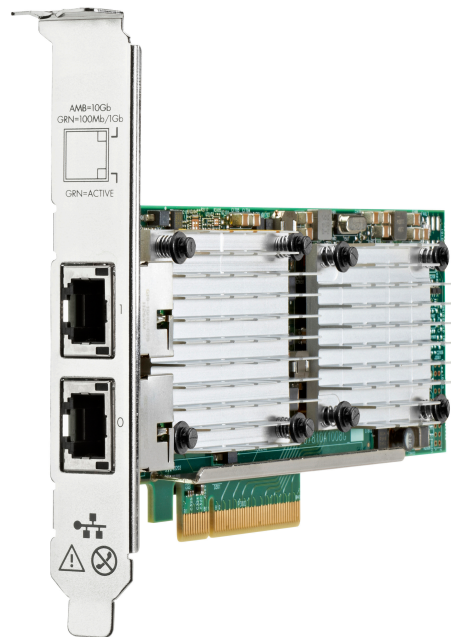## Overview

HPE Ethernet 10Gb 2-port 530T Adapter

The HPE Ethernet 10Gb 2-port 530T Adapter is a dual-port 10GBASE-T adapter, featuring the 57810S 10 Gb Ethernet solution from QLogic in a PCIe 2.0 compliant form factor designed for HPE ProLiant Gen8 and Gen9rack and tower servers. The HPE 530T Adapter delivers full line-rate performance across all ports with low power consumption, utilizing CAT 6A UTP cabling with distances up to 100 meters.

Providing high performance Ethernet connectivity, it is ideal for virtual server and cloud computing environments. It supports enterprise class features such as VLAN tagging, adaptive interrupt coalescing, MSI-X, NIC teaming (bonding), Tunneling Offloads (NVGRE, VxLAN), Receive Side Scaling (RSS), jumbo frames, PXE boot and virtualization features including SR-IOV, Network Partitioning (NPAR), VMware NetQueue and Microsoft VMQ.

The adapter's support for HPE Sea of Sensors 3D Technology enhances server performance by reducing energy consumption and expense.

HPE Ethernet 10Gb 2-port 530T Adapter

Platform Information

Models

HPE Ethernet 10Gb 2-port 530T Adapter   656596-B21

Kit Contents	HPE Ethernet 10Gb 2-port 530T Adapter Quick install card Product warranty statement
Compatibility - Supported Servers	HPE ProLiant DL20 Gen9 Server HPE ProLiant DL60 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 ML30 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 6500 XL270d Gen9 Server HPE ProLiant NOTE: This is a list of supported servers. Some may be discontinued.

Standard Features

At a Glance Features	• Hardware acceleration and offloads for stateless TCP/IP, TCP Offload Engine (TOE) • Industry-leading throughput and latency performance • Up to 40 Gb/s bi-directional near-line rate throughput • 10GBASE-T connectivity supporting up to 100 meters with CAT 6A cabling • Improved small packet performance • Low profile design shipping with standard height and low-profile brackets • On chip temperature monitor • Operates at 1 Gbps/10 Gbps, auto-negotiation, on both ports • Support for Preboot eXecution Environment (PXE) • Optimized for virtual server environments with support for Network Partitioning (NPAR) and Single-Root I/O Virtualization (SR-IOV). • Active Health Systems support • Field replaceable and upgradeable. • PXE, Jumbo Frames, Checksum and Segmentation Offload, IPv6 and RSS • IEEE 1588 (Time Synchronization) ready
Throughput-Theoretical Bandwidth	This adapter delivers 20 Gb/s bi-directional Ethernet transfer rate per port (40 Gb/s per adapter), providing the network performance needed to improve response times and alleviate bottlenecks.
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.
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.
DPDK	This adapter supports DPDK with benefit for packet processing acceleration and use in NFV deployments.
HPE Sea Of Sensors 3D	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

Standard Features

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

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   Single-Root I/O Virtualization (SR-IOV) provides a mechanism to bypass the host system hypervisor in virtual
Virtualization   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.

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

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 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   VMware NetQueue is technology that significantly improves performance of 10 Gigabit Ethernet network
and Microsoft Virtual   adapters in virtualized environments.
Machine Queue (VMQ)   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.

