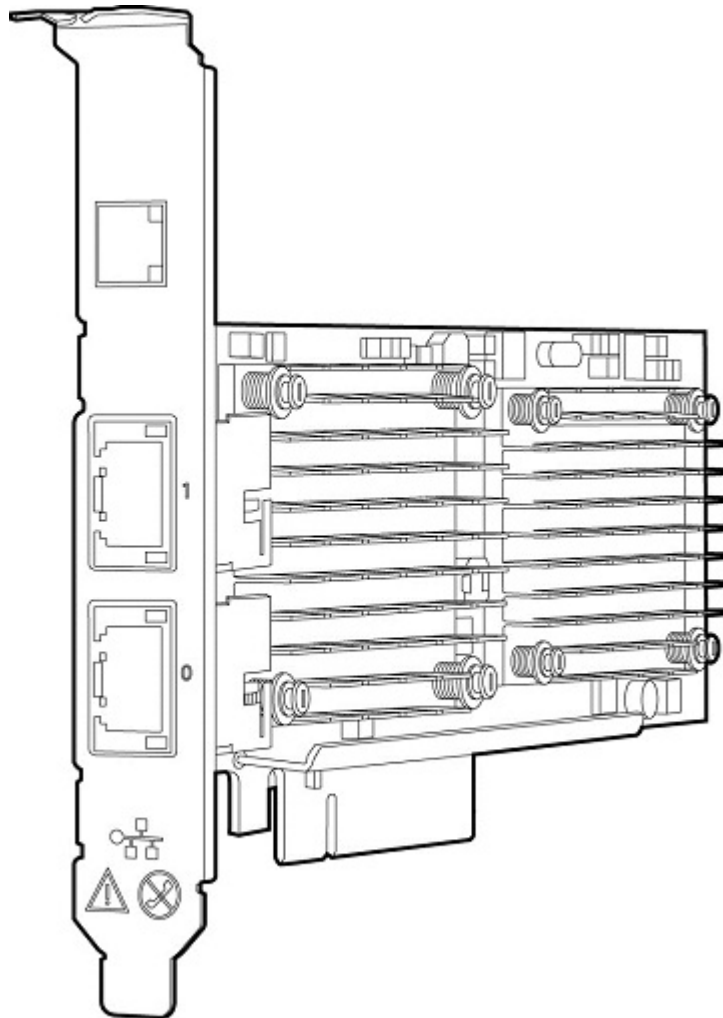## Overview

Are you looking to reduce network congestion and improve cable management at the servers in your HP ProLiant Gen8 environment?

The HP Ethernet 10Gb 2-port 530T Adapter is a dual-port 10GBASE-T adapter, featuring the BCM57810S 10 Gb Ethernet solution from Broadcom in a PCIe 2.0 compliant form factor designed for HP ProLiant Gen8 rack and tower servers. The HP 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 (VLAN tagging, adaptive interrupt coalescing, MSI-X, NIC teaming (bonding), Receive Side Scaling (RSS), jumbo frames, PXE boot) and virtualization features (VMware NetQueue and Microsoft VMQ).

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

Models

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

Overview

Kit Contents
- HP Ethernet 10Gb 2-port 530T Adapter
- Quick install card
- Product warranty statement

Compatibility

Servers

ProLiant DL (rack-optimized):

- HP ProLiant DL160 Gen8
- HP ProLiant DL165 G7
- HP ProLiant DL320e Gen8
- HP ProLiant DL360e Gen8
- HP ProLiant DL360p Gen8
- HP ProLiant DL380e Gen8
- HP ProLiant DL380p Gen8
- HP ProLiant DL385p Gen8
- HP ProLiant DL560 Gen8
- HP ProLiant DL580 G7
- HP ProLiant DL585 G7
- HP ProLiant DL980 G7

ProLiant SL (scalable line):

- HP ProLiant SL230s Gen8
- HP ProLiant SL250s Gen8
- HP ProLiant SL270s Gen8
- HP ProLiant SL4540 Gen8
- HP ProLiant SL4545 G7

NOTE: This is a list of supported servers. Some may be discontinued.

