

# HPE SN1600 Series 32Gb Fibre Channel Host Bus Adapter QuickSpecs

**Fibre Channel HBAs deliver predictable, low-latency, lossless connectivity from servers to shared storage—so customers can run performance-critical workloads faster, scale virtualization efficiently, and protect their SAN investment as they evolve to next-gen speeds and FC-NVMe.**

The HPE SN1600 Host Bus Adapter family brings data center infrastructure components to a higher level of performance and efficiency with the ability to deliver twice the bandwidth performance of 16Gb HBAs, higher I/Os, and lower latency, while maintaining compatibility.

## Overview

### Family Overview

A Fibre Channel Host Bus Adapter (HBA) is a server peripheral designed to be installed internally into a server and allow its server to externally transport data to a shared storage device like an HPE storage array. The Fibre Channel Host Bus Adapter is externally coupled to another Fibre Channel device using a special optical cable and optical connector. Several to dozens to hundreds of servers with HBAs are usually connected to a Fibre Channel switch or Fibre Channel director which controls the data traffic between the servers and the connected storage devices. The storage devices are designed to be shared with servers and applications to optimize performance and availability. These storage devices are split into fault-tolerant, primary storage arrays and secondary storage devices used for data protection. With a Fibre Channel HBA installed in every participating server connected to a Fibre Channel switch or Fibre Channel director and each switch or director attached to one or more storage devices, the resulting configuration is called a Storage Area Network or SAN based on the Fibre Channel (FCP) or FC-NVME protocol.

### Compatibility and Investment Protection

All HPE SN1600 Series Host Bus Adapters support the Fibre Channel Protocol (FCP) and NVMe Protocol (FC-NVMe) at an industry-defined 32Gb/s - bandwidth. This generation of Host Bus Adapters is backwards compatible to 8Gb/s and 16Gb/s Fibre Channel devices. Additionally, all HPE SN1600 Series Host Bus Adapters are compatible to the new HPE 64Gb/s Fibre Channel products. Fibre Channel HBAs and Fibre Channel switches offer connectivity to all HPE's primary and secondary storage devices including HPE Alletra Storage MP, HPE Alletra, Primera, 3PAR, Nimble, HPE XP8, MSA, StoreOnce, and other storage devices following the FCP and/or the FC-NVMe protocol. (Check HPE Single Point of Configuration Knowledge (SPOCK) for complete compatibility).

The HPE SN1600 Host Bus Adapter family brings data center infrastructure components to a higher level of performance and efficiency with the ability to deliver twice the bandwidth performance of 16Gb HBAs, higher I/Os, and lower latency while maintaining compatibility. Other generations of Fibre Channel offer similar support as displayed in the table below:

### Supported generations of Fibre Channel Host Bus Adapters and Fibre Channel Switches

	4Gb Switch <sup>1</sup>	8Gb Switch <sup>1</sup>	16Gb Switch	32Gb Switch	64Gb Switch
<b>4Gb HBA<sup>1</sup></b>	Yes	Yes	Yes	No	No
<b>8Gb HBA<sup>1</sup></b>	Yes	Yes	Yes	Yes	No
<b>16Gb HBA</b>	Yes	Yes	Yes	Yes	Yes
<b>32Gb HBA</b>	No	Yes	Yes	Yes	Yes
<b>64Gb HBA</b>	No	No	Yes	Yes	Yes

#### Notes:

- Always check HPE Single Point of Configuration Knowledge ([SPOCK](#)) for complete compatibility.
- <sup>1</sup>Obsolete

The benefit of backward and forward compatibility design is to allow customers the flexibility to select an upgrade path of components based on time, budget, or functionality. A SN1600 series HBA would be compatible with any combination of 8Gb, 16Gb, 32Gb, and 64Gb switches and storage devices in a SAN. Always check ProLiant platform, Operating System, and Storage configurations on HPE Single Point of Configuration Knowledge ([SPOCK](#)) database.

