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/25GbE 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.

Standard Features

Key Features and Benefits

10G BASE-T

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

System Model Information

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)

Notes:

- 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

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

HPE CNAs 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

HPE 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.

NVMe-Ready

CN1300R and CN1200R-T hardware supports emerging NVMe Express (NVMe) over RDMA (RoCE, RoCEv2 and iWARP).

Standard Features

MSI and MSI-X
Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores.

802.1Q VLANs
IEEE 802.1Q virtual local area network (VLAN) protocol allows each physical port of the HPE CNAs 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.

Forward Error Correction (FEC)
At 25GbE bandwidth, FEC may be required depending on physical cable and optics used. The CN1300R supports both RS-FEC and FC-FEC settings at 25Gb bandwidth.

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.

Auto Negotiation
BASE-T versions of HPE CNAs can auto negotiate between 1GbE and 10GbE connections, requiring no manual intervention. Similarly, the CN1300R utilizes a technology called SmartAN(TM) to automatically configure the adapter port when connecting to either 10GbE or 25GbE. When connecting to 25GbE, Bandwidth and FEC settings are match to the switch and cable type used for the connection.

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.

RDMA
CN1200R-T and CN1300R adapters support Remote Direct Memory Access (RDMA) allowing the adapter to bypass the CPU and have direct access to memory for I/O commands. Bypassing the CPU reduces the time it takes to process each I/O command and reduces I/O latency. The adapters support both iWARP and RDMA over Converged Ethernet (RoCE) protocols. iWARP and RoCE/RoCEv2 can run concurrently on the same adapter, but not on the same port.

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.

Standard Features

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.

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.

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.

Notes:

- A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.
- Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.
- Cabling details:
  - CAT6A UTP or better twisted-pair
  - 22-26 AWG, 100 @ 1 MHz
  - EIA/TIA 568-B.2-10b

Service and Support

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 Services operational packaged hardware and software services**.**

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

HPE Services

No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where, and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.
https://www.hpe.com/services

Consulting Services

No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.
https://www.hpe.com/services/consulting

HPE Managed Services

HPE runs your IT operations, providing services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.
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Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.
https://www.hpe.com/services/operational

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

https://www.hpe.com/services/completecare

Standard Features

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.
https://www.hpe.com/services/techcare

HPE Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:
https://www.hpe.com/services/lifecycle

For a list of the most frequently purchased services using service credits, see the **HPE Service Credits Menu**

Other Related Services from HPE Services:

HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.
https://www.hpe.com/services/training

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

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 QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

Standard Features

How to Purchase Services

Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at **https://ssc.hpe.com/portal/site/ssc/**

AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience.

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.
https://support.hpe.com/hpesc/public/home/signin

Consume IT On Your Terms

HPE GreenLake edge-to-cloud platform brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake edge-to-cloud platform accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE"
https://www.hpe.com/us/en/contact-hpe.html

For more information
http://www.hpe.com/services

Configuration Information

Models

Description	SKU
HPE CN1300R 10/25Gb Dual Port Converged Network Adapter	Q0F09A
HPE CN1200R 10GBASE-T Converged Network Adapter	Q0F26A

Copper Cables and SFP+ Ethernet Optical Modules (SR)

SFP+ Active Copper Cables for HPE B-series FCoE Converged Network Switches

SFP+ Copper Cables for HPE C-series FCoE Converged Network Switches

HPE C-series 3M Passive Copper SFP+ Cable	K2Q21A
HPE C-series 5M Passive Copper SFP+ Cable	K2Q22A
HPE C-series SFP+ to SFP+ Active Copper 7.0m Direct Attach Cable	QK701A
HPE C-series SFP+ to SFP+ Active Copper 10.0m Direct Attach Cable	QK702A

Direct Attach Copper Cables

HPE Networking X240 10G SFP+ SFP+ 0.65m DAC Cable	JD095C
HPE Networking X240 10G SFP+ SFP+ 1.2m DAC Cable	JD096C
HPE Networking X240 10G SFP+ SFP+ 3m DAC Cable	JD097C
HPE Networking X240 10G SFP+ SFP+ 5m DAC Cable	JG081C
HPE 25Gb SFP28 to SFP28 3m Direct Attach Copper Cable	844477-B21
HPE 25Gb SFP28 to SFP28 5m Direct Attach Copper Cable	844480-B21

10Gb SFP+ Ethernet Optical Modules (SR)

HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21
HPE 25Gb SFP28 SR 100m Transceiver	845398-B21

Optical Cables

Notes: Refer to product release notes for more information regarding support of specific 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

Technical Specifications

	CN1300R	CN1200R 10GBASE-T
Number of channels	Dual	Dual
Port Speed	10/25GbE	10GbE
Slot type supported	x8 PCIe 3.0 or 2.0	x8 PCIe 3.0 or 2.0
Type	Optical	Copper – Cat6A or better
OS Supported	Windows Server 2016/2012/2012 R2 & Hyper V	x64
	VMware 6.7,6.5,6.0,5.5	x64
	RHEL 7.x, 6.x	x64
	SLES 12.x, 11.x	x64
SPOCK	Refer to **http://www.hpe.com/storage/spock** for information on Operating System	
Servers Supported	Select HPE ProLiant Gen 10 – See Server QuickSpecs	
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	41° to 140° F (5° to 60° C)	
Environmental - Storage Temperature	-40° F to 158° F (-40° to 70° C)	
Environmental - Relative Humidity - Operating	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	

Summary of Changes

Date	Version History	Action	Description of Change
19-Feb-2024	Version 16	Changed	Networking product names were updated.
04-Dec-2023	Version 15	Changed	HPE Services Rebranding Obsolete SKU was removed
15-Sep-2021	Version 14	Changed	Removed CN1200E/-T card information and features
16-Nov-2020	Version 13	Changed	Configuration Information and Technical Specifications sections were updated. Obso SKUs were removed.
03-Aug-2020	Version 12	Changed	QuickSpecs layout was updated and Obso SKUs were removed
06-Apr-2020	Version 11	Changed	QuickSpecs layout was updated.
07-Jan-2019	Version 10	Changed	Edited CN1300R features
15-Oct-2018	Version 9	Changed	Obsolete SKU was removed from Overview section. Added CN1300R features
01-Oct-2018	Version 8	Changed	Overview and Technical Specifications sections were updated SKUs were added
18-Dec-2017	Version 7	Added	Added new part numbers for Copper Cables and SFP+ Ethernet Optical Modules.
07-Aug-2017	Version 6	Changed	Added Gen10 support
17-Feb-2017	Version 5	Changed	Updated features and table of specifications sections
27-May-2016	Version 4	Changed	Changes made to throughout the QuickSpecs
31-Mar-2016	Version 3	Changed	10G BASE-T details added
17-Oct-2014	Version 2	Changed	Name Changed to HPE Converged Network Adapters, SKU´s descriptions updated, Technical Specification table was modified.
09-Sep-2014	Version 1	New	New QuickSpecs

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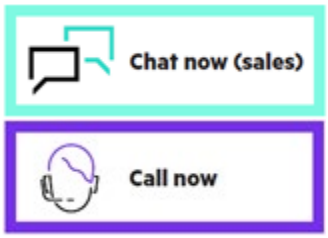

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