Overview

The integrated NC7781 LOM incorporates a variety of features on a single chip using Category 5 (or better) twisted-pair cabling, thus increasing flexibility and reducing support costs. The N7781 ships with industry-standard drivers that are compatible with other NC series gigabit adapters. This LOM supports 10/100/1000 Mbps Ethernet speeds as well as a PCI-X 64-bit/133MHz data path, compatible with existing PCI bus architectures. This range of features enables ProLiant server customers to protect their current hardware investment while also future-proofing their ProLiant servers for the inevitable increase in networking throughput. Additionally, the NC7781ships with support for Network Fault Tolerance, Load Balancing, Jumbo Frames, and various TCP offload capabilities that improve performance.

The integrated NC7781 is a PCI-X based LOM (LAN on Motherboard) embedded chip that provides high-performance and feature-rich functionality on 10BASE-T, 100BASE-TX and 1000BASE-TX networks. Along with all the advanced features that ProLiant customers have come to expect, the NC7781 includes support for Jumbo Frames, Wake on LAN (WOL), Dual Address Cycles (DAC), and Pre-Boot Execution environment (PXE).

Models

Integrated NC7781 PCI-X LOM

Related Options

Related Gigabit Server Adapters

NC310F PCI-X Gigabit Server Adapter, 1000-SX	368169-B21
NC320T PCI Express Gigabit Server Adapter	367047-B21
NC1020T PCI Gigabit Server Adapter	353377-B21
NC6770 PCI-X Gigabit Server Adapter, 1000-SX	244949-B21
NC7170 Dual Port PCI-X 1000T Gigabit Server Adapter	313881-B21

ProLiant Essentials Intelligent Networking Pack

ProLiant Essentials Intelligent Networking Pack - tracking license	372951-B21

Performance

Gigabit Ethernet Throughput, High-Performance, and Flexibility for Today's Businesses

A 1000 Mbps Ethernet transfer rate delivers outstanding network performance that improves response time and removes bottlenecks across the entire network. Full-duplex support allows the NC7781 to transmit and receive data simultaneously at rates up to 1000 Mbps for Gigabit Ethernet.

Port Bonding or Load Balancing

Transmit Load Balancing (TLB) and Switch-Assisted Load Balancing (FEC/GEC/802.3ad static-mode configuration only) are two port-bonding methods supported by the NC7781. TLB provides both failover and balancing of transmit traffic across all adapters for increased performance. For even higher performance, Switch-Assisted Load Balancing (SLB) provides port failover and balancing of both transmit and receive traffic across all ports when connected to a switch that supports this feature. Both of these load balancing techniques build a bigger pipe for improved networking bandwidth and enable users to install up to 7 adapters in addition to this LOM (for a team consisting of 8 ports) within a ProLiant server to aggregate their throughput up to a maximum of 16 Gigabits per second full-duplex transmissions.

Bus-mastering

This LOM uses bus-mastering technology to maximize throughput and minimize CPU utilization.

PCI-X Data Path

HP was an early champion of PCI-X bus technology and has played a key role in the development and industry adoption of the PCI-X specification. The NC7781 is HP's first LOM to feature a 64-bit/133MHz data path, which yields faster transmissions with lower CPU utilization.

Jumbo Frames

Jumbo Frames (also known as Extended Frames) offer a 9K byte Maximum Transmission Unit (MTU), which is six times the size of traditional Ethernet frames. The NC7781 supports jumbo frames as a way to achieve higher throughput and better CPU utilization when deployed in a network infrastructure that supports them. Jumbo frames are particularly useful for database transfers and tape backups.

TCP Offloads and Interrupt Coalescing

The NC7781 supports TCP Checksum Offloads as well as TCO Segmentation Offloads. Both reduce the load on the CPU for an overall improved system response. Interrupt Coalescence groups multiple packets and issues a single interrupt to the host. This process optimizes host efficiency, leaving the CPU available for other duties.

Scalability and Reliability

Tri-Speed Support

Because the NC7781 supports 10Mbps Ethernet, 100Mbps Fast Ethernet, and Gigabit Ethernet; users are guaranteed end-to-end protocol support across their enterprise. Like all HP ProLiant server adapters and LOMs, the NC7781 adheres to open industry standards, insuring that it will work seamlessly with any network devices that also support IEEE standards.

PCI-X Support for Traditional PCI slots

PCI-X technology insures hardware investment protection by retaining backward compatibility with the standard PCI bus architecture at the device and driver level.