## Overview

### Connectivity

All Fibre Channel components are connected using special optical cables and special optical lasers called SFPs (Small Form Factor Pluggable). Each HPE Fibre Channel Host Bus Adapter port is shipped with a pre-installed, performance matching SFP. No additional SFPs are required for the HBA. Each optical cable requires an SFP installed on each end to ensure data transport from one Fibre Channel device to another. This strict cable design is an industry standard and adopted to ensure interoperability and quality data delivery. Two cabling standards exist – shortwave and longwave. Shortwave or (SW) is most popular and allows for cables lengths up to 100m between servers, switches, and storage. For the shortwave standard, all cables and SFPs must match and use the shortwave design. The shortwave cabling standard uses a 50micron filament. The shortwave term is also interchangeable with the term “multi-mode” (mm). Longwave (LW) is a standard offering providing longer cable distances ranging from 1km to 10km and longer. The Longwave standard has the same requirement that all components must be longwave to function. You cannot intermix shortwave and longwave cabling and SFPs. Longwave components are less popular and may require special ordering from HPE. The longwave term is also interchangeable with the term “single mode” (sm). Cabling choices highlighted further into QuickSpecs.

### Workloads

The Fibre Channel and FC-NVMe protocols leverage a block-based design which is best used with data intensive workloads. Those workloads leverage database deployments like Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), Financial Applications, Commercial Reservation Systems, Support Systems, Virtual Server warehouses, Media & Entertainment, Video Surveillance Systems, traditional backup and restore, and large multi-server workload configurations. Customers that have multiple workloads on multiple physical or virtual servers are ideal candidates for a Storage Area Network where the data can be stored on a consolidated storage array instead of each individual server. Each server running these workloads connected to a SAN would require an HBA installed and connected to the Fibre Channel switch.

### Availability

Shared SAN Storage arrays are designed to be highly resilient because customers require high speed, cost-effective capacity to their servers that host their mission critical and business critical applications. Storage Arrays are commonly rated using a percentage of “uptime” in form of 99.9999% (“Four Nines”, “Five Nines”, “Six Nines”). Each “9” represents a projected hour of downtime per year. For example, a 99.99% (“four nines”) array is assumed to have no more downtime than 52 minutes a year (and an uptime of approximately 8,759 hours out of 8,760 per year) whereas a 99.999% (“five nines”) would be less than 6 minutes of downtime per year. Because storage is designed to be highly fault tolerant, SAN and Fibre Channel need to address high availability because of the “many servers to one storage” deployment in a data center. SANs can be designed to support and complement high availability storage with a highly fault tolerant design building a redundant data path configuration. Redundant, dual path design is a ‘Best Practices’ design. Generally, a highly fault tolerant storage array would require a fault tolerance SAN infrastructure. Fibre Channel design will guarantee frame delivery (lossless) and delivery in order. The dual path SAN design is to provide access to data at the array if a hardware failure occurs in the SAN. Should a SAN failure occur, the SAN reroutes data through the alternative data path. See the HPE [SAN Design Reference Guide](#) for more complete information. Internal and Partners Only)

---

## Overview

**Models****Dual Port**

SN1620E	HPE SN1620E 32Gb 2-port Fibre Channel Secure Host Bus Adapter	S4S01A
SN1610E	HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	R2J63A
SN1610Q	HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A
SN1600E	HPE SN1600E 32Gb Dual Port Fibre Channel Host Bus Adapter	QOL12A
SN1600Q	HPE SN1600Q 32Gb Dual Port Fibre Channel Host Bus Adapter	P9M76A

**Single Port**

SN1610E	HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter	R2J62A
SN1610Q	HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
SN1600E	HPE SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter	QOL11A
SN1600Q	HPE SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter	P9M75A

