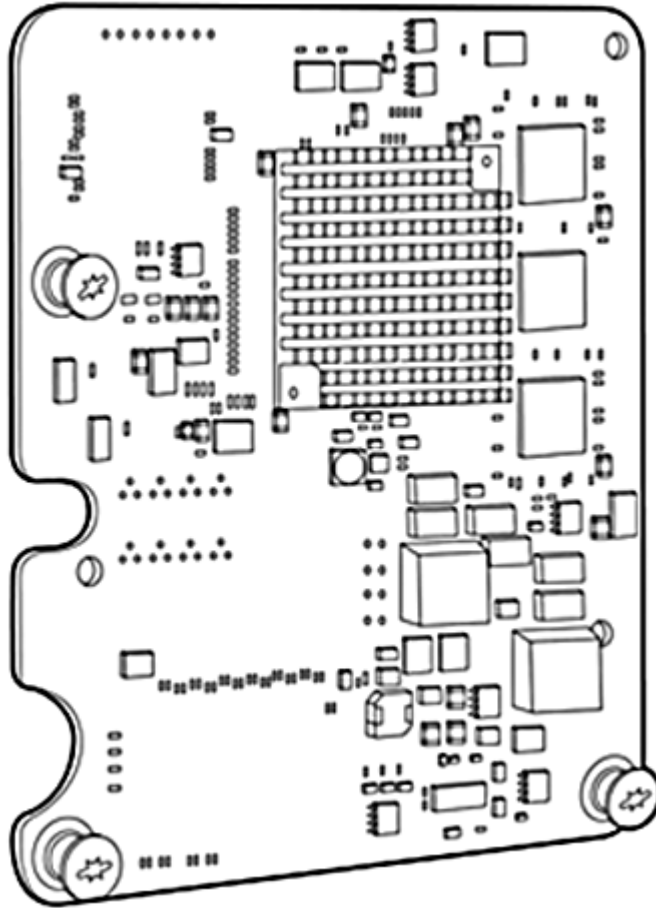


### Overview

### HP NC532m Dual Port Flex-10 10GbE Multifunction BL-c Adapter

The NC532m is a Flex -10 enabled 10 Gigabit Ethernet network adapter for the ProLiant c-Class BladeSystem. The adapter is a dual port 10GbE mezzanine, that when paired with the new 10Gb Virtual Connect Module provides up to eight physical function NICs that can be configured to operate at any speed from 100Mbps to 10Gbs. The NC532m will also support 10Gb connections when paired with the ProCurve 6120XG Blade Switch. The adapter ships with support for VLAN tagging, QoS, teaming (bonding), Receive Side Scaling (RSS) and PXE.

The NC532m adapter is supported in most ProLiant c-class server Type I and II mezzanine slots allowing customers to provision their servers with unprecedented bandwidth never before available in a blade.



HP NC532m Dual Port Flex-10 10GbE Multifunction BL-c Adapter

### What's New

- Support for BL2x220c G6 server blade

### Overview

#### At A Glance

- Supported per ProLiant c-Class server, in mezzanine slots 2 or 3 (full height servers) or slot 2 (half height servers). Supported in any available slot on BL495 and all Gen 6 servers
- Type I Adapter
- Supports HP's exclusive Flex-10 technology
- IEEE 802.1p QoS 802.3x flow control, and 802.3ap 10GBase-KR
- 4K Jumbo frames
- Dual 10Gb ports offer up to 40Gb/s bidirectional theoretical throughput
- Set any bandwidth from 100Mb to 10Gb on up to four "Physical Function " NICs per port

#### Models

HP NC532m Dual Port Flex-10 10GbE BL-c Adapter

467799-B21

**NOTE:** The NC532m network adapter card is required for each server blade connecting to a 10Gb interconnect in bays 3-8 (HP BladeSystem c7000 Enclosure) or bays 3-4 (HP BladeSystem c3000 Enclosure)

**NOTE:** The NC532m requires a minimum of 2 GB of server memory.

**NOTE:** The NC522m supports linking only at 1000Mbps or 10000Mbps when not connected to the HP Virtual Connect Flex-10 Ethernet Module.

