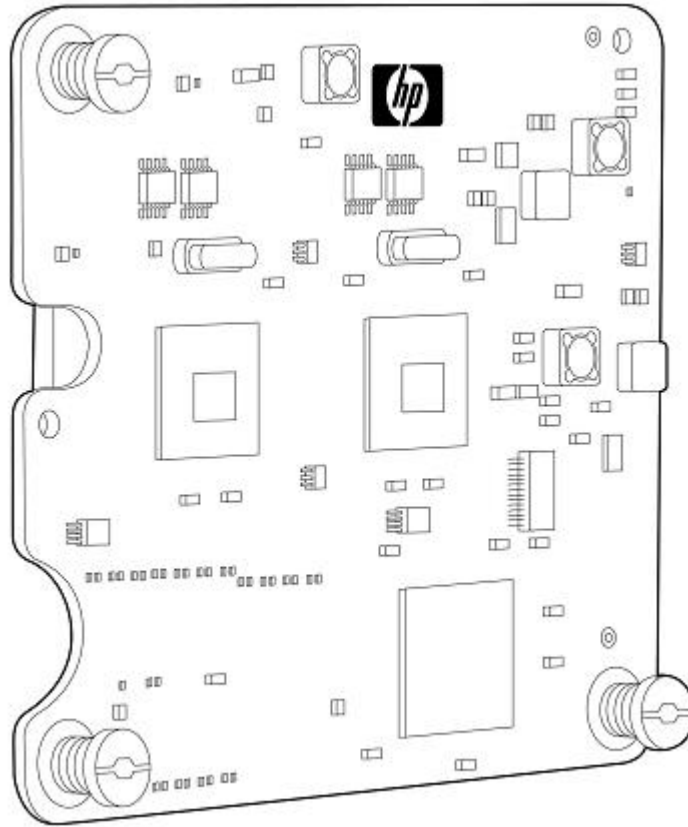


### Overview

The HP NC364m 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 NC364m is supported on both Integrity and ProLiant c-Class servers in all mezzanine slots. For Integrity c-Class servers, it is the first network adapter mezzanine option available providing up to 16 Gigabit Ethernet ports per BL860c and BL870c server. For ProLiant c-Class servers, the NC364m is the second quad-port adapter option for c-Class allowing ProLiant customers a choice of an adapter that uses either an Intel or Broadcom controller. With the NC364m, up to 128 Gigabit Ethernet ports per c7000 enclosure and 64 per c3000 enclosure are possible.

The four ports provide the highest port density available for BladeSystem servers in a single adapter. The NC364m is ideal for virtualization, security, server consolidation, network segmentation, and other server applications requiring maximum throughput and port density. 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 NC364m Quad Port 1GbE BL-c Adapter

### What's New

- Support for HP ProLiant Generation 6 servers

### Overview

#### At A Glance

- Four Gigabit Ethernet ports
- Supported on ProLiant and Integrity servers in all c-class enclosures, all server mezzanine slots; multiple cards per server.
- Dual Intel 82571EB 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
  - 9K Jumbo frames
  - TCP/IP checksum offload (TCO) and large send offload (LSO)
  - Interrupt coalescence
  - Dual address cycles (DAC)
  - PXE (when using Virtual Connect modules only)
  - IPv6 packet transmit and receive (excluding all offload capabilities); IPv6 aware SNMPv1 agent for Windows

#### Models

HP NC364m Quad Port 1GbE BL-c Adapter

447883-B21

#### Kit Contents

1. HP NC364m Quad Port 1GbE BL-c Adapter
2. Quick install card
3. Product warranty statement
4. Drivers, user guide, and utilities via <http://www.hp.com>

#### Standard Features

##### Server Support

- HP Integrity BL870c
- HP Integrity BL860c
- HP ProLiant BL685c G6
- HP ProLiant BL685c G5
- HP ProLiant BL680c G5
- HP ProLiant BL495c G5
- HP ProLiant BL490c G6
- HP ProLiant BL480c
- HP ProLiant BL465c G5
- HP ProLiant BL460c G6
- HP ProLiant BL460c G5
- HP ProLiant BL460c
- HP ProLiant BL280c G6
- HP ProLiant BL260c G5

### Performance

#### Quad-port Gigabit Ethernet Throughput

Up to 2000 Mbps full duplex Ethernet transfer rate per port (8000 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 NC364m support for 9K jumbo frames (also known as extended frames) permit a 9K byte transmission unit (MTU), which is six times the size of standard 1500 byte Ethernet frame. The NC364m 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 NC364m 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 NC364m 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.

#### Dual Address Cycles

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

**Quad port** The four ports on the NC364m are transmitted to up to four separate enclosure interconnect bays providing redundant signal paths.

