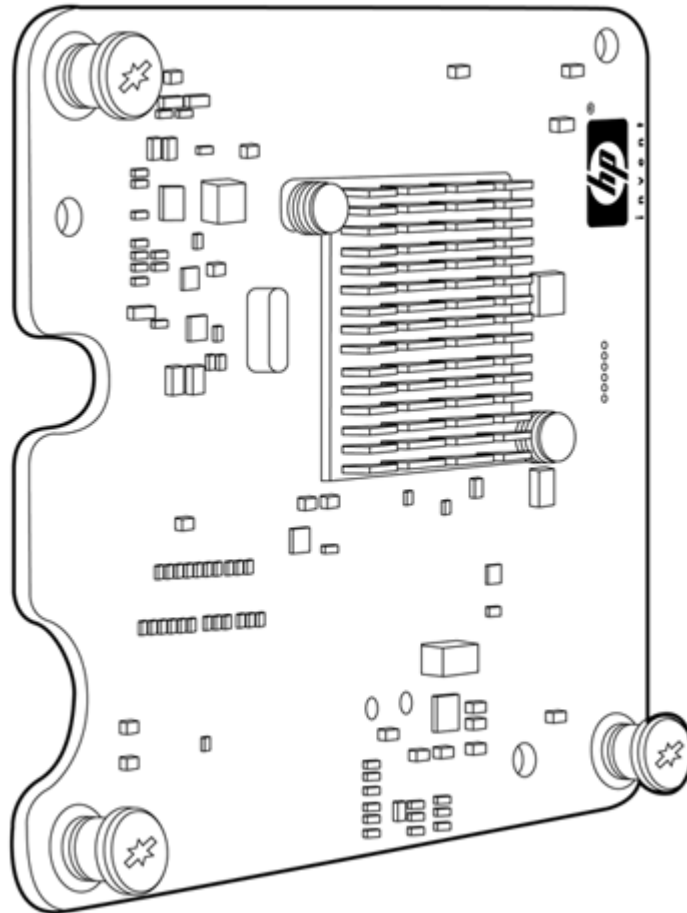


### Overview

The HP NC382m combines standard Gigabit Ethernet networking, TCP/IP offload engine (TOE) acceleration for Microsoft Windows 2003, and iSCSI boot for Linux into a single adapter. The x4 PCI Express NC382m adapter is supported on all HP BladeSystem ProLiant c-Class servers in all mezzanine slots. Multiple adapters can be installed per server.

In addition to its Multifunction capabilities, the NC382m adapter ships with advanced server features that ProLiant customers have come to expect, such as support for failover and load balancing, TCP/IP checksum offloading, large send offloading, Wake-on-LAN, PXE, jumbo frames, VLAN tagging, QoS, and much more.



HP NC382m Dual Port 1GbE Multifunction BL-c Adapter

### What's New

- Support for HP ProLiant Generation 6 servers

### Overview

#### At A Glance

- Dual Gigabit Ethernet ports
- TCP/IP offload engine (TOE) and accelerated iSCSI for Microsoft Windows
- iSCSI boot for Linux
- Supported on all ProLiant c-Class servers, in all mezzanine slots, multiple cards per server
- 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
  - 9K Industry standard jumbo frames
  - TCP/IP checksum offload (TCO) and large send offload (LSO)
  - Interrupt coalescence and dual address cycles (DAC)
  - Wake-on-LAN (WOL) and pre-boot execution environment (PXE)
  - IPv6 packet transmit and receive (excluding all offload capabilities); IPv6 aware SNMPv1 agent for Windows

#### Models

HP NC382m Dual Port 1GbE Multifunction BL-c Adapter

453246-B21

**NOTE:** The HP BladeSystem TCP/IP offload engine (TOE) is supported in a Microsoft Windows 2003 environment only.

#### Kit Contents

- HP NC382m PCI Express Dual Port Multifunction Gigabit Server Adapter
- Quick install card
- Product warranty statement
- Drivers, user guide, and utilities via <http://www.hp.com>

