

# QuickSpecs

## HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter

### Overview

#### HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter

The HPE 620QSFP28 is a 1-port Ethernet adapter providing 4 lanes of 25 Gb connectivity featuring the next generation 45604 single-chip solution from QLogic in a PCIe 3.0 compliant form factor designed for select HPE ProLiant Gen9 servers. The HPE 620QSFP28 uses a single quad small form-factor pluggable (QSFP) that provides four lanes of 25Gb Ethernet connectivity. Leveraging QLogic's market-proven architecture and software, the HPE 620QSFP28 delivers full line-rate performance across all ports with low power consumption. The HPE 620QSFP28 supports enterprise class features such as adaptive interrupt coalescing, MSI-X, NIC teaming (bonding), Tunneling offloads (NVGRE, VxLAN), Receive Side Scaling (RSS), jumbo frames, and virtualization features such as SR-IOV, VMware NetQueue and Microsoft VMQ.

Support for HPE Sea of Sensors 3D Technology enhances server performance while reducing energy use and expense.

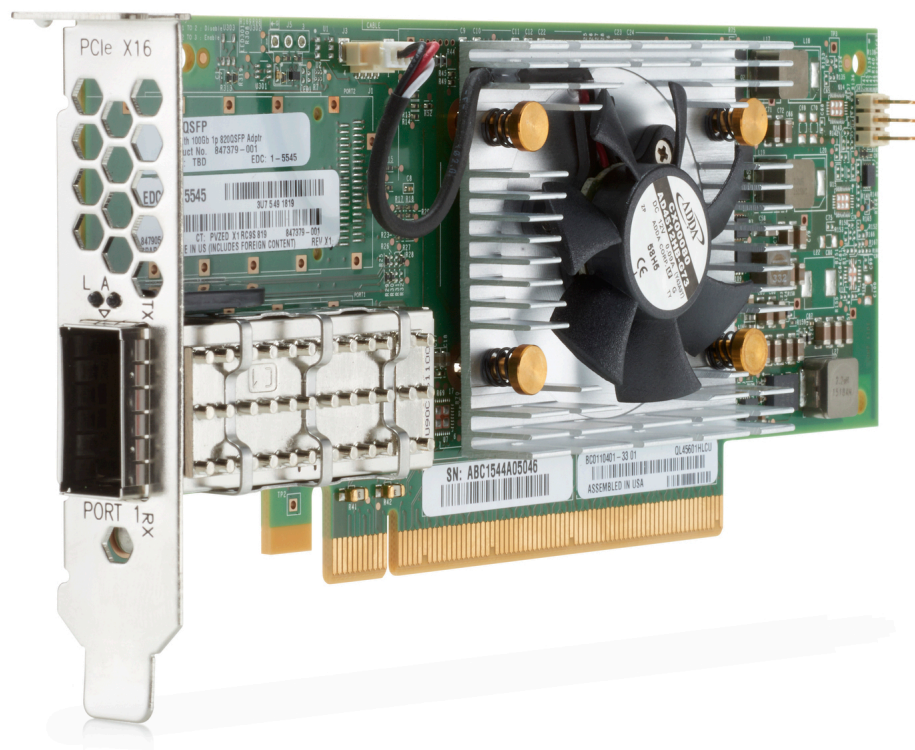


**HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter, with full-height bracket**

## QuickSpecs

## HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter

### Overview



**HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter, with half-height bracket**

## Platform Information

### Models

HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter	817762-B21
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<b>Kit Contents</b>	HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter Quick install card Product warranty statement Optional Short Bracket
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<b>Compatibility - Supported Servers</b>	HPE ProLiant DL20 Gen9 Server HPE ProLiant DL60 Gen9 Server HPE ProLiant DL80 Gen9 Server HPE ProLiant DL120 Gen9 Server HPE ProLiant DL160 Gen9 Server HPE ProLiant DL180 Gen9 Server HPE ProLiant DL360 Gen9 Server HPE ProLiant DL360 Gen10 Server HPE ProLiant DL380 Gen9 Server HPE ProLiant DL380 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 4510 Gen9 Server HPE Apollo 4530 Gen9 Server HPE Apollo 6000 – XL230k Gen9 Server
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**NOTE:** This is a list of supported servers. Some may be discontinued.

