Overview

For latest information on this product please use HPE Ethernet 10Gb SFP+ Adapters QuickSpecs

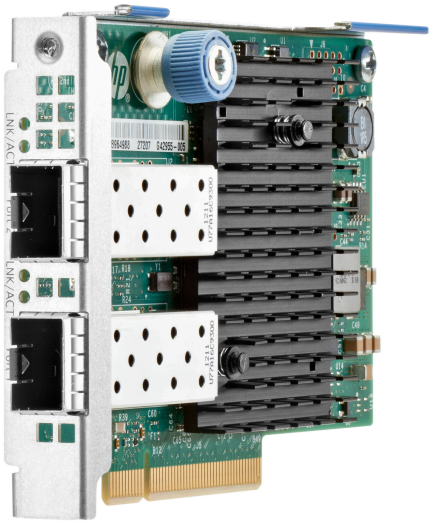
HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter

Extended SKU - This adapter is part of an extended catalog of products tailored for customers in specific markets or with specific workloads, requiring the utmost in performance or value, but typically have a longer lead-time.

The HPE Ethernet 10Gb 2-port 560FLR-SFP+ adapter, featuring the next generation of 10Gb Ethernet integration offering a single chip solution on a FlexibleLOM form factor, further reducing power requirements for 2 ports of 10Gb Ethernet. It is designed for use with HPE ProLiant Rack and Scale-Out servers.

The HPE 560FLR dual-port design is ideal for high performance computing, server virtualization, security, server consolidation, and other applications requiring highest throughput. The total aggregate throughput of 20Gb meets the needs for customers desiring highest bandwidth.

The HPE 560FLR supports SR-IOV and enterprise class features such as Receive Side Scaling (RSS), Jumbo frames, PXE boot, Checksum and segmentation offload, and time stamping (IEEE 1588) along with virtualization features such as VMware NetQueue, Microsoft VMQ and Intel Virtualization Technology for Connectivity (VT-c).



HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter

Platform Information

Models

HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21

Compatibility - Supported Servers

HPE ProLiant DL20 Gen9
HPE ProLiant DL60 Gen9
HPE ProLiant DL80 Gen9
HPE ProLiant DL120 Gen9
HPE ProLiant DL160 Gen9
HPE ProLiant DL180 Gen9
HPE ProLiant DL360 Gen9
HPE ProLiant DL380 Gen9
HPE ProLiant DL560 Gen9
HPE ProLiant DL580 Gen9
HPE Apollo 2000 XL170r Gen9
HPE Apollo 2000 XL190r Gen9
HPE Apollo 4200 Gen9
HPE Apollo 4500-Xl450 Gen9
HPE Apollo 6000-XL230a Gen9
HPE Apollo 6000-XL250a Gen9

NOTE: This is a list of supported servers. Some may be discontinued.

Kit Contents

HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter
Quick install card
Product warranty statement

Standard Features

At a Glance Features

- Dual-port 10GbE FlexibleLOM that provides the flexibility to meet growing infrastructure needs
- Industry-leading throughput and latency performance
- Up to 40 Gb/s bi-directional near line rate throughput
- Supports SR-IOV (requires server FW, SW and OS support)
- Hardware acceleration and offloads for stateless TCP/IP
- Support for Preboot eXecution Environment (PXE)
- Supports Wake-on-LAN (at 1 Gb)

  NOTE: Wake-on-LAN is supported only on Port 1 from system power state S5.
- Improve small packet performance
- Integrated PHY and MAC

Throughput-Theoretical Bandwidth

This adapter delivers 20 Gb/s bi-directional Ethernet transfer rate per port (40 Gb/s per adapter), providing the network performance needed to improve response times and alleviate bottlenecks.

802.1Q VLANs

IEEE 802.1Q virtual local area network (VLAN) protocol allows each physical port of this adapter to be separated into multiple virtual NICs for added network segmentation and enhanced security and performance. VLANs increase security by isolating traffic between users. Limiting the broadcast traffic to within the same VLAN domain also improves performance.

Active Health System

Supports HPE Active Health System - monitors and records changes in the server hardware and configuration enabling customers to have accurate information that will assist in diagnosing problems and delivering rapid resolution when server failures occur.

Configuration Utilities

This adapter ships with a suite of operating system-tailored configuration utilities that allow the user to enable initial diagnostics and configure adapter teaming. This includes a patented teaming GUI for Microsoft Windows operating systems. Additionally, support for scripted installations of teams in a Microsoft Windows environment allow for unattended OS installations.

