



Intel® PRO/10GbE CX4 Server Adapter

10 Gigabit Performance for Short-distance CX4 Copper

- 10 Gigabit performance in CX4 cable lengths up to 15 meters
- Cost-effective, high-speed network connection with low latency
- 64-bit Peripheral Component Interconnect Extended (PCI-X*) interface running up to 133 MHz



Connectivity You Can Count On

The Intel® PRO/10GbE CX4 Server Adapter—part of the second-generation 10-Gigabit Ethernet (10GbE) adapters from Intel—represents the first 10GbE-over-copper connection from Intel. It provides enterprises with a highly affordable, low-latency 10GbE network connection for CX4 cable distances up to 15 meters, depending on wire gauge. This makes the Intel PRO/10GbE CX4 Server Adapter an ideal solution for high-bandwidth network connections in high-performance computing clusters and for short distances within wiring closets.

Built around the highly integrated Intel® 82597EX 10-Gigabit Ethernet Controller for 64-bit PCI-X connections running up to 133 MHz, the Intel PRO/10GbE CX4 Server Adapter is ideal for bandwidth-intensive applications. High-speed server connectivity—once reserved for costly, proprietary technologies such as high-performance computing clusters and grid-based computing—can now be achieved with the standardized connectivity of the Intel PRO/10GbE CX4 Server Adapter. Wide testing for interoperability with switches from major original equipment manufacturers further helps to ensure that the Intel PRO/10GbE CX4 Server Adapter will provide connectivity you can count on.

The Intel PRO/10GbE CX4 Server Adapter helps improve network productivity and eliminate costly proprietary networking topologies while enabling deployment of standards-compliant Ethernet connectivity based on the IEEE 802.3ak 10 Gigabit Ethernet standard for CX4 copper cable.

10GBASE-CX4 Applications and Advantages

The Intel PRO/10GbE CX4 Server Adapter is an immediate, lower-cost solution for a wide range of data-center applications, including:

- High-performance computing clusters
- Consolidated LAN and iSCSI traffic
- Database link to backup storage and NAS
- Digital editing, scientific and commercial simulation, and collaboration
- Scaled-up consolidated servers
- Real-time video streaming on web servers

By using the Intel PRO/10GbE CX4 Server Adapter on critical server and storage applications, you can:

- Increase performance and bandwidth
- Consolidate multiple GbE connections
- Improve video streaming
- Scale up by consolidating servers
- Converge your networks by combining LAN and storage traffic
- Enable low-cost HPC clusters with low-cost, high-bandwidth interconnects

Features

Features	Benefits
Intel® 82597EX 10GbE PCI-X* 133-MHz, 64-bit media access control (MAC) controller CX4 copper cable support through CX4 XPAK module	<ul style="list-style-type: none">• High performance on widely adopted second-generation PCI host-bus interface• Allows 10GbE connectivity over CX4 copper cable lengths up to 15 m, depending on American Wire Gauge (AWG) cable ratings
IEEE 802.3ak* 10GBASE CX4 compliant	<ul style="list-style-type: none">• Supports industry-wide 10 Gigabit Ethernet standard
Jumbo frames supported up to 16 KB	<ul style="list-style-type: none">• Increases performance through reduced overhead
Transmission control protocol/Internet protocol (TCP/IP) segmentation and TCP checksum offload in receive (Rx) and transmit (Tx)	<ul style="list-style-type: none">• Provides efficiency for host processing
256 KB Rx and 32 KB Tx data first-in, first-out (FIFO) buffer	<ul style="list-style-type: none">• Enhanced Tx and Rx logic with minimum buffer requirements
Parity protection for Rx FIFO buffer	<ul style="list-style-type: none">• Data integrity
Mechanisms for delaying/reducing Tx and Rx frame interrupts	<ul style="list-style-type: none">• Reduces processor utilization
PCI-X 1.0a and PCI 2.3	<ul style="list-style-type: none">• Wide compatibility
Flow control 802.3x*	<ul style="list-style-type: none">• Supports industry-wide networking standard
PCI 2.2 message signaled interrupts	<ul style="list-style-type: none">• Improves system interrupt handling
Intel® PROSet Utility for Microsoft® Device Manager	<ul style="list-style-type: none">• Provides point-and-click power over individual adapters, advanced adapter features, connection teaming, and virtual local area network (VLAN) configuration
Built on Intel® lead-free ¹ technology for RoHS ² compliance	<ul style="list-style-type: none">• Compliant with the new European Union directive (effective July 2006) to reduce the use of hazardous materials

Order Code

PXLA8591CX4 (Single Pack)

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
 - 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® Itanium® processors
- Intel® Server Boards

Benefits

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.

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 for the telephone number in your area. For additional product information on Intel® Networking and Communication products, visit www.intel.com/network/connectivity.

Specifications: Intel® PRO/10GbE CX4 Server Adapter

General

Product code	PXLA8591CX4
Connector	CX4 XPAK module
IEEE standards/network topology	10GBASE CX4
Wiring	CX4 cable

Adapter Product Features

Plug and Play specification support	•
Easy installation with Intel® PROSet Utility and Intel® PRO Intelligent Install	•
RoHS compliant ²	•
Auto-negotiation, full-duplex capable	•
Cable distance	To 15 meters, depending on cable gauge and parameters (AWG 24, 20 m; AWG 26, 15 m; AWG 28, 11 m)

Network Management

Wired for Management (WfM) baseline v2.0 enabled for servers	•
Desktop Management Interface (DMI) 2.0 support, Windows Management Instrumentation (WMI), and Simple Network Management Protocol (SNMP)-manageable	•
Advanced configuration and power interface (ACPI) 1.0 power management	•
Preboot execution environment (PXE)—enabled through boot read-only memory (ROM)	•

Network Operating Systems (NOS) Software Support

Microsoft Windows* 2000 (Server, Advanced Server, Datacenter Server), Server 2003	Available early 2006
Linux* 2.4, 2.6	•
FreeBSD 5.3 kernel	•

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* ³ (FEC)	•
Gigabit EtherChannel* ³ (GEC)	•
Teaming support	•
Multiple teams	•
Test switch configuration	Tested with major switch original equipment manufacturers (OEMs)
Jumbo frames (up to 16 KB)	•
IEEE 802.1Q* VLANs	•
IEEE 802.3* support	•
TCP checksum offload (Rx/Tx TCP, IPv4)	•
On now/instantly available PCI initiative	•
TCP segmentation/large send offload	•
Interrupt moderation	•

Technical Features

Throughput performance	5-7 Gbps full-duplex Ethernet performance
Bus type	PCI-X* 1.0, PCI local bus interface 2.3
Bus width	32- and 64-bit
Bus mastering	•
Bus speed (MHz)	33, 66, and 133 MHz
Plug and play support	•
PCI hot plug/active PCI	•
Hardware certifications	FCC Class A, UL, CE, VCCI, BSMI, CTICK, MIC
Controller-processor	Intel® 82597EX Controller
Typical power consumption	<10 W (5 V main, 3.3 V main)
Operating temperature	0–55° C
LEDs	4 (green): Tx, Rx, link, port identify

Physical Dimensions

Length	16.8 cm (6.6 in)
Width	10.7 cm (4.2 in)

For additional information on the Intel® PRO/10GbE CX4 Server Adapter and Intel's complete line of 10GbE adapters, visit www.intel.com/network/connectivity/products/10GbE.htm

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

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

³Available only when used with a capable switch.

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