

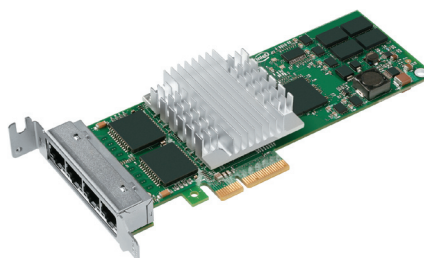
# Product Brief

Intel® PRO/1000 PT Quad Port LP Server Adapter  
Network Connectivity



## Intel® PRO/1000 PT Quad Port LP Server Adapter Low-Profile Quad Port Copper Gigabit Ethernet Server Adapter for PCI\* Express Slots

- Four high-performance PCI Express\* 10/100/1000 Mbps connections for slot-constrained servers requiring high bandwidth
- Multi-Gigabit Ethernet Scalability enhances and increases uptime through advanced server features
- Built on Intel® lead-free<sup>1</sup> technology



### Connectivity You Can Count On

Conserve valuable PCI Express (PCIe\*) server slots while adding multi-port Gigabit Ethernet capability with the Intel® PRO/1000 PT Quad Port LP Server Adapter. The dedicated input/output (I/O) bandwidth of PCIe ensures priority performance on each port – without bus sharing – for Gigabit Ethernet connectivity in Category-5 networks. The Intel PRO/1000 PT Quad Port LP

Server Adapter improves performance in multi-processor systems by balancing network loads across multiple central processing units (CPUs). Additionally, the Intel PRO/1000 PT Quad Port LP Server Adapter supports Intel® I/O Acceleration Technology (Intel® I/OAT)<sup>2</sup> for faster I/O processing on the new Quad-Core and Dual-Core Intel® Xeon® processor-based servers.

### Features

### Benefits

|   |  |
|---|--|
| Two Intel® 82571GB Gigabit Controllers                                      | Enables four Gigabit Ethernet connections on a single adapter, delivering increased bandwidth for slot-constrained servers and providing high performance, reliability, and low-power use in two single, integrated, dual port PCI Express Gigabit Ethernet controller chips |
| Low-profile   | Enables higher bandwidth and throughput from standard and low-profile PCIe slots and servers   |
| Load balancing on multiple CPUs   | Increases performance on multi-processor systems by efficiently balancing network loads across CPU cores when used with Receive-Side Scaling from Microsoft or Scalable I/O on Linux*  |
| Intel® I/OAT <sup>2</sup>   | Accelerates I/O with higher throughput and lower CPU utilization by offloading processing overhead   |
| Virtualization  | Multi-port cards provide the platform with the port density required for virtualized environments  |
| Interrupt moderation  | Delivers increased performance while significantly reducing CPU utilization  |
| Compatible with x4, x8, and x16 standard and low-profile PCI Express* slots | Allows quad-port operation in almost any PCI Express server slot, except x1 slots, and allows each port to operate without interfering with the other  |
| Support for most network operating systems (NOS)                            | Enables widespread deployment  |
| Remote management support   | Reduces support costs with remote management based on industry-wide standards  |
| Category-5 unshielded twisted pair (UTP), 4-pair cabling                    | Uses existing 4-pair cabling and saves re-wiring costs   |
| RoHS compliant <sup>3</sup> , lead-free <sup>1</sup> technology             | Compliant with the European Union directive (effective as of July 2006) to reduce the use of hazardous materials   |
| Intel® PROSet Utility for Windows*  | Provides point-and-click power over individual adapters, advanced adapter features, connection teaming, and Device Manager virtual local area network (VLAN) configuration   |
| Advanced cable diagnostics  | Dynamically tests and reports network problems (error rate, cable length) and automatically compensates for cable issues (cross-over cable, wrong pin-out/polarity)  |
| Intel backing   | Backed by an Intel® limited lifetime warranty, 90-day money-back guarantee (U.S. and Canada), and worldwide support  |

The Intel PRO/1000 PT Quad Port LP Server Adapter's low-profile design, the industry's first server adapter to incorporate four Gigabit Ethernet connections in a low-profile PCI Express slot, improves server throughput and rack density at the same time.