Ease of Use

World Class Reliability

Designed with quality and investment protection in mind, the NC7781 Fast Ethernet Adapter meets all of HP's demanding design standards. Surface-mount technology, ASIC-based hardware, state-of-the-art manufacturing facilities, a top-notch quality inspection, and testing provide the reliability and quality you expect from HP.

Conformance to Industry Standards

The NC7781 is fully compatible with all major operating systems. A complete list of supported operating systems is included in the specifications at the end of this document. Additionally, this product supports ACPI (Advance Configuration Power Interface), which can reduce power consumption.

Network Fault Tolerance (NFT)

The Network Fault Tolerance feature of the NC7781 ensures that the server can always keep an active link. After installing a second, compatible adapter, if the primary network connection fails, the second, backup adapter will automatically take over, retaining the network connection. The NC7781 can be configured to fail over to almost any NC-series adapter by using the latest drivers.

Server Integration

HP's ProLiant SmartStart configuration utility includes setup support for the NC7781 so that the NIC can be configured as part of the SmartStart configuration process. Insight Manager can recognize the NC7781 individually or in port bonded teams, and can collect and report SNMP statistics on the server adapter events. The Network Management System can also collect and report SNMP statistics. Additionally, Integrated Management Log (IML) support is provided by the NC7781 for critical event logging on ProLiant servers.

Wake On LAN

The NC7781 provides Wake on LAN (WOL) support in ProLiant servers that support WOL. A system that supports Wake on LAN can remain available to a system administrator during its normal downtime. Once the machine is awakened, the system administrator can remotely control, audit, debug, or manage the machine.

Auto-negotiation

The NC7781 automatically senses and configures itself to 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 at the other end of the cable.

Management Support

The NC7781 supports drivers and agents that can be managed from all versions of HP Insight Manger 7 as well as using any management application that supports SNMP.

Configuration Utilities

Each NC1020 ships with a suite of OS-tailored configuration utilities that allow the user to run initial diagnostics and configure adapter teams for Network Fault Tolerance, Transmit Load Balancing, or Switch-Assisted Load Balancing (Dynamic 802.3ad) in the Windows®, Linux, or NetWare operating systems.

Warranty

Maximum: The remaining warranty of the HP product in which it is installed (to a maximum three-year, limited warranty).
Minimum: One year limited warranty.
See Internet address http://www.HP.com for overall information on HP Computer Corporation. For further information on HP products, contact HP Sales at 1-800-544-5255 or the HP Technical Support Center (post sales) at 1-800-652-6672. For customer support and information about HP and its products consult the Customer Support Center at 1-800-345-1518.

Technical Specifications

Compliance		EEE 802.3i, 802.3u, 802.3x, 802.3ab, Dynamic 802.3ad, 802.1p, and 802.1q	
		PCI-X 1.0	
		PCI 2.2	
		ACPI v1.20a	
General Specifications	Communications Processor	Broadcom 5703	
		10/100/1000 Mbps, Half- and full-duplex	
	On-board memory	96 KB	
	Data path	64-bit/133MHz, compatible with 64/100, 64/66, 64/33 and 32/33	
	Interrupt levels	INTA	
	Bus architecture	PCI-X bus-mastering, compatible with existing PCI bus architectures	
	Connector	RJ-45	
	Distance	Up to 328 feet/100 meters	
	Wiring	Category (CAT) 5 or higher Unshielded Twisted Pair (UTP) wiring	
Operating System Support		Windows Server 2003 Enterprise, Standard, Web, Datacenter, Small Business Server editions	
		Microsoft Windows 2000 Server, Advanced Server, Data Center, Terminal Server, Small Business Server editions	
		Microsoft Windows Enterprise, Small Business Server 4.5, Terminal Server editions	
		Novell NetWare 6.5, NetWare 6, NetWare 6 Small Business Server, Novell NetWare 5.1 edition	
		SCO UnixWare 7.1.3, Open Unix 8, 5.06a, 5.07	
		Solaris 7 and 8	
		Red Hat Linux 8.0, 7.3, and 2.1 Advanced Server	
		SuSE Linux Enterprise Server 7 (SLES-7)	
		United Linux 1.0	
		DOS (for remote installs)	
Environmental Specifications	Operating	Temperature	32° to 131° F (0° to 55° C)
		Humidity	5% to 95% non-condensing
	Non-operating	Temperature	-40° to 149° F (-40° to 65° C)
		Humidity	5% to 95% non-condensing

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.