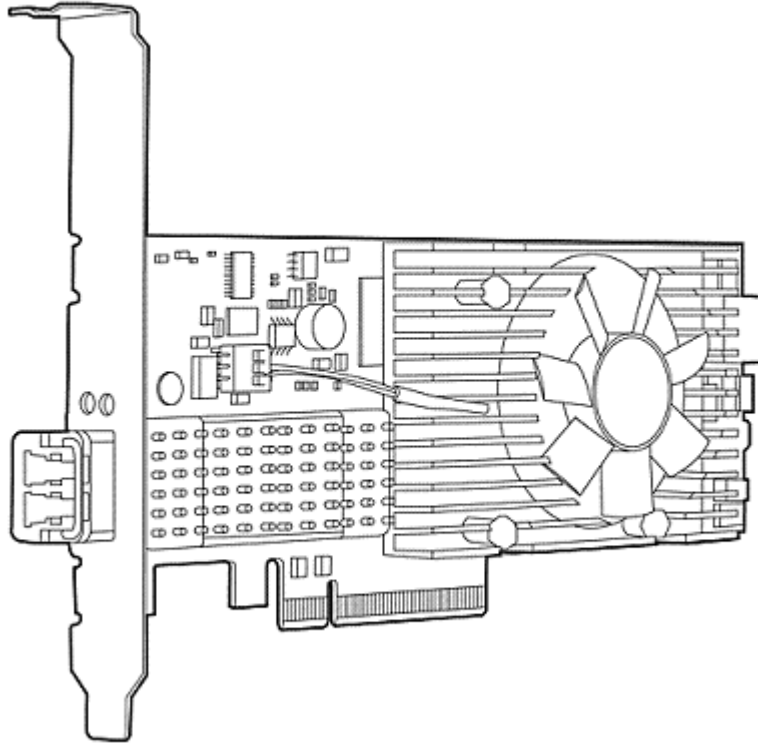


### Overview

The NC510F is an eight lane (x8) PCI Express (PCIe) 10 Gigabit Ethernet SR (10GBASE-SR fiber optic) network solution offering the highest bandwidth available in a ProLiant Ethernet adapter. The NC510F is ideal for a host of demanding applications meeting the needs of the next generation datacenter.

The NC510F ships with advanced server features that ProLiant customers have come to expect, such as support for TCP checksum and segmentation (LSO) offload capability, jumbo frames, IPv6, and more. Flexible to order and install - either standard or low profile slot capability with only one part number.



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### Models

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.

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### Kit Contents

The option kit contents consist of the following items:

- HP NC510F PCIe 10 Gigabit Server Adapter
- Full height bracket (installed on card)
- Low-profile bracket
- Quick install card
- User documentation and driver download information
- Product warranty statement

### Overview

**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 DL140 G2
- HP ProLiant DL140 G3
- HP ProLiant DL145 G2
- HP ProLiant DL145 G3
- HP ProLiant DL160 G5
- HP ProLiant DL165 G5
- HP ProLiant DL165 G5p
- HP ProLiant DL180
- HP ProLiant DL180 G5
- HP ProLiant DL185 G5
- HP ProLiant DL360 G4p
- HP ProLiant DL360 G5
- HP ProLiant DL365
- HP ProLiant DL365 G5
- HP ProLiant DL380 G4
- HP ProLiant DL380 G5
- HP ProLiant DL385 G2
- HP ProLiant DL385 G5
- HP ProLiant DL385 G5p
- HP ProLiant DL580 G3
- HP ProLiant DL580 G5
- HP ProLiant DL585 G2
- HP ProLiant DL585 G5
- HP ProLiant DL785 G5

#### ProLiant ML (expansion-optimized):

- HP ProLiant ML350 G5
- HP ProLiant ML370 G5
- HP ProLiant ML570 G3
- HP ProLiant ML570 G4