**What's New**

- New Product – New SN1620E, a 32Gb 2-port Fibre Channel Secure Host Bus Adapter with enhanced security features:
  - SPDM (Security Protocols and Data Models), a method of device authentication as defined by the Industry Standards group DMTF (Distributed Management Task Force)
  - PQC (Post-Quantum Cryptography) – a hardware encryption enhancement defined by the U.S. National Security Agency (NSA) to meet the requirement of the Commercial National Security Algorithm (CNSA)
  - End-to-End Data Encryption in Flight that securely transfers data across the SAN from Source (HBA) to Target (storage array)
- Support for newer versions of supported Operating Systems – Windows, Red Hat Linux, SUSE Linux, and VMware

**HPE Fibre Channel Host Bus Adapters - New Features**

- New Features and Benefits – SN1620E, 32Gb 2-port Fibre Channel Secure Host Bus Adapter

## Overview

### **SPDM (Security Protocols and Data Models)**

A factory installed certificate assigned and unique to the FC HBA model. The certificate authenticates the adapter is a valid, trusted device on the PCI bus as verified by the ProLiant Management utility – ILO (Integrated Lights Out). Customers can be more confident that the PCI device is authentic and has not been substituted in the supply chain before delivery. Combine this feature with other HPE security features like HPE Compute Ops Management, HPE's Trusted Supply Chain initiative, Server Configuration Lock, Factory installed Security Labels, Silicon Root of Trust, UEFI Secure boot, and customers can build a formidable security defense within the ProLiant ecosystem.

### **PQC (Post-Quantum Cryptography)**

Per NIST(National Institute of Standards and Technology), "encryption tools rely on complex math problems that conventional computers find difficult or impossible to solve. A sufficiently capable quantum computer, though, would be able to sift through a vast number of potential solutions to these problems very quickly, thereby defeating current encryption. The algorithms NIST has standardized are based on different math problems that would stymie both conventional and quantum computers." HPE and other manufacturers are taking preventative actions to enhance encryption algorithms generated by the adapter. These standards are being driven by US Federal Government agencies and have the support of other government agencies around the world. Customers will benefit knowing that products purchased today will not be vulnerable to attacks perpetuated by future quantum technology.

### **End-to-End Data Encryption**

The new SN1620E can encrypt data in flight from the source (HBA) to the target device (Storage Array) by implementing the latest Fibre Channel FC-SP3 standard by default and eliminating the complexity and cost licensing of previous alternatives. With this level of hardware encryption, customers preserve the popular data services offered by the storage array offerings such as data compression and data dedupe. FC-SP3 standard enables In-flight encryption available to all customer data instead of application-level encryption that is limited to the application's data.

---

## Standard Features

### Key Features and Benefits

#### Performance

Up to two ports of 32Gb FC delivers 12,800MBps bandwidth across two 32GFC ports delivered in Fibre Channel frames. Frame delivery is lossless and in-order. Enhanced reliability and diagnostics are implemented to reduce retries and identify SAN congestion.

Each generation of Fibre Channel HBA uses a more powerful chipset increasing I/O performance, follows the industry standard for bandwidth, and offers lower latency. These HBA improvements generally improve workload performance like data-intensive deployments like databases.

---

#### PCIe 4.0

All HPE SN1600 Fibre Channel Host Bus Adapters are designed using PCIe 4.0 x 8 channels

---

#### Support for greater Server Virtualization

Higher bandwidth and ability to virtualize physical ports with a Quality of Service (QoS) option in the adapter, make these adapters ideal for high density server virtualization environments for increased scalability. Enables more applications and Virtual Machines to run on a single server and Fibre Channel port, resulting in reduced cabling and a higher return on IT investment.

---

#### Connectivity to HPE Servers and Storage

Product strategy is to offer an HBA solution for any HPE compute platform – ProLiant, SuperDome, Synergy, and Alletra Storage Servers. Additionally, the HBA design follows the Fibre Channel (FCP) and FC-NVMe standards to interconnect Fibre Channel switches and directors to Fibre Channel and FC-NVMe connected storage arrays.

