Overview

HPE SN1700 series 64Gb Fibre Channel Host Bus Adapter

Family Overview

A Fibre Channel Host Bus Adapter is a server peripheral designed to be installed in a server and allows the transport of data to a consolidated storage device like an HPE Flash Array. The Fibre Channel Host Bus Adapter is externally coupled to a Fibre Channel switch which builds a Fibre Channel network allowing many servers access to the shared storage array. With a Fibre Channel HBA installed in every participating server, the resulting configuration is called a Storage Area Network or SAN based on Fibre Channel.

The HPE 64GFC Host Bus Adapters bring datacenter infrastructure components to a higher level of performance and efficiency with the ability to deliver twice the bandwidth performance of 32Gb HBAs. A 64GFC HBA purchased today is backward compatible with 32Gb and 16Gb storage networks and will protect future investments.

Compatibility and Investment Protection

All HPE SN1700 Series Host Bus Adapters support the Fibre Channel Protocol (FCP) and NVMe Protocol (FC-NVMe) at an industry-defined 64Gb/s - bandwidth. This generation of Host Bus Adapters is backwards compatible to 16Gb/s and 32Gb/s Fibre Channel devices. 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's Single Point of Configuration Knowledge (SPOCK) for complete compatibility).

The HPE SN1700 Host Bus Adapter family brings datacenter infrastructure components to a higher level of performance and efficiency with the ability to deliver twice the bandwidth performance of 32Gb 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[1]	**8Gb Switch**[1]	**16Gb Switch**	**32Gb Switch**	**64Gb Switch**
4Gb HBA[1]	Yes	Yes	Yes	No	No
8Gb HBA[1]	Yes	Yes	Yes	Yes	No
16Gb HBA	Yes	Yes	Yes	Yes	Yes
32Gb HBA	No	Yes	Yes	Yes	Yes
64Gb HBA	No	No	Yes	Yes	Yes

Notes:
- Always check HPE's Single Point of Configuration Knowledge (SPOCK) for complete compatibility.
- [1] 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 SN1700 series HBA would be compatible with any combination of 16Gb, 32Gb, and 64Gb switches and storage devices in a SAN. Always check ProLiant platform, Operating System, and Storage configurations on HPE's Single Point of all 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 are 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 datacenter. 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.

Models

Dual Port

SN1720E	HPE SN1720E 64Gb 2-port Fibre Channel Secure Host Bus Adapter	S4T09A
SN1700E	HPE SN1700E 64Gb 2-port Fibre Channel Host Bus Adapter	R7N78A
SN1700Q	HPE SN1700Q 64Gb 2-port Fibre Channel Host Bus Adapter	R7N87A

Single Port

SN1700E	HPE SN1700E 64Gb 1-port Fibre Channel Host Bus Adapter	R7N77A
SN1700Q	HPE SN1700Q 64Gb 1-port Fibre Channel Host Bus Adapter	R7N86A

Overview

What's New

- New Product – SN1720E, a new 64Gb 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 DTMF (Distributed Management Task Force)
  - PQC (Post-Quantum Cryptography) – a hardware 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 – SN1720E, 64Gb 2-port Fibre Channel Secure Host Bus Adapter

SPDM (Security Protocols and Data Models)

A factory installed certificate is 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 GreenLake for 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 SN1720E 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

Standards-based design

HPE is a member of the Storage Networking Industry Association (SNIA) and the Fibre Channel Industry Association (FCIA). Since the inception of these groups, HPE has helped design the standards that drive the Fibre Channel Industry. Suppliers and competitors with Fibre Channel components follow the Fibre Channel standard (T-11 committee) that enables a level of interoperability between devices and operating systems. This level of industry cooperation contributed to Fibre Channel customer acceptance. The industry and HPE have complied with all the standards, making Fibre Channel one of the most robust, widely accepted protocols in the industry. An example of important standards include:

- Definitions of ports and their capabilities (N_Port, E_port, F_Port, etc).
- Definitions of media connections (SFP+, SFP28, SFP56, SFP-DD, etc).
- Definitions of cabling (Multi-mode (50um), Single-mode (9um), MPO, etc.).
- Definition of identification (unique worldwide names (FCP) and namespace (FC-NVME) for every FC device).
- Definitions of delivery, error correction, re-tires, product health, and many others.

