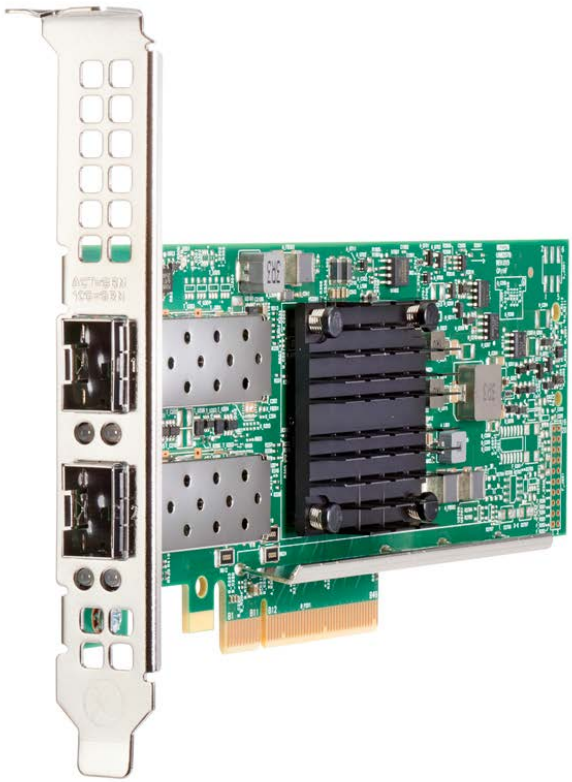
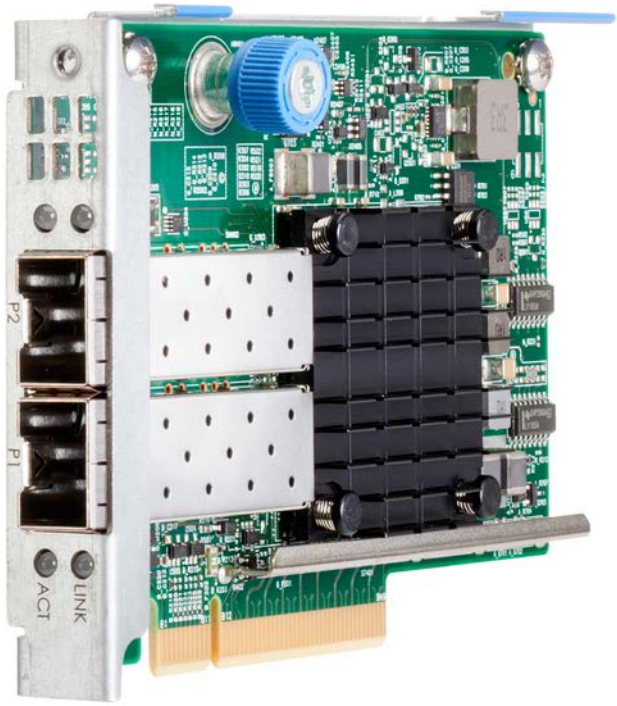
Overview

HPE Ethernet 10/25Gb Adapters

HPE ProLiant DL, ML & Apollo

The HPE Ethernet 10/25Gb Adapters are ideal for high performance computing, server virtualization, security, server consolidation, and other applications requiring highest throughput.





Platform Information

Models

HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter	817709-B21
HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter	817718-B21
HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter	817749-B21
HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter	817753-B21
HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter	867328-B21
HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter	867334-B21

Kit Contents			
SKU	817709-B21	817718-B21	817749-B21
Description	HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter
Quick install card	√	√	√
Product warranty statement	√	√	√
Low profile bracket		√	

Kit Contents			
SKU	817753-B21	867328-B21	867334-B21
Description	HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter (Recommended)	HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter (Recommended)	HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter (Recommended)
Quick install card	√	√	√
Product warranty statement	√	√	√
Low profile bracket	√	√	

Platform Information

Servers Support			
SKU	817709-B21	817718-B21	817749-B21
Description	HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter
HPE ProLiant 360 Gen9			√
HPE ProLiant DL380 Gen9			√
HPE Apollo 4200 Gen9 Server			√
HPE Apollo 6500 - XL270d Gen9			
HPE ProLiant ML350 Gen10		√	
HPE ProLiant DL20 Gen10			
HPE ProLiant DL120 Gen10 HPE ProLiant DL160 Gen10 HPE ProLiant DL180 Gen10 HPE ProLiant DL325 Gen10 HPE ProLiant DL360 Gen10 HPE ProLiant DL380 Gen10 HPE ProLiant DL385 Gen10 HPE ProLiant DL560 Gen10 HPE ProLiant DL580 Gen10 HPE Apollo 2000 - XL170r Gen10 HPE Apollo 2000 - XL190r Gen10 HPE Apollo 4500 - XL450 Gen10	√	√	√
HPE Apollo 6000 - XL230k Gen10		√	
HPE Apollo 6500 – XL270d Gen10			√

