



HPE StoreFabric SN8600B 32 Gb SAN Director

Increase business agility in your enterprise with non-stop access to information and scalable large SAN network while reducing infrastructure and administrative costs.

Key features and benefits

Breakthrough performance

- 32 Gb performance and up to 16.2 Tb/s chassis bandwidth
- Increases scalability with up to 2X throughput for high-density VM deployments and larger fabrics
- Allows organizations to support more storage devices to meet bandwidth requirements using the same number of Fibre Channel links
- Offers local switching capabilities to confirm data traffic within the same port group does not consume slot bandwidth, increasing the number of line-rate ports

Simplified manageability

- Simplifies monitoring, management, and diagnostics, avoiding problems, and reducing costs
- Integrated with HPE Smart SAN for HPE 3PAR to provide greater visibility into your SAN fabric
- Monitors IO performance and behaviors using IO insight (included in HPE Power Pack+ Software) to provide deep insights into problems and validating SLAs
- Accelerate deployment and configuration with customizable graphical dashboards through HPE SAN Network Advisor Software
- Enables end-to-end VM performance and behavior visibility through VM Insight Software

Today we are witnessing continued exponential growth of mission-critical and business-critical workloads, increased server virtualization and accelerating all-flash storage technologies that have an ever-increasing requirement for 100% availability and reliability leading to infrastructure complexity and growing management costs. To meet these dynamic and growing business demands, organizations need to deploy infrastructure that can deliver greater consistency, predictability, and performance.

Legacy infrastructure, however, was not designed to support the performance requirements of evolving workloads and flash-based storage technology. In fact, an aging network will impede the performance of an all-flash data center. A new approach to storage networking is needed to enable databases, virtual servers, desktops, and critical applications, and to unlock the full capabilities of flash. By treating the network as a strategic part of a storage environment, organizations can maximize their productivity and efficiency even as they rapidly scale their environments.

The HPE StoreFabric SAN Director Switch portfolio is one of the industry's most powerful Fibre Channel switching infrastructure to unleash the full performance of flash and next-generation Non-Volatile Memory Express (NVMe)-based storage.

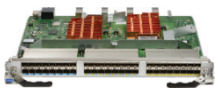
It provides a reliable, scalable, and high-performance foundation for enterprise data centers, private cloud storage, highly virtualized environments, and all flash storage. The **HPE StoreFabric SN8600B 32 Gb SAN Director** is available in two modular form factors. This modular chassis design increases business agility with seamless storage connectivity and flexible deployment offerings. Built for large enterprise networks, the 14U HPE StoreFabric SN8600B 8-slot SAN Director has eight vertical blade slots to provide up to 384 32 Gbps Fibre Channel device ports 32 additional 128 Gbps Inter-Chassis Link (ICL) ports via QSFP ports. Built for midsize networks, the 8U HPE StoreFabric SN8600B 4-slot SAN Director has four horizontal blade slots to provide up to 192 32 Gbps Fibre Channel device ports and 16 additional 128 Gbps ICL ports to increase your productivity and efficiency, while rapidly scaling your environment.



Figure 1. HPE StoreFabric SN8600B 32 Gb 8-slot and 4-slot SAN Director Switch

Lower TCO

- Seamlessly connect HPE StoreFabric SN8600B Gen6 into your existing environment
- Integrate next-generation NVMe over fabric without a rip and replace
- Future-proof your investments with HPE StoreFabric SN8600B, which is already Gen7-ready



HPE StoreFabric SN8600B 32 Gb 48-port Fibre Channel Blade



HPE StoreFabric SN8600B 32 Gb SAN Extension Blade

Each blade slot can be populated with two optional blades. For device connectivity, the HPE SN8600B 48-port Fibre Channel blade provides 48 32 Gbps Fibre Channel ports. To support disaster recovery and data protection storage solutions over long distances, the HPE StoreFabric 32 Gb SAN Extension Blade provides 16 32 Gbps Fibre Channel ports, 16 1/10 Gigabit Ethernet (GbE) ports, and 2 40GbE ports for Fibre Channel and IP replication traffic. The HPE SN8600B 32 Gb SAN Director delivers 5-Nines availability and with non-disruptive, hot-pluggable components and a no-single-point-of-failure design, it is truly the enterprise-class director for today's storage infrastructure.

Breakthrough 32 Gbps performance accelerates application response time, reducing IO bottlenecks, and unleashes the full performance of flash and next-generation Non-Volatile Memory Express (NVMe)-based storage. And, with diverse deployment options, organizations can seamlessly adapt and customize their businesses to meet next-generation storage requirements.

