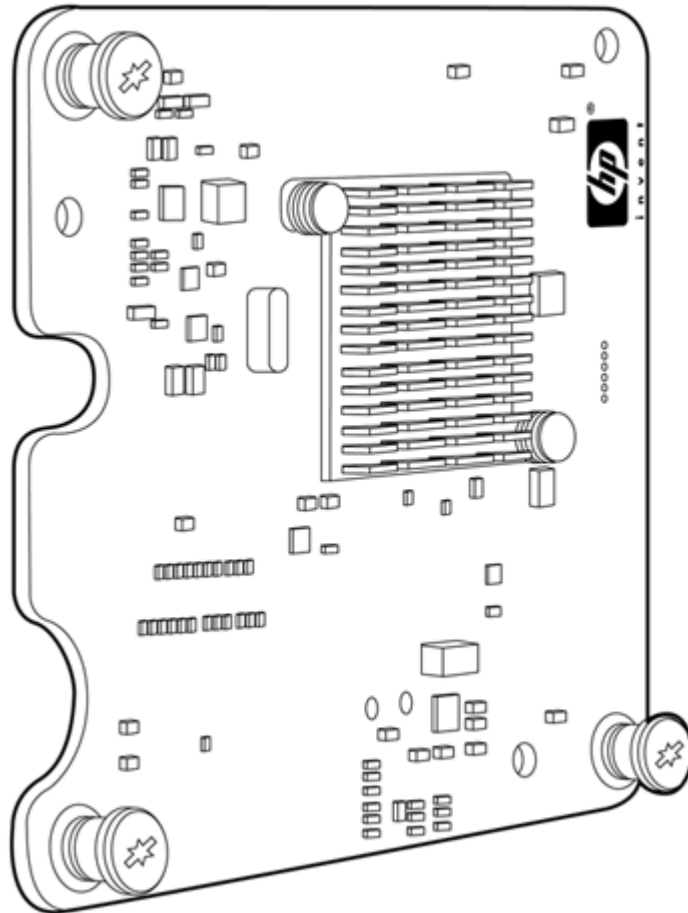


### Overview

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 7 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.

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#### 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 G7
- HP ProLiant BL680c G5
- HP ProLiant BL680c G7
- HP ProLiant BL620c G7
- HP ProLiant BL495c G5
- HP ProLiant BL495c G6
- HP ProLiant BL490c G6
- HP ProLiant BL490c G7
- HP ProLiant BL465c G5
- HP ProLiant BL465c G6
- HP ProLiant BL465c G7
- HP ProLiant BL460c G6
- HP ProLiant BL460c G7
- HP ProLiant BL280c G6
- HP ProLiant BL2x220c G6

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

#### 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. iSCSI boot is not supported on SLES 11 SP1 x64 and RHEL 5.7 x32 bit. |
| <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   |



### Standard Features

|                                    |  |
|------------------------------------|--|
| <b>TCP/IP Stateless Offloading</b> | flow.<br>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.   |

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|                          |                                |   |
|--------------------------|--------------------------------|---|
| <b>High Availability</b> | <b>Dual port</b>               | The two ports on the NC382m are transmitted to separate enclosure interconnect bays providing redundant signal paths.   |
|                          | <b>Redundant adapters</b>      | 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.   |
|                          | <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. For more information, refer to the ProLiant Network Adapter Teaming Whitepaper available at:<br><a href="ftp://ftp.compaq.com/pub/products/servers/networking/TeamingWP.pdf">ftp://ftp.compaq.com/pub/products/servers/networking/TeamingWP.pdf</a> |

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|                 |  |
|-----------------|--|
| <b>Warranty</b> | 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>.



### 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 offers 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](http://www.hp.com/services/servers) and [www.hp.com/services/storage](http://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>

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### 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.pdf>

##### **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>

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#### 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>

HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24



### Service and Support

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.

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#### 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.

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#### 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.

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#### 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](http://www.hp.com/services/proliant) or [www.hp.com/services/bladesystem](http://www.hp.com/services/bladesystem) or <http://www.hp.com/hps/storage>



### Related Options

|   |   |            |
|---|---|------------|
| <b>c-Class BladeSystem<br/>Interconnect Modules</b> | HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem | 455880-B21 |
|   | 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 |
|   | HP 6120XG Blade Switch  | 516733-B21 |
|   | HP 6120G/XG Blade Switch  | 498358-B21 |



### Technical Specifications

|  |  |   |                                   |  |
|--|--|---|-----------------------------------|--|
| General Specifications                 | Network Processor  | Broadcom 5709S  |                                   |  |
|  | Data rate  | Two ports, each at 2 Gbps full duplex (theoretical maximum)<br><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  |                                   |  |
| Power and Environmental Specifications | IEEE Compliance  | 802.1p, 802.1Q, 802.3, 802.3ad, and 802.3x  |                                   |  |
|  | 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/ossupport>.



### 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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