Platform Information

Servers Support			
SKU	817753-B21	867328-B21	867334-B21
Description	HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter
HPE ProLiant 360 Gen9	√		
HPE ProLiant DL380 Gen9	√		
HPE Apollo 4200 Gen9 Server	√		
HPE Apollo 6500 - XL270d Gen9	√		
HPE ProLiant ML350 Gen10	√	√	
HPE ProLiant DL20 Gen10		√	√
HPE ProLiant DL120 Gen10 HPE ProLiant DL160 Gen10 HPE ProLiant DL180 Gen10 HPE ProLiant DL325 Gen10 HPE ProLiant DL360 Gen10 HPE ProLiant DL380 Gen10 HPE ProLiant DL385 Gen10 HPE ProLiant DL560 Gen10 HPE ProLiant DL580 Gen10 HPE Apollo 2000 - XL170r Gen10 HPE Apollo 2000 - XL190r Gen10 HPE Apollo 4500 - XL450 Gen10	√	√	√
HPE Apollo 6000 - XL230k Gen10	√	√	
HPE Apollo 6500 – XL270d Gen10	√	√	√

Standard Features

Standard Features Table

SKU	817709-B21	817718-B21	817749-B21
Description	HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter
Audit Logs	√	√	
Authenticated Updates	√	√	√
Checksum & Segmentation Offload	√	√	√
Configuration Utilities			√
Device-level Firewall	√	√	√
DPDK	√	√	√
HPE Sea Of Sensors 3D	√	√	√
HW Root of Trust	√-Hardware and Firmware	√-Hardware and Firmware	
IPv6	√	√	√
iSCSI/FCoE			
LED Indicators			√
Management Support	√	√	√
Message Signaled Interrupt (Extended) (MSI-X)			√
Network Adapter Teaming			
Network Partitioning (NPAR)	√	√	
Optimized for Virtualization			√
Preboot eXecution Environment (PXE)	√	√	√
RDMA	√- RoCe V1 and V2	√- RoCe V1 and V2	√- RoCe V1 and V2
Receive Side Scaling (RSS)	√	√	
Sanitization	√	√	√
Secure Boot	√	√	√
Server Integration	√	√	√
Single-Root I/O Virtualization	√	√	
TCP/UDP/IP			√
Tunnel Offload	√-VXLAN / NVGRE / GENEVE	√-VXLAN / NVGRE / GENEVE	√-VXLAN / NVGRE / GENEVE
VMware NewQueue and Microsoft Virtual Machine Queue (VMQ)	√	√	√
Wake-on-LAN	√		√

Standard Features

Standard Features Table			
SKU	817753-B21	867328-B21	867334-B21
Description	HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter
Audit Logs		√	√
Authenticated Updates	√	√	√
Checksum & Segmentation Offload	√	√	√
Configuration Utilities	√		
Device-level Firewall	√	√	√
DPDK	√	√	√**
HPE Sea Of Sensors 3D	√	√	√
HW Root of Trust		√-Firmware	√-Firmware
IPv6	√	√	√
iSCSI/FCoE			√**
LED Indicators	√	√	√
Management Support	√	√	√
Message Signaled Interrupt (Extended) (MSI-X)	√	√	√
Network Adapter Teaming	√	√	√
Network Partitioning (NPAR)			
Optimized for Virtualization	√	√	√
Preboot eXecution Environment (PXE)	√	√	√
RDMA	√- RoCe V1 and V2	√-RoCe V1 and V2, iWarp*	√-RoCe V1 and V2, iWarp*
Receive Side Scaling (RSS)		√	√
Sanitization	√	√	√
Secure Boot	√	√	√
Server Integration	√	√	√
Single-Root I/O Virtualization	√	√	√
TCP/UDP/IP	√	√	√
Tunnel Offload	√-VXLAN / NVGRE / GENEVE	√-VXLAN / NVGRE / GENEVE	√-VXLAN / NVGRE / GENEVE
VMware NewQueue and Microsoft Virtual Machine Queue (VMQ)	√	√	√
Wake-on-LAN			√

NOTES:
* No iWarp and RoCE on the same port
** DPDK not supported with HPE Virtual Connect SE 40Gb F8 Module.
Storage personality must be disabled on NIC intended for DPDK workload. DPDK and Storage modes cannot be used concurrently on current generation CNA NICs. HPE Recommends using 2 separate NICS for Storage (Control Plane), and DPDK (Data Plane) workloads for the optimal high availability configuration. No DPDK with storage mode. No DPDK with VC interconnects.

Standard Features

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.

