## Overview

The HP 366M is a HP BladeSystem c-Class network adapter providing four Gigabit Ethernet ports on a single card saving valuable server mezzanine slots for other purposes. The x4 PCI Express 366M is supported on ProLiant c-Class servers in all mezzanine slots. For Gen8 ProLiant c-Class servers, the 366M is the first quad-port adapter option for c-Class with latest Intel® Ethernet I350 controller With the 366M, up to 96 Gigabit Ethernet ports per c7000 enclosure and 48 per c3000 enclosure are possible.

The four ports provide the highest port density available for BladeSystem servers in a single adapter. The 366M is ideal for virtualization, security, server consolidation, network segmentation, and other server applications requiring maximum throughput and port density in a 1 GbE infrastructure. The total aggregate throughput of 8Gbps full duplex also meets the needs for customers desiring high bandwidth but are not yet ready to move to 10 Gigabit Ethernet.
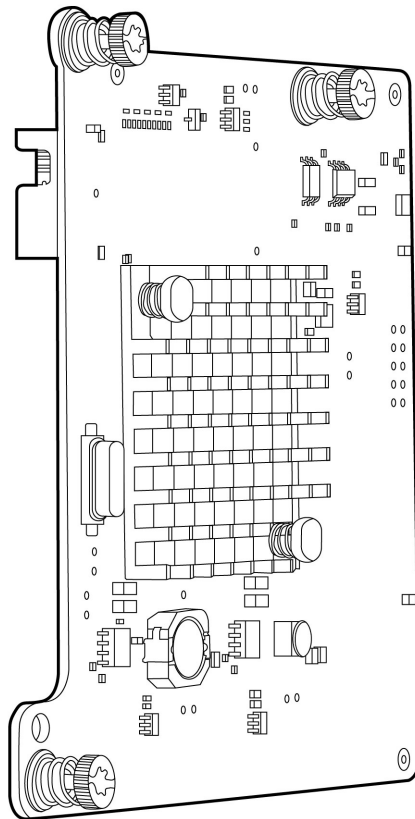
HP Ethernet 1Gb 4-port 366M Adapter

Models

HP Ethernet 1Gb 4-port 366M Adapter	615729-B21

Kit contents	● HP Ethernet 1Gb 4-port 366M Adapter
	● Quick install card
	● Product warranty statement
	● Drivers, user guide, and utilities via http://www.hp.com

Compatibility

HP ProLiant Server Support

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

Standard Features

Product Features	- Four Gigabit Ethernet ports - Supported on ProLiant Gen8 servers in all c-class enclosures, all server mezzanine slots (Mezzanine slot1 supports 2 ports & Mezzanine slot2 supports 4 ports); multiple cards per server. - Intel® Ethernet I350 controllers - Designed with server needs in mind: - IEEE 802.1p, 802.1Q, 802.3, 802.3ad, and 802.3x - ProLiant Teaming including Network Fault Tolerance, Transmit Load Balancing, and Switch-Assisted Load Balancing 9.5K Jumbo frames - Interrupt/DMA Coalescing - IEEE 1588 (Precision Time Stamping) & 802.1AS (Hardware enabled Time Synchronization) - TCP/IP checksum offload (TCO) and large send offload (LSO) - PXE - Intel® Integrated I/O and Data Direct I/O for increased performance and reduced latency - Virtualization with VMDq - IPv6 packet transmit and receive (excluding all offload capabilities); IPv6 aware SNMPv1 agent for Windows
Quad-port Gigabit Ethernet Throughput	Up to 1000 Mbps full duplex Ethernet transfer rate per port (4000 Mbps combined) delivers outstanding network performance designed to improve response time and remove bottlenecks across the entire network. Four ports on a single adapter are ideal for high density; I/O slot constrained blade servers, virtualization and security, applications, server consolidation, and increased network segmentation. The total aggregate throughput of 8Gbps full duplex also meets the needs for customers desiring high bandwidth but are not yet ready to move to 10 Gigabit Ethernet.
Jumbo Frames	The 366M support for 9.5K jumbo frames (also known as extended frames) permit a 9.5K byte transmission unit (MTU), which is approximately six times the size of standard 1500 byte Ethernet frame. The 366M supports jumbo frames as a way to achieve higher throughput and better CPU utilization. Jumbo frames are particularly useful for database transfers and tape backups.
802.1Q VLANs with 802.1p QoS Tagging	IEEE 802.1Q virtual local area network (VLAN) protocol allows each physical port of the 366M 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. 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.
TCP/IP Stateless Offloading	For overall improved system response, the 366M supports standard TCP/IP 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) or TCP segmentation offload (TSO) allows the TCP segmentation to be handled by the adapter rather than the CPU.
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.
DMA Coalescing	Supports DMA Coalescing, the incoming data packets and interrupts associated with these DMA calls are intelligently batched to keep the system devices in lower power states.