Standard Features

Product Features	- Industry-leading throughput and latency performance - Operates at 1Gbps/10Gbps, auto-negotiation, on both ports 10GBASE-T connectivity supporting up to 100 meters with CAT 6A cabling - Up to 40Gb/s bi-directional near line rate throughput - Hardware acceleration TCP/IP/UDP stateless offloads, as well as for TCP Offload Engine (TOE) - Superior small packet performance - Low profile design shipping with standard height and low-profile brackets - SR-IOV capable in hardware (requires server FW, SW and OS support) - Active Health Systems support - PXE, Jumbo Frames, Checksum & Segmentation Offload, IPv6 and RSS - On chip temperature monitor (Sea of Sensors) - Field replaceable and upgradeable - Support for Preboot eXecution Environment (PXE) - IEEE 1588 (Time Synchronization) ready
Dual-port 10 Gigabit Ethernet Throughput	The HP 530T adapter delivers 20 Gbps full duplex Ethernet transfer rate per port , providing the network performance needed to improve response times and alleviate bottlenecks that impact performance of next generation data centers. 10Gb Ethernet bandwidth is ideal for high performance computing, database clusters, and more.
Jumbo Frames	The HP 530T adapter supports 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.
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. The HP 530T Adapter by Broadcom offers TCP/IP stateless offloading capability.
MSI and MSI-X	Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores. The HP 530T Adapter by Broadcom supports MSI and MSI-X.
802.1Q VLANs	IEEE 802.1Q virtual local area network (VLAN) protocol allows each physical port of the HP 530T 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. The HP 530T Adapter by Broadcom provides support for 802.1Q (VLAN).
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.

QuickSpecs

HP Ethernet 10Gb 2-port 530T Adapter

Standard Features

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.
	The HP 530T Adapter by Broadcom is SR-IOV ready, requiring firmware, software and OS support.
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).
	The HP 530T Adapter by Broadcom has Checksum and Segmentation Offload capabilities.
IPv6	IPv6 uses 128-bit addressing allowing for more devices and users on the Internet. IPv4 supported 32-bit addressing. The HP 530T Adapter by Broadcom 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.
	The HP 530T Adapter by Broadcom has RSS capabilities.
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.
	The HP 530T Adapter by Broadcom supports Precision Time Protocol-ready (PTP).
Network Adapter Teaming	The HP 530T 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. The HP 530T provides support for several different types of teaming enabling IT administrators to optimize availability, improve performance and help reduce costs.

Network Management

Management Support	The HP 530T adapter can be administered from HP Systems Insight Manager (SIM). The adapters can be managed individually or in teams, providing SNMP based statistics for reporting purposes. The HP 530T adapter can also be managed by other applications with SNMP support.

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Standard Features

Server Integration

The HP 530T adapter is a validated, tested, and qualified solution that is optimized for HP ProLiant servers. HP validates a wide variety of major operating systems drivers with the full suite of web-based enterprise management utilities including HP Intelligent Provisioning and HP Systems Insight Manager that simplify network management.

This approach provides a more robust and reliable networking solution than offerings from other venders and provides users with a single point of contact for both their servers and their network adapters.

Configuration Utilities

Each HP 530T 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.

LED Indicators

The colored LEDs on each port of the HP 530T adapter indicate link status and link activity.

Preboot eXecution Environment (PXE)

PXE allows the server to boot over the network and download software residing in the network.

HP Sea of Sensors 3D

Support for HP's 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 kick on fans and make other adjustments to reduce energy usage. What makes it better is the upgrade from all six fans kicking on at one time to a new system where only one kicks on - the one in proximity of the area that started heating up - thus reducing the amount of energy used for cooling.

VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)

VMware NetQueue is technology that significantly improves performance of 10 Gigabit Ethernet network adapters in virtualized environments.

Microsoft Virtual Machine Queue (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.

The HP 530T supports VMware NetQueue and Microsoft Virtual Machine Queue.

Warranty

Maximum: The remaining warranty of the HP product in which it is installed (to a maximum three-year, limited warranty).
Minimum: One year limited warranty.
Additional information regarding worldwide limited warranty and technical support is available at:
http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

QuickSpecs

Service and Support

Service and Support	**HP Technology Services** HP Technology Services offers you technical consultants and support expertise to solve your most complex infrastructure problems. We help keep your business running, boost availability, and avoid downtime. **Protect your business beyond warranty with HP Care Pack Services** When you buy HP Options, it's also a good time to think about what level of service you may need. HP Care Pack services provide total care and support expertise with committed response choices designed to meet your IT and business need. HP Foundation Care services deliver scalable support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for your business needs. New to this portfolio is HP Collaborative Support. If you are running business critical environments, HP offers Proactive Care or Critical Advantage. These services help you deliver high levels of application availability through proactive service management and advanced technical response. Here is the support service recommendation from the Foundation Care and Proactive Care portfolio. For customized support service solution, HP can work with you to tailor a service solution for your unique support requirements using broader services portfolio of Foundation Care and Proactive Care.