#### Standard Features

##### Server Support

- HP ProLiant BL685c G6
- HP ProLiant BL685c G5
- HP ProLiant BL680c G5
- HP ProLiant BL495c G6
- HP ProLiant BL495c G5
- HP ProLiant BL490c G6
- HP ProLiant BL465c G6
- HP ProLiant BL465c G5
- HP ProLiant BL460c G6
- HP ProLiant BL460c G5
- HP ProLiant BL460c
- HP ProLiant BL280c G6
- HP ProLiant BL260c G5
- HP ProLiant BL2x220c G5

### Performance

<b>Gigabit Ethernet Throughput</b>	2,000 Mbps per port full duplex (4,000 Mbps full duplex, both ports) transfer rate delivers outstanding network performance that improves response time and removes bottlenecks across the entire network.
<b>Windows TCP/IP Offload Engine</b>	TCP/IP Offload Engine (TOE) for Microsoft Windows 2003 moves the processing of data in the TCP protocol stack from the server CPU to the network card, freeing CPU cycles for other duties. The NC382m supports TOE when Windows TOE Chimney is installed. With TOE, network communications are improved, and server efficiency is increased.
<b>Linux iSCSI Boot</b>	The iSCSI boot for Linux feature allows the host server (c-Class blade server) to boot from a remote operating system (OS) image located on a storage area network (SAN). Coupled with the operating system's iSCSI boot initiator software, the c-Class server uses an HP provided iSCSI firmware image (iSCSI boot option ROM) making the remote disk drive appear as a local, bootable C: drive. The server is configured to connect to and boot from the iSCSI target disk on the network and download the OS image from the iSCSI target disk. The HP iSCSI boot solution includes scripts to simplify the installation process.
<b>Jumbo Frames</b>	The NC382m support for jumbo frames (also known as extended frames) permit an industry standard 9K byte transmission unit (MTU), which is six times the size of standard 1500 byte Ethernet frame. The NC382m 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.
<b>802.1Q VLANs with 802.1p QoS Tagging</b>	IEEE 802.1Q virtual local area network (VLAN) protocol allows each physical port of the NC382m 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.
<b>TCP/IP Stateless Offloading</b>	For overall improved system response, the NC382m supports standard TCP/IP offloading techniques including: <ul style="list-style-type: none"><li>• TCP/IP checksum offload (TCO) moves the TCP and IP checksum offloading from the CPU to the network adapter.</li><li>• Large send offload (LSO) or TCP segmentation offload (TSO) allows the TCP segmentation to be handled by the adapter rather than the CPU.</li></ul>
<b>Interrupt Coalescence</b>	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.
<b>Dual Address Cycles</b>	Dual address cycles (DAC) provide the ability to address memory above 4 GB and improve system performance by preventing the server operating system from performing a buffer copy from below 4 GB to above 4 GB.

### High Availability

**Dual port**

The two ports on the NC382m are transmitted to separate enclosure interconnect bays providing redundant signal paths.

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**Redundant adapters**

With multiple dual 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.

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**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>

### Mezzanine Slot Compatibility

Server	Mezz Slot	c7000 Interconnect Bays		c3000 Interconnect Bays		Maximum NC382m 1GbE Ports/Server	Supported Interconnect Modules <sup>2</sup>	
		NC382m Port 1 <sup>1</sup>	NC382m Port 2 <sup>1</sup>	NC382m Port 1 <sup>1</sup>	NC382m Port 2 <sup>1</sup>			
BL2x220c G5	M1	5	6	3	4	Four (4)	<ul style="list-style-type: none"> <li>● HP Virtual Connect Flex-10 10GB Ethernet Module for BladeSystem c-Class</li> <li>● HP 1/10Gb Virtual Connect Ethernet Module</li> <li>● HP 1/10Gb-F Virtual Connect Ethernet Module HP</li> <li>● 1:10Gb Ethernet BL-c Switch</li> <li>● Cisco Catalyst 3120G Blade Switch for HP</li> <li>● Cisco Catalyst 3120X Blade Switch for HP</li> <li>● Cisco Catalyst 3020 Blade Switch</li> <li>● HP GbE2c Layer 2/3 Ethernet Blade Switch</li> <li>● HP 1Gb Ethernet Pass-Thru Module</li> </ul>	
	M2	7	8	3	4			
BL260c G5	M1	5	6	3	4	Two (2)		
BL280c G6 BL460c G5 BL460c G6 BL465c G5 BL465c G6 BL490c G6 BL495c G5 BL495c G6	M1	3	4	2	2	Four (4)		
	M2	5	6	3	4			
	M1	3	4	2	2			Six (6)
	M2	5	6	3	4			
	M3	7	8	3	4			

<sup>1</sup> Includes an additional two 1GbE ports care of the embedded network adapters.