Breakthrough performance

Evolving critical workloads and higher-density virtualization are continuing to demand greater, more predictable performance. The HPE SN8600B StoreFabric SAN Director features industry-leading Gen6 Fibre Channel that increases performance for demanding workloads across 32 Gbps line-speed links and up to 16.2 Tbps of chassis bandwidth to address next-generation I/O- and bandwidth-intensive applications. Gen6 Fibre Channel technology provides up to 566 million frames switched per second per ASIC, unlocking the full capability of flash storage. This breakthrough performance speeds up data-intensive application response times, allows more transactions in less time, and enables improved SLAs. In addition, the HPE SN8600B StoreFabric SAN Director increases scalability with double the throughput for high-density VM deployments and larger fabrics. This allows organizations to support more storage devices and meet bandwidth requirements using the same number of Fibre Channel links.

HPE StoreFabric SN8600B SAN Director provides unmatched chassis, slot-to-slot, and port performance and bandwidth. In addition, local switching capabilities make certain that data traffic within the same port group does not consume slot bandwidth, increasing the number of line-rate ports while reducing latency. HPE SN8600B 8-slot SAN Director provides up to 384 ports (equivalent to 512) at 32 Gbps.

- 16 Tbps aggregate chassis bandwidth
- 12 Tbps Fibre Channel port bandwidth
- 4 Tbps ICL bandwidth
- 1.5 Tbps bandwidth per slot, providing line-rate performance for the HPE SAN Extension Blade

HPE StoreFabric SN8600B 4-Slot SAN Director provides up to 192 ports (equivalent to 256) at 32 Gbps

- 8 Tbps aggregate chassis bandwidth
- 6 Tbps Fibre Channel port bandwidth
- 2 Tbps ICL bandwidth
- 1.5 Tbps bandwidth per slot, providing line-rate performance for the HPE SAN Extension Blade

The HPE StoreFabric SN8600B SAN Extension Blade provides a Fibre Channel and IP storage replication solution that moves data over distance reliably and delivers security without compromising performance. Consolidating the Fibre Channel and IP Storage replication traffic in a single blade, it provides a flexible multi-protocol port connectivity. The advanced performance—up to 80 Gbps per blade—and network enhancement features of the SN8600B

SAN Extension Blade enable replication and backup applications to reliably move more data over metro and WAN links in less time, and enhance available WAN bandwidth.

In addition, it provides reliable transport over WAN links by encrypting data-in-flight with the hardware-implemented standard 256-bit AES algorithm (IPsec) without performance penalty or excessive added latency to reduce exposure to data breaches between data centers. The customers can proactively monitor and receive alerts across data centers to detect WAN anomalies and simplify troubleshooting of end-to-end IO flows over distance for reliable nonstop operations.

Simplified manageability

The HPE SN8600B 32 Gb SAN Director provides unprecedented insight and visibility across the storage network. It simplifies monitoring with integrated management and diagnostic tools and reduces the impact of disruptions and outages. The currently available HPE Power Pack+ Software provides SAN administrators with the necessary tools to monitor the health of the network, thus providing high levels of levels of performance and security.

HPE SN8600B SAN Director is integrated with HPE Smart SAN for HPE 3PAR. This makes SAN configuration simple with rapid deployment and reduces the probability of errors through intelligent end-to-end SAN automation. HPE Smart SAN for HPE 3PAR is a protocol-agnostic application embedded in HPE StoreFabric SAN components (hosts, switches) and array, which enables HPE 3PAR

Storage to centrally orchestrate SAN zoning configuration. HPE Smart SAN's Target-Driven Peer Zoning enables you to configure complex SAN zones accurately in minutes and not in hours and its automatic discovery mechanism creates a powerful platform SAN simplicity.

For Gen6, Fabric Vision (included in HPE Power Pack+ Software) now includes a new software—**IO Insight**, to provide deeper visibility into the performance of your environments. This enhanced visibility enables quick identification of degraded application performance at host and storage tiers, reducing time-to-resolution. IO Insight proactively monitors IO performance and behavior through integrated network sensors, providing deep insight into problems and helping to confirm service levels. This capability non-disruptively and non-intrusively gathers IO statistics from any device port, which feeds a monitoring policy that measures thresholds and generates alerts. Integrated application and device-level IO latency and IOPS monitoring provides the ability to baseline application performance and detect degraded performance enabling customers to respond quickly and maintain better service levels.

Additionally, VM Insight software helps Optimize VM workloads and ensure service levels objectives within the fabric through end-to-end VM performance and behavior visibility. It helps seamlessly identify each VM flow in a Fibre Channel fabric to monitor and analyze VM performance. It provides the ability to baseline VM performance, optimize end-to-end performance and quickly correlate the VM with the physical devices to identify the root cause avoiding potential operational issues to occur.

