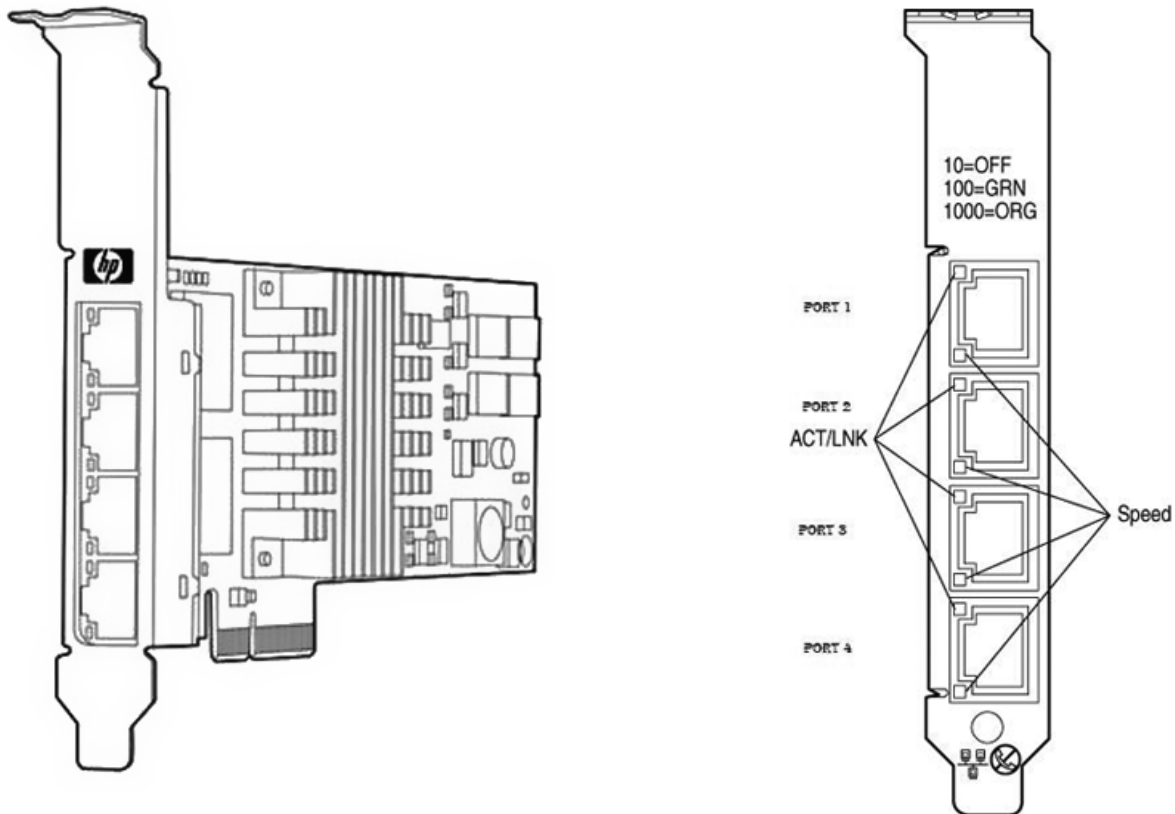


Overview

The HP NC364T PCI Express Quad-Port Gigabit Server Adapter features four 10/100/1000T Gigabit Ethernet ports on a single card, saving valuable server I/O slots for other purposes. The four ports provide the highest port density available for ProLiant servers in a single PCI Express network adapter. The NC364T is ideal for virtualization, security, server consolidation, network segmentation, and other ProLiant server applications requiring maximum throughput and port density. The total aggregate throughput of 4Gbps meets the needs for customers desiring high bandwidth but are not yet ready to move to 10 Gigabit Ethernet. The NC364T is a low-profile card with both full height and half height brackets included in the kit. The x4 PCI Express interface is compatible with x4, x8, and x16 PCI slots.

Tested and proven to meet demanding HP standards, the NC364T provides full driver support on a wide variety of ProLiant servers. The adapter ships with teaming drivers for all major operating systems, teaming utilities, multiple VLAN tagging capability, configuration utilities and IPv6 packet transmit and receive support (excluding all offload capabilities).



Models

HP NC364T PCI Express Quad Port Gigabit Server Adapter

435508-B21

NOTE: Does not support Windows 2000.

NOTE: There is a maximum of five NC364T PCI Express Quad Port Gigabit Server Adapter NICs allowed in selected servers.



