidth
  - 32 ICL ports, providing the equivalent of 128 32 Gbps ports (4.096 Tbps),
  - 2.048 Tbps bandwidth per slot, providing line-rate performance for the HPE SN8600B 64-port blade

- **SN8600B 32Gb 4-Slot SAN Director**
  - Up to 256 ports (equivalent to 256 with ICLs) at 32 Gb speed
  - 10.24 Tbit/s aggregate chassis bandwidth
  - 16 ICL ports, providing the equivalent of 64 32 Gbps ports (2.048 Tbps)
  - 2.048 Tbps bandwidth per slot, providing line-rate performance for the HPE SN8600B 64-port blade

SAN scalability

- **The SN8700B 8-Slot Director** scales up to 512 64Gbps plus 32 4x50Gb ICLs (or 512 32 Gbps ports or a 640-port equivalent with 32 QSFP ICL ports providing 128 32Gbps ports) in a single switch domain.
- **The SN8700B 4-Slot Director** scales up to 256 64Gbps plus 16 4x50Gb ICLs (or 256 32 Gbps ports or a 320-port equivalent with 16 QSFP ICL ports providing 64 32Gbps ports) in a single switch domain.
- **The SN8600B 8-Slot Director** scales up to 512 32 Gbps ports or a 640-port equivalent with 32 QSFP ICL ports providing 128 32Gbps ports in a single switch domain.
- **The SN8600B 4-Slot Director** scales up to 256 32 Gbps ports or a 320-port equivalent with 16 QSFP ICL ports providing 64 32Gbps ports in a single switch domain.

Please see the following web site for SAN configuration support information:
https://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=sd00001803en_us

Standard Features

High-availability features

- Redundant, hot-swappable components
- Separate Control Processor (CP) and Core (CR) switching blades
- No active components on the backplane
- Redundant hot swappable power and cooling subsystems
- Enhanced data integrity on all data paths
- Fabric Shortest Path First (FSPF) rerouting around failed links
- Integration with SNMP managers
- Automatic Control Processor fail over
- Non-disruptive "hot" software code loads and activation
- Easy configuration, save and restore

Advanced Fabric Services

- Fabric Vision (Includes IO Insight Software for SN8600B 32Gb Director) and optimizes NVMe performance through integrated real-time latency monitoring with IO Insight
- ISL Trunking
- Hardware Enforced Zoning
- Frame Filtering
- Web Tools
- End-to-End Performance Analysis
- Extended Fabrics
- Adaptive Networking

Cabinet Support
HPE (22U, 36U, and 42U) 10000 G2 Series, the Intelligent Series racks and HPE (14U, 22U, 36U, 42U, and 47U) 11000 G2 Series racks.
Notes:
– To order factory integration, add 0D1 after the part number on your sales order.
– A maximum of two B-series SAN Director switches currently are supported to ship configured to order from the factory in a 42U, 10000 (10KG2) and Intelligent Series cabinet. However, 220V PDUs must be configured because 110V PDUs are not supported.

Software Components, Standard

Remote Switch
The Remote Switch fabric functions with the aid of a bridging device, or network bridge. The network bridge supports Fibre Channel physical interfaces, as well as secondary non-Fibre Channel FCIP physical interfaces.

Frame Filtering
An ASIC based capability in the 4 Gb, 8 Gb, 16Gb and 32 Gb family of SAN switches that enables new applications and features. The switch has the ability to "view" the first 64-bytes of the Fibre Channel frame. At this time, Frame Filtering enables advanced capabilities such as Advanced Zoning.

Standard Features

Advanced Zoning

WWN Zoning and Access Control are included in the SN8700B andSN8600B SAN Directors hardware. Administrators can organize a physical fabric into logical groups and prevent unauthorized access by devices outside the Zone.

WebTools

WebTools is an intuitive and easy-to-use graphical interface that enables organizations to install and configure an SN8700B or SN8600B SAN Directors. SAN administrators can perform the initial configuration and basic management tasks by using a Java- capable, or HTML5 (in FOS 9.0 and later), Web browser from standard laptops, desktop PCs, or workstations from any location within the enterprise.

Congestion Notification

Introduced in Fabric OS v9.0 Fabric Congestion Notification is a built-in feature that detects congestion, link integrity and delivery issues with automatic notification to end devices. Fabric OS or the end device may then mitigate and recover from the condition without user interaction providing the self-healing benefits of the autonomous SAN.

HPE Storage SAN Director Switch Power Pack+ Software Bundle

The SN8600B and SN8700B SAN Director Power Pack+ Software bundle includes:

- Fabric Vision
- Extended Fabric
- ISL Trunking
- FICON CUP
- Integrated Routing (not included in SN8600B)

Fabric Vision

Fabric Vision offers innovative diagnostic, monitoring and management capabilities to help accelerate new application deployments, address SAN problems before they impact operations and reduce operational costs. It Includes

- **Monitoring and Alerting Policy Suite (MAPS):** A policy-based monitoring tool with pre-built rules and automation that simplifies fabric-wide threshold configuration and monitoring. In addition, administrators can include IO Insight (Available on SN8600B) metrics in MAPS policies to understand the IO profile as well as to be notified of storage IO performance degradation.

- **Configuration and Operational Monitoring Policy Automation Services Suite (COMPASS):** Simplifies deployment, safeguards consistency, and increases operational efficiencies of larger environments with automated switch and fabric configuration services. Administrators can configure a template or adopt an existing configuration to seamlessly deploy a configuration across the fabric.

- **ClearLink® Diagnostics**: Ensures optical and signal integrity for Fibre Channel optics and cables, simplifying deployment and support of high-performance fabrics. ClearLink Diagnostic Port (D_Port) is an advanced capability of Fibre Channel platforms.

- **Flow Vision:** A comprehensive tool that enables administrators to identify, monitor, and analyze specific application data flows in order to simplify troubleshooting, maximize performance, and avoid congestion without using taps to ensure optimized performance.

- **Health and performance dashboard:** A single customizable screen displayed in HPE SANnav Management Portal (SANnav is sold as a separate license and not part of Fabric Vision) that contains all critical SAN information for convenient review and analysis

Standard Features

- **Forward Error Correction (FEC):** Enables recovery from bit errors in device connections and ISLs, enhancing transmission reliability and performance.

Extended Fabric
Extends all of the scalability, reliability, and performance benefits of Fibre Channel Storage Area Networks (SANs) beyond the native 10 km distance specified by the Fibre Channel standard.

FICON Support
FICON CUP license which enables host control of switches in mainframe environments. FICON Accelerator is an optional software license that increases the speed of FICON disk and tape read and writes, while maintaining the integrity of command and acknowledgement sequences.

ISL Trunking
For high performance enhanced ISL connectivity, this license logically groups up to eight E-ports to provide a high bandwidth trunk between two switches. Each 4 or 8-slot director needs its own license. The switch operating system views the trunk as a single, high bandwidth resource (up to 64 Gbps for 8 Gb, or up to 128 Gbps for 16Gb or up to 256 Gbps for 32Gb) when routing connections between switches. Connections are load-balanced across the individual links, which comprise the logical trunk group.

Adaptive Networking
Adaptive Networking (AN) is a family of technologies which allow flexible control of traffic movement within the fabric which deliver application aware management of fabric resources. Applications may be used with multiple protocols and multiple classes of service. It includes the following features:

- **Ingress Rate Limiting**

  Allows the ingress bandwidth of a port to be throttled to a rate lower than negotiated with the SAN node. This could be very useful for enterprises offering stepped levels of service and enforcing SLAs.

- **Quality of Service (QoS)**

  Enables zones with high, medium, and low priorities within a fabric on a zone by zone basis. This can be very useful for prioritizing array replication over MANs and WANs over less critical traffic.

- **Traffic Isolation Zones**

  Defines paths through a fabric for some or all nodes. Failover allows a non-preferred path to be used if the preferred fails. TIZs use failover by default but it can be disabled if traffic should stop if a preferred path fails. TIZ can be used to manually map out traffic flows within a fabric based on application, priority, and topology.

HPE SANnav Management Software

HPE SANnav Management Software is the next-generation SAN management application suite for HPE B-series SAN environments. It consists of SANnav Management Portal Software and SANnav Global View Software:

Standard Features

- SANnav Management Portal is a next-generation SAN management application with a simple browser-based user interface (UI) streamlining common workflows, such as configuration, zoning, deployment, troubleshooting, and reporting.
- SANnav Global View helps administrators visualize the health, performance and inventory of multiple SANnav Management Portal instances at data centers across the globe or a single multi-tenant data center using a simple, intelligent dashboard.
- SANnav Management Portal and SANnav Global View not only transform SAN telemetry data into useful insights, such as health and performance scores, but also enable administrators to quickly associate real-time data with historical metrics and logs for in-depth analysis. This can help with spotting trends, establishing baselines, and identifying any behavioral changes over time.

HPE SANnav Management Software is available as a term-license for 1-year, 3-years and 5-years period as both - physical and electronic License-to-Use (LTU). It supports 8Gb, 16Gb, 32Gb and 64Gb FC Switches and Directors.

HPE Smart SAN for 3PAR

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

https://www.hpe.com/us/en/product-catalog/storage/storage-software/pip.hpe-smart-san-for-3par.8295863.html

Notes:
- Supports B-series 64Gb, 32Gb, 16Gb and 8Gb FC switches with FOS 8.2.0 or later.
- A list of supported HPE FC Adapters can be found at **https://www.hpe.com/storage/spock**
- Supports 3PAR StoreServ storage with 3.2.2 or later with only 16Gb target ports on HPE 3PAR StoreServ storage.

Inter Chassis Link (ICL) License

Inter Chassis Links (ICLs) harness unused ports to connect the switching backplane of SAN Directors. The HPE Storage SAN Director Switch offer the latest ICL technology which includes new optical ports, higher port density, and support for standard optical cables up to 100 meters or up to 2km with 2km QSFP+. ICL support enables flatter, faster, and simpler fabrics that increase consolidation while reducing network complexity and costs.

ICLs enable scalable core edge and active-active mesh chassis topologies. These high-density chassis topologies reduce inter-switch cabling by 75 percent and free up to 25% of ports for server and storage. This maximizes overall port density in the lowest amount of rack space while freeing up front-facing device ports for server and storage connectivity.

HPE SN8700B SAN Director ICL

The chassis connectivity leverages optical Inter-Chassis Links (ICLs), which provide 200 Gbps bandwidth

Standard Features

through a QSFP link. These links can support up to 2 kilometers and connect up to 9 SN8700B chassis in a full-mesh topology or up to 12 SN8700B chassis in a core-edge topology enabling flatter, faster, and simpler fabrics that increase consolidation while reducing network complexity and costs.

UltraScale ICLs are QSFP-based and enable scalable core-edge and mesh chassis topologies. These high-density chassis topologies reduce interswitch cabling by 75%. With the UltraScale ICL connections residing on the core routing blades instead of consuming ports on the port blades, up to 33% more device ports are available for server and storage connectivity. This maximizes overall port density within the smallest amount of rack space while freeing up front-facing device ports for server and storage connectivity

The SN8700B 8-slot Director supports 32 4x50Gb ICL ports, providing the equivalent of 128 ports, and the SN8700B 4-slot Director supports 16 4x50Gb ICL ports, providing the equivalent of 64 ports. SN87000B ICLs are backward-compatible and can connect to SN8600B ICL ports, including connectivity with 2 km QSFPs at speeds of 32 Gbps (4×32) or the SN8000B at speeds of 16Gbps (4x16) .

