

Overview

HPE Converged Network Adapters

The HPE Converged Network Adapters (CNAs) are dual port adapters that provide Ethernet, iSCSI, and Fibre Channel (FC) connectivity over 10GbE using both Fibre Channel over Ethernet (FCoE) and Converged Enhanced Ethernet (CEE) standards. By consolidating Ethernet, iSCSI, and Fibre Channel onto a converged network adapter, HPE CNAs reduce the number of separate adapters and cables required for your datacenter and also reduce operational, power and cooling costs while preserving existing Ethernet and Fibre Channel infrastructure. HPE CNAs have been thoroughly tested with HPE Top of Rack (ToR) and End of Row (EoR) switches to ensure an optimal FCoE solution for your datacenter.

Key Features and Benefits

10G BASE-T

Available with 10GBASE-T connectivity using RJ45 connectors for CAT6A or CAT7 cables, reduces implementation costs by eliminating need for SFP+ optics.

Converged Infrastructure

Ethernet, iSCSI, and Fibre Channel in one adapter

- Combines the functionality of a NIC (Ethernet), iSCSI, and Fibre Channel onto a single converged network adapter reducing the number of adapters and cables and reducing acquisition and operational costs

Jumbo Frames

- Support jumbo frames (also known as extended frames), permitting up to a 9K byte (KB) transmission unit (MTU) when running Ethernet I/O traffic. This is over 5X the size of a standard 1500-byte Ethernet frame. With jumbo frames, networks can achieve higher throughput performance and improve CPU utilization. These attributes are particularly useful for database transfer and tape backup operations.

DPDK

- CN1100R Series adapters supports DPDK with benefit for packet processing acceleration and use in NFV deployments.

TCP/IP Stateless Offloading

- TCP, IP, UDP checksum offload, Large Send Offload (LSO), TCP Segmentation Offload (TSO). These features optimize host efficiency, leaving the CPU available for other duties.

Tunnel Offload

- CN1200E and CN1100R Series CNAs 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 network scale with minimal impact to performance. HPE Tunnel Offloading increases I/O throughput, reduces CPU utilization, and lowers power consumption. NVGRE tunnel offload supports Microsoft OS environments and VxLAN supports select VMware and Linux (RHEL and SUSE) environments.

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- MSI and MSI-X**
 - Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores. The
- 802.1Q VLANs**
 - IEEE 802.1Q virtual local area network (VLAN) protocol allows each physical port of the HPE 533 FLR-T 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.
- 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.
- Optimized for Virtualization**
 - I/O Virtualization support for VMware NetQueue and Microsoft VMQ help meet the performance demands of consolidated virtual workloads.
 - Compliant with Single-Root I/O Virtualization (SR-IOV), accommodating multiple Virtual Machines (VMs) to share single PCIe resources.
- Checksum & Segmentation Offload**
 - Normally the TCP Checksum is computed by the protocol stack. By selecting one of the "Checksum Offload" parameters, the checksum can be computed by the adapter.
 - 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).
- IPv6**
 - IPv6 uses 128-bit addressing allowing for more devices and users on the Internet. IPv4 supported 32-bit addressing. The HPE 533FLR-T Adapter by QLogic supports IPv6.
- 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.
- Time synchronization implementations (PTP)**
 - Synchronization of system clocks throughout a network, achieving clock accuracy in the sub-microsecond range, making it suitable for measurement and control systems.

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- Network Adapter Teaming**
- HPE CNAs 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.
- Network Partitioning (NPAR)**
- The CN1100R Series adapters support Network Partitioning (NPAR) for ProLiant rack servers. Allowing administrators to configure a 10Gb 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.

Reliability

Converged Enhanced Ethernet reliability standards

- Sends Fibre Channel data packets via Fibre Channel over Ethernet (FCoE) using Converged Enhanced Ethernet (CEE) standards ensuring high standards of data integrity and lossless Ethernet.

Provides HPE ProLiant Connectivity to Storage and Networks

Robust interoperability testing

Provides an HPE-branded CNA solution which has undergone extensive HPE interoperability testing for connecting HPE ProLiant servers into storage and networking environments.

Flexible Connect

Optical or direct attach copper cables

- Choose between SFP+ SR (optical) or direct attach copper cable connectivity allowing maximum flexibility in connecting to HPE FCoE Converged Network Switches.
- The 10G BASE-T HPE adapter can use existing UTP CAT6A (or better) cable to deliver Gigabit Ethernet over copper, according to the IEEE 802.3an specifications. For new installations, CAT6A shielded cable is recommended.

NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

NOTE: The HPE adapter can use existing UTP CAT6A (or better) cable to deliver Gigabit Ethernet over copper, according to the IEEE 802.3an specifications. For new installations, CAT6A shielded cable is recommended.