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

### Performance

#### Performance

- 
- 10 Gigabit Throughput** The 10,000 Mbps Ethernet transfer rate delivers outstanding network performance that improves response time and removes bottlenecks required for the next generation datacenter. Ten Gigabit Ethernet bandwidth is ideal for high performance computing, database clusters, network attached storage, storage backups, grid systems, virtualization, server and I/O consolidation, fabric consolidation, and more.
- 
- TCP/IP Offload Engine** 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. With TOE, network communications are improved, and server efficiency is increased. The TOE multifunction feature is planned for future, near-term release available for both Windows and Linux.
- 
- Accelerated iSCSI** Internet Small Computer System Interface (iSCSI) allows the NC510F to multi-function both as a network adapter and as a storage host bus adapter, thereby providing access to storage boxes and to servers over a single connection. Accelerated iSCSI offloads the iSCSI software to the hardware for improved system performance. The accelerated iSCSI multifunction feature is planned for future, near-term release.
- 
- RDMA** Remote Direct Memory Access (RDMA) is a low-latency protocol providing improved throughput scaling and message latency between two RDMA-capable systems. RDMA allows data from the memory of one computer to communicate directly with the memory of another minimizing CPU and memory overhead. The RDMA multifunction feature is planned for future, near-term release.
- 
- PCI Express Interface** HP was an early champion of PCI Express bus technology and has played a key role in the development and industry adoption of the PCI Express specification. The NC510F is designed with an eight lane (x8) PCI Express bus based on the PCIe v1.1 standard. The adapter is backward compatible with four lane (x4) PCI Express automatically auto-sensing between x8 and x4 slots.
- 
- Jumbo Frames** Jumbo frames (also known as extended frames) permit a 8,000 byte transmission unit (MTU), which is five times the size of standard 1500 byte Ethernet frame. The NC510F 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.
- 
- TCP Stateless Offloading** For overall improved system response, the NC510F 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 Coalescing** 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.
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### Performance

**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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### Network Management

**Management Support** Like all HP ProLiant server adapters, the NC510F ships with agents that can be managed from HP Systems Insight Manager or other management application that support SNMP.

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### Server Integration

The NC510F is a completely integrated, tested, and qualified solution that is optimized for HP ProLiant 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.

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### LED Indicators

Bracket LED indicators show link integrity and network activity for easy troubleshooting.

### Service and Support, HP Care Pack, and Warranty Information

#### 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.

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 hours, 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

Gigabit Server Adapters	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	<b>NOTE:</b> Does not support Windows 2000.	
	HP NC112T PCIe Gigabit Server Adapter	503746-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	<b>NOTE:</b> Does not support Windows 2000.	
	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
<b>NOTE:</b> Supported on a full length-full height slot only.		
HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21	
HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21	
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10 Gigabit Adapter	HP NC510C PCIe 10 Gigabit Server Adapter	414129-B21
	<b>NOTE:</b> A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	
	HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
	<b>NOTE:</b> A minimum of two Gigabytes (2 GB) of server memory is required per each NC522SFP adapter.	
<b>NOTE:</b> Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.		
HP NC524SFP Dual Port 10GbE Server Adapter	489892-B21	
<b>NOTE:</b> A minimum of two Gigabytes (2 GB) of server memory is required per each NC524SFP module.		
<b>NOTE:</b> Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.		

### Technical Specifications

Compliance	IEEE	802.1p (QoS), 802.3ae (10GBASE-SR Ethernet), 802.3x (flow control)		
	Safety	UL, Canada UL, EN 60950		
	Emissions	FCC Class B, VCCI Class B, BSMI Class B, CISPR 22 Class B, ACA Class B, EN55022 Class B, EN55024-1, ICES-003 Class B, MIC Class B		
	Other	PCIe v1.1 RoHS 5, Exemption 7 IPv4, IPv6 CE ACPI 1.1a Microsoft WHQL (Windows Hardware Quality Labs) Server Design Guide version 3.0 (SDG 3.0)		
General Specifications	Controller	NETXEN NX2031		
	Data rate	10,0000 Mbps, full-duplex		
	Data path	8 Lane (x8) PCI Express, compatible with x4 and x8 bus widths		
	Cable connector	LC		
	Cable distance	Optical mode 1 (OM1)	33 meters on 62.5 $\mu$ m multi-mode fiber (MMF) with modal bandwidth of 200/500MHz-km	
	Optical mode 2 (OM2)	82 meters on 50 $\mu$ m MMF with modal bandwidth of 500MHz-km		
	Optical mode 3 (OM3)	300 meters on laser optimized 50 $\mu$ m MMF with modal bandwidth of 2000MHz-km		
Power and Environmental Specifications	Dimensions (LxW)	6.6 x 2.5 in (16.5 x 6.4 cm) without bracket		
	Operating	Temperature	32° to 131° F (0° to 55° C )	
		Humidity	10% to 90% non-condensing	
	Non-operating	Temperature	-85° to 185° F (-65° to 85° C)	
		Humidity	5% to 95%	
Power	1.88A @ 12V and 570mA @ 3.3V maximum			
Operating System Support	<ul style="list-style-type: none"><li>● 32-bit Windows<ul style="list-style-type: none"><li>○ Microsoft Windows Server 2003 Standard and Enterprise Editions</li></ul></li><li>● 64-bit Windows<ul style="list-style-type: none"><li>○ Microsoft Windows Server 2003 Standard and Enterprise Editions</li></ul></li><li>● Red Hat Enterprise Linux</li><li>● SUSE Linux Enterprise Server</li></ul>			

**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>

### 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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