HPE SN8600B SAN Director ICL
The SN8600B 8-slot Director supports 32 ICL ports, providing the equivalent of 128 32 Gbps ports (4.096 Tbps). The SN8600B 4-slot Director supports 16 ICL ports, providing the equivalent of 64 32 Gbps ports (2.048 Tbps). 32Gb ICLs are backward-compatible and can connect to 16Gb ICL ports, including connectivity with 2 km QSFPs at speeds of 16 Gbps (4×16).

HPE SN8600B chassis connectivity leverages optical Inter-Chassis Links (ICLs), which provide 128 Gbps bandwidth through a QSFP link. These links can support up to 2 kilometers and connect up to 12 SN8600B or SN8000B Directors.

A single ICL POD License for 8-slot will enable 16 QSFP ICL ports per chassis and a single ICL POD License for the 4-slot enables 8 QSFP ICL ports per chassis. Therefore, each chassis supports 2 Licenses for full ISL connectivity.

HPE B-series SAN Backbone Director Integrated Routing License
Integrated Routing is an optional license which provides native Fibre Channel Routing (FCR) on a per-port basis, rather than limiting routing ports to those on a dedicated routing blade or switch. Just like traditional FCR, Integrated Routing uses EX_Ports to import/export devices between fabrics, enabling selective device sharing while maintaining remote fabric isolation. Integrated Routing provides architecture flexibility to route on a port-by-port basis, enabling increased scalability and fault isolation.

Notes: Supported for all B-series HPE Storage SAN Director Switch Included in PowerPack+ for the SN8700B.

FCIP Trunking
FCIP Trunking feature allows multiple IP source and destination address pairs (defined as FCIP circuits) via 1 GE , 10 GE and 40 GE interfaces to provide high bandwidth FCIP tunnel and failover resiliency. In addition, each FCIP circuit supports four QoS classes (Class-F, Hi, Medium and Low Priority), each as a TCP connection.

Standard Features

Adaptive Rate Limiting

An FCIP tunnel can be configured a minimum (guaranteed) committed rate as well as a maximum committed rate. FCIP tunnel will run at least the minimum rate. If additional bandwidth is needed, the committed rate will grow until the channel traffic demand is satisfied, maximum committed rate is reached, or the throughput capabilities of the network are reached.

Unified Storage Fabric (USF) for HPE B-series

USF for HPE B-series is a dedicated network that unifies storage provisioning and management, maximizes security, and ensures enterprise-class reliability and performance for IP storage. As a cyber-resilient storage fabric, USF consolidates integrated storage services for all types of storage: Fibre Channel, FICON, iSCSI, NVMe/FC, NVMe/TCP and NAS.

By isolating and transporting Fibre Channel and IP storage traffic-in parallel, though separated on the same fabric-USF leverages the performance, reliability, and security of the SAN fabric, while consolidating and simplifying all management within the storage team.

USF for HPE B-series is enabled on the HPE SN8700B B-series Directors running FOS 9.2.1 or later, using a common 64G SWL optical transceiver for added flexibility and investment protection. This enables enterprises to leverage existing or future investments in HPE B-series Gen7 Fibre Channel and IP infrastructure.
An HPE B-series SN8700B 64Gb 48p Blade with 64Gb transceivers enables the transport of both Fibre Channel and IP storage traffic on the same fabric:

- Each 48-port blade has 24 AnyIO ports that dynamically change between Fibre Channel and Ethernet depending on the port configuration. Ports 16-23 and 32-47 can be enabled as AnyIO ports for either Fibre Channel or IP Connections.
- AnyIO ports leverage existing 64G transceivers capable of transporting both 64G FC and 50/25/10GbE Ethernet. (32Gb transceivers do not support IP connectivity; FOS 9.2.1 supports 10 GbE and 25 GbE on 64Gb transceivers and FOS 9.2.1a supports 50 GbE on 64 Gb transceivers)

Service and Support

Warranty

- **HPE SN8700B 8-Slot SAN Director**

  Hardware Warranty - 3-year parts; 3-year on-site (standard business hours, next business day response) and 3-year labor.

- **HPE SN8700B 4-Slot SAN Director**

  Hardware Warranty - 3-year parts; 3-year on-site (standard business hours, next business day response) and 3-year labor.

- **HPE SN8700B Director POD ICL License with 4x50Gb QSFP56 8-pack Transceiver Kit**

  Hardware Warranty - 3-year parts; 3-year on-site (standard business hours, next business day response) and 3-year labor.

- **HPE SN8700B Director POD ICL License with 4x32Gb QSFP56 8-pack Transceiver Kit**

  Hardware Warranty - 3-year parts; 3-year on-site (standard business hours, next business day response) and 3-year labor.

- **SN8600B 8-Slot SAN Director**

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

- **SN8600B 4-Slot SAN Director**

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

Notes:
- The hardware warranty covers integrated blades within the director chassis.
- All other miscellaneous hardware not explicitly identified above such as optics and cables have a (1-1-1) hardware warranty - 1-year parts; 1-year on-site (standard business hours, next business day response) and 1-year labor.
- 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.

Notes: Exclusive remedy: The entire liability of Hewlett Packard Enterprise and its suppliers and your exclusive remedy for software that does not conform to this Limited Warranty shall be the repair or replacement of the defective media. This warranty and remedy are subject to your returning the defective media during the warranty period to Hewlett Packard Enterprise in the country in which you obtained the software.

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

Service and Support

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

SAN Fabric Integration and Migration service
HPE Data Storage Services - SAN Fabric Integration and Migration simplifies the introduction of and migration to new HPE B-series SAN fabric devices. It helps maximize the value of your investment in your new HPE B-series SAN fabric devices by leveraging HPE Services expertise and best practices.
https://www.hpe.com/psnow/doc/a50011015enw

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.
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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

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

Service and Support

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

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.

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 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 Chassis Configuration (Select one)

Description	SKU
HPE SN8700B 8-slot Power Pack+ Director Switch	R6A97A

Notes:
- 64Gb 512-port capable Fibre Channel Director, 2 control processors, 2 64Gb core blades, rack rails, cable comb Zoning, Web tools, Fabric Vision Enhanced Group Management, Adaptive Networking, ISL Trunking, Extended Fabrics, Integrated Routing and FICON CUP.
- Does not include Power Supplies, Fans, Port Blades or SFPs. See below options.

HPE SN8700B 4-slot Power Pack+ Director Switch	R6A98A

Notes:
- 64Gb 256-port capable Fibre Channel Director, 2 control processors, 2 64Gb core blades, rack rails, cable comb Zoning, Web tools, Fabric Vision Enhanced Group Management, Adaptive Networking, ISL Trunking, Extended Fabrics, Integrated Routing and FICON CUP.
- Does not include Power Supplies, Fans, Port Blades or SFPs. See below options

HPE SN8600B 4-slot Power Pack+ Director Switch	Q0U83B

Notes:
- 32Gb 256-port or 16Gb 256-port capable Fibre Channel Director, 2 control processors, 2 32 Gb core blades, 2 power supplies, rack rails, cable comb Zoning, Web tools, Fabric Vision Enhanced Group Management, Adaptive Networking, ISL Trunking, Extended Fabrics and FICON CUP.
- Does not include Port blades or SFPs.

HPE SN8600B 4-slot Power Pack+ Port Side Air Intake Director Switch Chassis	R0Q25A

Notes:
- 32Gb 512-port or 16Gb 512-port capable Fibre Channel Director, 2 control processors, 2 32 Gb core blades, rack rails, cable comb Zoning, Web tools, Fabric Vision Enhanced Group Management, Adaptive Networking, ISL Trunking, Extended Fabrics and FICON CUP.   Does not include Port blades or SFPs.
- Does not include Power supply and fan trays. Requires 2 Power supplies (R0Q26A) and 2 fan trays (R0Q27A) fo r1+1 redundancy. For instructions on how to install the Power Supplies and fan trays, please refer to the "Brocade X6-4 Director Hardware Installation Guide" available on the HPE Support Center **http://www.hpe.com/support/hpesc**.

Step 2 - Additional Port Configurations

48 Port Blade Options - 32Gb & 64Gb

Description	SKU
HPE SN8600B 32Gb Short Wave 48-port SFP+ Integrated Fibre Channel Blade	Q0U86B

Notes:
- This blade supports non-secure optics and secure optics giving customers flexibility
- Add the appropriate quantity of 48-port blades to meet requirements
- This blade ships with 48 integrated 32 Gb FC SW SFP+ transceivers.
- Supported in:

    o SN8700B and SN8600B Directors

HPE SN8700B 32Gb 48-port 32Gb Long Wave SFP28 Integrated Fibre Channel Switch Blade	R6B04A

Configuration Information

Notes:

− Add the appropriate quantity of blades to meet requirements

− This blade ships with 48 integrated 32 Gb FC Long Wave Secure transceivers.

− Supported in:

o SN8700B Directors

o SN8600B Director that have been upgraded with a pair of core blades (R6A99A or R6B00A)

Description	SKU
HPE SN8700B 64Gb 48-port 32Gb Long Wave SFP28 Integrated Fibre Channel Switch Blade	R6B02A

Notes:

− Add the appropriate quantity of blades to meet requirements

− This blade ships with 48 integrated 32 Gb FC Long Wave Secure transceivers.

− Supported in:

o SN8700B Directors

o SN8600B Director that have been upgraded with a pair of core blades (R6A99A or R6B00A)

Description	SKU
HPE SN8700B 64Gb 48-port 32Gb Short Wave SFP28 Integrated Fibre Channel Switch Blade	R6B01A

Notes:

− Add the appropriate quantity of blades to meet requirements

− This blade ships with 48 integrated 32 Gb FC Short Wave Secure transceivers.

− Supported in:

o SN8700B Directors

o SN8600B Director that have been upgraded with a pair of core blades (R6A99A or R6B00A)

Description	SKU
HPE SN8700B 64Gb 48-port 64Gb Short Wave SFP56 Integrated Fibre Channel Switch Blade	R7M12A

Notes:

− Add the appropriate quantity of blades to meet requirements

− This blade ships with 48 integrated 64 Gb FC Short Wave Secure transceivers.

− Supported in:

o SN8700B Directors

o SN8600B Director that have been upgraded with a pair of core blades (R6A99A or R6B00A)

64 Port High Density Blade Options - 32Gb & 64Gb

Description	SKU
HPE SN8700B 64Gb 64-port 64Gb Short Wave SFP56-DD Integrated Fibre Channel Switch Blade	S1T68A

Notes:

− Add the appropriate quantity of 64-port blades to meet requirements. Supported on the SN8700B Directors

− The SN8700B Chassis support for up to 8x of the S1T68A blades on X7-8 Director and 4x the S1T68A blades on X7-4 Director enabling 512/256 ports per chassis

− This blade ships with 32 64Gb SW SFP-DD optics

Configuration Information

  − Support LWL/ELWL optics, 1 per SFP-DD port

SAN Extension Blades Options

HPE SN8600B 32Gb SAN Extension Blade   Q0U85B

Notes:

  − Add the appropriate quantity port blades to meet requirements
  − Max of 4 units per chassis.