Each HPE supported operating system is tested and qualified. The complete configuration is meticulously documented in HPE Single Point of Connectivity Knowledge ([SPOCK](#)) with firmware versions, drivers, and other pertinent information in a searchable online database for partners and customers. Additionally, the Operating System vendor's will publish support HPE hardware in their respective Hardware Compatibility Lists.

---

#### LUN Prioritization and QoS

HPE 32Gb FC HBAs support Class Specific Control (CS\_CTL) which allows prioritization and bandwidth allocation at the LUN level. In addition, the SN1610Q, SN1610E, and SN1620E adapters support Virtual Machine ID (VM-ID) which further enhances prioritization and monitoring to the virtual machine within the SAN, providing a VM-aware storage network.

---

## Standard Features

### **FC-NVMe Data Protocol**

HPE 32Gb Fibre Channel Host Bus Adapters are NVMe-enabled to support FC-NVM Express (NVMe). This protocol is designed to optimize data commands to storage devices that are storage memory designed like arrays using solid state disks (SSDs). The 32Gb HBAs can run both SCSI (FCP) protocol and FC-NVME protocol on either HBA port enabling a customer to run different protocol storage devices on the same SAN.

---

### **Active Health System**

All HPE 32GFC adapters support HPE ProLiant Active Health System integration. This helps administrators accurately troubleshoot and resolve problems within the server faster

---

### **Secure Firmware download**

The SN1610Q, SN1610E, and SN1620E deliver enhanced security via the secure firmware update feature which protects and ensures the authenticity of device firmware. All SN1600 adapters offer non-disruptive firmware upgrades to reduce the number of server interruptions. Check SPOCK for supported firmware versions.

---

### **T10 Protection Information (T10-PI)**

HPE 32GFC adapters support T10-PI for enhanced data integrity when connected to T10-PI enabled arrays. Cyclic Redundancy Check (CRC) and Error Correcting Code (ECC) are used to check Fibre Channel frames. T10-PI checks validate the data which is not necessarily checked during frame inspection.

---

### **Forward error correction (FEC)**

FEC is enabled and improved at 32GFC as required by the FC Specification, automatically correcting transmission errors with redundant data and improving network performance and resiliency.

---

### **Link cable beaconing (LCB)**

LED beaconing “blinks” the Fibre Channel port lights where a physical fibre optic cable is connected. The light indicators on both ends of a physical link simplifies cable identification and management.

---

### **D-Port Diagnostics**

Quickly run automated diagnostic tests in a single step, across multiple adapters, servers, and fabric components to assess connectivity. Optics and cable problems are identified and resolved.

---

### **Fabric Device Management Interface (FDMI)**

FDMI enables discovery of devices such as Fibre Channel host bus adapters (HBAs). Check connectivity to SAN devices and query the switch management server for in-depth details on connected devices

---

## Standard Features

### **Read Diagnostic Parameters (RDP)**

Identify the source of network and media errors like cyclic redundancy check (CRC) and loss of sync (LOS) by remotely accessing diagnostic information from anywhere in the fabric.

---

### **Fabric-assigned Port Worldwide Name (FA\_WWN)**

Administrators can preconfigure WWN settings at the switch port allowing Fibre Channel adapter to acquire port WWN address from the 16Gb, 32Gb, or 64Gb fabric. This allows SAN administrator to configure SAN zoning without need for servers to be present.

---

### **Firmware Integrity Protection with Hardware Root of Trust**

The HPE SN1610Q, SN1610E, and SN1620E 32Gb FC HBAs incorporate a hardware RoT that keeps malicious firmware from being introduced into the adapter. The adapters RoT enables both integrity and authenticity during adapter firmware updates by both validating firmware embedded signatures with hardware embedded keys to ensure that only certified firmware executes and protecting firmware updates that are applied over public networks. The SPDM security protocol is supported on the SN1620E.

---

## Service and Support

### Warranty

3-0-0 Three-year parts exchange warranty. Additional warranty protection can be purchased.

HPE Global Services provides a three-year, limited warranty, fully supported by a worldwide network of resellers and service providers and toll-free 24x7 hardware technical phone support for the duration of the warranty. In addition, available service offerings include a full range of HPE Services operational packaged hardware and software services.

