Overview

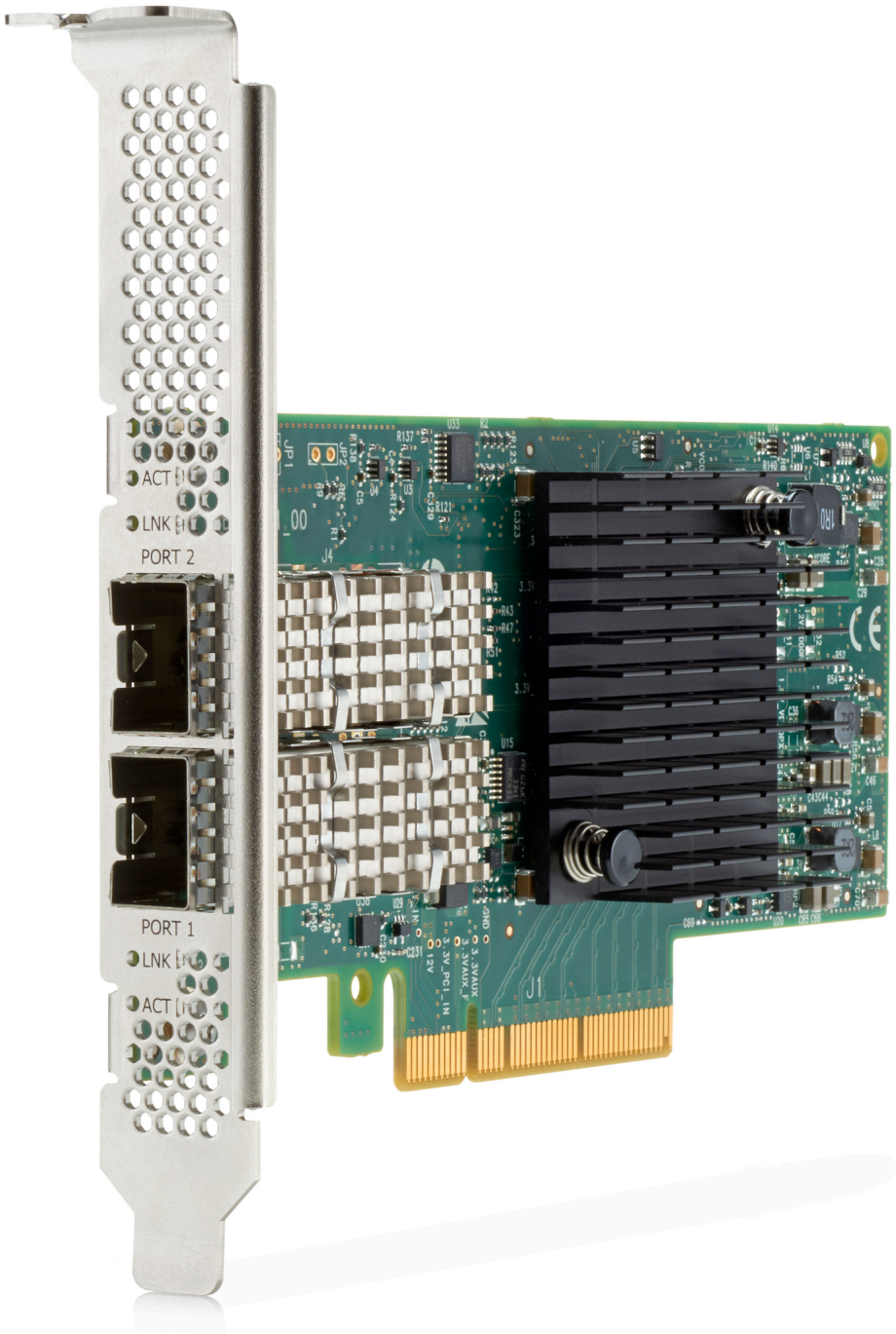
HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter

Recommended SKU - This adapter is a recommended option that has been selected by HPE experts to provide the right technology for a range of workloads and market segments offering the best combination of performance, value and availability.