## Standard Features

### At a Glance Features

- Industry-leading throughput and latency performance
- Up to 200Gb/s bi-directional near line rate throughput
- Over 15 million small packets/s per port, ideal for web/mobile applications, mobile messaging, and social media
- Improved small packet performance: Supports UEFI and legacy boot options and Tunnel offload support (NVGRE, VxLAN)
- Low profile design shipping with standard height and low-profile brackets
- Optimized for virtual server environments with support for Single-Root I/O Virtualization (SR-IOV), I2C capable
- Jumbo Frames, Checksum & Segmentation Offload, IPv6 and RSS
- On chip temperature monitor (OCSD)
- Standard server operating system support
- Standard NC series option kit warranty, support, services
- Field replaceable and upgradeable
- Integrated PHY and MAC
- Data Plane Development Kit (DPDK)
- RDMA over Converged Ethernet (RoCE v2, RoCE v1)

<b>Throughput-Theoretical Bandwidth</b>	This adapter delivers 50 Gb/s bi-directional Ethernet transfer rate per port (200 Gb/s per adapter), providing the network performance needed to improve response times and alleviate bottlenecks.
<b>802.1Q VLANs</b>	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.
<b>Checksum &amp; Segmentation Offload</b>	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).
<b>Converged Network Utility (CNU)</b>	This adapter supports Converged Network Utility (CNU) a manageability application to configure converged network adapters (CNAs) and Ethernet adapters on HPE servers. This host based utility supports for both GUI and Command Line Interface (scriptable), and can be used to configure Ethernet, FCoE, iSCSI and NPAR related features/functionality on multiple OS platforms including Windows and Linux. CNU is able to configure multiple HPE adapters from various network controllers at the same time. Users can benefit easier setup steps, shorter re-boot time, and one-stop solution for multiple adapters via CNU.
<b>Configuration Utilities</b>	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

## Standard Features

operating systems. Additionally, support for scripted installations of teams in a Microsoft Windows environment allow for unattended OS installations.

<b>DPDK</b>	This adapter supports DPDK with benefit for packet processing acceleration and use in NFV deployments.
<b>HPE Sea Of Sensors 3D</b>	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.
<b>IPv6</b>	IPv6 uses 128-bit addressing allowing for more devices and users on the internet. IPv4 supported 32-bit addressing.
<b>Jumbo Frames</b>	This adapter supports Jumbo Frames (also known as extended frames), permitting up to a 9,000 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.
<b>LED Indicators</b>	LED indicators show link integrity and network activity for easy troubleshooting.
<b>Management Support</b>	This adapter ships with agents that can be managed from HPE Systems Insight Manager or other management application that support SNMP.
<b>Message Signaled Interrupt (Extended) (MSI-X)</b>	Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores.
<b>Network Adapter Teaming</b>	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.
<b>Optimized for Virtualization</b>	I/O Virtualization support for VMware NetQueue and Microsoft VMQ helps meet the performance demands of consolidated virtual workloads.
<b>Preboot eXecution Environment (PXE)</b>	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.

## Standard Features

### RoCE v2

This adapter supports RoCE v1 and v2. RoCE v2, also sometimes called "Routable RoCE" which adds Concurrent RoCE v1 and v2 support, SR-IOV support, QoS with hierarchical TX scheduling, ECN-based congestion control for RoCE v2. 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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.

## Standard Features

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.

