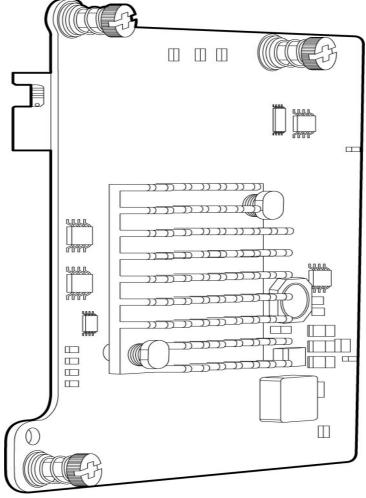## Overview

The HP Ethernet 10Gb 2-port 560M adapter features the latest generation 10GbE Intel® 82599 controller. The HP 560M is a low cost, low-power dual port PCIe v.2.0 x8 lane mezzanine adapter designed for HP ProLiant Gen8 BL-c servers. The HP 560M addresses the demanding needs of the next-generation cloud and data center by providing unmatched features for virtualization, scalability to keep up with the HP ProLiant Gen8 server platform, with proven and reliable performance HP customers have come to expect.

The HP 560M supports enterprise class features such as VLAN tagging, adaptive interrupt coalescing, MSI-X, NIC teaming (bonding), Receive Side Scaling (RSS), jumbo frames, IEEE 1588, PXE boot and virtualization features such as VMware NetQueue, Microsoft VMQ, Intel VMDq and Intel VT-c. The HP 560M is SR-IOV ready.

HP Ethernet 10Gb 2-port 560M Adapter

Overview

Models

HP Ethernet 10Gb 2-port 560M Adapter   665246-B21

NOTE: The HP 560M on each server blade connects to a 10Gb interconnect in bays 3-8 (HP BladeSystem c7000 Enclosure) or bays 2-4 (HP BladeSystem c3000 Enclosure).
NOTE: The HP 560M adapter requires a minimum of 2 GB of server memory.

Kit contents
- HP Ethernet 10Gb 2-port 560M Adapter
- Quick install card
- Product warranty statement
- Drivers, user guide, and utilities via: http://www.hp.com

Compatibility

HP ProLiant Server Support
- HP ProLiant BL420c Gen8
- HP ProLiant BL460c Gen8
- HP ProLiant BL465c Gen8
- HP ProLiant BL660c Gen8

Supported Interconnect Modules
- HP Virtual Connect Flex-10 Ethernet Module
- HP Virtual Connect FlexFabric 10Gb/24-port Module
- HP 1/10Gb Virtual Connect Ethernet Module
- HP 6120XG Blade Switch
- HP 6120G/XG Blade Switch
- HP 1:10Gb Ethernet BL-c Switch
- Cisco Catalyst 3120G Blade Switch for HP
- Cisco Catalyst 3120X Blade Switch for HP
- Cisco Catalyst 3020 Blade Switch
- Cisco Fabric Extender B22HP for HP
- HP GbE2c Layer 2/3 Ethernet Blade Switch
- HP 10GbE Pass-Thru Module
- HP 1GbE Pass Thru Module

NOTE: Except for the HP Virtual Connect Flex-10 Ethernet Module, HP Virtual Connect Flex Fabric Module, HP 6120XG, HP 10GbE Pass-Thru Module and the Cisco B22 Fabric Extender, all other supported interconnects are limited to 1Gb per port connection

Standard Features

Product Features	• Industry-leading throughput and latency performance • Supports HP ProLiant Gen8 BL-c servers • Type A Mezzanine Adapter • Dual 10Gb ports provide up to 40Gb full duplex per adapter • Hardware and software acceleration and intelligent offloads for stateless TCP/IP Jumbo frames support • Supports receive-side scaling (RSS) for efficient distribution of network receive processing across multiple CPUs in multiprocessor systems. • Supports the Preboot eXecution Environment (PXE) • Support Wake-on-LAN (at 1Gb)
Dual-port 10 Gigabit Ethernet Throughput (theoretical bandwidth)	The 20 Gbps full duplex Ethernet transfer rate per port (40 Gbps aggregate full duplex) delivers outstanding network performance that improves response time and removes bottlenecks.
Jumbo Frames	The HP 560M adapter supports jumbo frames (also known as extended frames) with a maximum transmission unit (MTU) of up to 9.5K bytes when running Ethernet and/or, which is over five times the size of standard 1500-byte Ethernet frame. Jumbo frames can help achieve higher throughput and better CPU utilization. Jumbo frames are particularly useful for database transfers.
MSI and MSI-X	Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores
Interrupt Coalescence	Interrupt coalescing (interrupt moderation) groups multiple packets, thereby reducing the number of interrupts sent to the host. This process optimizes host efficiency, leaving the CPU available for other duties.
802.1p QoS Tagging	IEEE quality of service (QoS) 802.1p tagging allows the adapter to mark or tag frames with a priority level across a QoS-aware network for improved traffic flow.
802.1Q VLANs	The HP 560M adapter supports the IEEE 802.1Q virtual local area network (VLAN) protocol that allows each physical port to be assigned to a VLAN 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.
TCP/IP Stateless Offloading	For overall improved system response, the HP 560M adapter supports standard TCP/IP stateless offloading techniques including: • TCP/IP checksum offload (TCO) moves the TCP and IP checksum offloading from the CPU to the network adapter. • Large send offload (LSO), also known as TCP segmentation offload (TSO), allows TCP segmentation to be handled by the adapter rather than the CPU.