HPE SN8600B 32Gb Short Wave 16-port SFP+ Integrated SAN Extension Blade   Q0U87B

Notes:

  − This blade ships with 16 integrated 32 Gb FC SW SFP+ transceivers.
  − Max of 4 units per chassis.

Core Blade Upgrades for SN8600B Chassis

HPE SN8700B 8-slot Director Switch Core Blade   R6A99A

Notes:

  − For customers with the SN8600B already installed in their SAN and interested in using the
    SN8700B blades (R6B01A, R6B02A, R6B04A, R7M12A & S1T68A), the Core Blade upgrade
    is an option.
  − Each SN8600B will require two core blades for the upgrade and these are sold separately.

Description	SKU
HPE SN8700B 4-slot Director Switch Core Blade	R6B00A

Notes:

  − For customers with the SN8600B already installed in their SAN and interested in using the
    SN8700B blades (R6B01A, R6B02A, R6B04A, R7M12A & S1T68A), the Core Blade upgrade
    is an option.
  − Each SN8600B will require two core blades for the upgrade and these are sold separately.

Director Compatibility Matrix SN8600B and SN8700B				
	HPE Product Number and Description	**SN8600B Chassis**	**SN8600B w/ SN8700B Core Blades Chassis**	**SN8700B Chassis**
FOS Requirement		8.x/ 9.x	9.x	9.x
CP Blades		Gen 6	Gen6 w/ FPGA upgrade	Gen 7
SN8700B Port Blades	R7M12A - HPE SN8700B 64Gb 48p 64Gb SW SFP56 Blade R6B01A - HPE SN8700B 64Gb 48p 32Gb SW SFP28 Blade R6B02A - HPE SN8700B 64Gb 48p 32Gb LW SFP28 Blade R6B04A - HPE SN8700B 32Gb 48p 32Gb LW SFP28 Blade	No	Yes*	Yes*

Configuration Information

	S1T68A - HPE SN8700B 64G 64p 64G SW SFP-DD Blade			
SN8600B Port Blades	Q0U86B - HPE SN8600B 32Gb 48p SFP+ Integrtd Blade Q0U84B - HPE SN8600B 32Gb 48-port FC Blade Q2S19B - HPE SN8600B 32Gb 64/32 8QSFP FC Blade	Yes	Yes	Yes
SN8600B Extension Blade	Q0U85B - HPE SN8600B 32Gb SAN Extension Blade Q0U87B - HPE SN8600B 32Gb 16p SW SFP+ Extn Blade	Yes	Yes	Yes
SN8600B Core Blade	Not available for purchase	Yes	No	No
SN8700B Core Blade	R6A99A - HPE SN8700B 8-slot Dir Swch Core Blade R6B00A - HPE SN8700B 4-slot Dir Swch Core Blade	No	Yes	Yes

Notes * Secure optical transceivers required for this configuration. See list of Secure optical transceivers in "Step 3 - Additional Options". For products not requiring Secure optical transceivers, the Secure transceivers are compatible.

Inter Chassis Links (ICL)

ICL Compatibility Matrix

ICL Min-Max Table Per Director				
Chassis	**ICL Kit or License**	**Ports Enabled By Kit or License**	**Min**	**Max**
SN8700B - 8 Slot	R6B17A, R6B18A,R6B08A OR R8W24A	8	1	4
SN8700B - 4 Slot	R6B17A, R6B18A, R6B08A OR R8W24A	8	1	2
SN8600B - 8 Slot	Q0T80AAE*	16	1	2
SN8600B - 4 Slot	Q0T81AAE*	8	1	2

Notes:

− *Requires QSFP optics, see Fibre Channel Optics Transceivers section below for options

− ICL Compatibility Table - Minimum Requirements

− The minimum requirements for ICLs has changed, one ICL kit per director is allowed for all configurations.

Configuration Information

Description	SKU
HPE SN8700B Director POD ICL License with 4x50Gb QSFP56 8-pack Transceiver Kit	R6B17A

Notes:

- The ICL transceiver kit includes Secure transceivers. When connecting two SN8700B 8-slot Directors via ICL, it will require a minimum of two POD ICL Kits (maximum of 8, four for each Director) and when connecting two SN8700B 4-slot Directors via ICL it will require a minimum of two POD ICL Kits (maximum of 4, two for each Director).
- Each HPE SN8700B ICL Kit also requires eight MPO cables for connectivity (QK729A, QK731A or H6Z30A).

Description	SKU
HPE SN8700B Director POD ICL License with 4x32Gb QSFP28 8-pack Transceiver Kit	R6B18A

Notes:

- The ICL transceiver kit includes Secure transceivers. When connecting two SN8700B 8-slot Directors via ICL, it will require a minimum of two POD ICL Kits (maximum of 8, four for each Director) and when connecting two SN8700B 4-slot Directors via ICL it will require a minimum of two POD ICL Kits (maximum of 4, two for each Director). The 32Gbps QSFPs can be used to connect an SN8700B Director to an SN8600B Director. This requires a minimum of two ICL Kits R6B18A for the SN8700B 8-Slot Director, an HPE SN8600B 8-slot Dir Ent/POD ICL LTU (Q0T80BAE) and an HPE SN8600B 4S 4X32GB 16PK SW4 ICL XCVR (Q0U89A).
- The 32Gbps QSFPs can also be used to connect an SN8700B Director to an SN8000B Director. The 32Gbps QSFP28 SWL transceivers on the SN8700B Director core routing blades operate at 4x32Gbps and 4x16Gbps speeds so can be used for an ICL connection between a 32Gbps QSFP on a SN8700B Director core routing blade and a 16Gbps QSFP transceiver on a SN8000B Director core routing blade.
- Each HPE SN8700B ICL Kit also requires eight MPO cables for connectivity (QK729A, QK731A or H6Z30A).

Description	SKU
HPE SN8700B Director POD ICL License with 4x50Gb QSFP56 2km 8-pack Transceiver Kit	R8W24A

Notes:

- The ICL transceiver kit includes Secure transceivers. When connecting two SN8700B 8-slot Directors via ICL, it will require a minimum of two POD ICL Kits (maximum of 8, four for each Director) and when connecting two SN8700B 4-slot Directors via ICL it will require a minimum of two POD ICL Kits (maximum of 4, two for each Director).
- The 64Gbps QSFPs cannot be used to connect an SN8700B Director to an SN8600B Director.

HPE Storage SAN Director Switch Inter Chassis Link Cable

Description	SKU
HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 10m Cable	QK729A

Notes: One cable/ICL connector supports 4 ports of connectivity between 2 chassis

Description	SKU
HPE Premier Flex MPO/MPO Multi-mode OM4 8 Fiber 50m Cable	QK731A

Notes: One cable/ICL connector supports 4 ports of connectivity between 2 chassis

Description	SKU
HPE Premier Flex MPO/MPO OM4 100m Cable	H6Z30A

Notes: One cable/ICL connector supports 4 ports of connectivity between 2 chassis

Management

HPE GreenLake for Storage Fabric Management

Configuration Information

For more information reference, the HPE Greenlake for Storage Fabric Management QuickSpecs.

SANnav Software Licenses

Notes: For users purchasing SANnav licenses for the first time, one of the following SKUs should be purchased. For users wanted to renew a SANnav license, a renewal license should be selected from the SANnav Renewal Software License in the next section.

Description	SKU
HPE SANnav Management Portal Base 1yr E-LTU	R3P45AAE
HPE SANnav Management Portal Enterprise 1yr E-LTU	R3P46AAE
HPE SANnav Global View 1yr E-LTU	R3P47AAE
HPE SANnav Management Portal Base 3yr E-LTU	R3P48AAE
HPE SANnav Management Portal Enterprise 3yr E-LTU	R3P49AAE
HPE SANnav Global View 3yr E-LTU	R3P50AAE
HPE SANnav Management Portal Base 5yr E-LTU	R4P29AAE
HPE SANnav Management Portal Enterprise 5yr E-LTU	R4P30AAE
HPE SANnav Global View 5yr E-LTU	R4P31AAE

Notes:
− The Base edition of HPE SANnav Management Portal does not support management of director class switches.
− HPE SANnav Management Software License-to-Use (LTU/E-LTU) includes maintenance and support for the duration of the license. At the end of the license period, customers have the option to renew the license, maintaining the same license key, by selecting from the SANnav Renewal Software License section below Software renewal via HPE Services is not allowed/supported.
− Trial Licenses: depending on the version of SANnav license, the trial period is different.
  o 90-day trial license available with all SANnav releases through v2.2.0
  o 30-day trial license available with SANnav v2.2.1 and v2.2.2
  o No trial license available with SANnav v2.3.0 or later

SANnav Renewal Software Licenses

Notes: For users who currently have a SANnav license and want to renew their software license, one of the following licenses should be selected. The SANnav license must align with the current type of software license i.e. in order to renew a Base license, the Base renewal licenses will need to be selected.

HPE SANnav Management Portal Base 1-year Renewal E-LTU	S1S52AAE
HPE SANnav Management Portal Enterprise 1-year Renewal E-LTU	S1S55AAE
HPE SANnav Global View 1-year Renewal E-LTU	S1S58AAE

Notes:
− The Base edition of HPE SANnav Management Portal does not support management of director class switches.
− HPE SANnav Management Software License-to-Use (LTU/E-LTU) includes maintenance and support for the duration of the license.
− Trial Licenses - depending on the version of SANnav license, the trial period is different.
  o 90-day trial license available with all SANnav releases through v2.2.0
  o 30-day trial license available with SANnav v2.2.1 and v2.2.2
  o No trial license available with SANnav v2.3.0 or later

Configuration Information

Step 3 - Additional Options

- The SN8700B and SN8600B director products have different bundled configurations depending on the model as follows:
- The SN8700B Directors (R6A97A and R6A98A) do not come with power supplies or fan trays included
- The SN8600B Directors (R0Q24A and R0Q25A) with Port-Side-Intake do not come with power supplies or fan trays included
- The SN8600B Directors (Q0U63B and Q0U83B) with Port-Side-Exhaust come with power supplies and fan trays included.
  - For the 8-slot there are 3 power supplies (1 addition power supply can be added) and 3 fans included
  - For the 4-slot there are 2 power supplies and 2 fans included

Port Side Exhaust

Description	SKU
HPE SN8600B/SN8700B 3000W 240VAC Director Power Supply	Q0U92A

Notes: Power supply for the HPE SN8700B and optional upgrade for the SN8600B 8-slot Director (Q0U63B).

HPE SN8700B Director Fan Tray	R6B07A

Notes: Fan for the HPE SN8700B to be ordered with HPE SN8600B/SN8700B 3000W 240VAC Director Power Supply (Q0U92A). The HPE SN8700B 4-Slot Director requires 2 Fan Trays. The HPE SN8700B 8-Slot Director requires 3 Fan Trays.