Recommended HP Care Pack Services for optimal satisfaction with your HP product

Recommended Services	**3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service** Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged. http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf **OR** **3-Year HP 24x7 4 hour Response, HP Collaborative Support** Offers customers a single point of contact for server problem diagnosis, hardware problem resolution, and basic software problem diagnosis, fault isolation, and resolution if available to HP. If the problem is with HP HW, the representative will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged. In case, the issue is with HP or supported third-party software product and cannot be resolved by applying known fixes, HP will contact the third-party vendor and create a problem incident on your behalf. **HP ProLiant Server Hardware Installation** Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf

Service and Support

Related HP Care Pack Services to enhance your HP product experience

Related Services

3-Year HP 24x7 4 hour Response, Proactive Care or Critical Advantage
Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-2140ENW.pdf

OR

3-Year HP 6-hour Onsite Call-to-Repair, HP Collaborative Support
Offers customers a single point of contact for server problem diagnosis, hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request to the HP Global Solution Center, and basic software problem diagnosis, fault isolation, and resolution if available to HP. In case, the issue is with HP or supported third-party software product and cannot be resolved by applying known fixes, HP will contact the third-party vendor and create a problem incident on your behalf.

HP Proactive Select Service
Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN.pdf

Insight Remote Support

Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more
http://www.hp.com/go/insightremotesupport

HP Support Center

Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more http://www.hp.com/go/hpsc

HP's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.
HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

*HP Support Center Mobile App is subject to local availability

Parts and materials

HP will provide HP-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. Supplies and consumable parts will not be provided as part of this service; standard warranty terms and conditions apply. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual or the technical product data sheet will not be provided, repaired or replaced as part of this service.

Service and Support

Warranty / Service Coverage	For ProLiant servers and storage systems, this service covers HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.
For more information	To learn more on services for HP ESSN Options, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant or www.hp.com/services/bladesystem

Related Options

Gigabit Server Adapters and 1Gb FlexibleLOMs	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP NC360T PCI-E Dual Port Gigabit Server Adapter	412648-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP NC373F PCI-E Multifunction 1000SX Gigabit Svr Adapter	394793-B21
	HP NC373T PCI-E Multifunction Gigabit Server Adapter	394791-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B21
	HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HP Ethernet 1Gb 2-port 332T Adapter	615732-B21
	HP Ethernet 1Gb 2-port 361T Adapter	652497-B21
	HP Ethernet 1Gb 4-port 366FLR Adapter	665240-B21

10 Gigabit Server Adapters and 10Gb FlexibleLOMs	**NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.	
	HP NC522SFP Dual Port 10GbE Gigabit Server Adapter	468332-B21
	HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
	HP NC524SFP Dual Port 10GbE Module	489892-B21
	NOTE: NC524SFP is available only on DL370 G6, ML370 G6, DL580 G7, DL585 G7, and DL980 G7.	
	HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
	HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
	HP FlexFabric 10Gb 2-port 554FLR-SFP+ Adapter	629142-B21
	HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter	647581-B21
	HP Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
	HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21
	HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	

Technical Specifications

General Specifications		
Network Processor	Broadcom BCM57810S chipset	
Data Rate	Two ports, each at 20 Gbps full duplex; 40 Gbps aggregate full duplex theoretical bandwidth.	
Onboard Memory	256MB	
Bus Type	PCIe v2.0 (Gen 2) x 8	
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: The HP 530T 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, 100Ω @ 1 MHz
- EIA/TIA 568-B.2-10b

Power and Environmental Specifications			
Operating	Temperature	32° to 131° F (0° to 55° C)	
	Humidity	5% to 95% non-condensing	
Power	9W maximum		
Emissions classification	15.5W typical, 18.2W maximum		
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		

Technical Specifications

Operating System Support	Microsoft Windows Server 2008 (32/64), Enterprise, Standard, Datacenter, Web, Embedded, Foundation (SP2 and R2 w/SP1)
	Microsoft Windows HPC Server 2008 (SP2 and R2 w/SP1)
	Microsoft Windows Small Business Server 2011 (SBS V7) – Base
	Microsoft Windows Small Business Server 2011 Essentials
	Microsoft Windows Multipoint Server 2011
	Microsoft Windows Server 2012
	Hyper-V (R2 w/SP1)
	RHEL 5.7/5.8/5.9 x86 and AMD 64 & EM 64T
	RHEL 6.1/6.2/6.3 x86 and AMD 64 & EM 64T
	SLES 10 SP4 x86 and AMD 64 & EM 64T
	SLES 11 SP2 x86 and AMD 64 & EM 64T
	Solaris 10/11
	VMware vSphere 4.1 and 5.0
	Citrix XenServer 6.0/6.1
	NOTE: For more Linux OS support & certification information, please visit our the ProLiant & BladeSystem Server Linux matrix: http://h18004.www1.hp.com/products/servers/linux/hplinuxcert.html

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.
		The EU WEEE directive (2002/95/EC) 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 web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.