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### 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>

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## 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 100Gb QSFP28 to QSFP28 0.5m Direct Attach Copper Cable	845402-B21
	HPE 100Gb QSFP28 to QSFP28 1m Direct Attach Copper Cable	845404-B21
	HPE 100Gb QSFP28 to QSFP28 3m Direct Attach Copper Cable	845406-B21
	HPE 100Gb QSFP28 to QSFP28 5m Direct Attach Copper Cable	845408-B21
	HPE 100Gb QSFP28 to 4x25Gb SFP28 3m Direct Attach Copper Cable	845416-B21
	HPE 100Gb QSFP28 to 4x25Gb SFP28 5m Direct Attach Copper Cable	845418-B21
NOTE: Direct Attach Cable (DAC) must be purchased separately for copper environments.		

## Technical Specifications

<b>General Specifications</b>	<b>Network Processor</b>	Cavium 45604 chipset
	<b>Data Rate</b>	Four paths, each at 50 Gb/s bi-directional; 200 Gb/s aggregate bi-directional theoretical bandwidth.
	<b>Bus type</b>	PCI Express 3.0 x16
	<b>Form Factor</b>	Standard and low profile adapter compliant with the PCIe standard
	<b>IEEE Compliance</b>	802.3, 802.3ae, 802.3x, 802.2x, 802.3ad, 802.1Qaz, 802.1Qau, 802.1Qbb, 802.1Qbg, 802.1ax
	<b>Connector</b>	One QSFP28
<b>Power and Environmental Specifications</b>	<b>Power</b>	19W maximum card power
	<b>Temperature - Operating</b>	5° to 60° C (41° to 140° F) dry bulb
	<b>Humidity - Operating</b>	8% to 90% relative humidity, 40° C, non-condensing
	<b>Agency Approvals</b>	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, 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
	<b>RoHS Compliance</b>	6 of 6
<b>Operating System and Virtualization Support</b>	<ul style="list-style-type: none"> <li>• Microsoft Windows Server 2012</li> <li>• Microsoft Hyper-V Server 2012</li> <li>• Microsoft Windows Server 2012 R2</li> <li>• Microsoft Hyper-V Server 2012 R2</li> <li>• Windows WSSC v. Next</li> <li>• Red Hat Enterprise Linux (RHEL) 6.7, 6.8, 7.2 (x64) (includes KVM)</li> <li>• SUSE Linux Enterprise Server (SLES) 11 SP4 (x64) (includes XEN and KVM)</li> <li>• SUSE Linux Enterprise Server (SLES) 12 (x64) (includes XEN and KVM)</li> <li>• VMware ESXi 6.0 U2</li> <li>• VMware vSphere 2016</li> </ul> <p><b>NOTE:</b> For more operating system support and certification information, please visit: <a href="http://h17007.www1.hpe.com/us/en/enterprise/servers/supportmatrix/redhat_linux.aspx#.V4e8tPkrJD8">http://h17007.www1.hpe.com/us/en/enterprise/servers/supportmatrix/redhat_linux.aspx#.V4e8tPkrJD8</a></p>	
<b>Environment-friendly Products and Approach - End-of-life Management and Recycling</b>	<p>Hewlett Packard Enterprise offers end-of-life <b>product return, trade-in, and recycling programs</b> in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.</p> <p>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 <b>Hewlett Packard Enterprise web site</b>. 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.</p>	

## Summary of Changes

Date	Version History	Action	Description of Change
05-Mar-18	Version 9	Changed	General Specifications section was updated
07-Aug-17	Version 8	Changed	Standard Features- At a Glance Features section was updated and RoCEv2 added.
11-Jul-17	Version 7	Changed	Compatibility section was updated.
10-Feb-17	Version 6	Changed	Compatibility, Standard Features, Service and Support, Related Options, and Technical Specifications sections were updated.
16-Dec-2016	Version 5	Changed	Compatibility, Standard Features, and Related Options sections were updated.
23-Sep-2016	Version 4	Changed	QuickSpecs Sections were updated.
26-Aug-2016	Version 3	Changed	Standard Features section was updated.
22-Jul-2016	Version 2	Changed	QuickSpecs sections were updated.
06-Jun-2016	Version 1	Created	New QuickSpecs.



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