**Notes:** Certain restrictions and exclusions apply. Consult the [HPE Customer Support Center](#) for details.

---

### HPE Services

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

<https://www.hpe.com/services>

#### Consulting services

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

<https://www.hpe.com/services/consulting>

#### HPE Managed Services

HPE runs your IT operations, providing services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

[HPE Managed Services | HPE](#)

#### Operational services

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

<https://www.hpe.com/services/operational>

---

### Recommended Services

#### HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.

<https://www.hpe.com/services/techcare>

## Service and Support

### HPE Complete Care Service

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

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

<https://www.hpe.com/services/complecare>

---

## 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](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>

## Service and Support

### 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.

---

### 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>

## Service and Support

### 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>

---

## Technical Specifications

## HPE Fibre Channel Host Bus Adapter – Generation 7 Family Information

SKU	R2E08A	R2E09A	R2J62A	R2J63A	S4S01A
	<b>SN1610Q - 1P</b>	<b>SN1610Q - 2P</b>	<b>SN1610E - 1P</b>	<b>SN1610E - 2P</b>	<b>SN1620E - 2P</b>
<b>Number of channels</b>	Single	Dual	Single	Dual	Dual
<b>Port Speed</b>	32GFC	32GFC	32GFC	32GFC	32GFC
<b>OS Supported</b>	Use the public HPE link on operating system support at: <a href="https://www.hpe.com/us/en/collaterals/collateral_a50010841enw.html">https://www.hpe.com/us/en/collaterals/collateral_a50010841enw.html</a>				
<b>Microsoft Windows Server &amp; HyperV</b>	2025 x64 Edition 2022 x64 Edition				
<b>Red Hat Enterprise Linux</b>	10.x x64 Release 9.x x64 Release				
<b>VMware ESX/ESXi</b>	9.x x64 8.x x64				
<b>SUSE Linux</b>	15.x x64				
<b>Servers Supported</b>	Select HPE ProLiant, Alletra Storage Servers, and Cray/SuperDome servers. Refer to server Quick Specs for details regarding supported options. <b>Notes:</b> Use HPE Product Bulletin utility and type HBA part number in the search bar				
<b>Array Platforms Supported</b>	Refer to <a href="http://www.hpe.com/storage/spock">http://www.hpe.com/storage/spock</a> for specific product support information.				
<b>What's Included in the Box?</b>	32 Gbps HBA with standard bracket, one 32 Gbps SFP+ transceiver, low-profile bracket, documentation	32 Gbps HBA with standard bracket, two 32 Gbps SFP+ transceivers, low-profile bracket, documentation	32 Gbps HBA with standard bracket, one 32 Gbps SFP+ transceiver, low-profile bracket, documentation	32 Gbps HBA with standard bracket, two 32 Gbps SFP+ transceivers, low-profile bracket, documentation	32 Gbps HBA with standard bracket, two 32 Gbps SFP+ transceivers, low-profile bracket, documentation
	<b>Notes:</b> For #OD1 orders, the SFPs are removed from the HBA and shipped in a separate box. Remove SFPs from box and re-insert them into the HBA. For standard orders, HBAs ship with a full height bracket installed and the low-profile bracket is included. Retain brackets if changes in server configuration require a different bracket type.				
<b>Environmental</b>	32° F to 131° F		32° F to 131° F		
<b>Operating Temperature</b>	0° C to 55° C		0° C to 55° C		
<b>Environmental Storage Temperature</b>	-4° F to 158° F (-20° C to 70° C)		-4° F to 185° F (-20° C to 85° C)		
<b>Environmental Relative Humidity Operating</b>	5% to 95% (non-condensing)				
<b>Product Dimensions (W x D x H)</b>	6.6 x 0.49 x 2.73 in (167.64 x 12.44 x 69.34mm)		6.6 x 0.43 x 2.71 in (167.64 x 10.92 x 68.83mm)		