Security

Because Fibre Channel and FC-NVMe are data-only protocols, the design does not deploy IP addresses exposing the SAN to external communications which make the design inherently more secure.

- Secure Firmware download - HPE Host Bus Adapter supports the delivery of enhanced security via the new secure firmware update feature. An encryption key validates firmware files as authentic. This feature introduced with HPE Gen10 servers, continues today, and ensures the authenticity of device firmware.
- Firmware Integrity Protection with Hardware Root of Trust (RoT) - 64Gb FC HBAs incorporate a hardware RoT that keeps malicious firmware from hijacking the adapter. The adapters RoT enables both integrity and authenticity during adapter firmware updates by both validating embedded signatures with hardware embedded keys to ensure that only bona fide firmware executes, protecting updates that are applied over public networks.

Performance

Bandwidth – The maximum amount of data transmitted in a given amount of time. 64GBFC is the data transfer rate as defined by the industry standard of this generation of products. Older products had bandwidths of 32GBFC, 16GBFC, 8GBFC, 4GBFC, 2GBFC, and 1GBFC.

IOPs – a quantitative number measuring the maximum number of read/write operations per second. The maximum throughput per port is 12,800MBps full duplex line.

Latency - a measurement of response time doing an I/O request. More processing, translating, and routing of the I/O will increase latency and lower overall performance. Latency can be reduced by "offloading" the I/O processing from the host CPU to the HBA. All HPE Fibre Channel HBAs are fully offloaded to reduce latency and free up host CPU resources for other tasks.

The combination of increased Fibre Channel IOPS and throughput with reduced latency enables increased application and database transactions per second, faster large block transfers, and increases the number of VMs that can be supported per server.

PCIe 4.0

The SN1700 Series 64Gb FC HBAs use an eight-lane (x8) PCIe 4.0 bus on the single-port and dual-port models (with backward compatibility to PCIe 3.0 supported).

Standard Features

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 Server and Storage
Product strategy is to offer an HBA solution for any HPE compute platform – ProLiant, Cray/SuperDome, Synergy (SN1700 Series is not supported on Synergy – seek Synergy HBA with same ASIC/drivers), 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 vendors will publish support HPE hardware in their respective Hardware Compatibility Lists.

LUN Prioritization and QoS
HPE 64Gb FC HBAs support Class Specific Control (CS_CTL) which allows prioritization and bandwidth allocation at the LUN level. In addition, the SN1720E, SN1700E, and SN1700Q 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.

FC-NVMe Data Protocol HPE 64Gb Fibre Channel Host Bus Adapters are NVMe-enabled to support emerging NVM Express (NVMe) over Fibre Channel storage networks. The HBAs can run both the SCSI protocol and NVME protocol on the same wire at the same time.

Active Health System
All HPE 64GFC adapters support HPE ProLiant Active Health System integration. This helps administrators accurately troubleshoot and resolve problems within the server faster.

Fabric Notifications for the Modern Data Center
The SN1700 Series HBAs support new industry standards that further enhance autonomous SAN innovations to self-learn, self-optimize, and self-heal, proactively keeping the SAN running at maximum speed and avoiding downtime. The new industry standards around Fabric Performance Impact Notifications (FPINs) include Link Integrity notification (FPIN-LI), Congestion notification (FPIN-CN), Peer Congestion notification (FPIN-PN), and Delivery notification (FPIN-DN).

Secure Firmware download
The SN1700 Series deliver enhanced security via the secure firmware update feature which protects and ensures the authenticity of device firmware. All SN1700 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 64GFC 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.

Standard Features

Forward error correction (FEC)
FEC is enabled and improved at 64GFC 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), FC Ping, FC Trace Route
FDMI enables the 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.