Audit Logs
Audit Logs are a forensics capability that provides traceability into authenticated firmware updates by capturing changes in standard system logs.

Authenticated Updates
Authenticated Updates brings cryptographic keys onto the NIC (for HW Authentication) to protect user and configuration data from unauthorized access and verify digitally signed firmware.

Auto-negotiation
This adapter automatically senses the speed of the device to which it is attached. It also automatically configures for half or full duplex, depending on the duplex mode of the switch, hub, or router connected to the adapter.

Checksum & Segmentation Offload
Normally the TCP Checksum is computed by the protocol stack. Segmentation Offload is technique for increasing outbound throughput of high-bandwidth network connections by reducing CPU overhead. The technique is also called TCP segmentation offload (TSO) when applied to TCP, or generic segmentation offload (GSO).

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.

Device-level Firewall
Device-level Firewall blocks any unmanaged access to memory or storage. This ensures that on-device firmware and configuration data can only be accessed by authorized agents.

DMA Coalescing
Supports DMA Coalescing, the incoming data packets and interrupts associated with these DMA calls are intelligently batched to keep the system devices in lower power states.

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

Fibre Channel over Ethernet (FCoE)
Combines the functionality of an industry-standard NIC with an industry-proven Fibre Channel to seamlessly converge the traffic over a shared lossless Ethernet network.

HPE Sea of Sensors3D
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.

HW Root of Trust
Root of Trust enables a chain of trust for Authenticating updates to firmware via signature validation. This blocks installation of rogue or corrupted firmware and ensures that the executing firmware is trusted.

Standard Features

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.

IPv6

IPv6 uses 128-bit addressing allowing for more devices and users on the internet. IPv4 supported 32-bit addressing.

iWARP

Delivers RDMA on top of the pervasive TCP/IP protocol. iWARP RDMA runs over standard network and transport layers and works with all Ethernet network infrastructure. TCP provides flow control and congestion management and does not require a lossless Ethernet network. iWARP is a highly routable and scalable RDMA implementation.

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 five times the size of a standard 1500-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.

Load Balancing

Transmit Load Balancing (TLB) and Switch-assisted Load Balancing (SLB) are two advanced features that customers can use to build a bigger pipe for improved networking bandwidth. These port-bonding techniques enable users to install up to four dual-port HPE 361T adapters (total of 8 ports) in a HPE ProLiant server and aggregate their throughput up to a theoretical maximum of 16 Gigabits per second full-duplex transmissions.

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.

Network Fault Tolerance (NFT)

Network Fault Tolerance, sometimes called "failover" or "NIC Redundancy," allows for the installation of multiple server adapters so that the active device can be backed up by a redundant adapter to improve availability. The Hewlett Packard Enterprise teaming utility also allows users to specify that when a failed adapter is fixed and replaced, the original adapter resumes its function as the primary network connection.

Network Partitioning (NPAR)

This adapter supports Network Partitioning (NPAR) allowing administrators to configure a 10 Gb port as four separate partitions or physical functions. Each PCI function is associated with a different virtual NIC. To the OS and the network, each physical function appears as a separate NIC port.

Optimized for Virtualization

I/O Virtualization support for VMware NetQueue and Microsoft VMQ helps meet the performance demands of consolidated virtual workloads.

Standard Features

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.

Precision Time Protocol (IEEE 1588 PTP)

Synchronization of system clocks throughout a network, achieving clock accuracy in the sub-microsecond range, making it suitable for measurement and control systems.

RDMA

Remote Direct memory Access (RDMA) 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 protocols include RoCEv1, RoCEv2 and iWARP. All of these protocols reduce overall latency to deliver accelerated performance for applications such as Microsoft Hyper-V Live Migration, Microsoft SQL and Microsoft SharePoint with SMB Direct.

Receive Flow Steering (RFS)

Receive Flow Steering (RFS) acceleration improves processing efficiency by steering received packets to the CPU core that is running the application that consumes those packets. Aligning I/O processing to the CPU core running the application improves cache efficiency, CPU utilization, throughput and latency.

Receive Side Scaling (RSS)

RSS resolves the single-processor bottleneck by allowing the receive side network load from a network adapter to be shared across multiple processors. RSS enables packet receive-processing to scale with the number of available processors.

Sanitization

Sanitization (Secure User Data Erase) renders User and configuration data on the NIC irretrievable so that NICs can be safely repurposed or disposed.

Secure Boot

Secure Boot safeguards the system and ensures no rogue drivers are being executed on start-up.

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.

Standard Features

Single-Root I/O Virtualization

Single-Root I/O Virtualization (SR-IOV) provides a mechanism to bypass the host system hypervisor in virtual environments providing near metal performance and server efficiency. SR-IOV provides mechanism to create multiple Virtual Functions (VFs) to share single PCIe resources. The device is capable of SR-IOV, and requires Server BIOS support, controller firmware, and OS support.