Port Side Intake

HPE SN8600B/SN8700B 3000W 240VAC Port Side Air Intake Director Power Supply	R0Q26A

Notes: To be ordered with HPE SN8700B or the SN8600B 32Gb Port Side Air Intake SAN Director models (R0Q24A, R0Q25A) only. The HPE SN8600B/SN8700B 4-Slot Director requires 2 Power Supplies for 1+1 redundancy. The HPE SN8600B/ SN8700B 8-Slot Director requires 3 Power Supplies for 2+1 redundancy. A fourth Power Supply may be added for 2+2 redundancy.

HPE SN8600B/SN8700B 300W Port Side Air Intake Director Fan Tray	R0Q27A

Notes: To be ordered with the HPE SN8600B/SN8700B 3000W 240VAC Port Side Air Intake Director Power Supply (R0Q26A). Order with the HPE SN8700B or the SN8600B 32Gb Port Side Air Intake SAN Director models (R0Q24A, R0Q25A) only. The HPE SN8600B/SN8700B 4-Slot Director requires 2 Fan Trays. The HPE SN8600B/SN8700B 8-Slot Director requires 3 Fan Trays.

Fibre Channel Optical Transceivers

Secure Optical Transceivers
Notes: The SN8700B Director blades requires the use of Secure transceivers.

HPE B-series 16Gb SFP+ Short Wave 1-pack Secure Transceiver	R6B10A
HPE B-series 16Gb SFP+ Short Wave 8-pack Secure Transceiver	R6W28A
HPE B-series 16Gb SFP+ Long Wave 10km 1-pack Secure Transceiver	R6B11A
HPE B-series 32Gb SFP28 Short Wave 1-pack Secure Transceiver	R6B12A
HPE B-series 32Gb SFP28 Short Wave 8-pack Secure Transceiver	R6W26A
HPE B-series 32Gb SFP28 Long Wave 10km 1-pack Secure Transceiver	R6B13A
HPE B-series 32Gb SFP Extended Long Wave 25km 1-pack Secure Transceiver	R7M17A
HPE B-series 32Gb SFP28 Extended Long Wave 25km 1-pack Secure Transceiver	R9S31A

Configuration Information

HPE B-series 64Gb SFP56 Short Wave 1-pack Secure Transceiver	R7M15A
HPE B-series 64Gb SFP56 Short Wave 8-pack Secure Transceiver	R7M16A
HPE B-series 64Gb SFP56 Long Wave 10km 1-pack Secure Transceiver	R9S29A

Description	**SKU**
HPE B-series 64Gb SFP56 Long Wave 10km 8-pack Secure Transceiver	R9S30A
HPE B-series 64Gb SFP56 Extended Long Wave 25km 1-pack Secure Transceiver	R9S28A
HPE B-series 64Gb SFP56-DD SN SR 1-pack Secure Transceiver	R8U66A
HPE B-series 64Gb SFP56-DD SN SR 8-pack Secure Transceiver	R8U67A
HPE B-series 10Gb SFP+ Short Wave 1-pack Secure Transceiver	R6B14A
HPE B-series 10Gb SFP+ Long Wave 10km 1-pack Secure Transceiver	R6B15A
HPE B-series 4x50Gb QSFP56 Short Wave Inter Chassis Link 1-pack Secure Transceiver	R6B19A
HPE B-series 4x32Gb QSFP28 Short Wave 100m 1-pack Secure Transceiver	R6B20A
HPE B-series 16Gb SFP+ Extended Long Wave 25km 1-pack Secure Transceiver	R6B21A

Optical Transceivers

HPE B-series 4x32Gb 16-pack Short Wave QSFP Transceiver	Q2R30A

Notes: Only supported in SN8600B Director Blades. When connecting two SN8600B 8-slot Directors via ICL, requires the SN8600B 8-slot Director Inter Chassis Link License (Q0T80A, Q0T80BAE). This QSFP requires minimum version of FOS 8.1.0b and offers break-out capability.

HPE B-series 4x32Gb 8-pack Short Wave QSFP Transceiver	Q2R29A

Notes: Only supported in SN8600B Director Blades . When connecting two SN8600B 4-slot Directors via ICL, requires the SN8600B 4-slot Director Inter Chassis Link License (Q0T81A, Q0T81BAE). This QSFP requires minimum version of FOS 8.1.0b and offers break-out capability.

HPE B-series 4x32Gb 8-pack Long Wave 2km QSFP Transceiver	Q8K15A

Notes: Only supported in SN8600B Director Blades. This QSFP requires minimum version of FOS 8.1.0b.

HPE B-series 16Gb SFP+ Short Wave Transceiver	QK724A

Notes: Only supported in SN8600B Director Blades

HPE B-Series 100GbE QSFP28 SR4 Transceiver	Q2S22A

Notes: Only supported in SN8600B Director Blades.

HPE B-series 40GbE Long Range QSFP+ Transceiver	E7Y75A

Notes: Only supported in SN8600B Director Blades.

HPE B-series 40GbE Short Range QSFP+ Transceiver	E7Y76A

Notes:

− Only supported in SN8600B Director Blades.

− HPE SN8600B 32Gb SAN Director HPE Complete SmartOptics For more information regarding Smartoptics SKUs/Accessories/Cables and ordering rules please refer HPE Complete Smartoptics QuickSpecs. **https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=c05205226** and Brocade Fabric OS Open Systems Compatibility Matrix

HPE B-series 4x16Gb SW QSFP+ 100m 16-pack Transceiver	H6Z76A

Notes: Only supported in SN8600B Director Blades.

Configuration Information

Converged Enhanced Ethernet (CEE) Optical Transceivers

HPE B-series 10GbE Short Wave SFP+ Transceiver   AP823A

Notes: Only supported in SN8600B Director Blades. HPE B-series 10GbE Short Wave SFP+ Transceiver

Short Wave Transceiver Performance			
Distance - Maximum	**HPE Standard OM3 Cable**	**HPE PremierFlexOM3+ Cable**	**HPE PremierFlex OM4 Cable**
64Gb performance	70 meters	70 meters	100 meters
32Gb performance	70 meters	70 meters	100 meters
16Gb performance:	100 meters	100 meters	125 meters
8Gb performance:	150 meters	150 meters	190 meters
4Gb performance:	380 meters	380 meters	400 meters

USB Device

Description	SKU
HPE B-series 4G USB Drive	N9Y63A

Optical cables

HPE PremierFlex OM4+ Fiber Optic Cables

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

HPE PremierFlex SN/LC OM4 Fiber Optic Cables

HPE Premier Flex SN to LC OM4 2 Fibers 1m Cable	R8U73A
HPE Premier Flex SN to LC OM4 2 Fibers 2m Cable	R8U74A
HPE Premier Flex SN to LC OM4 2 Fibers 5m Cable	R8U75A
HPE Premier Flex SN to LC OM4 2 Fibers 15m Cable	R8U76A
HPE Premier Flex SN to LC OM4 2 Fibers 30m Cable	R8U77A

Notes: The above cables are for use with double-density transceivers. The SN/LC allows the connection from double-density to standard small form factor transceivers.

HPE PremierFlex SN/SN OM4 Fiber Optic Cables

HPE Premier Flex SN to SN OM4 2 Fibers 1m Cable	R8U68A
HPE Premier Flex SN to SN OM4 2 Fibers 2m Cable	R8U69A
HPE Premier Flex SN to SN OM4 2 Fibers 5m Cable	R8U70A
HPE Premier Flex SN to SN OM4 2 Fibers 15m Cable	R8U71A
HPE Premier Flex SN to SN OM4 2 Fibers 30m Cable	R8U72A

Configuration Information

Notes: The above cables are for use with double-density transceivers. The SN/SN allows the connection from double-density to double-density transceivers.

HPE Premier Flex OM4 QSFP Fiber Optic Cables

HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 1m Cable	Q1H63A
HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 2m Cable	Q1H64A
HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 5m Cable	Q1H65A
HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 10m Cable	QK729A
HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 15m Cable	Q1H66A

Description	SKU
HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 30m Cable	Q1H67A
HPE Premier Flex MPO/MPO Multi-mode OM4 8 Fiber 50m Cable	QK731A
HPE Premier Flex MPO/MPO OM4 100m Cable	H6Z30A

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

High Density Cables

QSFP to 4xLC Breakout Cables

HPE Multi Fiber Push On to 4 x Lucent Connector 5m Cable	K2Q46A
HPE Multi Fiber Push On to 4 x Lucent Connector 15m Cable	K2Q47A
HPE Premier Flex MPO to 4xLC 30m Cbl	Q1H68A
HPE Premier Flex MPO to 4 x Lucent Connector 50m Cable	Q1H69A

Technical Specifications

Family Information

Features	SN8000B 8-Slot SAN Director Power Pack+	SN8600B 8-Slot SAN Director Power Pack+	SN8700B 8-Slot SAN Director Power Pack+
Targeted Environment	Cloud Optimized Data Centers	Cloud Optimized Data Centers	Cloud Optimized Data Centers
Port Bandwidth	Up to 16Gbps	Up to 32 Gbps	Up to 64Gbps
Aggregate device bandwidth	10.2Tbps	20.48 Tbps	31 Tbps
OS Support	**Notes:** Please Refer to SPOCK: **https://h20272.www2.hpe.com/spock/**		
Storage system support	HPE Primera, 3PAR StoreServ, Nimble, StoreVirtual , P900/XP7, MSA		
Ports	Up to 512 SFP	512 32 Gbps ports or a 640-port equivalent with 128 Gbps (32 Gbps×4 QSFP ports)	512 ports - 384 device ports with a 64Gbps data rate plus 32 4x50Gb ICLs or 640 ports - 512 device ports with a 32Gbps data rate plus 32 4x50Gb ICLs
SFP	B-series	B-series	B-series Secure
Advanced Trunking	Included with Power Pack	Included with Power Pack	Included with Power Pack
Adaptive Networking	Yes (included)	Yes (included)	Yes (included)
Form factor	14U	14U	14U
Zoning Software	Yes (included)	Yes (included)	Yes (included)
Hot plug, redundant power supplies	Yes	Yes	Yes
Hot plug fans	Yes	Yes	Yes

Features	SN8000B 4-Slot SAN Director and 4-Slot SAN Director Power Pack+	SN8600B 4-slot SAN Director Power Pack+	SN8700B 4-Slot SAN Director Power Pack+
Targeted Environment	Cloud Optimized Data Centers	Cloud Optimized Data Centers	Cloud Optimized Data Centers
Port Bandwidth	Up to 16Gbps	Up to 32Gbps	Up to 64Gbps
Aggregate device bandwidth	5.1 Tbps	10.24 Tbps	15.5 Tbps
OS Support	**Notes:** Please Refer to SPOCK: **https://h20272.www2.hpe.com/spock/**		
Storage system support	HPE Primera, 3PAR StoreServ, Nimble, StoreVirtual , P9500/XP7, MSA		
Ports	Up to 256 SFP	Up to 256 32 Gbps ports or a 320-port equivalent with 16 ICL ports.	256 ports - 192 device ports with a 64Gbps data rate plus 16 4x50Gb ICLs or 320 ports - 256 device ports with a 32Gbps data rate plus 16 4x50Gb ICLs