The HPE Ethernet 10/25Gb 2-port 640SFP28 adapter for ProLiant servers are designed to optimize Cloud efficiency, and improve performance and security of applications - especially where I/O, block storage and database performance are critical and the need for maximum VM density and up-scalability are greatest.

The HPE Ethernet 640SFP28 can provide up to 100Gb/s of converged bi-directional Ethernet bandwidth, helping to alleviate network bottlenecks. This adapter can also run at 10Gb for customers who have not changed the infrastructure/switches to 25Gb yet.

Overview



HPE Ethernet 10/25G 2-port 640SFP28 Adapter

Platform Information

Models

HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter	817753-B21

Kit Contents	HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter Extra short bracket Quick install card Product warranty statement
640Compatibility - Supported Servers	HPE ProLiant DL120 Gen9 Server HPE ProLiant DL160 Gen9 Server HPE ProLiant DL360 Gen9 Server HPE ProLiant DL360 Gen10 Server HPE ProLiant DL380 Gen9 Server HPE ProLiant DL380 Gen10 Server HPE ProLiant DL385 Gen10 Server HPE ProLiant DL560 Gen9 Server HPE ProLiant DL580 Gen9 Server HPE ProLiant ML350 Gen9 Server HPE Apollo 2000 - XL1x0r Gen9 Server HPE Apollo 4200 Gen9 Server HPE Apollo 4500 – XL450 Gen9 Server HPE Apollo 6000 – XL230a Gen9 Server HPE Apollo 6000 – XL250a Gen9 Server

Standard Features

At a Glance Features

- Dual 10/25Gb ports provide up to 100Gb bi-directional per adapter
- Converges RoCE with LAN traffic on a single 10/25GbE wire
- Tunnel Offload support for VXLAN and NVGRE
- RDMA over Converged Ethernet (RoCE) for greater server efficiency and lower latency
- Supports UEFI and legacy boot options
- Industry-leading throughput and latency performance
- Over eight million small packets/s, ideal for web/mobile applications, mobile messaging, and social media
- Greater bandwidth with PCIe 3.0
- Jumbo Frames support
- Active Health Systems support
- Support for Preboot eXecution Environment (PXE)
- Supports receive-side scaling (RSS) for the efficient distribution of network receive processing across multiple CPUs in multiprocessor systems
- Support for Windows SMB Direct
- Supports VMware NetQueue, Microsoft Virtual Machine Queue (VMQ) for Windows
- Supports SR-IOV

Throughput-Theoretical Bandwidth	This adapter delivers 50 Gb/s bi-directional Ethernet transfer rate per port (100 Gb/s per adapter), providing the network performance needed to improve response times and alleviate bottlenecks.
802.1p QoS Tagging	IEEE quality of service (QoS) 802.1p tagging allows the adapter to mark or tag frames with a priority level across a QoS-aware network for improved traffic flow.
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.
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.
Interrupt Coalescing	Interrupt coalescing (interrupt moderation) groups multiple packets, thereby reducing the number of interrupts sent to the host. This process optimizes host efficiency, leaving the CPU available for other duties.
Jumbo Frames	This adapter supports Jumbo Frames (also known as extended frames), permitting up to a 9,600 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.
PCI Express Interface	This adapter is designed with an eight lane (x8) PCI Express bus based on the PCIe 3.0 standard. The adapter is backward compatible with four lane (x4) PCI Express, automatically auto-sensing between x8 and x4 slots.
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.
RoCE	RoCE is an accelerated I/O delivery mechanism that allows data to be transferred directly from the user memory of the source server to the user memory of the destination server bypassing the operating system (OS) kernel. Because the RDMA data transfer is performed by the DMA engine on the adapter's network processor, the CPU is not used for the data movement, freeing it to perform other tasks such as hosting more virtual workloads (increased VM density). RDMA also bypasses the host's TCP/IP stack, in favor of upper layer InfiniBand protocols implemented in the adapter's network processor. The bypass of the TCP/IP stack and the removal of a data copy step reduce overall latency to deliver accelerated performance for applications such as Microsoft Hyper-V Live Migration, Microsoft SQL and Microsoft SharePoint with SMB Direct.
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.