DPDK

This adapter supports DPDK with benefit for packet processing acceleration and use in NFV deployments.

HPE Sea Of Sensors 3D

Support for the HPE Sea of Sensors which is a collection of 32 sensors that automatically track thermal activity - heat - across the server. When temperatures get too high, sensors can initiate fans and make other adjustments to reduce energy usage. A significant improvement lies in the ability to apply fan speed increases only to the portion of the system that is rising in temperature, rather than all six fans in unison, which reduces the amount of energy used for cooling.

Jumbo Frames

This adapter supports Jumbo Frames (also known as extended frames), permitting up to a 9,500 byte (KB) transmission unit (MTU) when running Ethernet I/O traffic. This is over six times the size of a standard 1500-

Standard Features

	byte Ethernet frame. With Jumbo Frames, networks can achieve higher throughput performance and greater CPU utilization. These attributes are particularly useful for database transfer and tape backup operations.
LED Indicators	LED indicators show link integrity and network activity for easy troubleshooting.
Management Support	This adapter ships with agents that can be managed from HPE Systems Insight Manager or other management application that support SNMP.
Message Signaled Interrupt (Extended) (MSI-X)	Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores.
Network Adapter Teaming	This adapter support for NIC teaming helps IT administrators increase network fault tolerance and increased network bandwidth, the team of adapters can work together as a single virtual adapter, providing support for several different types of teaming enabling IT administrators to optimize availability, improve performance and help reduce costs.
Optimized for Virtualization	I/O Virtualization support for VMware NetQueue and Microsoft VMQ helps meet the performance demands of consolidated virtual workloads.
Preboot eXecution Environment (PXE)	Support for PXE enables automatic deployment of computing resources remotely from anywhere. It allows a new or existing server to boot over the network and download software, including the operating system, from a management/ deployment server at another location on the network.Additionally, PXE enables decentralized software distribution and remote troubleshooting and repairs.
Server Integration	This adapter is a validated, tested, and qualified solution that is optimized for HPE ProLiant servers. Hewlett Packard Enterprise validates a wide variety of major operating systems drivers with the full suite of web-based enterprise management utilities including HPE Intelligent Provisioning and HPE Systems Insight Manager that simplify network management. This approach provides a more robust and reliable networking solution than offerings from other vendors and provides users with a single point of contact for both their servers and their network adapters.
TCP/UDP/IP	For overall improved system response, this adapter supports standard TCP/IP offloading techniques including: TCP/IP, UDP checksum offload (TCO) moves the TCP and IP checksum offloading from the CPU to the network adapter. Large send offload (LSO) or TCP segmentation offload (TSO) allows the TCP segmentation to be handled by the adapter rather than the CPU.
Warranty	Maximum: The remaining warranty of the HPE product in which it is installed (to a maximum three-year, limited warranty). Minimum: One year limited warranty.

Standard Features

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: **http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/index.aspx#.V4e3tPkrJhE**

Service and Support

Service and Support	**NOTE: This adapter is covered under HPE Support Services/ Service Contract applied to the HPE ProLiant Server or enclosure. No separate HPE Support Services# need to be purchased.** Most HPE branded options sourced from HPE that are compatible with your product will be covered under your main product support at the same level of coverage, allowing you to upgrade freely. Additional support is required on select workload accelerators, switches, racks and UPS options 12KVA and over. Coverage of the UPS battery is not included under HPE support services; standard warranty terms and conditions apply.
Warranty and Support Services	Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fibre switches, InfiniBand and UPS options 12KVA and over. Coverage of the UPS battery is not included under TS support services; standard warranty terms and conditions apply.
Protect your business beyond warranty with HPE Support Services	HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HPE to help prevent problems and solve issues faster. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement to the support you need for your IT and business. Protect your product, beyond warranty.
Parts and Materials	Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.
For more information	Visit the Hewlett Packard Enterprise Service and Support **website**.