Technical Specifications

SFP	B-series	B-Series	B-series Secure
Advanced Trunking	Included with Power Pack or Optional Upgrade	Included with Power Pack	Included with Power Pack
Adaptive Networking	Included	Included	Yes (included)
Form factor	9U	9U	9U
Zoning Software	Yes (included)	Yes (Included)	Yes (included)
Hot plug, redundant power supplies	Yes	Yes	Yes
Hot plug fans	Yes	Yes	Yes

Features	SN6500B 16Gb FC Switch and SN6500B 16Gb FC Power Pack+	SN6650B 32Gb FC Switch and SN6650B 32Gb FC PP+ Switch	SN6750B FC Switch
Targeted Environment	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments
Fibre Channel Port Bandwidth	16Gbps	32Gb	64Gbps
Ethernet	N/A	NA	NA
Aggregate device bandwidth	768-1536–Gbps	4Tbps	8.2Tbps
OS Support	**Notes:** Please Refer to SPOCK: **https://www.hpe.com/storage/spock**		
Storage system support	HPE Primera, 3PAR StoreServ, Nimble, StoreVirtual , P9500/XP7, MSA		
FC Ports	48 or 96 Enabled 96 Max	48 or 96 Enabled 128 Max utilizing QSFP ports	48 or 96 Enabled 128 Max utilizing DD ports
SFP	B-series	B-series	B-series
Advanced Trunking	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+	Included
Adaptive Networking	Included	Included	Included
Form factor	2U	2U	2U
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes	Yes	Yes
Hot plug fans	Yes	Yes	Yes

Technical Specifications

Features	SN6000B 16 Gb FC Switch and SN6000B 16 Gb FC Power Pack+	SN6600B 32 Gb FC Switch	SN6700B 64Gb with 24 32Gb Integrated Secure SFP28
Targeted Environment	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments
Fibre Channel Port Bandwidth	16 Gbps	32 Gbps	64Gb
Aggregate device bandwidth	384- 768 Gbps	2 Tbps	3.5 Tbps
OS Support	Notes: Please Refer to SPOCK: https://h20272.www2.hpe.com/spock/		
Storage system support	HPE Primera, 3PAR StoreServ, Nimble, StoreVirtual , P9500/XP7, MSA		
FC Ports	24 or 48 Enabled 48 Max	24 or 48 enabled 64 Max	24 Enabled 56 Max
SFP	B-series	B-series Optics (16 Gb or 32 Gb)	B-series Secure 24 32Gb SFP28 included
Advanced Trunking	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included in Power Pack+ on all switches
Adaptive Networking	Included	Included	Included
Form factor	1U	1U	1U
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included
Hot plug, redundant power supplies	Yes	Yes	Yes
Hot plug fans	Yes (integrated with power supply)	Yes (integrated with power supply)	Yes (integrated with power supply)

Features	SN3000B 16Gb FC Switch	SN3600B 32Gb FC Switch and SN3600B 32Gb FC Power Pack+
Targeted Environment	Workgroups, Departments	Workgroups, Departments
Fibre Channel Port Bandwidth	16Gbps	32Gbps
Aggregate device bandwidth	192-384 Gbps	768 Gbps
OS Support	Notes: Please Refer to SPOCK: https://h20272.www2.hpe.com/spock/	
Storage system support	HPE Primera, 3PAR StoreServ, Nimble, StoreVirtual , P9500/XP7, MSA	
FC Ports	12 or 24 Enabled 24 Max	8 or 24 Enabled 24 Max
SFP	B-series	B-series
Advanced Trunking	Included with Power Pack+ Upgrade	Included with Power Pack+ or Optional Upgrade
Adaptive Networking	Included	Included
Form factor	1U	1U
Zoning Software	Yes (Included)	Yes (Included)

Technical Specifications

Hot plug, redundant power supplies	Optional	N/A
Hot plug fans	Yes (integrated with power supply)	Yes (integrated with power supply)

Features	SN4000B SAN Extension Switch	2600 Extension SAN Switch	SN4700B SAN Extension Switch
Targeted Environment	Data Centers	Data Centers	Data Centers
Fibre Channel Port Bandwidth	16Gbps	32Gbps	64Gbps
Ethernet	1/10/40Gbps Ethernet	1/10Gbps Ethernet	1/10/25/100Gbps Ethernet
OS Support	**Notes:** Please Refer to SPOCK: https://h20272.www2.hpe.com/spock/		
Storage system support	Alletra, Primera, Nimble, 3PAR StoreServ, StoreVirtual , P9500/XP, MSA		
FC Ports	24 Enabled 24 Max	4 or 12 Enabled 12 Max	24 Enabled 24 Max
Ethernet Ports	16 ports 1/10GbpsE Enabled 16 Max 2 - 40GbpsE ports	2 or 6 Enabled 6 Max	16 1/10/25Gbps Enabled 16 Max 2 100Gbps Enabled 2 Max
SFP	B-series	B-series	B-series
Advanced Trunking	Included	Included with Optional Upgrade Kit	Included
Adaptive Networking	Included	Included	Included
Form factor	2U	1U	1U
Zoning	Included	IncludedYes (Included)	Included
Hot plug, redundant power supplies	Yes	Yes	Yes
Hot plug fans	Yes	Yes	Yes

Features	Brocade 16Gb SAN Switch for HPE c-Class BladeSystem	Brocade 16Gb Fibre Channel SAN Switch Module for HPE Synergy	Brocade 32Gb Fibre Channel SAN Switch Module for HPE Synergy
Targeted Environment	Enterprise, Datacenters, Workgroups, Departments	Enterprise, Datacenters, Workgroups, Departments	Enterprise, Datacenters, Workgroups, Departments
Port Bandwidth	16Gbps	16Gbps	32Gbps
Aggregate device bandwidth	448 Gbps	576 Gbps (36 ports x 16 Gbps)	896 Gbps (36 ports x 16 Gbps)
OS Support	**Notes:** Please Refer to SPOCK: **https://h20272.www2.hpe.com/spock/**		
Storage system Support	HPE Primera, 3PAR StoreServ, Nimble, StoreVirtual , P9500/XP7, MSA		
Ports	12 external /16 internal	8 SFP+ external, 4 QSFP external /12 internal	8 SFP+ external, 2 QSFP external /12 internal
SFP	B-series	B-series	B-series

Technical Specifications

Advanced Trunking	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade
Adaptive Networking	Included	Included	Included
Form factor	Embedded	Embedded	Embedded
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes, in BladeSystem Enclosure	Yes, in Synergy Frame	Yes, in Synergy Frame
Hot plug fans	Yes, in BladeSystem Enclosure	Yes, in Synergy Frame	Yes, in Synergy Frame

System Unit

Fibre Channel ports	• **SN8700B** SAN Director: 48-port 64Gb or 32Gb FC, 64-port 64Gb blade options as well as supporting the 48-port and 64-port 32Gb SN8600B blades • **SN8600B** SAN Director: 64-port and 48-port 32Gb Fibre Channel port blade options
Control processor	Redundant (active/standby) hot swappable control processor modules
Scalability	Full fabric architecture

Performance	• **SN8700B**
	   − **HPE SN8700B 64Gb 48-port Blade** - Fibre Channel: 8.5Gbps line speed, full duplex; 10.53Gbps line speed, full duplex; 14.025Gbps line speed, full duplex; 28.05Gbps line speed, full duplex; 57.8Gbps line speed, full duplex. Autosensing of 8, 16, 32, and 64Gbps port speeds depending on SFPs used. 10Gbps port speeds with dedicated SFPs.
	   − **HPE SN8700B 64Gb 64-port Blade** - Fibre Channel: 8.5Gb/s line speed, full duplex; 14.025Gb/s line speed, full duplex; 28.05Gb/s line speed, full duplex; 57.8Gb/s line speed, full duplex. Autosensing of 8, 16, 32, and 64G port speeds depending on SFPs used. Support for 8G requires a 32G SFP+ LWL or ELWL transceiver.
	   − **HPE SN8700B 32Gb Blade** - Fibre Channel: 4.25Gbps line speed, full duplex; 8.5Gbps line speed, full duplex; 10.53Gbps line speed, full duplex; 14.025Gbps line speed, full duplex; 28.05Gbps line speed, full duplex. Autosensing of 4, 8, 16, and 32Gbps port speeds depending on SFPs used. 10Gbps port speeds with dedicated SFPs.
	   − **HPE SN8600B 32Gb 64port** - Fibre Channel: 4.25Gbps line speed, full duplex; 8.5Gbps line speed, full duplex; 14.025Gbps line speed, full duplex; 28.05Gbps line speed, full duplex. Autosensing of 4, 8, 16, and 32Gbps port speeds depending on QSFPs used.
	• **SN8600B**
	   − Fibre Channel:
	   − 4 Gbps line speed, full duplex
	   − 8 Gbps line speed, full duplex
	   − 10 Gbps line speed, full duplex
	   − 16 Gbps line speed, full duplex
	   − 32 Gbps line speed, full duplex
	   − Autosensing of 4, 8, 16, and 32 Gbps port speeds depending on SFPs used. Speed matching between 4, 8, 16, and 32 Gbps port speeds. 10 Gbps port

Technical Specifications

	speeds with dedicated SFPs − Fibre Channel over Ethernet: − 10Gb line speed, full duplex − 25Gb line speed, full duplex − 40Gb line speed, full duplex
ISL Trunking	• **SN8700B -** Frame-based trunking with up to eight 64Gbps ports per ISL trunk; up to 512Gbps per ISL trunk between switches using 8G, 16G, 32G, or 64G ports ; Exchange-based load balancing across ISLs with DPS included in FOS • **SN8600B** - Frame-based trunking with up to eight 32 Gbps ports per ISL trunk; up to 256 Gbps per ISL trunk. Exchange-based load balancing across ISLs with DPS included in FOS
Chassis Bandwidth	• **SN8700B 8-Slot SAN Director** 30.9Tb/s per chassis with 384 device ports + 32 UltraScale ICL connections supporting 128 ports. • **SN8700B 8-Slot SAN Director** 39.6Tb/s per chassis with 512 device ports + 32 UltraScale ICL connections supporting 128 ports. • **SN8700B 4-Slot SAN Director** 15.5Tb/s per chassis with 192 device ports + 16 UltraScale ICL connections supporting 64 ports. • **SN8700B 4-Slot SAN Director** 19.8Tb/s per chassis with 256 device ports + 16 UltraScale ICL connections supporting 64 ports. • **SN8600B 8-Slot SAN Director** 16.384 Tbps per chassis (512 ports×32 Gbps) data rate + 4.096 Tbps ICL bandwidth (32×128 Gbps
Chassis Bandwidth	• **SN8600B 4-Slot SAN Director** 8.192 Tbps per chassis (256 ports×32 Gbps) data rate + 2.048 Tbps ICL bandwidth (16×128 Gbps)
Slot bandwidth	• **SN8700B** - − 3072Gb/s providing line-rate performance for the FC64-48 blade. − 4096Gb/s providing line-rate performance for the FC64-64 blade. • **SN8600B** - 2048 Gbps (line rate)
Local Switching bandwidth	• **SN8700B** − 1536 Gbps for 32/48: 48 ports x 32Gbps (data rate) − 2048 Gbps for 32/64: 64 ports x 32Gbps (data rate) − 3072 Gbps for 64/48: 48 ports x 64Gbps (data rate) • **SN8600B** − 1536 Gbps for 32/48: 48 ports x 32Gbps (data rate) − 2048 Gbps for 32/64: 64 ports x 32Gbps (data rate)
Maximum frame size	2112-byte payload
Switch latency	• **SN8700B** − HPE SN8700B 64Gb 48-port blade at 64 Gbps speeds: : 460 ns (including FEC); any-port-to-any-port local switching and 1.4 μs blade to blade at 64Gbps, cut-through routing. − HPE SN8700B 32Gb 48-port blade at 32 Gbps speeds: 560 ns (including FEC); any-port-to-any-port local switching and 1.9 μs blade to blade at 32Gbps, cut-through routing. • **SN8600B** − HPE SN8600B 48-port blade at 32 Gbps speeds: <900 ns (including FEC); any-port-to-any-port local switching and 2.7 μs blade to blade at 32 Gbps, cut-through routing − HPE SAN Extension blade (32Gb), Fibre Channel to Fibre Channel: <900ns