QuickSpecs

Standard Features

Intel® Integrated I/O with Data Direct I/O	New on HP ProLiant Gen8 servers, Intel® Integrated I/O features reduces memory access from I/O on local socket which speeds up CPU data transfer and accelerates inbound and outbound traffic flows. Together, Integrated I/O and Data Direct I/O technologies reduce system power, increases I/O performance and reduced I/O latency.
Optimized for Virtualization	I/O Virtualization support for VMware NetQueue, Microsoft VMQ and Intel's Virtualization Machine Device Queues(VMDq) 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 Firmware, Software and OS support
IEEE1588 & 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.
HP Sea of Sensors 3D	Support for HP Sea of Sensors 3D Technology 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.
PXE Boot	Support for pre-boot execution environment (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.

High Availability	**Quad port**	The four ports on the 366M are transmitted to up to four separate enclosure interconnect bays providing redundant signal paths.
	Redundant adapters	With multiple quad port adapters supported per server connected to up to two redundant pairs of interconnect modules per enclosure, a very wide variety of high availability I/O configurations are possible.
	ProLiant Network Adapter Teaming	ProLiant Network Adapter Teaming provides fault tolerance and load balancing across a team of two or more network adapters. The team of adapters works together as a single virtual adapter. Support for several different types of teaming is included. Teaming offers IT professionals an easy, efficient, and cost-effective way to provide network fault tolerance and increased network bandwidth. For more information, refer to the ProLiant Network Adapter Teaming Whitepaper available at http://bizsupport.austin.hp.com/bc/docs/support/SupportManual/c01415139/c01415139.pdf

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.
	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

Service and Support	**HP Care Pack Services: Packaged server and storage services for increased uptime, productivity and ROI** When you buy HP server and storage products and solutions, it's also a good time to think about what levels of support you may need. Our portfolio of service options reduce deployment and management worries while helping you get the most out of your server and storage investments. We take a holistic approach to your environment, bridging servers, blades, storage, software and network infrastructures with our packaged HP Care Pack Services for servers and storage.

Protect your business beyond warranty

When it comes to robustness and reliability, standard computing equipment warranties have matured along with technology. Good news that can also create problems stemming from depending on standard warranties designed to only protect against product defects and some downtime causes. Using a standard approach to warranty uplifts, such as HP Care Pack Services, helps reduce downtime risks and provides operational consistency for mission-critical and standard business computing.

HP Care Pack Services: Upgrading or extending standard server and storage warranties cost effectively

HP Care Pack Services offer a standard reactive hardware and software support services suite sold separately, or combined with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of integrated proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition with HP Proactive Select, you can acquire the specific proactive constancy and technical services. HP Proactive Select menu offers a broad set of service options that you can mix and match depending on your specific requirements. Proactive service options include offers for server, storage, network, SAN device, software, environment, and education services.

HP server and storage lifecycle support services offer a full spectrum of customer care-from technology support to complex migrations to complete managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education Services offer flexible, comprehensive training on to help your IT staff get the most out of your server and storage investments. HP Financial solutions extend innovative financing and cost-effective asset management programs-from purchase to equipment retirement.

Learn more: www.hp.com/services/servers and www.hp.com/services/storage

NOTE: Care Pack Services availability may vary by product and country.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at http://www.hp.com/go/lookuptool

Service and Support

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

Recommended Services

Hardware Options Support

HP Care Packs provide support for all HP-branded hardware options qualified for inclusion in your server or storage solution. Any additional HP-qualified options installed within the server are covered at the same service level and for the same period as the server and no additional cost.

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf

3-Year HP Hardware Support Onsite Service, 4-hour response, 24x7

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.

This service provides a trained HP service specialist to perform an installation that meets HP quality standards, for:

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf

HP Installation and Startup of HP ProLiant Servers

Provides for the installation of your new HP ProLiant server and operating system to assist you in bringing your new HP ProLiant server and operating system into operation in a timely and professional manner.

