

PEX 8648 Key Features

- ◆ 48-lane PCIe Gen 2 Switch
- ◆ Integrated SerDes
- ◆ Up to 12 configurable ports (x1, x2, x4, x 8, x16)
- ◆ Cut through architecture with 145ns max latency
- ◆ Dual-cast to save CPU cycles
- ◆ Read-pacing for performance
- ◆ Dynamic buffer allocation
- ◆ Quality-of-Service with ingress port arbitration
- ◆ Non-blocking switch fabric with full line rates
- ◆ True Peer-to-peer switching simultaneously on all ports
- ◆ Non-Transparent bridge port
- ◆ SHPC r1.0 compliant Hot-Plug controller for three ports
- ◆ Hot-plug on nine ports thru I²C
- ◆ I²C interface for configuration
- ◆ 27x27 mm² FCBGA package

PEX 8648 Other Features

- ◆ Selectable upstream port
- ◆ PCIe Base Specification r 2.0, 1.1 & 1.0a compliant
- ◆ End-to-end CRC
- ◆ Poison bit support
- ◆ Advanced Error Reporting in addition to PCIe Baseline
- ◆ Power management states: L0, L0s, L1, L2/L3 Ready, & L3
- ◆ 2K byte Max Payload Size
- ◆ Lane and polarity reversal
- ◆ Configuration thru strapping pins, I²C, EEPROM, or host
- ◆ AC/DC JTAG Boundary Scan

Application:

Blade Servers & Bladed Systems

PLX Product:

PEX 8648 – 48-Lane PCIe Gen 2 Switch

Key Benefit:

Create Low-Cost Backplane/Fabric

PCI Express Today

PCI Express (PCIe) technology is being used for chip-to-chip interconnects in almost all applications today. Board-to-board and box-to-box PCIe interconnections are emerging as the next wave of user applications demanding more bandwidth and performance at lower cost. This is more evident in blade servers and other bladed systems.



It make perfect sense from cost, functionality and availability perspectives to use PCIe, because all x86 based systems have built-in PCIe ports via chipsets, and almost all embedded processors come with PCIe ports for communication with other components of the system. As the technology moves from Gen 1 (2.5 GT/s) to Gen 2 (5.0 GT/s) signaling rates in 2007, more bandwidth is becoming available with fewer physical links, a big plus for backplanes and switch fabrics.

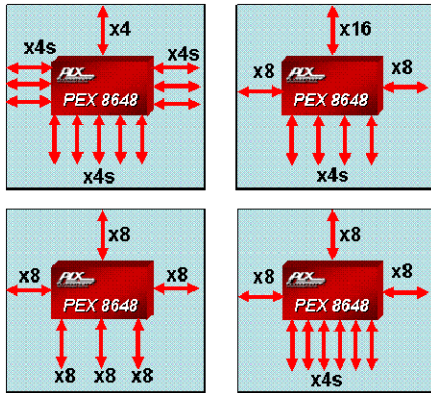
PCIe Switches

Universal PCIe adoption in desktop PCs, graphics, servers and storage systems has resulted in broad PCIe switch silicon availability with rich features at low cost. Additionally, standard bladed system specifications such as AdvancedTCA and MicroTCA have already defined PCIe as the backplane interface technology. Furthermore, Blade Server chassis offered by major server OEMs already have their backplanes architected for serial hi-speed interconnect such as PCIe.

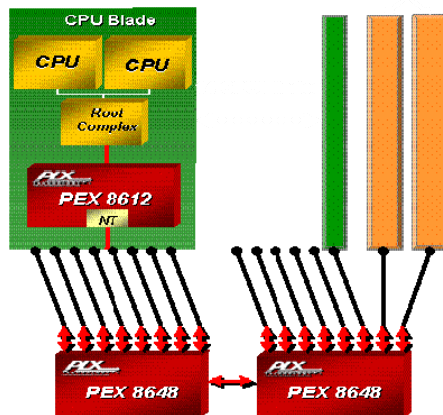
Like x86 based blades, embedded processor based modules support native PCIe ports or interfaces. Availability of the PCIe switching devices from PLX Technology enables system designers to create low-cost switch fabrics and backplanes that support the high performance needs of the applications running on today's systems.

Flexible & Versatile PCIe Switches

The PEX 8648 is based on PLX's 4th generation switch architecture that has been optimized for backplane applications. With its flexibility, 48 PCIe lanes, 12 ports, and enhanced cut-through architecture the PEX 8648 can be utilized in many switch fabric and backplane applications. The ports shown on the right can be combined for wider ports.



The device supports a moveable upstream port and Non-transparent bridge function that allows its use in failover and dual fabric applications. Furthermore, two 8648s may be cascaded (as shown below) to create a 16 blade configuration to support Blade Servers or ATCA like systems.



All PLX products go through rigorous simulation, pre-silicon emulation, post silicon verification, system interoperability and PCI-SIG compliance testing. Furthermore, the 8648 switch helps in providing interoperability between blade modules through its flexible ports by allowing any port to be upstream and dynamically adopting LVDS polarity (polarity reversal) and lane orientation (lane reversal) of the adapter.

PEX 8648 also supports three native hot-plug ports and nine hot-plug ports through I²C interface, allowing hot insertion and extraction of blades or I/O cards.

Switches & Bridges Available Today!

PLX is shipping 21 PCI Express Gen 1 switches and bridges. More information on these can be found at www.plxtech.com. Below is a list of Gen 2 switches PLX will be sampling in Q4, 2007.

Device	Lanes	Ports	Availability
PEX 8648	48	12	Dec-07
PEX 8632	32	12	Dec-07
PEX 8624	24	6	Dec-07
PEX 8616	16	4	Dec-07
PEX 8612	16	3	Dec-07

More than just ports and lanes

- ◆ Cut-through architecture for increased performance
- ◆ Full line rate on all ports
- ◆ Advanced error reporting and diagnostics

Design Tools & Documentation:

<http://www.plxtech.com/8648>

Data Book, App Notes, Product Brief, HSPICE/BSDL/IBIS Models, Development Kit

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