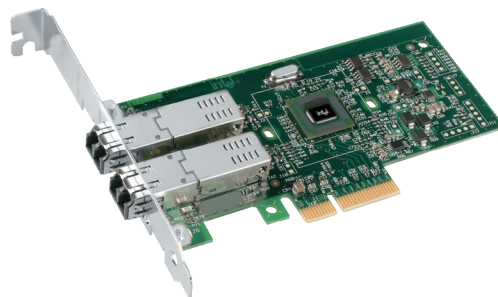




# Intel® PRO/1000 PF Dual Port Server Adapter

## Two Gigabit Fiber Server Connections in a Single PCI Express\* Slot

- Two high-performance PCI Express\* 1000BASE-SX connections for slot-constrained servers
- Multi-Gigabit scalability and increased 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 fiber-optic connectivity to enhance network performance with the Intel® PRO/1000 PF Dual Port Server Adapter. The dedicated input/output (I/O) bandwidth of PCIe ensures priority performance—without bus sharing—for Gigabit Ethernet connectivity in fiber-optic networks. Additionally, the Intel PRO/1000 PF Dual Port Server Adapter is designed to provide high performance in multi-processor systems by efficiently balancing network loads across multiple Central Processing Units (CPUs) when used with Receive-Side Scaling from Microsoft or Scalable I/O on Linux\*.

The Intel PRO/1000 PF Dual Port Server Adapter represents the fifth generation of Intel network adapters for Gigabit Ethernet, and features the high noise immunity and long-distance reach of fiber-optic connectivity. For easy installation and management, all Intel® PRO Network Connections are supported by Intel® PRO Intelligent Install and the new Intel® PROSet for Microsoft\* Device Manager. Intel PROSet Utility 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.

## Features

## Benefits

Intel® 82571GB Gigabit Controller	• Enables two Gigabit connections in a single adapter, delivering increased bandwidth for slot-constrained servers and providing high performance, reliability, and low power use in a single, integrated, dual port PCI Express Gigabit Ethernet controller chip
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*
Interrupt moderation	• Delivers increased performance while significantly reducing CPU utilization
Compatible with x4, x8, and x16 full-height <sup>2</sup> PCI Express* slots	• Allows dual-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
LC connectors	• Small connector design is compatible with the latest fiber-optic cabling standards
1000BASE-SX multi-mode fiber	• Ensures compatibility with fiber-optic cable lengths up to 275 meters
RoHS compliant <sup>3</sup> lead-free <sup>1</sup> technology	• Compliant with the new European Union directive (effective July 2006) to reduce the use of hazardous materials
Intel® PROSet Utility for Microsoft* Device Manager	• Provides point-and-click power over individual adapters, advanced adapter features, connection teaming, and virtual local area network (VLAN) configuration
Intel backing	• Backed by an Intel® limited lifetime warranty, 90-day, money-back guarantee (U.S. and Canada), and worldwide support

# Specifications: Intel® PRO/1000 PF Dual Port Server Adapter

## General

Product code	EXPI9402PF <sup>4</sup>
Connectors	LC
IEEE standards/network topology	1000BASE-SX
Wiring	Multi-mode fiber (62.5 µm or 50 µm)

## 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	•
Integrated media access control (MAC) and physical layer (PHY)	•
Includes a full-height bracket	•
Cable distance	275 m at 62.5 µm; 550 m at 50 µm

## 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* 5.x, 6.x	•
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)	•
IEEE 802.1Q* VLANs	•
IEEE 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 <sup>1</sup>	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; 10 Gbps bi-directional
EEPROM-SPI and single EEPROM support	•
Interrupt levels	INTA, INTB
IEEE support	802.3z*
Hardware certifications	FCC B, UL, CE, VCCI, BSMI, CTICK, MIC
Controller-processor	Intel® 82571GB
Typical power consumption	3.3 W (3.3 V @ 1 A)
Operating temperature	0–55° C
LEDs	4 (1/port, link and speed) solid and blinking

## Physical Dimensions

Length	12.95 cm (5.1 in)
Width	2.16 cm (0.85 in)
Height of end bracket	12.0 cm (4.725 in)

## Order Code

Single Unit: EXPI9402PF<sup>4</sup>

## 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 [www.intel.com/support/9089.htm](http://www.intel.com/support/9089.htm) for the telephone number in your area. For additional product information on Intel® Networking Connectivity products, visit [www.intel.com/network/connectivity](http://www.intel.com/network/connectivity).



**To see the full line of Intel® PRO/1000 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>Low-profile brackets will be included with this product in early 2006.

<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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