Overview

Kit Contents

- HP NC364T PCI Express Quad Port Gigabit Server Adapter
- Full height and half height brackets; the full height bracket is pre-installed on the card
- Quick install card inclusive of instructions on changing to the half height bracket (if needed)
- Product warranty statement

Compatibility

Servers

ProLiant DL (rack-optimized):

- HP ProLiant DL120 G5
- HP ProLiant DL120 G6
- HP ProLiant DL140 G3
- HP ProLiant DL145 G3
- HP ProLiant DL160 G5
- HP ProLiant DL160 G5p
- HP ProLiant DL160 G6
- HP ProLiant DL165 G5
- HP ProLiant DL165 G5p
- HP ProLiant DL165 G6
- HP ProLiant DL165 G7
- HP ProLiant DL180
- HP ProLiant DL180 G5
- HP ProLiant DL180 G6
- HP ProLiant DL185 G5
- HP ProLiant DL320 G5
- HP ProLiant DL320 G5p
- HP ProLiant DL320 G6
- HP ProLiant DL320s
- HP ProLiant DL360 G5
- HP ProLiant DL360 G6
- HP ProLiant DL360 G7
- HP ProLiant DL365
- HP ProLiant DL365 G5
- HP ProLiant DL370 G6
- HP ProLiant DL380 G5
- HP ProLiant DL380 G6
- HP ProLiant DL380 G7
- HP ProLiant DL385 G2
- HP ProLiant DL385 G5
- HP ProLiant DL385 G5p
- HP ProLiant DL385 G6
- HP ProLiant DL385 G7
- HP ProLiant DL580 G4
- HP ProLiant DL580 G5
- HP ProLiant DL580 G7
- HP ProLiant DL585 G2
- HP ProLiant DL585 G5
- HP ProLiant DL585 G6
- HP ProLiant DL585 G7
- HP ProLiant DL785 G5
- HP ProLiant DL785 G6



Overview

ProLiant ML (expansion-optimized):

- HP ProLiant ML150 G3
- HP ProLiant ML150 G5
- HP ProLiant ML150 G6
- HP ProLiant ML310 G4
- HP ProLiant ML310 G5
- HP ProLiant ML310 G5p
- HP ProLiant ML330 G6
- HP ProLiant ML350 G5
- HP ProLiant ML350 G6
- HP ProLiant ML370 G5
- HP ProLiant ML370 G6
- HP ProLiant ML570 G4

ProLiant SL (scalable line):

- HP ProLiant SL160z G6
- HP ProLiant SL165z G6
- HP ProLiant SL165z G7
- HP ProLiant SL170z G6
- HP ProLiant SL2x170z G6

NOTE: Some servers may be discontinued.



Standard Features

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: <http://h71028.www7.hp.com/ERC/downloads/4AA0-6064ENW.pdf>.

Performance

Quad-port Gigabit Ethernet Throughput

With a theoretical throughput of 10 Gbps each direction, the x4 PCI Express bus is more than capable of supporting the NC364T's four gigabit ports. Up to 1000 Mbps 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 servers, virtualization and security, applications, server consolidation, and increased network segmentation. The total aggregate throughput of 4Gbps also meets the needs for customers desiring high bandwidth but are not yet ready to move to 10 Gigabit Ethernet.

NOTE: Port enumeration on the NC364T is from the top down, i.e. the port near the top of the adapter is port #1 and the port closest to the gold teeth is port #4

Jumbo Frames

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 NC364T 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 NC364T 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 NC364T 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.



Standard Features

Versatility

10/100/1000T Twisted Pair Networks

In addition to Gigabit Ethernet, the NC364T adapter supports both 10Mbps and 100Mbps providing compatibility with Ethernet and Fast Ethernet twisted pair networks.

Full and Half Height Brackets

The NC364T is a low-profile card supporting both full height and half height PCI Express slots. A full height bracket is pre-installed on the card with the half height bracket in the box. The quick install card includes instructions on how to change brackets if needed.

x4/x8/x16 PCI Express Compatibility

The x4 PCI Express interface on the NC364T is compatible with x4, x8, and x16 PCI slots. If installed in a x8 or x16 slot, the adapter will operate at the x4 speed.

High Availability

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.

The teaming options offer 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>

Network Management

Auto-negotiation

The NC364T automatically senses the speed of the device to which it is attached. It also automatically configures for half or full duplex, depending on the duplex mode of the switch, hub, or router connected to the adapter.

Management Support

Like all HP server adapters, the NC364T ships with drivers and agents that can be managed from HP Systems Insight Manager, as well as using any other management application that supports SNMP. HP Systems Insight Manager can recognize the NC364T individually or in teams, and can collect and report SNMP statistics on the adapter events.