Technical Specifications

	(including FEC) and 2.7 µs any-port-to-any-port at 32 Gbps, cut-through routing
Frame buffers	• **SN8700B** - 24,000 per switching ASIC • **SN8600B** - 15,000 per switching ASIC
Classes of service	Class 2, Class 3, Class F (inter-switch frames)

Fibre Channel Port Types	• **SN8700B 64Gb**
	  − HPE SN8700B 8-slot: Up to 512 64G, universal (E_Port, F_Port, EX_Port, M_Port, D_Port, SIM Port, *FICON).
	  − HPE SN8700B 4-slot: Up to 265 64G, universal (F_Port, E_Port, EX_Port, M_Port, D_Port, SIM Port, *FICON).
	  − *Brocade 48 port blade required
	  − HPE SN8600B 32Gb SAN Extension Blade: F_Port, FL_Port, E_Port, SIM, and EX_Port on FC and VE_Port on GbE
	• **SN8600B 32Gb**
	  − HPE SN8600B 32Gb 64-port FC Blade
	  − HPE SN8600B 32Gb 48-port FC blade: F_Port, E_Port, EX_Port, M_Port, SIM, and D_Port
	  − HPE SN8600B 32Gb SAN Extension Blade: F_Port, E_Port, and EX_Port on FC, and VE_Port on GbE
	  Notes: Self-discovery is based on switch type (U_Port) with an optional port-type control.

Data traffic types	Fabric Switches supporting unicast, multicast (255 groups), and broadcast

USB	• **SN8700B**
	  − One USB port per control processor for firmware download, support save, and configuration upload or download
	• **SN8600B**
	  − One USB port per control processor for firmware download, support save, and configuration upload or download

Media types	• **SN8700B**
	  − HPE SN8700B 64Gb 48p Blade:
	  − 64G FC SFP56 LC connector: SWL
	  − 32G FC SFP28 LC connector: SWL, LWL, ELWL
	  − 10G FC SFP+ LC connector: SWL, LWL
	  − HPE SN8700B 64Gb 64p Blade
	  − 64G FC SFP-DD SN connector: SWL
	  − 64G FC SFP56 LC connector: SWL, LWL
	  − 32G FC SFP28 LC connector: LWL, ELWL
	  − HPE SN8700B 32Gb 48p Blade:
	  − 32G FC SFP28 LC connector: SWL, LWL, ELWL
	  − 16G FC SFP+ LC connector: SWL, LWL, ELWL
	  − 10G FC SFP+ LC connector: SWL, LWL
	  − The SN8700B Director Chassis will support the HPE SN8600B 32Gb 64-port FC Blade with media outlined below under the section titled "SN8600B 32Gb".
	• **SN8600B 32Gb**
	  − HPE SN8600B 32Gb 64-port FC Blade:

Technical Specifications

- − 4x32G FC QSFP28 MPO connector: SWL
- − 4x32G FC QSFP28 SMF LC connector: 2 km(fixed at 4x32G only)
- − 4x16G FC QSFP+ MPO connector: SWL
- − FCoE QSFP28 MPO connector: 100GBASE-SR4, 4x25GbE
- − FCoE QSFP+ MPO connector: 40GBASE-SR4, 4x10GbE
- − FCoE QSFP+ LC connector: 40GbE BiDi
- − HPE SN8600B 32Gb 48-port FC blade:
- − 32G FC SFP28 LC connector: SWL, LWL
- − 16G FC SFP+ LC connector: SWL, LWL, ELWL
- − 10G FC SFP+ LC connector: SWL, LWL
- − HPE SN8600B 32Gb SAN Extension Blade:
- − 32G FC SFP28 LC connector: SWL, LWL, ELWL
- − 16G FC SFP+ LC connector: SWL, LWL, ELWL
- − 10G FC SFP+ LC connector: SWL, LWL
- − Ethernet QSFP+ MPO connector: 40GBASE-SR4, 40GBASE-LR4, 40GBASE-ER4
- − Ethernet QSFP+ LCconnector: 40GbE BiDi
- − 10GbE SFP+ LC connector: SR, LR, USR*

    Notes: *USR - Supported by not sold by HPE
- − 1GbE SFP+ LC connector: SR, LR
- − 1GbESFP+copper connector
- − Supports hot-pluggable Fibre Channel SFP28 at 32 Gbps SWL/LWL; SFP+ at 16 Gbps SWL/LWL/ELWL; SFP at 10 Gbps FC SWL/LWL and Ethernet SFP+ at 1 GbE copper, 1 GbE 1000BASE-SX/LX/CWDM, SFP+ at 10 GbE SR/LR; SFP+ at 10 GbE tunable DWDM 80 km, and QSFP at 40 GbE SR4/LR4/ER4.
- − Core Routing (CR) blades support hot-pluggable B-series Fibre Channel QSFP at 4×32 Gbps SWL, 4×16 Gbps SWL and 4×16 Gbps 2 km QSFP for ICL connections

Fabric services	• **SN8700B**
	− Adaptive Networking (QoS); BB Credit Recovery; Brocade Advanced Zoning (Default Zoning, Port/WWN Zoning); Dynamic Path Selection (DPS); Extended Fabrics; Fabric Congestion Notification; Fabric Vision; FDMI; FICON CUP; Flow Vision; FSPF; Integrated Routing; ISL Trunking; Management Server; N_Port Trunking; NPIV; NTP v3; Peer Zoning; Port Fencing; Registered State Change Notification (RSCN); Reliable Commit Service (RCS); Simple Name Server (SNS); Syslog; Target-Driven Zoning; Traffic Optimizer; Virtual Fabrics (Logical Switch, Logical Fabric).
	• **SN8600B**
	− Adaptive Networking (Traffic Isolation, QoS); BB credit recovery; Advanced Zoning (default zoning, port/WWN zoning, peer zoning, target-driven zoning, broadcast zoning); Dynamic Path Selection (DPS); Extended Fabrics; FDMI; FICON CUP; Flow Vision; Frame Redirection; FSPF; IPoFC; ISL Trunking; Management Server; Monitoring and Alerting Policy Suite (MAPS); N_Port Trunking; NPIV; NTP v3; Port Fencing; Registered State Change

Technical Specifications

	Notification (RSCN); Reliable Commit Service (RCS); Simple Name Server

Extension	• **SN8700B**
	    − Supports DWDM, CWDM, and FC-SONET Devices; Fibre Channel; In-flight Compression (Brocade LZO) and Encryption (AES-GCM-256); BB Credit Recovery; FCIP; IP Extension; Adaptive Rate Limiting (ARL); Data Compression; Fast Write; Read/Write Tape Pipelining; QoS.
	• **SN8600B**
	    − Supports DWDM, CWDM, and FC-SONET devices; Fibre Channel, in-flight compression (Brocade LZO) and encryption (AES-GCM-256); BB credit recovery; FCIP, IP Extension, Adaptive Rate Limiting (ARL), data compression, Fast Write, read/write Tape Pipelining, QoS

FICON	FICON cascading; support for lossless DLS; FICON CUP; Advanced Accelerator for FICON (FICON Global Mirror and XRC emulation and read/write Tape Pipelining). (FICON connectivity is not supported on the FC32-64 or FC64-64 blade
High availability	**SN8700 & SN8600B SAN Director**
Architecture	Non-blocking shared memory; passive backplane; redundant active/passive control processor; redundant active/active core switching blades; redundant WWN cards

Chassis Power	• **SN8700B 8-slot SAN Director**
	    − Four power supplies required for AC low-line (100 VAC to 120 VAC).
	    − Two power supplies required for AC high-line (200 VAC to 240 VAC). Power Supplies are 80+ platinum certified
	    − Chassis ships empty only. PSU and fans must be ordered separately. Three PSUs are required for 2+1 redundancy. Two PSUs provide system power, but four PSUs must be installed to provide power efficiency and 2+2 redundancy.
	• **SN8700B 4-slot SAN Director**
	    − Two power supplies required for AC low-line (100 VAC to 120 VAC).
	    − One power supply required for AC high-line (200 VAC to 240 VAC). Power Supplies are 80+ platinum certified
	    − Chassis ships empty only. PSU and fans must be ordered separately. One PSU provides system power, but both PSUs must be installed to provide power efficiency and 1+1 redundancy
	• **HPE SN8600B 8-slot SAN Director**
	    − Four power supplies required for AC Low Line (100 VAC to 120 VAC)
	    − Two power supplies required for AC High Line (200 VAC to 240 VAC).
	    − Device ships with three PSUs or empty (3 for 2+1 redundancy). Two provide system power, but four must be installed to provide power efficiency and 2+2 redundancy.

Chassis Power	• **HPE SN8600 4-slot SAN Director**
	    − Two power supplies required for AC Low Line (100 VAC to 120 VAC).
	    − One power supply required for AC High Line (200 VAC to 240 VAC).
	    − The device ships with two power supplies. One provides system power, but both must be installed to provide power efficiency and 1+1 redundancy.

Cooling	• **HPE SN8700B and SN8600B 8-slot SAN Director**
	    − Requires three fan tray assemblies. A failure condition is one failed fan from any fan tray.
	    − Each assembly contains two fans for a total of six. The system requires five of

Technical Specifications

	six functioning fans for operation in the SN8600B 8-slot Director. One fan tray assembly can be hot-swapped and should be replaced immediately in the event of a failure.
	• **HPE SN8700B and SN8600 4-slot SAN Director**
	  − Requires two fan tray assemblies. A failure condition is one failed fan from any fan tray.
	  − Each assembly contains two fans for a total of four. The system requires three of four functioning fans for operation in the SN8600 4slot Director. One fan assembly can be hot-swapped and should be replaced immediately in the event of a failure.

Management	• **SN8700B**
	  − HTTP/HTTPS; SNMP v1/v3 (FE MIB, FC Management MIB); SSH;; Brocade Advanced Web Tools; Brocade SANnav Management Portal and SANnav Global View; Command Line Interface (CLI); SMI-S compliant; RESTful API; trial licenses for add-on capabilities.
	• **SN8600B**
	  − HTTP, SNMP v1/v3 (FE MIB, FC Management MIB), SSH; Auditing, Syslog; Advanced Web Tools,; HPE SANnav Management Software, Command Line Interface (CLI); SMI-S compliant; RESTful API; trial licenses for add-on capabilities.