This service provides a trained HP service specialist to perform an installation that meets HP quality standards, for:

- Delivery of the service at a mutually scheduled time convenient to your organization
- Availability of an HP service specialist to answer basic questions during the onsite delivery of this service
- Custom installation as detailed in "Delivery specifications" or in a Statement of Work (SOW)
- Verification prior to installation that all service prerequisites are met

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-7572ENN.pdf

Service and Support

Optional HP Care Pack Services that will enhance your HP product experience

Optional Services

3-Year HP Hardware Support Onsite Call-to-Repair (CTR) Service, 6- or 24-hour
As an alternative to our recommended support level, for customers who need committed call-to-repair for server hardware.

Provides your IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 or 24 hours of the initial service request to the HP Global Solution Center.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN.pdf

3-Year HP Support Plus 24
As an alternative to our recommended support level, for customers who need access to responsive 24x7 hardware and software support plus software updates on HP and selected third party products:

For a higher return on your server and storage technology, our 3-year combined reactive support service delivers integrated onsite hardware/software support services available 24x7x365, including access to HP technical resources, 4-hour response onsite hardware support and software updates.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EEE

HP Proactive Select Service
Customer needs on demand access to consulting, technical proactive services and education courses

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

eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal
The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: http://www.hp.com/support

Service and Support

HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24 X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur.

Customer Technical Training	In today's cost-conscious business environment, IT professionals, developers, consultants and users face an interesting challenge: how to keep up with the latest technologies and expand important skills while delivering profitable results on current projects. To help address this challenge, HP offers innovative training solutions that help keep you up-to-date on virtualization, server, storage, Insight Control, Citrix, Microsoft® and open source/Linux-related topics-while spending less time away from business-critical activities.
HP Services Awards	HP Technology Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction.
Additional Services Information	To learn more on HP ProLiant servers, HP BladeSystem servers and HP storage products, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: www.hp.com/services/proliant or www.hp.com/services/bladesystem or http://www.hp.com/services/storage

Related Options

c-Class BladeSystem Interconnect Modules	**NOTE:** This is a list of supported options. Some may be discontinued.

HP 1/10Gb-F Virtual Connect Ethernet Module for c-Class BladeSystem	447047-B21
HP 1:10Gb Ethernet Blade Switch for c-Class BladeSystem	438031-B21
Cisco Catalyst Blade Switch 3020 for HP c-Class BladeSystem	410916-B21
Cisco Catalyst 1GbE 3120G Blade Switch	451438-B21
Cisco Catalyst 1/10GbE 3120X Blade Switch	451439-B21
HP GbE2c Layer 2/3 Ethernet Blade Switch	438030-B21
HP GbE2c Ethernet Blade Switch for HP c-Class BladeSystem	410917-B21
HP 1GB Ethernet Pass-Thru Module for c-Class BladeSystem	406740-B21
HP 6120XG Blade Switch	516733-B21
HP 6120G/XG Ethernet Blade Switch	498358-B21
HP Cisco B22HP Fabric Extender for BladeSystem c-Class	641146-B21
HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class	657787-B21

Technical Specifications

General Specifications	Network controller	Intel® Ethernet I350 Controller	
	Data rate	Four ports, each at 1000 Mbps full duplex (theoretical maximum) **NOTE:** The 366M adapter transmits from the server at only 2 Gbps aggregate full duplex per port.	
	Bus type	x4 PCI Express 2.1	
	Form factor	Type I mezzanine card compatible with all ProLiant c-Class Gen8 servers listed in the Supported Servers section of this QuickSpecs, all mezzanine slots. Multiple cards per server. **NOTE:** If the 366M is installed in mezzanine slot 1 of a half-height server, connectivity will be provided on only 2 of the 4 ports.	
	IEEE Compliance	802.1p, 802.1Q, 802.3, 802.3ad, and 802.3x, IEEE 1588, 802.1AS	
Power and Environmental Specifications	Operating	**Temperature**	50° - 95° F (10° - 35° C)
		Humidity	10% to 90% non-condensing
	Non-operating	**Temperature**	-40° to 158° F (-40° to 70° C)
		Humidity	5% to 95% non-condensing
	Power	**Maximum Watts**	3.1 Watts
	Emissions	FCC Class A	
	Agency Approvals	**USA**	FCC (CFR 47 part 15) and UL 60950
		Canada	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 Windows Server 2008
	• Microsoft Windows HPC Server 2008
	• Red Hat Enterprise Linux 5.7, 6.1
	• SUSE Linux Enterprise Server
	• Solaris 10
	• VMware ESX/ESXi 4.1u2 and ESXi 5.0u1
	• Citrix Xenserver 6.0
	• Microsoft Windows Hyper-V

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.