HPE Power Pack+ Software also includes the following capabilities via Fabric Vision:

Monitoring and Alerting Policy Suite

(MAPS): Enables administrators to configure the entire fabric at one time using common rules and policies, or customize policies for specific switch elements.

Fabric Performance Impact (FPI)

Monitoring: Leverages predefined MAPS policies to automatically detect and alert administrators to different latency severity levels, and to identify slow-drain devices that could impact network performance.

Dashboards: Provide integrated at-a-glance views that display an overall SAN health view to help administrators easily identify trends and quickly pinpoint issues.

Configuration and Operational Monitoring Policy Automation Services Suite

(COMPASS): Administrators can configure a template or adopt an existing configuration to deploy a configuration across the fabric seamlessly.

ClearLink diagnostics: Provides optical and signal integrity for Fibre Channel optics and cables, simplifying deployment and support of high-performance fabrics.

Flow vision: Enables administrators to identify, monitor, and analyze specific application flows in order to simplify troubleshooting, improve performance, avoid congestion, and customize resources.

Lower TCO

To realize the full benefits of flash, organizations will need to transition their high-performance, latency-sensitive workloads to flash-based storage with NVMe. The simplicity and efficiency of NVMe over Fibre Channel enable significant performance gains for flash storage. Moreover, NVMe over Fabrics enables users to achieve faster application response times and harness the performance of hundreds of solid-state drives (SSDs) for better scalability across virtual data centers with flash.

Organizations can seamlessly integrate HPE Gen6 Fibre Channel networks with next-generation NVMe over Fabrics without disruption. Leveraging the efficiency of NVMe over Fibre Channel, combined with the high performance and low latency of HPE SN8600B Gen6 SAN Director, organizations can accelerate IOPS to deliver the performance, application response time, and scalability needed for next-generation data centers.

For investment protection, HPE SN8600B San Director is backward-compatible with 8 and 16 Gbps Fibre Channel products. Furthermore, it supports future Fibre Channel generations as a Gen7-ready storage-networking platform. It allows for current Gen6 and future-generation switch blade modules to be added within the chassis.

HPE StoreFabric SN8600B SAN Director: Technical specifications

Product name	HPE StoreFabric SN8600B 8-Slot Power Pack+ SAN Director Switch	HPE StoreFabric SN8600B 4-Slot Power Pack+ SAN Director Switch
Port speed	Up to 32 Gbps FC	Up to 32 Gbps FC
Ports	Up to 384 32 Gbps ports or a 512-port equivalent with 128 Gbps (4x32 Gbps) ICL ports (32 Gbps x4 QSFP ports)	192 32 Gbps ports or a 256-port equivalent with 16 ICL ports
Aggregate switch bandwidth	16.2 Tbps aggregate chassis bandwidth, 12.2 Tbps FC port bandwidth (384 ports x 32 Gbps) 4.096 Tbps ICL bandwidth (32 x 128 Gbps) 1.5 Gbps slot bandwidth	8.1 Tbps aggregate chassis bandwidth, 6.1 Tbps FC port bandwidth (192 ports x 32 Gbps) 2.048 Tbps ICL bandwidth (16 x 128 Gbps) 1.5 Gbps slot bandwidth
Encryption capability	AES 256-bit, data-at-rest and data-in-flight	AES 256-bit, data-at-rest and data-in-flight
Protocol support	FC, FCIP, FICON	FC, FCIP, FICON
Availability	Supports 5-Nines availability (i.e., 99.999%), redundant hot-components, redundant power and subsystems, automatic control processor failover, non-disruptive hot software loads, and activation concurrent upgrades	Supports 5-Nines availability (i.e., 99.999%), redundant hot-components, redundant power and subsystems, automatic control processor failover, non-disruptive hot software loads, and activation concurrent upgrades
Form factor	14U	8U

HPE StoreFabric SN8600B SAN Director Blade specifications

Product name	HPE StoreFabric SN8600B 48-port Fibre Channel Blade	HPE StoreFabric SN8600B SAN Extension Blade
Port speed	Up to 32 Gbps FC	Up to 32 Gbps FC Up to 40GbE
Ports	48 ports of 32 Gbps Gen6 Fibre Channel	16 ports of 32 Gbps Fibre Channel 16 ports of 1/10GbE 2 ports of 40GbE
System Scalability	Up to 8 for SN8600B 8-slot SAN Director Up to 4 for SN8600B 4-slot SAN Director	Up to four blades per SN8600B Director chassis
Optics	Supports 16 Gb and 32 Gb SW/LW SFP+	Supports 16 Gb and 32 Gb SW/LW SFP+

The total package

HPE B-series SFP Transceivers

HPE recommends using only HPE high-quality Fibre Channel transceivers (SFPs) and Quad Small Form-factor Pluggable (QSFP) in HPE SAN environments. HPE SFPs and QSFP are tested with HPE hardware products to increase performance, compatibility, and reliability.

hpe.com/storage/optics

HPE B-series Cables

Visit hpe.com/storage/optics for all optics compatibility information, including Fibre Channel SFPs, cables, and Port License Upgrades.