Related Options

Cables - Direct Attach	HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 0.5m Direct Attach Copper Cable	487649-B21
	HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 1m Direct Attach Copper Cable	487652-B21
	HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 3m Direct Attach Copper Cable	487655-B21
	HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 7m Direct Attach Copper Cable	487658-B21
	HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 5m Direct Attach Copper Cable	537963-B21
	HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
	HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
	HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
	HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281B
	HP X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283B
	HP X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285B
	NOTE: Direct Attach Cable (DAC) must be purchased separately for copper environments.	
Cables - Fiber Optic	HPE LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
	HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
	HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
	HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
	HPE LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
	HPE LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
	NOTE: Fiber transceivers and cables must be purchased separately for fiber-optic environments.	
Transceivers	HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21
	HPE BladeSystem c-Class 10Gb SFP+ LR Transceiver	455886-B21
	NOTE: Fiber transceivers and cables must be purchased separately for fiber-optic environments.	

Technical Specifications

General Specifications	**Network Processor**	Intel® 82599 Controller
	Data Rate	Two ports, each at 20 Gb/s bi-directional; 40 Gb/s aggregate bi-directional theoretical bandwidth.
	Bus type	PCI Express 2.0 (Gen 2) x8
	Form Factor	FlexibleLOM
	IEEE Compliance	802.3, 802.1ab, 802.3x, 802.3ad, 802.1p/ 802.1q, 802.3ae, 802.1Qau
Power and Environmental Specifications	**Power**	<12W
	Temperature - Operating	0° to 55°C (32° to 131°F)
	Humidity - Operating	10% to 90% non-condensing
	Agency Approvals	USA: FCC Part 15 Class A Canada: ICES-003, Issue 4 Japan: VCCI V3 (2010.04) Class A International: EN55022:2006 + A1:2007 Class A International: EN55024:1998+A1:2011+A2; EN61000-3-2:2006, EN61000-3-3:2008 Taiwan: BSMI, CNS13438 (2006) Class A Australia/New Zealand (AS/NZS): EN55022:2006+A12007 Class A Korea: KN22 Class A, KN24
	RoHS Compliance	6 of 6
	Safety	UL Mark (USA and Canada) CE Mark EN 60590
Operating System and Virtualization Support	The Operating Systems supported by this adapter are based on the server OS support. Please refer to the OS Support Matrix at **https://www.hpe.com/us/en/servers/server-operating-systems.html**.	
Environment-friendly Products and Approach - End-of-life Management and Recycling	Hewlett Packard Enterprise offers end-of-life **product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner. The EU WEEE Directive (2012/19/EU) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the **Hewlett Packard Enterprise web site**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.	

Summary of Changes

Date	Version History	Action	Description of Change
05-Feb-18	Version 13	Changed	Overview section was updated
06-Nov-17	Version 12	Added	SKUs added in Related Options section: 487658-B21, JD096C, JD097C, J9281B, J9283B, J9285B
23-Oct-17	Version 11	Changed	Technical specifications - operating system, Service and Support and Part and Materials sections were updated.
20-Jan-17	Version 10	Changed	Compatibility, Related options - part names updated, Technical Specifications - operating system support - added vSphere 6.5
07-Oct-16	Version 9	Changed	Add DPDK support. Obsolete SKUs were deleted.
23-Jan-16	Version 8	Changed	Compatibility and Related Options sections were updated.
		Removed	Obsolete SKUs were deleted: 221692-B21, 412648-B21, 458492-B21, 221692-B22, 435508-B21, 468332-B21, 221692-B23, 394791-B21, 489892-B21, 221692-B26, 394793-B21, 581201-B21, 221692-B27, 538696-B21, 503746-B21.
13-Jun-14	Version 7	Changed	Cables was revised in Related Options.
10-Sep-13	Version 6	Changed	Compatibility, 10 Gigabit Server Adapters, and FlexbleLOM Adapters were revised.
09-Ago-13	Version 5	Changed	Changes made to: Overview, Compatibility - Servers, Standard Features - Product Features-Optimized for Virtualization.
05-Jul-13	Version 4	Changed	HPE BLc Virtual Connect 1Gb SX Small Form Factor Pluggable Option Kit and HPE BladeSystem c- Class 10Gb Long Range Small Form Factor Pluggable Option were added to Fiber Optic Modules. Related Options - HPE X240 Direct Attach Copper Cables was removed from Direct Attach Cable and HPE X240 QSFP+ 4x10G SFP+ 1m DAC Cable was removed from Cables.
15-Mar-13	Version 3	Changed	Updated the Product Features Section.
01-Mar-13	Version 2	Added	The following was added to the Related Options Section: Cables.
19-Feb-13	Version 1	New	Initial Version.

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