Standard Features

Tunnel Offload

Minimize the impact of overlay networking on host performance with tunnel offload support for VXLAN and NVGRE. By offloading packet processing to adapters, customers can use overlay networking to increase VM migration flexibility and virtualized overlay networks with minimal impact to performance. HPE Tunnel Offloading increases I/O throughput, reduces CPU utilization, and lowers power consumption. Tunnel Offload supports VMware's VXLAN and Microsoft's NVGRE solutions.

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.

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 25Gb SFP28 to SFP28 0.5m Direct Attach Copper Cable	844471-B21
	HPE 25Gb SFP28 to SFP28 1m Direct Attach Copper Cable	844474-B21
	HPE 25Gb SFP28 to SFP28 3m Direct Attach Copper Cable	844477-B21
	HPE 25Gb SFP28 to SFP28 5m Direct Attach Copper Cable	844480-B21
	HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283B
	HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285B
	HPE B-series SFP+ to SFP+ Active Copper 1.0m Direct Attach Cable	AP818A
	HPE B-series SFP+ to SFP+ Active Copper 3.0m Direct Attach Cable	AP819A
	HPE B-series SFP+ to SFP+ Active Copper 5.0m Direct Attach Cable	AP820A
	HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 1m Direct Attach Copper Cable	487652-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
	HPE 100Gb QSFP28 to 4x25Gb SFP28 3m DAC Cable	845416-B21
	HPE 100Gb QSFP28 to 4x25Gb SFP28 5m DAC Cable	845418-B21
	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 25Gb SFP28 SR 100m Transceiver	845398-B21
	HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21
	HPE BladeSystem c-Class 10Gb SFP+ LR Transceiver	455886-B21
	HPE X132 10G SFP+ LC SR Transceiver	J9150A
	HPE X132 10G SFP+ LC LRM Transceiver	J9152A
	NOTE: Fiber transceivers and cables must be purchased separately for fiber-optic environments.	

Technical Specifications

General Specifications	**Network Processor**	Mellanox ConnectX-4 Lx
	Data Rate	Two ports, each at 50Gb/s bi-directional; 100Gb/s aggregate bi-directional theoretical bandwidth.
	Bus type	PCI Express 3.0 (Gen 3) x8
	Form Factor	Stand-up card
	IEEE Compliance	802.3ae, 802.1Q, 802.3x, 802.1p, 802.3ad/LACP, 802.1AB(LLDP), 802.1Qbg, 802.1Qbb, 802.1Qaz, 802.3az, 802.3AS, 802.1Qau, IEEE 1588v2
	Connector	Two SFP28 (SR, DAC)
Power and Environmental Specifications	**Power**	8.4W typical, 9.7W maximum
	Temperature - Operating	5° to 60° C (41° to 140° F)
	Temperature - Non-Operating	40° to 70° C (-40° to 158° F)
	Humidity - Operating	8% to 90% relative humidity
	Humidity - Non-operating	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity. non-condensing
	RoHS Compliance	6 of 6
	Other	PCIe 3.0 Pv4, IPv6 CE Microsoft WHQL (Windows Hardware Quality Labs)
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-2018	Version 9	Changed	Overview section was updated
18-Dec-2017	Version 8	Changed	Related Options- Cables- Direct Attached and Product Information- Compatibility were updated
06-Nov-2017	Version 7	Changed	Technical Specification-OS and Virtualization Support section was updated.
16-Oct-2017	Version 6	Changed	Overview and Technical Specification-OS were updated.
11-Jul-2017	Version 5	Changed	Compatibility section was updated.
27-Mar-2017	Version 4	Changed	Compatibility sever list was updated.
07-Oct-2016	Version 3	Added	Added DPDK support.
		Removed	Switches were removed.
22-Jul-2016	Version 2	Changed	QuickSpecs sections were updated.
06-Jun-2016	Version 1	Created	New QuickSpecs.

c04849446 - 15527 - Worldwide - V9 -05-February-2018