## Technical Specifications

SKU	R2E08A	R2E09A	R2J62A	R2J63A	S4S01A
	<b>SN1610Q - 1P</b>	<b>SN1610Q - 2P</b>	<b>SN1610E - 1P</b>	<b>SN1610E - 2P</b>	<b>SN1620E - 2P</b>
<b>Media</b>	Shortwave Optic (SFP+) (pre-installed)				
<b>Connector</b>	Fiber Optic cable with LC type connector				
<b>PCIe Connections</b>	PCIe 4.0 x8				
<b>Auto-negotiation</b>	32/16/8 Gbps				

---

## Technical Specifications

## HPE Fibre Channel Host Bus Adapter - Generation 6 Family Information

SKU	P9M75A (EOL)	P9M76A (EOL)	Q0L11A	Q0L12A
	<b>SN1600Q - 1P</b>	<b>SN1600Q - 2P</b>	<b>SN1600E - 1P</b>	<b>SN1600E - 2P</b>
<b>Number of channels</b>	Single	Dual	Single	Dual
<b>Port Speed</b>	32GFC	32GFC	32GFC	32GFC
<b>OS Supported</b>	Use the public HPE link on operating system support at: <a href="https://www.hpe.com/us/en/collaterals/collateral.a50010841enw.html">https://www.hpe.com/us/en/collaterals/collateral.a50010841enw.html</a>			
<b>Microsoft Windows Server &amp; HyperV</b>	2025 x64 Edition 2022 x64 Edition			
<b>Red Hat Enterprise Linux</b>	10.x x64 Release 9.x x64 Release			
<b>VMware ESX/ESXi</b>	9.x x64 8.x x64			
<b>SUSE Linux</b>	15.x x64			
<b>Servers Supported</b>	Select HPE ProLiant, Alletra Storage Servers, and SuperDome servers. Refer to server Quick Specs for details regarding supported options. <b>Notes: Use HPE Product Bulletin utility and type HBA part number in the search bar</b>			
<b>Array Platforms Supported</b>	Refer to <a href="http://www.hpe.com/storage/spock">http://www.hpe.com/storage/spock</a> for specific product support information.			
<b>What's Included in the Box?</b>	32 Gbps HBA with standard bracket, one 32 Gbps SFP+ transceiver, low-profile bracket, documentation	32 Gbps HBA with standard bracket, one 32 Gbps SFP+ transceiver, low-profile bracket, documentation	32 Gbps HBA with standard bracket, one 32 Gbps SFP+ transceiver, low-profile bracket, documentation	32 Gbps HBA with standard bracket, one 32 Gbps SFP+ transceiver, low-profile bracket, documentation
	<b>Notes: For #OD1 orders, the SFPs are removed from the HBA and shipped in a separate box. Remove the SFPs from the box and re-insert them into the HBA. For standard orders, HBAs ship with a full height bracket installed and the low-profile bracket is included. Retain brackets if changes in server configuration require a different bracket type.</b>			
<b>Environmental Operating Temperature</b>	32° F to 131° F 0° C to 55° C			
<b>Environmental Storage Temperature</b>	-4° F to 158° F (-20° C to 70° C)		-4° F to 185° F (-20° C to 85° C)	
<b>Environmental Relative Humidity Operating</b>	10% to 90% RH at 40° C (non-condensing)		5% to 95% (non-condensing)	
<b>Product Dimensions (W x D x H)</b>	6.6 x 0.49 x 2.73 in (167.64 x 12.44 x 69.34mm)		6.6 x 0.43 x 2.71 in (167.64 x 10.92 x 68.83mm)	

## Technical Specifications

SKU	P9M75A (EOL)	P9M76A (EOL)	QOL11A	QOL12A
	<b>SN1600Q - 1P</b>	<b>SN1600Q - 2P</b>	<b>SN1600E - 1P</b>	<b>SN1600E - 2P</b>
<b>Media</b>	Shortwave Optic (SFP+) (pre-installed)			
<b>Connector</b>	Fiber Optic cable with LC type connector			
<b>PCIe Connections</b>	PCIe 4.0 x8			
<b>Auto-negotiation</b>	32/16/8 Gbps			