<sup>2</sup> Includes an additional four 1GbE ports care of the embedded network adapters.

<sup>3</sup> Port numerations can vary by operating system.

<sup>4</sup> For purchase of the Interconnect Modules referenced above; please see the related options section of this QuickSpecs.

**NOTE:** Some servers listed above may be discontinued.

### Service and Support, HP Care Pack, and Warranty Information

#### 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 Authorized HP 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>.

#### Support Services

The HP Care Pack service for ProLiant BL c-Class and p-Class server blades cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server. HP Care Pack Services provide total care and support expertise with committed response designed to meet your IT and business needs.

To fully capitalize on the capabilities of your HP BladeSystem servers, a service partner is required who thoroughly understands your server technology and systems environment. HP Services, an industry leader in the provisioning of multi vender support solutions, provides a range of support services designed to meet the varying needs of today's businesses. Whether an SMB or large global corporation, HP has a BladeSystem server support offer to help you rapidly deploy and maximize system uptime.

**Recommended Service** - Simplify BladeSystem solution implementation, maintenance, and management.

- Support - 3 year 4 hour response 24x7 same business day coverage.
- Deployment Service - Installation and start up for HP BladeSystem Infrastructure.

**Enhanced Service** - Optimum service level to increase IT performance and availability.

- Support - 1 year HP Proactive BladeSystem Service.
- Deployment Service - Enhanced Network Installation and start up for HP BladeSystem Switches.

Installation & Start-Up service for HP BladeSystem Infrastructure plus HP BladeSystem Enhanced Network Installation and Start-UP as per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

For a complete listing of service offerings and information visit:

<http://www.hp.com/services/bladessystemservices>  
<http://www.hp.com/go/proliant/carepack>

### Related Options

<b>c-Class BladeSystem Interconnect Modules</b>	HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem	455880-B21
	HP 1/10Gb Virtual Connect Ethernet Module for c-Class BladeSystem	399593-B22
	HP 1/10Gb-F Virtual Connect Ethernet Module	447047-B21
	HP 1:10 Gb Ethernet BL-c Switch	438031-B21
	Cisco Catalyst Blade Switch 3120G for HP	451438-B21
	Cisco Catalyst Blade Switch 3120X for HP	451439-B21
	Cisco Catalyst 3020 Blade Switch	410916-B21
	HP GbE2c Layer2/3 Ethernet Blade Switch for c-Class BladeSystem	438030-B21
	HP GbE2c Ethernet Blade Switch for c-Class BladeSystem	410917-B21
	Ethernet Pass-Through Module for HP BladeSystem	406740-B21

### Technical Specifications

General Specifications	Network Processor	Broadcom 5709S		
	Data rate	Two ports, each at 2 Gbps full duplex (theoretical maximum) <b>NOTE:</b> The NC382m adapter transmits from the server at only 2 Gbps full duplex per port.		
	Bus type	x4 PCI Express 1.0		
	Form factor	Mezzanine card compatible with all ProLiant c-Class server mezzanine slots		
	IEEE Compliance	802.1p, 802.1Q, 802.3, 802.3ad, and 802.3x		
Power and Environmental Specifications	Operating	Temperature	50° to 95° F (10° to 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 requirement	Maximum 4 Watts		
	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	CE Mark, EN55022:1998 (CISPR 22), EN55024:1998, and IEC60950:1999 (EN60950:2000)		
	RoHS Compliance	6 of 6		
	Safety	UL Mark (USA and Canada) EN 60590		
Operating System Support		<ul style="list-style-type: none"><li>● Microsoft Windows 2003 and 2008 (32-bit and 64-bit)</li><li>● Red Hat Enterprise Linux</li><li>● SUSE Linux Enterprise Server</li><li>● Novell NetWare 6.5</li><li>● Novell Open Enterprise Server x86</li><li>● Solaris 10 (32- and 64-bit)</li></ul>		

**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/supportos>.

### 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.

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