#### Kit Contents

1. NC532m mezzanine 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 ProLiant BL260c G5
- HP ProLiant BL2x220c G5
- HP ProLiant BL2x220c G6
- HP ProLiant BL460c
- HP ProLiant BL460c G5
- HP ProLiant BL465c
- HP ProLiant BL465 G5
- HP ProLiant BL465 G6
- HP ProLiant BL495c G5
- HP ProLiant BL495c G6
- HP ProLiant BL680c
- HP ProLiant BL685c
- HP ProLiant BL685 G5

### Performance

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#### Dual-port 10 Gigabit Ethernet Throughput

The 20,000 Mbps full duplex Ethernet transfer rate per port (40 Gbps aggregate full duplex) delivers outstanding network performance that improves response time and removes bottlenecks required for the next generation data center. Ten Gigabit Ethernet bandwidth is ideal for high performance computing, database clusters, iSCSI storage, storage backups, grid systems, virtualization, server and I/O consolidation, fabric consolidation, and more.

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#### HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem

Evolve 10Gb at your own speed! When paired with the HP Virtual Connect Flex-10 10Gb Ethernet Modules, take advantage of the Flex Nics, which are PCI Physical Function devices that are OS independent.

- Server ROM recognizes them as individual NICs
  - Speeds can be set per NIC from 100Mb to 10Gbps in 100Mb increments
  - Three fold increase in number of network connections per port.
  - Up to four physical function NICs per port
- 

#### Jumbo Frames

The NC532m support for jumbo frames (also known as extended frames) permit up to a 4K byte transmission unit (MTU), which is over 2 times the size of standard 1500 byte Ethernet frame. The use of jumbo frames is a way to achieve higher throughput and better CPU utilization. Jumbo frames are particularly useful for database transfers and tape backups.

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#### 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.

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#### TCP/IP Stateless Offloading

For overall improved system response, the NC532m 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.
-

### Performance

<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>TOE</b>	TCP/IP Offload Engine (TOE) moves the processing of data in the TCP protocol stack from the server CPU to the network card, freeing CPU cycles for other duties.
<b>iSCSI Support</b>	This device supports accelerated iSCSI. iSCSI boot currently not supported.
<b>RDMA</b>	Not supported
<b>Network Adapter Teaming</b>	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.

### Mezzanine Slot Compatibility

Server	Mezz Slot	c7000 Interconnect Bays		c3000 Interconnect Bays		Maximum NC532m 10GbE Ports/Server	Supported Interconnect Modules <sup>2</sup>
		NC532m Port 1 <sup>1</sup>	NC532m Port 2 <sup>1</sup>	NC532m Port 1 <sup>1</sup>	NC532m Port 2 <sup>1</sup>		
BL2x220c G5 BL2x220c G6	M1	5	6	3	4	Two (2)	<ul style="list-style-type: none"> <li>● HP Virtual Connect Flex-10 Ethernet Module</li> <li>● HP 1/10Gb Virtual Connect Ethernet Module</li> <li>● HP 1/10Gb-F Virtual Connect Ethernet Module</li> <li>● HP ProCurve 6120XG Blade Switch</li> <li>● HP ProCurve 6120G/XG Blade Switch</li> <li>● HP 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> <li>● HP 10GbE Pass-Thru Module</li> </ul>
	M2	7	8	3	4		
BL260c G5	M1	5	6	3	4		
BL280c G6 BL460c BL465c BL465c G5 BL465c G6	M2	5	6	3	4		
BL495c G5 BL495c G6	M1	3	4	2	2	Four (4)	
	M2	5	6	3	4		
BL480c BL680c G5 BL685c BL685c G5	M2	5	6	3	4	Four (4)	
	M3	7	8	3	4		