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.

Standard Features

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 HPE due to malfunction.
For more information	Visit the Hewlett Packard Enterprise Service and Support **website**.

Technical Specifications

General Specifications	Network Processor	QLogic 57810S chipset
	Data Rate	Two ports, each at 20 Gb/s bi-directional; 40 Gb/s aggregate bi-directional theoretical bandwidth.
	Onboard Memory	PCI Express 2.0 (Gen 2) x8
	Form Factor	Standard and low profile adapter compliant with the PCIe standard.
	IEEE Compliance	802.3, 802.3x, 802.2x, 802.3ad, 802.1Qaz, 802.1Qau, 802.1Qbb, 802.1Qbg, 802.1ax
	Connector	RJ-45 (Two)
	Wiring	CAT6 UTP or better twisted-pair
	Cable Distance	Maximum distances for CAT6 cable are 30 meters (98 feet). Maximum distances for CAT6a are 100 meters (328 feet).

NOTE: This adapter can use existing UTP CAT6 (or better) cable to deliver Gigabit Ethernet over copper, according to the IEEE 802.3an specifications. For new installations, CAT6a cable is recommended. Cabling details: CAT6 UTP or better twisted-pair; 22-26 AWG, 100O @ 1 MHz; EIA/TIA 568-B.2-10b

Power and Environmental Specifications	Power	15.5W typical
		18.2W maximum
	Temperature - Operating	0° to 55°C (32° to 131°F)
	Temperature - Non-Operating	-65° to 85° C (-85° to 185° F)
	Humidity - Operating	10% to 90% non-condensing
	Humidity - Non-operating	5% to 95% non-condensing
	Agency Approvals	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
	RoHS Compliance	6 of 6
	Safety	UL Mark (USA and Canada)
		CE Mark
		EN 60590

Operating System and Virtualization Support

- Microsoft Windows Server 2008 SP2 and R2 w/SP1 (x86 and x64)
- Microsoft Windows Server 2012, 2012 R2
- Microsoft Windows Hyper-V 2008 R2 w/SP1, 2012, 2012 R2
- Red Hat Enterprise Linux (RHEL)# 5, 6, 7
- SUSE Linux Enterprise Server (SLES) 11, 12
- Solaris 10, 11
- VMware ESXi 5.x and 6.x
- VMware vSphere 5.5
- Citrix XenServer 6.x

Technical Specifications

NOTE: For more operating system support and certification information, please visit: **http://h17007.www1.hpe.com/us/en/enterprise/servers/supportmatrix/ redhat_linux.aspx#.V4e8tPkrJD8**

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
11-Jul-2017	From Version 8 to 9	Changed	Compatibility section was updated.
21-Oct-2016	From Version 7 to 8	Changed	Add DPDK support and update servers.
23-Sep-2016	From Version 6 to 7	Changed	Overview, Standard Features, Service and Support, and Technical Specifications sections were updated.
		Removed	Obsolete SKUs were deleted: 503746-B21, 593722-B21, 647594-B21, 615732-B21, 652497-B21, 593717-B21, 614203-B21, 652503-B21, 665249-B21, 716591-B21, 718904-B21, 629135-B21, 665240-B21, 647581-B21, 665243-B21, 700699-B21, 717491-B21, 629138-B21, 700759-B21, 700751-B21, 629142-B21.
19-Jun-2015	From Version 5 to 6	Changed	Overview, Compatibility, Standard Features, and Technical Specifications sections were updated.
		Removed	Obsolete SKUs removed: 412648-B21, 394791-B21, 435508-B21, 538696-B21, 458492-B21, 581201-B21
28-Nov-2014	From Version 4 to 5	Changed	Overview, Compatibility, Standard Features and Technical Specifications sections were updated
09-May-2014	From Version 3 to 4	Changed	Changes made throughout the QuickSpecs.
10-Sep-2013	From Version 2 to 3	Changed	Compatibility and related options were revised.
25-Mar-2013	From Version 1 to 2	Removed	Removed section from the Compatibility Servers Section.
19-Feb-2013	Version 1	New	Initial version.

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