---

## Technical Specifications

### HPE Premier Flex Cables Product Overview

(Required to connect Fibre Channel Host Bus Adapters to other Fibre Channel devices)

HPE Premier Flex cables are optical cables designed for universal data center deployments. These deployments include Fibre Channel and Ethernet designs. The cables, like the SFPs, are designated shortwave and longwave and must match the accompanying SFP as shortwave or longwave. There can be no intermixing of design. The Premier Flex cables appear thin based on the 50-micron internal filament, but the cables are designed for rugged data center deployment. The fiber optic cable routing can result in 90° bends when cables get caught in cabinet doors and kink. Data loss and transmission errors resulting from these common problems are difficult to troubleshoot, expensive, and increase downtime.

HPE Premier Flex OM4 fiber optic cables solve these problems by providing up to 10 times better bend performance than existing fiber cables. These revolutionary cables use bendable fiber optic technology that significantly improves bend performance over existing fiber cables. This bendability, combined with improvements in transmission clarity and bandwidth, allows HPE Premier Flex cables to transmit data over longer distances, at higher rates, with fewer transmission errors. The flexibility of these cables also enables simple, reliable installation, enhanced performance, and better signal integrity.

Additionally, HPE Premier Flex OM4 Fiber Optic Cables are tested and qualified to provide maximum performance across HPE's entire Fibre Channel and Ethernet product families. The Fibre Channel feature, Link Cable Beaconsing (LCB), can assist in locating port to port connections and their associated cable simplifying cable, connection, and port issues.

#### Notes:

- “Fibre Channel” is the name for the data transfer protocol (FCP) and “Fiber Optic” is the name of the cabling standard using a glass filament as the transport. Shortwave (SW) and longwave (LW) components cannot be mixed on the same connection.
- Fiber optic multimode OM4 50/125um duplex cable assembly with LC/LC duplex connectors
- Available in 1m to 50m cable lengths

Physical	Core diameter:	50um ±3um
	Cladding diameter:	125um ±2um
	Bandwidth:	4700 MHz-km @ 850nm (laser)
	Jacket color:	Blue
	Jacket material:	OFNR (optical fiber nonconductive riser) LSZH (low smoke zero halogen) thermoplastic
<b>Bend/Loss (approx.)</b>	35.7mm (2 turns)	<0.05 decibels (db)
	15mm (2 turns)	<0.1 decibels (db)
	7.5mm (2 turns)	<0.2 decibels (db)
<b>Reach (max no bends)</b>	10GbE	380m
	16GFC	125m
	32GFC, 25GbE	100m
	64GFC	100m

Notes: “LC” represents “Little Connector” or “Lucent Connector”

## Technical Specifications

### Models

Shortwave (multi-mode) 50-micron LC/LC OM4 Fibre Optic Cables (length in meters)

#### Description

	<b>SKU</b>
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

**Notes:** Longwave (Single-mode) 9-micron LC/LC OM4 Fibre Optic Cables and Longwave (single-mode) SFPs special orders.

Contact your HPE representative for details.

## HPE Fiber Optical Transceiver (XCVR) - Family Information

All HPE Host Bus Adapters (HBAs) are shipped with the appropriate number of Small Form Factor Pluggable (SFP) transceivers (XCVR). Dual Port HBAs (2P) are shipped with two SFP transceivers. Single Ports HBAs (1P) are shipped with a single SFP. The SFP transceivers (XCVR) match the bandwidth of the HBA. For example, the SN1610Q - HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter would ship with two (dual port) 32Gb/s SFPs pre-loaded in the adapter. No ordering of SFPs is needed on the HBA. All SFP Transceivers are multi-mode or shortwave (SW). For longwave (LW) or single-mode fiber connections an alternative SFP (LW) and longwave (LW) or single-mode cable must be ordered. Shortwave (SW) and longwave (LW) components cannot be mixed on the same connection.