Standard Features

Optimized for Virtualization	Intel Virtualization Technology for Connectivity (VT-c) with VMDq and SR-IOV provides I/O Virtualization support for VMware NetQueue, Microsoft VMQ to 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 device is capable of SR-IOV, and requires Software and OS support.
IEEE 1588 & 802.1AS	Support hardware-enabled IEEE 1588, a standard that defines PTP (Precision Time Protocol), a high-precision time protocol for clock synchronization used in measurement and control systems.
PXE Boot Support	Supports the Preboot eXecution Environment (PXE) allows the server to boot over the network and download software residing in the network.
Network Adapter Teaming	The HP 560M adapter support for NIC teaming helps IT administrators increase network fault tolerance and improve workload balance. These capabilities optimize availability, improve performance and help reduce costs.
Management Support	The HP 560M 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 560M adapter can also be managed by other applications with SNMP support.
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.
HP Active Health System	Supports HP Active Health System monitors and records changes in the server hardware and configuration enabling customers to have accurate information that will assist in diagnosing problems and delivering rapid resolution when server failures occur.
RDMA	The HP 560M does not support RDMA
iSCSI	The HP 560M does not support iSCSI
Warranty	HP branded hardware options qualified for BladeSystem c-Class and p-Class servers are covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. The HP branded hardware option diagnostic support and repair is available for one year from date of purchase, or the length of the server they are attached to, whichever is greater. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

Standard Features

Additional information regarding worldwide limited warranty and technical support is available at:
http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Service and Support	**HP Technology Services** HP Technology Services offers you consultants and support experts 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 Services	**Recommended HP Care Pack Services for optimal satisfaction with your HP product** **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 Services	**Related HP Care Pack Services to enhance your HP product experience**

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

Additional c-Class BladeSystem Adapters	**FlexibleLOM Adapters**	
	HP FlexFabric 10Gb 2-port 554FLB Adapter	647586-B21
	HP Flex-10 10Gb 2-port 530FLB Adapter	656590-B21
	HP Ethernet 10Gb 2-port 560FLB Adapter	655639-B21
	HP Ethernet 1GB 2-port 361FLB Adapter	652500-B21
	Mezzanine Adapters	
	HP Flex-10 10Gb 2-port 530M Adapter	631884-B21
	HP Flex-10 10Gb 2-port 552M Adapter	674764-B21
	HP FlexFabric 10Gb 2P 554M Adapter	647590-B21
	HP Ethernet 1Gb 4-port 366M Adapter	615729-B21

Technical Specifications

General Specifications	Network processor	Intel® 82599 Controller	
	Data rate	Two ports, each at 20 Gbps full duplex; 40 Gbps aggregate full duplex theoretical bandwidth.	
	Bus type	PCI Express v2.0 (Gen 2) x8	
	Form factor	Type A Mezzanine Card	
	IEEE Compliance	802.3, 802.1ab, 802.3x, 802.3ad, 802.3p/802.1q, 802.3ae, 802.1qau, 802.3ap, 802.1as, 802.1qaz, 802.1Qbb	

Power and Environmental Specifications	Operating	Temperature	0°C to 55°C / 32°F to 131°F
		Humidity	10% to 90% non-condensing
	Power requirement	6.5W maximum	
	Emissions classification	FCC Class A	
	Agency Approvals	USA	FCC (CFR 47 part 15) and UL 60950
		Canada	ICES-003 and CSA60950
		Japan	VCCI
		Korea	MIC (RRL), EMC Registration
		Australia	ACA, AS/NZS3548/EN55022:1998, EN55024:1998
		European Union	EN55022:1998 (CISPR 22), EN55024:1998, and IEC60950:1999 (EN60950:2000)
	RoHS Compliance	6 of 6	
	Safety	UL Mark (USA and Canada)	
		CE Mark	
		EN 60590	

Operating System Support	**Microsoft:**
	Microsoft Windows Server 2012
	Microsoft Windows Server 2008 SP2, R2 (x86 and x64)
	Microsoft Windows Hyper-V, R2 SP1
	Linux:
	Red Hat Enterprise Linux (x86 and EM64T/AMD64) 5.7, 6.1
	SUSE Linux Enterprise Server (x86 and EM64T/AMD64)
	Solaris:
	Solaris 10 (x86 and x64)
	Virtualization:
	VMware ESX/ESXi 4.1u2, ESXi 5.0u1 and ESXi 5.1.
	Citrix XenServer 6.0
	NOTE: For more operating system support & certification information, please visit: http://h10018.www1.hp.com/wwsolutions/index.html.

Technical Specifications

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. |