Cabling details:

- CAT6A UTP or better twisted-pair
- 22-26 AWG, 100 @ 1 MHz

EIA/TIA 568-B.2-10b

	Description	Part Number
CN1100R	HPE StoreFabric CN1100R Dual Port Converged Network Adapter	QW990A
CN1200E	HPE StoreFabric CN1200E 10Gb Converged Network Adapter	E7Y06A
CN1200E-T	HPE StoreFabric CN1200E 10Gb BASE-T Converged Network Adapter	N3U51A
CN1100R-T	HPE StoreFabric CN1100R 10Gb BASE-T Converged Network Adapter	N3U52A

Overview

Optical Cables

NOTE: Refer to product release notes for more information regarding support of specific cables.

Premier Flex OM4 type cables

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

OM3 LC-LC type cables

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 2.0m 1-Pack Fiber Optic Cable	AJ835A
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

Models

10 G BASE-T Cable Connectivity

Connector RJ-45 (Two)

Wiring CAT6A UTP or better twisted-pair

Cable distance Maximum distances for CAT6A unshielded cable are 30 meters (98 feet)
Maximum distances for CAT6A shielded (or better) are 100 meters (328 feet)

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Technical Specifications

HPE Support Services and Warranty Information

Protect your business beyond warranty with HPE Support Services

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Our integrated portfolio of Services for storage help customers reduce costs, optimize data, streamline storage management, and improve backup and recovery. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new storage solution, giving you full entitlement for the support for need for your IT and business.

Recommended Services

Support for this adapter is at the level of server it is a part of. Please check the quick specs of the server.

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 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 HPE due to malfunction.

Learn More:

To learn more on HPE Storage Services, please contact your Hewlett Packard Enterprise sales representative or HPE Authorized Channel Partner

HPE Support Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners.

<http://www.hpe.com/services>

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 Care Pack packaged hardware and software services.

NOTE: Certain restrictions and exclusions apply. Consult the HPE Customer Support Center for details.

		CN1200E -T	CN1200E	CN1100R-T	CN1100R
Number of channels		Dual	Dual	Dual	Dual
Port Speed		10GbE	10GbE	10GbE	10GbE
Slot type supported		x8 PCIe 3.0 or 2.0	x8 PCIe 3.0 or 2.0	x8 PCIe 2.0	x8 PCIe 2.0
Type		Copper – Cat 6A or better	Optical	Copper – Cat 6A or better	Optical
OS Supported	Windows Server 2016/2012/2012 R2 & Hyper V	x64	x64	x64	x86, x64
	VMware 6.5,6.0,5.5	x64	x64	x64	x86, x64
	RHEL 7.x, 6.x	x64	x64	x64	x86, x64

Technical Specifications

	SLES 12.x, 11.x	x64	x64	x64	x86, x64
SPOCK	Refer to http://www.hpe.com/storage/spock for information on Operating System				
Servers Supported	Select ProLiant Gen 8& 9 – See Server Quick Specs	Select ProLiant Gen 8& 9 – See Server Quick Specs	Select ProLiant Gen 8& 9 – See Server Quick Specs	Select ProLiant Gen 8& 9 – See Server Quick Specs	
Array Platforms Supported	Refer to http://www.hpe.com/storage/spock for specific product support information				
Switch support	Please refer to HPE Switch Selector tool for information on the switches supported				
Protocol Supported	FCoE, Ethernet, iSCSI				
What's Included in the Box?	CNA, low-profile bracket				
Compliance	IEEE802.3x, IEEE802.3ad, IEEE802.1p, IEEE802.1q, IEEE802.3az, IEEE802.3ae, IEEE802.3ap, IEEE802.1qau, P802.1Qaz(ETS), P802.1Qbb(PFC), P802.1Qaz(DCBX)				
Environmental - Operating Temperature	32° to 113° F (0° to 45° C)				
Environmental - Storage Temperature	-40° F to 158° F (-40° to 70° C)			-40°F to 149°F (-40°C to 65°C)	
Environmental - Relative Humidity - Operating	15% to 80% (relative, non-condensing)			5% to 95% noncondensing PCIe Low Profile	
Product Dimensions (W x D x H)	Box Dimension: 240mm x 155mm x 42mm Card Dimension: 182mm x 120mm x 21.8mm				
Media	Cat6a cables, 10Gb SFP+ Ethernet Optical Modules (SR) or SFP+ direct attach active and passive copper cable				
PCIe Connector	PCIe x8 Gen3			PCIe x8 Gen2	

Summary of Changes

Date	Version History	Action	Description of Change
17-Feb-2017	From Version 4 to 5	Changed	Updated features and table of specifications sections
27-May-2016	From Version 3 to 4	Changed	Changes made to throughout the QuickSpecs
31-Mar-2016	From Version 2 to 3	Changed	10G BASE-T details added
17-Oct-2014	From Version 1 to 2	Changed	Name Changed to HPE Converged Network Adapters, SKU 's descriptions updated, Technical Specification table was modified.



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