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**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.

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**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>

# QuickSpecs

## Mezzanine Slot and Interconnect Compatibility

Server	Mezz Slot	c7000 Interconnect Bays				c3000 Interconnect Bays				Maximum NC364m Ports/ Server	Supported Interconnect Modules <sup>2</sup>
		NC364m Port 1 <sup>1</sup>	NC364m Port 2 <sup>1</sup>	NC364m Port 3 <sup>1</sup>	NC364m Port 4 <sup>1</sup>	NC364m Port 1 <sup>1</sup>	NC364m Port 2 <sup>1</sup>	NC364m Port 3 <sup>1</sup>	NC364m Port 4 <sup>1</sup>		
BL260c G5	M1	5	6	7	8	3	4	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</li> <li>HP 1:10Gb Ethernet BL-c Switch</li> <li>Cisco Catalyst 3020 Blade Switch</li> <li>Cisco Catalyst 3120G Blade Switch</li> <li>Cisco Catalyst 3120X Blade Switch</li> <li>HP GbE2c Layer 2/3 Ethernet Blade Switch</li> <li>HP 1Gb Ethernet Pass-Thru Module</li> </ul>
BL280c G6 BL460c G6 BL465c G5 BL490c G6 BL495c G5	M1 <sup>3</sup>	3	4	Not supported		2	2	Not supported		Six (6)	
	M2	5	6	7	8	3	4	3	4		
BL480c G5 BL680c G5 BL685c G5 BL685c G6 BL860c G6 BL870c G6	M1	3	4	3	4	2	2	2	2	Twelve (12)	
	M2	5	6	7	8	3	4	3	4		
	M3	7	8	5	6	3	4	3	4		

<sup>1</sup> Port numerations can vary by operating system.

<sup>2</sup> For purchase of the Interconnect Modules referenced above; please see the related options section of this QuickSpecs.

<sup>3</sup> If the NC364m is installed in mezzanine slot 1 (M1) of the listed half-height servers, connectivity will be provided on only two of the four ports.

### 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 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>.

#### Support Services

To fully capitalize on the capabilities of your HP BladeSystem a server, 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>

### Related Options

<b>c-Class BladeSystem Interconnect Modules</b>	HP 1/10Gb-F Virtual Connect Ethernet Module	447047-B21
	HP 1/10Gb Virtual Connect Ethernet Module for c-Class BladeSystem	399593-B22
	HP 1:10Gb Ethernet BL-c Switch for c-Class BladeSystem	438031-B21
	Cisco Catalyst 3020 Blade Switch	410916-B21
	Cisco Catalyst Blade Switch 3120G for HP	451438-B21
	Cisco Catalyst Blade Switch 3120X for HP	451439-B21
	HP GbE2c Layer 2/3 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 controller	Two Intel 82571EB		
	Data rate	Four ports, each at 2000 Mbps full duplex (theoretical maximum) <b>NOTE:</b> The NC364m adapter transmits from the server at only 2 Gbps full duplex per port.		
	Bus type	x4 PCI Express 1.0a		
	Form factor	Type I mezzanine card compatible with all ProLiant and Integrity c-Class servers listed in the Supported Servers section of this QuickSpecs, all mezzanine slots. Multiple cards per server. <b>NOTE:</b> If the NC364m is installed in mezzanine slot 1 of a half-height server (excluding the BL260c G5), connectivity will be provided on only 2 of the 4 ports.		
Power and Environmental Specifications	IEEE Compliance	802.1p, 802.1Q, 802.3, 802.3ad, and 802.3x		
	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	6.0 Watts, 3.3 volts at 1,820mA	
	Emissions	FCC Class A		
	Agency Approvals	USA	FCC (CFR 47 part 15) and UL 60950	
		Canada	CSA60950	
	RoHS Compliance	6 of 6		
Safety	UL Mark			
	CE Mark			
	EN 60590			
Operating System Support	<ul style="list-style-type: none"><li>● Microsoft Windows 2003 and 2008 (32-bit and 64-bit) (ProLiant)</li><li>● Microsoft Windows 2003 and 2008 (64-bit) (Integrity)</li><li>● Microsoft certified miniport and teaming drivers (ProLiant)</li><li>● Red Hat Enterprise Linux (ProLiant)</li><li>● SUSE Linux Enterprise Server (ProLiant)</li><li>● Novell NetWare 6.5 (ProLiant)</li><li>● Novell Open Enterprise Server x86 (ProLiant)</li><li>● HP-UX 11i v3 and HP-UX 11i v2 (64-bit) (Integrity)</li><li>● OpenVMS 8.3 1-H1 (Integrity only)</li></ul>			

**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.

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