Server Integration

The NC364T is a completely integrated, tested, and qualified solution that is optimized for HP servers. HP validates a wide variety of major operating systems drivers with the full suite of web-based enterprise management utilities and ProLiant Essentials (including SmartStart and HP Systems Insight Manager) that simplify network management. Integrated Management Log (IML) support is provided by the NC364T for critical event logging on HP servers.

This approach provides a more robust and reliable networking solution than offerings from other vendors and provides users with a single point of contact for both their servers and their network adapters.



Standard Features

Configuration Utilities	Each NC364T ships with a suite of operating system-tailored configuration utilities that allow the user to enable initial diagnostics and configure adapter teaming. This includes a patented teaming GUI for Microsoft Windows operating systems. Additionally, support for scripted installations of teams in a Microsoft Windows environment allow for unattended OS installations.
LED Indicators	Per port bracket LED indicators show link integrity, network activity, and network speed for easy troubleshooting.
WOL	The NC364T provides Wake-on-LAN (WOL) support on Port 1 allowing an administrator to remotely power on a WOL-capable server. When the server powers down, the NC364T maintains power through an alternate source and continuously monitors the network for a special wake-up packet. When the adapter receives the special packet created for its MAC address, the NC364T instructs the server to power on.
PXE	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.

Warranty

Warranty	Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html
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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 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>

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>

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>



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/5981-6636ENN>

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>

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 StorageWorks 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/hps/storage>



Related Options

Gigabit Server Adapters	HP NC112T PCIe Gigabit Server Adapter	503746-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21

10 Gigabit Server Adapters

NOTE: No more than two 10GbE I/O devices are supported in a single ProLiant server.

NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

HP NC522SFP Dual Port 10GbE Server Adapter 468332-B21

HP NC524SFP Dual Port 10GbE Server Adapter 489892-B21

NOTE: NC524SFP is available only on DL370 G6, ML370 G6, DL580 G7, and DL585 G7.

HP NC550SFP Dual Port 10GbE Server Adapter 581201-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs



Technical Specifications

General Specifications	Communications Processor	Two Intel 82571EB		
	Data rate	10/100/1000 Mbps, Half- and full-duplex		
	Data path	Four lane (x4) PCI Express compatible with x1, x4, x8, and x16 PCI Express slots		
	On-board memory	256 KB		
	Bus type	PCI Express 1.0a		
	Bus speed	10 Gbps uni-directional; 20 Gbps bi-directional (x4 PCIe, encoded rate)		
	Interrupt levels	Automatically configured		
	Connector	Four RJ-45		
	Cable distance	Up to 328 ft (100 m)		
	Wiring	Category 5 (CAT-5) or better twisted-pair cabling		
	Form factor	Low profile card with both full height (pre-installed) and half height brackets included in kit		
IEEE Compliance	802.3, 802.3ab, 802.3u, 802.3x, Dynamic 802.3ad, 802.3p, 802.1Q			
Power and Environmental Specifications	Operating	Temperature	32° to 131° F (0° to 55° C)	
		Humidity	10% to 90% non-condensing	
	Non-operating	Temperature	-40° to 185° F (-40° to 85° C)	
		Humidity	5% to 95% non-condensing	
	Power requirement	1250 mA @ 12V maximum		
	Emissions classification	Class B		
	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		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	<ul style="list-style-type: none">● 32-bit Windows<ul style="list-style-type: none">○ Microsoft Windows Server 2003 Standard, Web, Small Business, and Enterprise Editions● 64-bit Windows<ul style="list-style-type: none">○ Microsoft Windows Server 2003 Standard and Enterprise Editions● Microsoft Windows Server 2008● Microsoft Windows HPC Server 2008● Microsoft certified miniport and teaming drivers● Red Hat Enterprise Linux● SUSE Linux Enterprise Server● Novell NetWare 6.5● Novell Open Enterprise Server x86			



Technical Specifications

- SCO UnixWare 7.1.3, 7.1.4
- SCO OpenServer 5.0.7, 6.0.0
- Solaris 10 8/07
- NDIS 2 for MS-DOS unattended operating system install (43K or less in size)
- Windows Preinstallation Environment (WinPE) (MS-DOS replacement)
- VMware ESX Server and Microsoft Virtual Server

NOTE: For more Linux OS support & certification information, please visit our the ProLiant & Bladesystem Server Linux matrix: <http://h18004.www1.hp.com/products/servers/linux/hplinuxcert.html>

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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