Overview
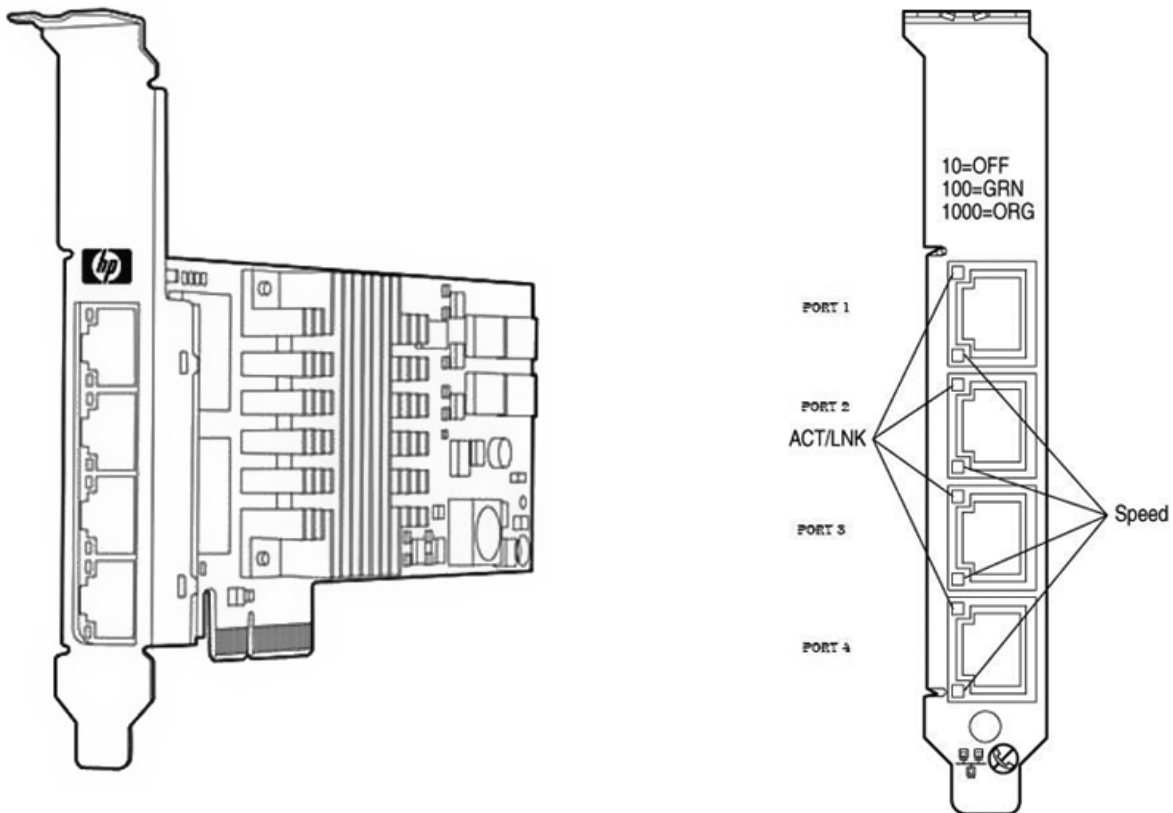
The HP NC364T PCI Express Quad-Port Gigabit Server Adapter features four 10/100/1000T Gigabit Ethernet ports on a single card, saving valuable server I/O slots for other purposes. The four ports provide the highest port density available for ProLiant servers in a single PCI Express network adapter. The 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 support for the optional HP ProLiant Essentials Intelligent Network Pack that proactively adapts to changes in the network infrastructure.

Models

HP NC364T PCI Express Quad Port Gigabit Server Adapter   435508-B21
NOTE: Does not support Windows 2000.

Overview

NC364T 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
	CD containing drivers, user guide, installation and diagnostic utilities
	Quick install card inclusive of instructions on changing to the half height bracket (if needed)
	Product warranty statement

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.

Standard Features

Server Support   ProLiant DL (rack-optimized):

- HP ProLiant DL120 G5
- HP ProLiant DL145 G3
- HP ProLiant DL140 G3
- HP ProLiant DL160 G5
- HP ProLiant Dl165 G5
- HP ProLiant DL180
- HP ProLiant DL180 G5
- HP ProLiant Dl185 G5
- HP ProLiant DL320 G5
- HP ProLiant DL320s
- HP ProLiant DL360 G5
- HP ProLiant DL365
- HP ProLiant DL365 G5
- HP ProLiant DL380 G5
- HP ProLiant DL385 G2
- HP ProLiant DL385 G5
- HP ProLiant DL580 G4
- HP ProLiant DL580 G5
- HP ProLiant DL585 G2
- HP ProLiant DL585 G5
- HP ProLiant DL785 G5

ProLiant ML (expansion-optimized):

- HP ProLiant ML110 G5
- HP ProLiant ML115 G5
- HP ProLiant ML150 G3
- HP ProLiant ML150 G5
- HP ProLiant ML310 G4
- HP ProLiant ML310 G5
- HP ProLiant ML350 G5
- HP ProLiant ML370 G5
- HP ProLiant ML570 G4

NOTE: Some servers may be discontinued.

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 NC325m 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.

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. Optional advanced teaming capabilities are further supported through the ProLiant Essentials Intelligent Networking Pack.

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, see the ProLiant Network Adapter Teaming home page:
http://h18000.www1.hp.com/products/servers/networking/teaming.html

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 venders and provides users with a single point of contact for both their servers and their network adapters.

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.

Service and Support, HP Care Pack, and Warranty Information

Warranty

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

Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from same business day 13 ours, 5 day to 24 hours, 7 days call window with options including 4-hour response or 6-hour Call-To-Repair.
- Comprehensive range of software technical support for Microsoft, Linux, ProLiant Essentials, and VMware-based IT solutions helping to deliver high level of application availability. Response times ranging from 30 minutes for critical problems to 2 hours.
- System Management, Performance Services and Mission Critical Support Solution

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at: http://www.hp.com/hps/carepack
NOTE: For more complete information on HP Services offerings, customers and resellers, please visit us at: http://www.hp.com/hps
NOTE: Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Related Options

Additional Gigabit Server Adapters	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	NOTE: Does not support Windows 2000.	
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	NOTE: Supported on a full length-full height slot only.	
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
10 Gigabit Server Adapters	HP NC510C PCIe 10 Gigabit Server Adapter	414129-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	
	HP NC510F PCIe 10 Gigabit Server Adapter	414126-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	

QuickSpecs

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	

Technical Specifications

Operating System Support
- 32-bit Windows
  - Microsoft Windows Server 2003 Standard, Web, Small Business, and Enterprise Editions
- 64-bit Windows
  - Microsoft Windows Server 2003 Standard and Enterprise Editions
- Microsoft Windows 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
- 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.