SFPs may be required for Fibre Channel Switches and Directors. Check the QuickSpecs of those products for SFP requirements – some HPE Fibre Channel Switches have SFPs pre-installed, and some Fibre Channel Switches and Directors do not have SKUs pre-installed and must be ordered separately.

Description (not orderable for HBAs)	Connector Type	Temp (C)		Wavelength (nm)	Speed (Gb/s)	Wattage (w)	
		Low	High			Avg.	Max
HPE 64Gb SFP56 SW 100m 1pk XCVR	LC	0	70	850	57.8	1.7	2
HPE 32Gb SFP28 SW 1-pack Com Temp XCVR	LC	0	70	850	28.05	1	1.5
HPE 32Gb SFP28 SW E Temp 1-pack PT XCVR	LC	0	85	850	28.05	1	1.5
HPE 32GB SFP28 LW 10km 1-PACK XCVR	LC	0	70	1310	28.05	1.5	2
HPE 16Gb SW Extended Temp SFP+ Transceiver	LC	0	85	850	14.025	1	1.5
HPE 16Gb SW C Temp (0-70 C) SFP+ Transceiver	LC	0	70	850	14.025	1	1.5
HPE 16Gb SFP+ SW E Temp 1-pack PT XCVR	LC	0	85	850	14.025	1	1.5

## Summary of Changes

Date	Version History	Action	Description of Change
16-Feb-2026	<a href="#">Version 21</a>	Changed	HPE Rebranding applied
25-Aug-2025	<a href="#">Version 20</a>	Changed	HPE Compute Ops Management wording update
12-May-2025	<a href="#">Version 19</a>	Changed	Overview, Standard Features and Technical Specifications sections were updated. Updated SN1620E product name; removal of SFM software
24-Feb-2025	<a href="#">Version 18</a>	Changed	Overview, Standard Features and Technical Specifications sections were updated.
13-Nov-2023	<a href="#">Version 17</a>	Changed	HPE Services Rebranding
05-Sep-2023	<a href="#">Version 16</a>	Changed	Overview, Standard Features and Technical Specifications sections were updated.
10-Jan-2022	<a href="#">Version 15</a>	Changed	Standard Features section was updated
07-Sep-2021	<a href="#">Version 14</a>	Changed	Removed some of the deprecated features
04-May-2021	<a href="#">Version 13</a>	Changed	Added FC-NVMe OS support
03-Aug-2020	<a href="#">Version 12</a>	Changed	Added SN1610E details
15-Jun-2020	<a href="#">Version 11</a>	Changed	Overview and Technical Specifications sections were updated.
02-Dec-2019	<a href="#">Version 10</a>	Changed	Standard Features section was updated.
21-Oct-2019	<a href="#">Version 9</a>	Changed	Standard Features section was updated.
07-Oct-2019	<a href="#">Version 8</a>	Changed	SN1610Q adapters
07-Jan-2019	<a href="#">Version 7</a>	Changed	Feature information edited with latest information Overview and Service and Support sections were updated
18-Dec-2017	<a href="#">Version 6</a>	Changed	Overview section was revised.
07-Aug-2017	<a href="#">Version 5</a>	Changed	Added Gen10 server support
08-May-2017	<a href="#">Version 4</a>	Changed	Changes made throughout the document
24-Feb-2017	<a href="#">Version 3</a>	Changed	Feature and table of specifications are cleaned up with latest information
28-Nov-2016	<a href="#">Version 2</a>	Changed	32Gb SN1600E Single Port and Dual Port adapters added
26-Sep-2016	<a href="#">Version 1</a>	New	New QuickSpecs

[Shape the Future of QuickSpecs - Your Input Matters](#)

[Chat now](#)

© Copyright 2026 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

c05205227 - 15650 - Worldwide - V21 - 16-February-2026  
HEWLETT PACKARD ENTERPRISE  
Hpe.com

