

PEX 8516 Key Features

- ◆ 16-lane PCI Express switch
- ◆ Integrated SerDes
- ◆ Up to four configurable ports (x1, x2, x4, x8)
- ◆ Quality-of-Service with 2 Virtual channels/port
- ◆ Selectable Non-Transparent Bridge Port
- ◆ Peer-to-peer switching and host centric data transfer
- ◆ 27mmx27mm, 312 pin PBGA

PEX 8516 Other Features

- ◆ Standards Compliant-Exceeds PCIe base specification r1.0a
- ◆ Non-blocking Switch Fabric with full line rates
- ◆ End-to-end CRC and Poison bit support
- ◆ SHPC r1.1 Standards based Hot-Plug Controllers with Hot Plug on all ports
- ◆ Basic and Advanced error reporting
- ◆ Hardware fixed and Round Robin packet queue arbitration
- ◆ JTAG boundary scan
- ◆ All Link power management states
- ◆ 256 Byte maximum data payload size
- ◆ Lane and polarity reversal
- ◆ Configuration through host or optional EEPROM
- ◆ 16 General purpose outputs
- ◆ Maximum Power: 3.5 Watts

Application:

Fibre Channel SAN Host Bus Adapters

PLX Product:

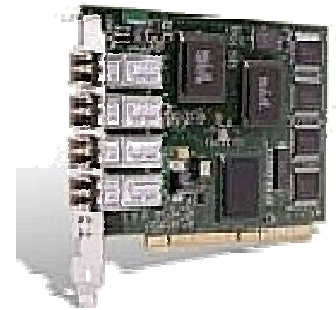
PEX 8516 – 16-lane PCI Express Switch

Key Benefit:

Enables Quad Fibre Channel HBA

New Host Bus Adapters Providing Quad Fibre Channel I/Os

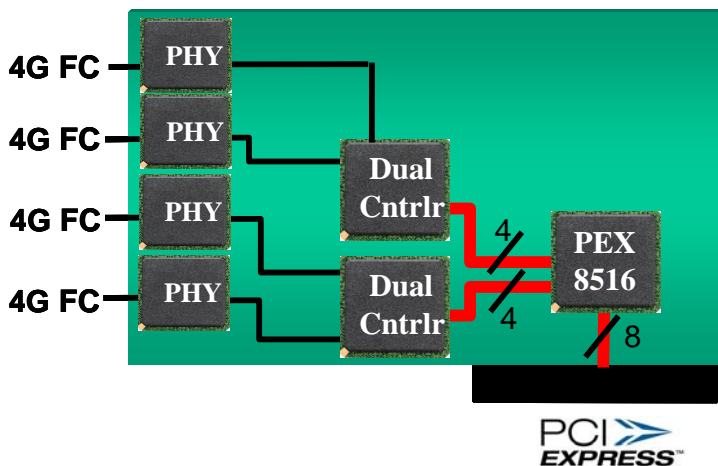
Communications between servers and from servers to storage is growing at an accelerating rate. With storage area networks (SAN) based on Fibre Channel moving to four gigabit/second rates, servers need to incorporate adapter cards that support these high speed links. To minimize the number of I/O blades within these systems and allow more application processing blades, Host Bus Adapters (HBA), need to provide multiple I/O connections. New HBA designs provide up to four ports, each with four gigabit bidirectional I/O throughput. These adapters have four physical interface devices and two dual Fibre Channel controller ICs which convert Fibre Channel to the PCI Express protocol. The subsequent PCI Express data streams are then aggregated and sent upstream to the host or through switching fabric blades.



The PEX 8516 Switch Aggregates Multiple Connections at Wire Speed

The PLX Technology PEX 8516 is a highly configurable 4-port 16-lane PCI Express Switch. Strapping pins allow a wide variety of configurations. When used in a quad-port 4 gigabit/second HBA, as shown on the next page, the switch has the capacity to aggregate two dual Fibre Channel controllers; each supporting 8 gigabits/second in each direction to an upstream x8-lane port connected to the host. The internal switching fabric can support full line rates on all of its 16 lanes. Large packet buffers and selectable flow control allows high burst traffic without dropped packets.





Data Integrity is Critical

Storage applications require the support of strong data integrity throughout the data path and HBAs are no exception. PEX 8516 incorporates all the optional error handling features provided for in the PCI Express specification. While all PCI Express devices are required to have link level CRC error checks, optional end-to-end CRC checks are supported in this switch to allow the data flow to be protected all the way from the adapter card to the root complex.

The transaction layer packet header Poison Bit is supported in the PEX 8516. This bit provides an indicator to the end recipient that the data is corrupted, but still allows the data to be transferred. The system manager is notified and can take corrective action.

PEX 8516 includes the registers to handle optional Advanced Error Reporting. This capability gives the system manager wide latitude in how to handle error conditions; anything from resetting an individual link to a system wide reset.

Key Advantage for PLX

To be a cost effective solution, a PCI Express switch must have just the right combination of ports and lanes for the application with agile configurations to adapt to revised board layouts. PLX has a series of such switches; for HBA designs, the PEX 8516 is the only switch on the market with 4 ports and 16 lanes with high port/lane flexibility.

In addition, the PEX 8516 includes many other optional Express capabilities: two virtual channels per port for true quality of service support, Hot Plug support on all ports for simplified card removal procedures, and lane reversal for easier board layout.

Additional PLX Advantages

- ◆ Broad PCI Express product portfolio that include switches & bridges (all available TODAY!)
 - Up to 32 Lanes Available Today
 - PCI and PCI-X to PCI Express Bridges
- ◆ Core competency in PCI Express technology & leadership in developing PCIe specifications
- ◆ Leading efforts in several Industry forums for PCI Express adoption

Design Tools & Documentation:

On PLX Public ToolBox:

<http://www.plxtech.com/products/ExpressLane/switches/PEX8516/default.asp>

- ◆ DataBook, BSDL Files, Application Notes, White Papers, Product Brief, Hspice Models

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