The Intel PRO/1000 PT Quad Port LP Server Adapter represents the sixth generation of Intel® network adapters for Gigabit Ethernet, and features 10/100/1000 Mbps self-configuration

for compatibility with mixed-speed network infrastructure.

For easy installation and management, all Intel® PRO Network Connections are supported by Intel® PRO Intelligent Install and the new Intel® PROSet Utility for Windows® Device Manager. Intel PROSet simplifies adapter installation and gives you point-and-click power to configure and manage all your Intel PRO Network Connections for connectivity you can count on.

## Specifications

### General

|                                |   |
|--------------------------------|---|
| Product code                   | EXPI9404PTL <sup>4</sup>                          |
| Connectors                     | Four RJ-45  |
| EEE standards/network topology | 10BASE-T, 100BASE-TX, 1000BASE-T                  |
| Wiring                         | Category-5, unshielded twisted pair (UTP), 4-pair |

### Adapter Product Features

|  |   |
|--|---|
| Intel® PROSet Utility and Intel® PRO Intelligent Install for easy installation | ▪   |
| Intel® lead-free <sup>1</sup> technology                                       | ▪   |
| Plug and play specification support  | Standard  |
| Auto-negotiation, full-duplex capable  | ▪   |
| Intel® I/OAT <sup>2</sup>  | ▪   |
| Integrated media access control (MAC) and physical layer (PHY)                 | ▪   |
| Includes a full-height bracket   | ▪   |
| RoHs <sup>3</sup>  | ▪   |
| Cable distance   | 100 m in Category-5 for 100/1000 Mbps; and Category-3 for 10 Mbps |

### Network Management

|   |   |
|---|---|
| Wired for Management (WfM) baseline v2.0 enabled for servers                                | ▪ |
| DMI 2.0 support, Windows Management Instrumentation (WMI) and SNMP-manageable SMBus support | ▪ |
| Remote Installation Services (RIS)  | ▪ |
| Diagnostics (loopback, testability, PHY register access)                                    | ▪ |
| Advanced configuration and power interface (ACPI) 1.0 power management                      | ▪ |
| Wake on LAN* support over PCI Express* PXE 2.0 enabled through boot read-only memory (ROM)  | ▪ |

### Network Operating Systems (NOS) Software Support

|   |   |
|---|---|
| Microsoft Windows® Server 2003, Enterprise, Datacenter (32- and 64-bit) | ▪ |
| Microsoft Windows 2000  | ▪ |
| Red Hat Linux® 2.4x or later (32- and 64-bit)                           | ▪ |
| FreeBSD 4.x or later  | ▪ |
| Novell Netware®   | ▪ |
| Sun Solaris® x86, OS 8 and later  | ▪ |
| SCO Open Server 5, OpenUNIX 8*  | ▪ |

### Intel Backing

|  |   |
|--|---|
| Limited lifetime warranty                      | ▪ |
| 90-day, money-back guarantee (U.S. and Canada) | ▪ |

### Advanced Software Features

|  |  |
|--|--|
| Adapter fault tolerance (AFT)  | ▪  |
| Switch fault tolerance (SFT)   | ▪  |
| Adaptive load balancing (ALB)  | ▪  |
| Fast EtherChannel* <sup>5</sup> (FEC)  | ▪  |
| Gigabit EtherChannel* <sup>5</sup> (GEC)   | ▪  |
| Teaming support  | Scales up to 8 connections                                       |
| Multiple teams   | Supports 4 separate teams, maximum                               |
| IEEE 802.3ad* (link aggregation control protocol) <sup>5</sup>   | ▪  |
| Test switch configuration  | Tested with major switch original equipment manufacturers (OEMs) |
| PCIe Hot Plug*/Active peripheral component interconnect (PCI)  | ▪  |
| EEE 802.1Q* VLANs  | ▪  |
| EEE 802.3* (z, ab, u, x) flow control support  | ▪  |
| TCP checksum offload – transmission control protocol (TCP), user datagram protocol (UDP), Internet protocol (IP) | ▪  |
| IEEE 802.1p*   | ▪  |
| TCP segmentation/large send offload  | ▪  |
| Interrupt moderation   | ▪  |