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

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

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

### 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

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 are 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>Additional c-Class BladeSystem Adapters</b>	HP NC325m PCI Express Quad Port 1Gb Server Adapter	416585-B21
	HP NC326m PCI Express Dual Port 1Gb Server Adapter	406771-B21
	HP NC360m Dual Port 1GbE BL-c Adapter	445978-B21
	HP NC364m Quad Port 1GbE BL-c Adapter	447883-B21
	HP NC382m PCI Express Dual Port Multifunction Gigabit server adapter	453246-B21
	HP NC522m Dual Port Flex-10 10GbE Multifunction BLc Adapter	467801-B21
	HP NC542m Dual Port Flex-10 10GbE Multifunction BL-c Adapter	539857-B21
	HP BLc QLogic iSCSI Dual Port Adapter with Virtual Connect Kit	488074-B22
<b>Virtual Connect Module</b>	HP Virtual Connect Flex-10 Ethernet Module	455880-B21
<b>HP Pass-Thru Module</b>	HP 10GbE Dual Port Mezzanine Adapter for HP BladeSystem c-Class	516936-B21
<b>HP ProCurve Switch</b>	HP ProCurve 6120XG Blade Switch	516733-B21

### Technical Specifications

General Specifications	<b>Network processor</b>	Broadcom 57711		
	<b>Data rate</b>	Two ports, each at 20 Gbps full duplex; 40 Gbps aggregate full duplex theoretical bandwidth. Note that each port on the NC532m adapter transmits from the server at only 20 Gbps (theoretical) full duplex.		
	<b>Bus type</b>	PCI Express v2.0 (Gen 2) x8		
	<b>Form factor</b>	The NC532m is a Type I card, however it is not supported in Mezzanine slot one of Gen 1 and Gen 5 servers with the exception of the BL495. It is compatible in any slot on all Gen 6 servers.		
	<b>IEEE Compliance</b>	802.1p, 802.1q, 802.3u, 802.3ad, 802.3ae, 802.3ap (10GBase-KX4), 802.3x and 802.3z		
Power and Environmental Specifications	<b>Operating</b>	<b>Temperature</b>	0°C to 55°C / 32°F to 131°F	
		<b>Humidity</b>	10% to 90% non-condensing	
	<b>Power requirement</b>	15W		
	<b>Emissions classification</b>	FCC Class A		
	<b>Agency approvals</b>	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)		
	<b>RoHS Compliance</b>	6 of 6		
	<b>Safety</b>	UL Mark (USA and Canada)		
		CE Mark		
		EN 60590		

### Operating System Support Microsoft:

Microsoft Windows Server 2008 (32-and 64-bit)  
Microsoft Windows Server 2008 for Itanium-based Systems  
Microsoft Windows Server 2003 and R2  
Microsoft Windows Server 2003 Web Edition  
Microsoft Windows Server 2003 Small Business Server  
Microsoft Windows 2003 Standard (32 and x64)  
Microsoft Windows 2003 Enterprise (32 and x64)

### Linux:

RH4 x86  
RH4 AMD64EM64T  
RH5 x86  
RH5 AMD64EM64T  
SLES9 x86  
SLES9 AMD64EM64T  
SLES 10 x86 and AMD64EM64T

### Novel Netware:



### Technical Specifications

NetWare 6.5  
Netware OES (6.5)

NDIS 2 for DOS unattended install (40K or less in size)

**Solaris:**  
Solaris 10 (32- and 64-bit)

**Virtualization:**  
MS Virtual Server support on Windows 2008  
VMWare ESX3.5

**HP-UX:**  
(IA64) handled by BCS for SW, QA and release

**NOTE:** For more operating system support & certification information, please visit:  
<http://h10018.www1.hp.com/wwsolutions/index.html>.

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#### 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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