Security	• **SN8700B**
	  − AES-GCM-256 encryption on ISLs; DH-CHAP (between switches and end devices); FCAP switch
	  − authentication; FIPS 140-2 compliant; HTTPS; IP filtering; LDAP with IPv6; OpenLDAP; Device
	  − Connection Control (DCC); RADIUS; user-defined Role-Based Access Control (RBAC); Secure Copy (SCP); SFTP; SSH v2; TLS v1.2/v1.3; Switch Binding; TACACS+; Fabric Configuration Server (FCS); USGv6 compliant; Secure Boot
	• **SN8600B**
	  − DH-CHAP (between switches and end devices), FCAP switch authentication, FIPS 140-2 L2-compliant, HTTPS, IPsec, IP filtering, LDAP with IPv6, OpenLDAP, Port Binding, RADIUS, user-defined Role-Based Access Control (RBAC), Secure Copy (SCP), Secure RPC, SFTP, SSH v2, SSL, Switch Binding, TACACS+, Trusted Switch.

Management access	• **SN8700B**
	  − 10/100/1000Mb/s Ethernet (RJ-45) per control processor; serial console port (RJ-45) and one USB per control processor module; DHCP/DHCPv6; home integration enabled through HPE Insight Remote Support.
	• **SN8600B**
	  − 10/100/1000 Ethernet (RJ-45) per control processor, in-band over Fibre Channel; serial port (RJ-45) and one USB per control processor module; DHCP/DHCPv6; call-home integration enabled through HPE Insight Remote Support

Diagnostics	• **SN8700B** − IO Insight for SCSI and NVMe monitoring (FC32-X7-48 blade (R6B01A and R6B02A and FC32-64 blade Q2S19B only); ClearLink® optics and cable diagnostics, including electrical/optical loopback, link traffic/latency/distance; built-in flow generator; POST and embedded online/offline diagnostics,

Technical Specifications

	including environmental monitoring, FCping, and Pathinfo (FC traceroute); flow mirroring; frame viewer; non-disruptive daemon restart; optics health monitoring; power monitoring; RAStrace logging; and Rolling Reboot Detection (RRD)
Diagnostics	– traceroute), flow mirroring, frame viewer, non-disruptive daemon restart, optics health monitoring, power monitoring, RAStrace logging, and Rolling Reboot Detection (RRD). • **SN8600B** 　– IO Insight for IO monitoring; ClearLink optics and cable diagnostics, including electrical/optical loopback, link traffic/latency/distance; built-in flow generator; POST and embedded online/offline diagnostics, including environmental monitoring, FCping and Pathinfo (FC

Mechanical specifications	
SN8000B Ports per rack	Up to 1536 ports per 42U rack Up to 1024 DC SAN Backbone Director ports per 42U rack using Patch Panels. **Notes:** The last 16 ports require couplers when using LC-LC Patch Panels.
Enclosure	• **SN8700B** 　– **HPE SN8700B 8-slot SAN Director 12-blade slots:** 14U rack-mountable chassis; 27 in. to 31 in. and 22 in. rail kits for the four post rack; mid-mount kit for the two-post rack. 　– **HPE SN8600B 4-slot SAN Director 8-blade slots:** 27 in. to 31 in. rail, 18 in. to 24 in. rail, and airflow diversion rack-mount kits for the four-post rack; mid-mount kit for the two-post rack. • **SN8600B** 　– **HPE SN8600B 8-slot SAN Director 12-blade slots**: 14U rack-mountable chassis; 27 in. to 31 in. and 22 in. rail kits for the four-post rack; mid-mount kit for the two-post rack 　– **HPE SN8600B 4slot SAN Director 8-blade slots**: 8U rack-mountable chassis; 27 in. to 31 in. rail, 18 in. to 24 in. rail, and airflow diversion rack mount kits for the four-post rack; mid-mount kit for the two-post rack
Width	• **SN8700B** 　– Rack-mountable in a standard 19-inch EIA cabinet • **SN8600B** 　– Rack-mountable in a standard 19-inch EIA cabinet
Size	• **SN8700B 8-slot SAN Director** 　– Height: 61.23 cm (24.11 in., 14U) 　– Width: 43.74 cm (17.23 in.) 　– Depth: 61.04 cm (24.04 in.) • **SN8700B 4-slot SAN Director** 　– Height: 34.45 cm (13.56 in., 8U) 　– Width: 43.74 cm (17.23 in.) 　– Depth: 61.04 cm (24.04 in.) • **SN8700B 4-slot SAN Director with airflow diversion rack-mount kit** 　– Height: 40.00 cm (15.75 in., 9U) 　– Width: 43.74 cm (17.23 in.)

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	–Depth: 61.29 cm (24.09 in.)
	• **SN8600B 8-slot SAN Director**
	  –Height: 61.23 cm (24.11 in., 14U)
	  –Width: 43.74 cm (17.23 in.)
	  –Depth: 61.04 cm (24.04 in.)
	• **SN8600B 4-slot SAN Director**
	  –Height: 34.45 cm (13.56 in., 8U)
	  –Width: 43.74 cm (17.23 in.)
	  –Depth: 61.04 cm (24.04 in.)		

Size	• **SN8600B 4-slot SAN Director with airflow diversion rack-mount kit**
	  –Height: 40.00 cm (15.75 in., 9U)
	  –Width: 43.74 cm (17.23 in.)
	  –Depth: 61.29 cm (24.09 in.)		

Size	**Weight**	**SN8700B 8-slot SAN Director**	35.61 kg (78.5 lb) for chassis 145.8 kg (321.5 lb) maximum fully populated configuration
		SN8700B 4-slot SAN Director	24.5 kg (54 lb) for chassis 68.95 kg (152.0 lb) maximum fully populated configuration
		SN8600B 8-slot SAN Director	35.61 kg (78.5 lb) for chassis 145.8 kg (321.5 lb) for 384-port configuration, fully populated
		SN8600B 4-slot SAN Director	24.5 kg (54 lb) for chassis 68.95 kg (152.0 lb) for 192-port configuration, fully populated

Environment

Temperature	**Operating**	**SN8700B and SN8600B** 32° to 104° F (0° to 40° C)
	Non-operating	**SN8700B and SN8600B** -25° to 70° C (-13° to 158° F)
Humidity	**Operating**	**SN8700B and SN8600B** 5% to 93% RH non-condensing at 40°C (104°F) with a maximum gradient of 10% per hour
	Non-operating	**SN8700B and SN8600B** 10% to 93% RH non-condensing at 70°C (158°F)
Altitude	Up to 3000 meters (9800 feet)	
Shock	20 g, 6 ms, half sine	

Vibration	**Operating**	• **SN8700B**
		  –Operating: 5 Hz to 10 Hz at +5 dB/oct; 10 Hz to 200 Hz at 0.0005 grms; 200 Hz to 500 Hz at -5 dB/oct; scale 0.05 grms.
		• **SN8600B**
		  –10 g, 11 ms, half sine wave

	Non-operating	• **SN8700B**
		  –Non-operating: 3 Hz to 10 Hz at +5 dB/oct; 10 Hz to 200 Hz at 0.0065 grms; 200 Hz to 500 Hz at -5 dB/oct; scale 1.12 grms.
		• **SN8600B**
		  –20 g, 11 ms, half sine wave

Heat Dissipation	**SN8700B 8-slot**	64G 384-port configuration, including ICLs: Typical: 10,866 Btu/hr;

Technical Specifications

	SAN Director	Max: 16,041 Btu/hr. **Power consumed:** Typical: 3,184W; Max: 4,700W. 64G 512-port configuration, including ICLs: Typical: 11,766 Btu/hr; Max: 16,942 Btu/hr. **Power consumed:** Typical: 3,447W; Max: 4,964W. **Notes:** Input power is at 200 VAC with full PSU redundancy.	
	SN8700B 4-slot SAN Director	64G 192-port configuration, including ICLs: Typical: 5,934Btu/hr; Max: 7,771 Btu/hr. Power consumed: Typical: 1,738W; Max: 2,277W. **Notes:** Input power is at 200 VAC with full PSU redundancy. 64G 256-port configuration, including ICLs: Typical: 6,384 Btu/hr; Max: 8,221 Btu/hr. Power consumed: Typical: 1,870W; Max: 2,409W. **Notes:** Input power is at 200 VAC with full PSU redundancy.	
Heat Dissipation	**SN8600B 8-slot SAN Director**	384-port configuration: Typical: 8,836 BTU/hr; Max: 14,485 BTU/hr Power consumed: Typical: 2,589 W; Max: 4,244 W **Notes:** Input power is at 200 VAC with full PSU redundancy.	
	SN8600B 4-slot SAN Director	192-port configuration: Typical: 4,696 BTU/hr; Max: 8,139 BTU/hr Power consumed: Typical: 1,376 W; Max: 2,385 W **Notes:** Input power is at 200 VAC with full PSU redundancy.	
Power	**SN8700B**	**Supported power range**	• **Input voltage** – Standard AC input: – Range: 90 VAC to 264 VAC auto-volt – Nominal: 100 VAC to 240 VAC • **Power** – 85 VAC to 132 VAC: 1450W – 180 VAC to 264 VAC: 2870W
		In-rush current	35 Amps maximum, peak
		Frequency	50 Hz to 60 Hz (Nominal: 50 Hz to 60 Hz)
	SN8600B	**Supported power range**	• **Input voltage** – Standard AC input: – Range: 85 VAC to 264 VAC Auto-volt – Nominal: 100 VAC to 240 VAC • **Power** – 85 to 132 VAC: 1,450 W – 180 to 264 VAC: 2,870 W
		In-rush current	35 Amps maximum, peak

QuickSpecs

HPE Storage SAN Director Switch

Technical Specifications

		Frequency	50 Hz to 60 Hz (Nominal: 50 Hz to 60 Hz)

Certified maximum

Please Refer to SAN Design Guide at the following URL:
https://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=sd00001803en_us