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.

TOE

TCP/IP Offload Engine (TOE) shifts the processing of data in the TCP protocol stack from the server CPU to the adapter's processor, freeing server CPU cycles for other operations.

Tunnel Offload

Minimize the impact of overlay networking on host performance with tunnel offload support for VXLAN, NVGRE and GENEVE. 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, Microsoft's NVGRE solutions and Generic Network Virtualization Encapsulation (GENEVE) solutions.

VMware NewQueue and Microsoft Virtual Machine Queue (VMQ)

VMware NetQueue is technology that significantly improves performance of 10 Gigabit Ethernet network adapters in virtualized environments. Windows Hyper-V VMQ (VMQ) is a feature available on servers running Windows Server 2008 R2 with VMQ-enabled Ethernet adapters. VMQ uses hardware packet filtering to deliver packet data from an external virtual machine network directly to virtual machines, which reduces the overhead of routing packets and copying them from the management operating system to the virtual machine.

Wake-on-LAN

This adapter provides Wake-on-LAN (WoL) support through the PCI Express bus. A system that supports Wake-on-LAN cfaan remain available to the systems administrator during its normal downtime. Once the machine is awakened, the systems administrator can remotely control, audit, debug, or manage the machine.

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.**

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.

Technical Specifications

Technical Specifications Table			
SKU	817709-B21	817718-B21	817749-B21
Description	HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter
Network Processor	Broadcom BCM57414	Broadcom BCM57414	Mellanox ConnectX-4 Lx MCX4121A-ACAT
Data Rate	2 port, each at 50 Gb bi-directional, 100 Gb bi-directional per adapter	2 port, each at 50 Gb bi-directional, 100 Gb bi-directional per adapter	2 port, each at 50 Gb bi-directional, 100 Gb bi-directional per adapter
Bus Type	PCIe 3.0X8	PCIe 3.0X8	PCIe 3.0X8
Form Factor	FlexibleLOM	Stand up	FlexibleLOM
Power	9.04W typical 14W maximum	9.84W typical 14W maximum	10.5W typical 14W maximum
IEEE Compliance	802.3ae, 802.1Q, 802.3x, 802.1p, 802.3ad, 802.1AB, 802.1Qbg, 802.1Qbb, 802.1Qaz, 802.3az, 802.3AS, 802.1Qau	802.3ae, 802.1Q, 802.3x, 802.1p, 802.3ad, 802.1AB, 802.1Qbg, 802.1Qbb, 802.1Qaz, 802.3az, 802.3AS, 802.1Qau	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, 1588, 802.1p QoS
Jumbo Frames	9,600 KB	9,600 KB	9,600 KB

Technical Specifications Table			
SKU	817753-B21	867328-B21	867334-B21
Description	HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter	HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter
Network Processor	Mellanox ConnectX-4 Lx MCX4121A-ACAT	Cavium QL41401-A2G FastLinQ 41000	Cavium QL41401L-A2G FastLinQ 41000
Data Rate	2 port, each at 50 Gb bi-directional, 100 Gb bi-directional per adapter	2 port, each at 50 Gb bi-directional, 100 Gb bi-directional per adapter	2 port, each at 50 Gb bi-directional, 100 Gb bi-directional per adapter
Bus Type	PCIe 3.0X8	PCIe 3 x8	PCIe 3 x8
Form Factor	Stand up	Stand up	FlexibleLOM
Power	8.4W typical 9.7W maximum	14.1 W typical 18.1 W maximum	12.5 W typical 15 W maximum
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, 1588, 802.1p QoS	802.1p, 802.1Qaz, 802.1Qbb, 802.1AS, 802.3ad, 802.3by, 1588, 802.3-2012, 802.3by-2016, 802.1q, 802.1Q	802.3by, 802.1Qau, 802.1Qaz, 802.1Qbb, 802.1Qbg, 802.3az 802.1AS, 802.3ad, 1588, 802.1Q
Jumbo Frames	9,600 KB	9,600 KB	9,600 KB
Temperature	**Operating** 5° to 60° C (41° to 140° F) **Non-Operating** -40°C to 70°C / -40°F to 158°F Humidity - Operating System relative humidity: Minimum		
Humidity	**Operating** 10% to 90% non-condensing **Non-operating** 5% to 95% non-condensing		

Technical Specifications

Technical Specifications

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**

Related Option

Please refer to link for supported cables and transceivers. - **Link**

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
1-Oct-2018	Version 2	Changed	Platform Information & Standard Features sections were updated
13-Aug-2018	Version 1	New	New QuickSpecs

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a00047733enw - 16270 - Worldwide - V2 - 1-October-2018