HPE Power Pack+ bundle

The Power Pack+ set of tools monitors the network's health and performance. It is pre-configured on every SN8600B 8-Slot and 4-slot Director. Power Pack+ Software also provides the foundation for integration into HPE storage management tools, enabling infrastructure management through a single pane of glass. It includes Fabric Watch, Extended Fabric, ISL Trunking, Adaptive Networking, Advance Performance Monitoring, and SAO.

Inter-Chassis Links

Second-generation ICL technology includes new optical ports, higher port density, and support for standard optical cables up to 50 meters. ICLs can connect up to nine SN8600B Directors (with new Enterprise ICL license), enabling flatter, faster, and simpler fabrics that increase consolidation while reducing network complexity and costs. These high-density chassis topologies reduce inter-switch cabling by 75% and free up to 25% of ports for server and storage. This improves overall port density in the lowest amount of rack space.

SAN Network Advisor

HPE SAN Network Advisor provides comprehensive management of data center SAN fabrics, including configuration, monitoring, diagnostics, best-practices validation, and management of SN8600B Directors, DC SAN Directors, and B-series SAN switches, and B-series Host Bus Adapters (HBAs).

HPE Technology Services

The support services portfolio can help complement the performance and reliability of the HPE StoreFabric Storage infrastructure. HPE provides complete, end-to-end lifecycle services for your entire infrastructure—servers, storage, networks, and software. Our services also help you consolidate your support management and whenever necessary, we collaborate with independent software vendors directly. By integrating hardware and software services, we offer you a support experience that is relevant to your business needs.

Advise, transform, and integrate

Navigate through the complexities of storage, backup, archive, disaster recovery, and Big Data with advisory, transformation, and integration consulting.

Deploy and implement

Access expertise to support deployment, operations, relocation, sanitization, and disposal, plus improvement-focused education.

Operate and support

Find the level of personalized, proactive, and simplified support that's right for your business.

HPE Foundation Care

A comprehensive suite of hardware and software services aimed to help increase the availability of IT infrastructure.

HPE Proactive Care Service

An integrated set of reactive and proactive services designed to help you improve the stability and operation of your converged infrastructure to achieve better business outcomes. HPE Proactive Care Service has been specifically designed to support devices in IT environments, providing enhanced support that covers servers, operating systems, hypervisors, storage, storage area networks (SANs) and networks.

HPE Proactive Care Advanced

This service expands on HPE Proactive Care Service and is designed to help increase the benefits of IT investments, maintain IT infrastructure stability, achieve business and IT project objectives, reduce operational costs, and free IT staff for other priority tasks. An assigned HPE Account Support Manager (ASM) provides personalized technical and operational advice, including HPE best practices gleaned from HPE's broad support experience.

HPE Datacenter Care

HPE's most comprehensive support solution tailored to meet specific data center support requirements. It offers a wide choice of proactive and reactive service levels to cover requirements ranging from the most basic to the most business-critical environments.

HPE Lifecycle Event Services

These services are sold on a per-event basis and include services to help deploy technologies and solutions as well as assessments and other services to help customize and operate your IT infrastructure.

Get connected and get back to business

Unlock the benefits of your technology investment by connecting your products to HPE Enterprise. By connecting, you can receive 24x7 monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers can also benefit from proactive activities to help prevent issues and increase enhancement. All of these benefits are already available to you with your server, storage, and networking products, reliably connected to HPE support.

Resources**QuickSpecs****HPE Factory Express**

HPE Factory Express provides customization and deployment services along with your storage and server purchases. You can customize hardware to your exact specifications in the factory—helping speed deployment.

Customer technical training

Gain the skills you need with HPE ExpertOne training and certification. With HPE Converged Storage training, you can accelerate your technology transition, improve operational performance, and get increased return on your HPE investment. Our training is available when and where you need it, through flexible delivery options and a global training capability.

hpe.com/storage/optics

HPE Financial Services

Customize your IT lifecycle management, from acquisition of new IT, management of existing assets, and removal of unneeded equipment.

Learn more at
hpe.com/storage/storefabric



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