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 (RoT)
The HPE SN1700 Series 64Gb FC HBAs incorporates 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 SN1720E.

Fabric-based Boot LUN (F_BLD)
Allows Boot-LUN information directly from a 64Gb or 32Gb FC switch, speeding up deployment of new servers in a SAN environment.

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 7 x 24 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

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**

Technical Specifications

Fibre Channel 64Gb Host Bus Adapters

	R7N86A	**R7N87A**	**R7N77A**	**R7N78A**	**S4T09A**
	SN1700Q - 1P	**SN1700Q - 2P**	**SN1700E - 1P**	**SN1700E – 2P**	**SN1720E – 2P**
Number of channels	Single	Dual	Single	Dual	Dual
Port Speed	64GFC	64GFC	64GFC	64GFC	64GFC
OS Supported	Use the public HPE link on operating system support at: **https://www.hpe.com/us/en/collaterals/collateral.a50010841enw.html**				
Microsoft Windows Server & HyperV	2025 x64 Edition 2022 x64 Edition				
Red Hat Enterprise Linux	10.x x64 Release 9.x x64 Release				
VMware ESX/ESXi	9.x x64 8.x x64				
SUSE Linux	15.x x64				
Servers Supported	Select HPE ProLiant, Alletra Storage Servers, and Cray/SuperDome servers. Refer to server Quick Specs for details regarding supported options. **Notes:** Use HPE Product Bulletin utility and type HBA part number in the search bar				
Array Platforms Supported	Refer to **http://www.hpe.com/storage/spock** for specific product support information				
What's Included in the Box?	64 Gbps HBA with standard bracket, one 64 Gbps SFP+ transceiver, low-profile bracket, documentation	64 Gbps HBA with standard bracket, two 64 Gbps SFP+ transceivers, low-profile bracket, documentation	64 Gbps HBA with standard bracket, one 64 Gbps SFP+ transceiver, low-profile bracket, documentation	64 Gbps HBA with standard bracket, two 64 Gbps SFP+ transceivers, low-profile bracket, documentation	64 Gbps HBA with standard bracket, two 64 Gbps SFP+ transceivers, low-profile bracket, documentation
	Notes: 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.				
Environmental	32º F to 131º F		32º F to 131º F		
Operating Temperature	(0º C to 55º C)		(0º C to 55º C)		
Environmental - Storage Temperature	-4º F to 158º F (-20º C to 70º C)		-4º F to 185º F (-20º C to 85º C)		
Environmental - Relative Humidity - Operating	5% to 95% (non-condensing)				
Product Dimensions (W x D x H)	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)		
Media	Shortwave Optic (SFP+) (pre-installed)				
Connector	Fiber Optic cable with LC type connector				
PCIe Connector	PCIe 4.0 x8				
Auto-negotiation	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 datacenter 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 datacenter 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 Beaconing (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
Bend/Loss (approx.)	35.7mm (2 turns)	<0.05 decibels (db)
	15mm (2 turns)	<0.1 decibels (db)
	7.5mm (2 turns)	<0.2 decibels (db)
Reach	10GbE	380m
(max no bends)	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	SKU
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 SPF 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 SPFs 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) Low	Temp (C) High	Wavelength (nm)	Speed (Gb/s)	Wattage (w) Avg.	Wattage (w) 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
12-May-2025	Version 7	Changed	Overview, Standard Features Service and Support and Technical Specification sections were updated. Name change for SN1720E; Removal of SFM software
24-Feb-2025	Version 6	Changed	Overview, Standard Features and Technical Specification sections were updated. Added new SN1720E, improved and clarified content
13-Nov-2023	Version 5	Changed	HPE Services Rebranding
06-Feb-2023	Version 4	Changed	Overview, Standard Features and Technical Specification sections were updated. New SN1700Q HBAs were added.
07-Feb-2022	Version 3	Changed	QS name has changed
06-Dec-2021	Version 2	Changed	Overview, Standard Features and Technical Specification section were updated.
01-Nov-2021	Version 1	New	New QuickSpecs

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