QuickSpecs

Summary of Changes

Date	Version History	Action	Description of Change
07-Oct-2024	Version 85	Changed	Standard Features, section was updated Removed all references to SFM / Storage Fabric Manager
03-Sep-2024	Version 84	Changed	Service and Support section was updated
15-Apr-2024	Version 83	Changed	Rebranding Series Name applied
18-Mar-2024	Version 82	Changed	Standard Features, Configuration Information and Technical Specifications sections were updated.
13-Nov-2023	Version 81	Changed	Standard Features, Service and Support and Configuration Information sections were updated. HPE Services Rebranding Added HPE Greenlake for Storage Fabric Management
05-Sep-2023	Version 80	Changed	Overview, Standard Features, Configuration Information and Technical Specifications sections were updated. Added 64Gb 64-port blade option
05-Jun-2023	Version 79	Changed	Configuration Information and Technical Specifications sections were updated. SANnav renewal offerings added
06-Feb-2023	Version 78	Changed	Service and Support, Configuration Information and Technical Specifications sections were updated
01-Aug-2022	Version 77	Changed	Added 32Gb and 64Gb LW & ELW optics
05-Jul-2022	Version 76	Changed	Updated with 4x50 2km ICL offering
01-Nov-2021	Version 75	Changed	Removed duplicate blade references
04-Oct-2021	Version 74	Changed	Service and Support section was updated Obso SKU was removed
15-Sep-2021	Version 73	Changed	Configuration Information sections was updated.
02-Aug-2021	Version 72	Changed	Service and Support and Configuration Information sections were updated.
07-Jun-2021	Version 71	Changed	Overview, Standard Features, Configuration Information and Technical Specifications sections were updated.
06-Apr-2021	Version 70	Changed	Overview, Standard Features, Configuration Information and Technical Specifications sections were updated.
18-Jan-2021	Version 69	Changed	Configuration Information section was updated.
07-Dec-2020	Version 68	Changed	SN8700B solution specifications added
05-Oct-2020	Version 67	Changed	Updated physical software licenses
06-Jul-2020	Version 66	Changed	QuickSpecs layout was updated and Branding Refresh was applied.
18-May-2020	Version 65	Changed	Configuration Information section was updated.
06-Apr-2020	Version 64	Changed	Standard Features and Configuration Information sections were updated.
03-Feb-2020	Version 63	Changed	Standard Features, Configuration Information and Technical Specifications sections were updated.
03-Sep-2019	Version 62	Changed	Standard Features, Service and Support and Configuration Information sections were updated.
02-Apr-2019	Version 61	Changed	Overview, Service and Support, Configuration Information, Technical Specifications sections were updated.
01-Oct-2018	Version 60	Changed	Product Highlights, HPE Support Services, Configuration Information and Technical Information sections were updated. SKU descriptions were updated. Obsolete SKUs were removed. Overview, Product Highlights, HPE Support Services,

Summary of Changes

			Configuration Information sections were updated. SKUs were updated
07-May-2018	Version 59	Changed	Added 64-port 32Gb blade for SN8600B SAN Director. Overview, Product Highlights, Configuration Information, and Technical Specifications were revised.

Date	Version History	Action	Description of Change
04-Dec-2017	Version 58	Changed	Configuration Information was revised.
23-Oct-2017	Version 57	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
25-Sep-2017	Version 56	Changed	Changes made throughout the QuickSpecs.
03-Apr-2017	Version 55	Changed	Added optics and cables along with minor content edits
13-Feb-2017	Version 54	Changed	Cosmetic Update
16-Dec-2016	Version 53	Changed	Added a 32Gb SFP+ SKU
28-Nov-2016	Version 52	Changed	Added content for SN8600B 32Gb SAN Director
29-Jul-2016	Version 51	Changed	Changes made to the Configuration Information section.
07-Jun-2016	Version 50	Changed	Changes made throughout the QuickSpecs
08-Apr-2016	Version 49	Changed	Changes made to the Services Sections
16-Feb-2016	Version 48	Changed	Content Updated on the entire document
30-Mar-2015	Version 47	Changed	Changes made throughout the QuickSpecs.
13-Feb-2015	Version 46	Changed	Change the version to match Product Bulletin. It was not synched up
09-Feb-2015	Version 45	Added	Added the HPE B-series 4x16Gb Fibre Channel 2Km Inter-chassis Link QSFP Transceiver
14-Nov-2014	Version 44	Changed	Changes made throughout the QuickSpecs.
03-Oct-2014	Version 43	Changed	Changes made to the Configuration Information, Service and Support and Product Highlights Sections.
21-Jul-2014	Version 42	Changed	Changes were made in Overview, Product Highlights and Configuration Information sections.
10-Jun-2014	Version 41	Changed	Carepack description updated on the Basic Care-Minimun recommended support Updated some products highlights Configuration Updates
28-Feb-2014	Version 40	Changed	Updated the following: Configuration Information Step 1, added Fabric Vision to description for QK710B, QK711B, AK857C, AR479B, Step 2 - added note to TC513A; removed "for Core 2/64" from the description for 325887-B21 and 325886-B21;
20-Dec-2013	Version 39	Added	HPE B-series 16b Long Wave 25km Fibre Channel SFP+ 1 Pack to Fibre Channel Switches were added.
09-Dec-2013	Version 38	Changed	Product descriptions were revised throughout Configuration Information HPE 8/40 SAN Switch and 8/40 SAN Switch Power Pack+ was removed from Family Information
15-Oct-2013	Version 37	Changed	Fabric Vision was added to Product Highlights 2408 FCoE CN Switch and 2408 FCoe CN Switch Power Pack+ was removed from Family Information chart
30-Sep-2013	Version 36	Changed	Optional Software was revised.
01-Apr-2013	Version 35	Changed	Changes made to update Step 2 of the Configuration Information section.

Summary of Changes

25-Mar-2013	Version 34	Changed	Changes made throughout document in sections What's New, Product Highlights, Configuration Information and Technical Specifications.
22-Feb-2013	Version 33	Changed	Changes were made to Product Highlights Section as well as Configuration Information section.
16-Nov-2012	Version 32	Changed	Changes were made Configuration Information section.
14-Sep-2012	Version 29	Changed	Changes were made in Overview, Product Highlights and Configuration Information sections.
13-Aug-2012	Version 28	Changed	Changes made in Configuration Information.
22-Jun-2012	Version 27	Changed	Changes made in Configuration Information.

Date	Version History	Action	Description of Change
16-May-2012	Version 26	Changed	Updated the following: Product Highlights - removed "CUP" from the FICON Accelerator Upgrade LTU name; updated NOTE for 10GbE and 10Gb FC Performance Upgrade; Configuration Information - Step 2 Additional Port Configurations - updated NOTE for 10GbE performance upgrade and removed one NOTE and update another for HPE Extension Blade FICON Accelerator Upgrade and updated NOTE for HPE FICON; Step3 - Additional Options - updated NOTE for Fibre Channel Optical Transceivers
06-Apr-2012	Version 25	Changed	Cabinet Support was revised.
26-Mar-2012	Version 24	Changed	Changes made throughout the QuickSpecs.
02-Dec-2011	Version 23	Changed	HPE Encryption FC Blade was revised in Additional Port Configurations.
14-Nov-2011	Version 21	Changed	HPE 16GB Long Wave B-series 10km FC SFP+ 1 Pack was added and HPE LC-SC Optical Cables were removed from Step 3 in Configuration Information.
28-Oct-2011	Version 20	Changed	Updated the following: Overview; What's New; DC SAN Director Highlights; DC SAN Director Performance; SAN Scalability (typo); Web Tools; FICON Support (typo); ISL Trunking; SAN Network Advisor; SAN Network Advisor Enterprise and Professional+; HPE DC SAN Director 8 Inter-Chassis Link LTU; HPE B-series SAN Director FICON CUP Active License; 10GbE and 10Gb FC Performance Upgrade; Family Comparison Table-Aggregate device bandwidth for the SN6000B 16Gb FC Switches; Family Comparison Table-Hot plug, redundant power supplies for the SN8000G 8-Slot SAN Director; Configuration Information - Step 3-additional options; added Note; Technical Specifications - DC SAN Director Chassis Bandwidth changed from 3Tbps to 4Tbps
26-Sep-2011	Version 19	Changed	SN8000B Performance, DC SAN Director Highlights, Cabinet Support, Frame Filtering and ISL Trunking were revised in Product Highlights Family Information was completely revised Configuration Information was updated DC SAN Director Performance was revised in Technical Specifications
22-Jul-2011	Version 18	Changed	Note for HPE Encryption FC Blade was revised in Step 2.
20-Jun-2011	Version 17	Changed	Changes were made throughout, including changing the title.
09-Jun-2011	Version 16	Removed	Removed "StorageWorks" throughout the document.
18-Mar-2011	Version 15	Changed	Part number for HPE StorageWorks DC04 SAN Director Switch Integrated Routing LTU in Step 2.

Summary of Changes

27-Sep-2010	Version 14	Added	PremierFlex Cable was added to Step 3.
21-Jun-2010	Version 13	Changed	Added 64-port 8Gb FC Blade provides the highest director port density on the market was added to Key Features and Benefits FICON CUP and FICON Accelerator were added to FICON Support HPE DC SAN Director Switch Multiprotocol Ext Blade FICON CUP Accelerator Upgrade LTU was added to Optional Software NOTE was added to HPE StorageWorks Encryption Blade Performance Upgrade High Density Cables, LC-MiniSFP Cables and Recommended Patch Panels for the High Density Cables were added to Optional Cables Changed DC SAN Backbone Director was increased to 512 ports and DC04 SAN Director was increased to 256 ports Service and Support, HPE Services operational, and Warranty Information was completely revised 1 Gb/s SAN Switches was removed Remote Monitoring of entire data center via Instant Support Enterprise Edition (ISEE) was removed from High-availability features

Date	Version History	Action	Description of Change
29-Mar-2010	Version 12	Added	HPE Extension Blade FICON CUP Accelerator Upgrade and HPE StorageWorks B-series DCFM Professional Plug Upgrade LTU were added throughout the QuickSpecs,s NOTE was added to HPE StorageWorks 10/24 Blade for DC SAN Directors, HPE StorageWorks Data Center Fabric Manager Enterprise and Fabric Manager Professional Plus were added to Management.
14-Sep-2009	Version 11	Changed	Changes were made throughout the entire QuickSpecs, except in the Service and Support, HPE Services operational and Warranty Information section.
20-Apr-2009	Version 10	Changed	Revised the Warranty information for the DC SAN Backbone Director in the Service and Support, HPE Services operational and Warranty Information section Completely revised the chart for Recommended Services and added a chart to Related Services in the Service and Support, HPE Services operational and Warranty Information section Updated the Part number for the HPE StorageWorks DC SAN Backbone Director Power Pack + in Step 1 and part numbers throughout Step 2, excluding the Encryption FC Blade and Software in the Configuration Information section
02-Mar-2009	Version 9	Changed	Added Encryption throughout the QuickSpecs, excluding the Family Information and Technical Specifications sections. Changed Warranty section of Service and Support, HPE Services operational and Warranty Information and corrected some spacing issues in the Technical Specifications section.
13-Feb-2009	Version 8	Changed	Reformatted the Warranty section of the Service and Support, HPE Services operational and Warranty Information.
26-Jan-2009	Version 7	Changed	Changes were made throughout the entire QuickSpecs. Note the title has changed.
17-Nov-2008	Version 6	Added	Support with M-Series M-EOS and B-Series FOS based SAN

Summary of Changes

			Fabrics to the Overview section Enhanced Group Management and Data Center Fabric Manager throughout the QuickSpecs HPE 8Gb Long Wave B-Series 10Km FC SFP +1 Pack to Optical Transceivers in Step 3 of the Configuration Information section
01-Aug-2008	Version 5	Changed	Minor formatting changes occurred in Steps 1 and 3 of the Configuration Information section.
25-Jul-2008	Version 4	Added	HPE B-Series SAN Backbone Director Integrated Routing LTU to Optional Software in the Product Highlights section and Step 2 of the Configuration Information section.
11-Jul-2008	Version 3	Changed	Added 1 2Gb USB Device to Steps 1 and 3 in the Configuration Information section. Changed Family Information Charts were rewritten and Optical Transceivers were updated in Step 3 of the Configuration Information section.
11-Apr-2008	Version 2	Changed	Changes were made in the Overview and Configuration Information section.
31-Mar-2008	Version 1	New	New QuickSpecs

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