### Technical Features

|                                      |  |
|--------------------------------------|--|
| Data rate(s) supported per port      | 10, 100, and 1000 Mbps                             |
| Bus type                             | PCI Express 1.0a                                   |
| Bus width                            | x4 lane PCI Express, operable in x4, x8, x16 slots |
| Bus speed (x4, encoded rate)         | 10 Gbps uni-directional; 20 Gbps bi-directional    |
| EEPROM-SPI and single EEPROM support | ▪  |
| Interrupt levels                     | INTA, INTB, INTC, INTD                             |
| IEEE support                         | 802.3ab*   |
| Hardware certifications              | FCC B, UL, CE, VCCI, BSMI, CTICK, MIC              |
| Controller-processor                 | Intel® 82571GB                                     |
| Typical power consumption            | 12.096 W (12 V @ 1.008 A)                          |
| Operating temperature                | 0–55° C  |
| LEDs                                 | 4 (1/port, link and speed) solid and blinking      |

### Physical Dimensions

|                       |                     |
|-----------------------|---------------------|
| Length                | 16.77 cm (6.601 in) |
| Width                 | 6.89 cm (2.713 in)  |
| Height of end bracket | 8.00 cm (3.153 in)  |

## Order Code

Single Unit: EXPI9404PTL<sup>4</sup>

Bulk Pack: EXPI9404PTLBLK (order 5, get 5)

## Companion Products

Consider these Intel® products in your server and network planning:

- Intel® PRO/1000 Server Adapters
  - Copper or fiber-optic network connectivity, up to four ports per card
  - Solutions for PCI Express, PCI-X\*, and PCI interfaces
- Intel® PRO/10GbE Server Adapters
  - CX4 offering for cost-effective 10 Gigabit-over-copper connections
  - Short-range and long-range connectivity solutions for fiber-optic cabling
- Intel® PRO/1000 Desktop Adapters for PCI Express and PCI interfaces
- Other Intel® PRO Desktop and Server Adapters
- Intel® Xeon® processors
- Intel® Server Boards

## Network-Ready PCs

Top PC and server manufacturers offer Intel® adapters in their new products. Specify or ask for Intel PRO Network Connections with your next PC, server, or mobile PC purchase. For a list of preferred suppliers, visit us at: [www.intel.com/network/connectivity/how\\_to\\_buy/index.htm](http://www.intel.com/network/connectivity/how_to_buy/index.htm).

## Customer Support

Intel® Customer Support Services offers a broad selection of programs including phone support and warranty service. For more information, contact us at <http://support.intel.com/support/network>. Service and availability may vary by country.

## For Product Information

To speak to a customer service representative regarding Intel products, please call 1-800-538-3373 (U.S. and Canada) or visit <http://www.intel.com/support/9089.htm> for the telephone number in your area. For additional product information on Intel® Networking Connectivity products, visit <http://www.intel.com/network/connectivity>.

To see the full line of Intel Network Adapters for PCI Express,  
visit [www.intel.com/network/connectivity](http://www.intel.com/network/connectivity)

<sup>1</sup> Lead has not been intentionally added, but lead may still exist as an impurity below 1000 ppm, or an approved RoHS exemption applies.

<sup>2</sup> Intel® I/O Acceleration Technology (Intel® I/OAT) requires an operating system that supports Intel I/OAT.

<sup>3</sup> Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as proposed by the EU or (2) an approved/pending exemption applies.

<sup>4</sup> Bulk packs also available for minimum order quantities of five adapters. One driver CD per order of five units.

<sup>5</sup> Available only when used with a capable switch.

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