

PEX 8548 Key Features

- ◆ 48-lane PCI Express switch
- ◆ Integrated SerDes
- ◆ Up to 9 configurable ports (x1, x2, x4, x8, x16)
- ◆ Cut-thru architecture with 110ns packet latency
- ◆ Quality-of-Service with ingress port arbitration
- ◆ Non-blocking switch fabric with full line-rates
- ◆ True peer-to-peer switching and host-centric data transfers
- ◆ Hot-Plug controller on three ports
- ◆ I²C interface for configuration
- ◆ 37.5x37.5 mm² PBGA package

PEX 8548 Other Features

- ◆ Selectable upstream port
- ◆ PCIe Base Specification r1.1 compliant
- ◆ End-to-end CRC
- ◆ Poison-bit support
- ◆ Advanced Error Reporting
- ◆ PCIe Baseline Error Reporting
- ◆ Link power management states: L0, L0s, L1, L2/L3 Ready, L3
- ◆ 1KB Max Payload Size
- ◆ Lane and polarity reversal
- ◆ Configuration through strapping pins, I²C, EEPROM, or host
- ◆ JTAG Boundary Scan

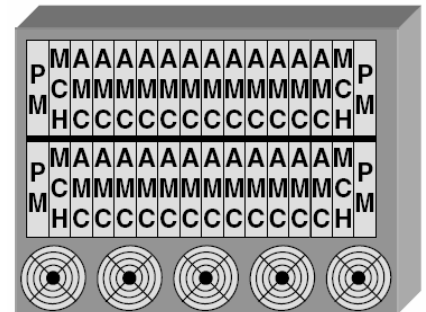
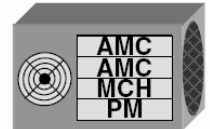
Application:
MicroTCA

PLX Product:
PEX 8548 – 48-Lane PCIe Switch

Key Benefit:
Create MCH Switch Fabric with PCI Express

MicroTCA Architecture

The high cost of acquiring base-system for the PICMG Advanced TCA architecture made its adoption prohibitive as many enterprise and embedded applications could not justify the CapEx involved. The MicroTCA architecture (also defined by the PICMG) eliminates this barrier. The MicroTCA standard complements Advanced TCA (ATCA) architecture where ATCA focuses on high performance and high capacity applications and MicroTCA focusing on low cost and lower performance applications. The standard allows many chassis form-factors to create systems with as few as one (or two) AMC module and one power management module (PM), as shown above, to as many as twenty four AMC modules, four PM modules and four MCH (MicroTCA Carrier Hub) modules (as shown here).



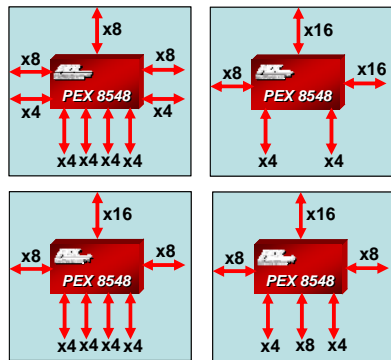
PCI Express based MCH Module

The AMC.1 specification defines use of PCI Express as an interface on AMC modules to connect to the backplane or MCH fabric. The MCH fabric can be built with PCI Express (PCIe) technology. A MicroTCA MCH can support up to twelve AMC modules. In high availability systems two (redundant) MCHs are used to avoid a single point of failure.

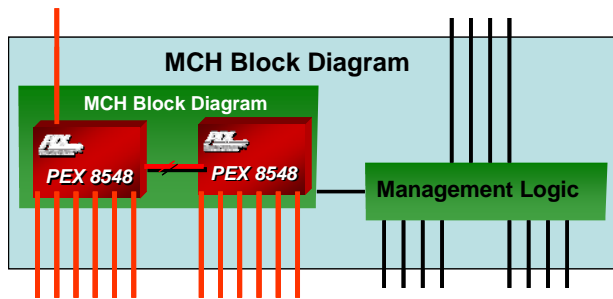
Unlike other serial interconnect protocols specified for MCH modules, PCI Express offers broad ecosystem and economies of scale due to its use in PC graphics, storage systems and Server I/O applications. MicroTCA target applications such as Base Stations, VOIP Gateways, Routers, and Network Security Systems can benefit from scalability of PCIe and its seamless migration for the management software.

PEX 8548 – Flexible & Versatile PCIe Switches

The PEX 8548 is based on PLX's 3rd generation switch architecture that has been optimized for switch fabric applications such as MicroTCA. With its flexibility, 48 PCIe lanes, 9 ports, and enhanced cut-thru architecture, the PEX 8548 can be utilized in MicroTCA MCH modules. PEX 8548 offers many port configurations, some common ones are shown here. The device also supports true peer-to-peer communication as required in switch fabric (MCH) designs.



It also supports a moveable upstream port and cross-link feature that allows its use in failover and redundant applications. Furthermore, two PEX 8548 switches may be cascaded (as shown below) to create a 12 port configuration for the MCH switch fabric with an additional port for uplink to another MCH module.



All PLX products go through rigorous design verification, pre-silicon emulation, post silicon validation, system interoperability and PCI-SIG compliance testing. Furthermore, the PEX 8548 switch helps in providing interoperability between motherboards and adapter cards with its versatile ports, which allow any port to be upstream and dynamically adopting to the LVDS polarity (polarity reversal) and lane orientation (lane reversal) of the adapter.

The PEX 8548 also supports hot-plug controllers on three ports allowing hot insertion and extraction of blades or I/O cards.

Issue No. 47

Switches & Bridges Available Today!

PLX is shipping three PCIe bridges (PEX 8111, PEX 8114 and PEX 8311) and the PCIe switches listed below.

Device	Lanes	Ports	Availability
PEX 8548	48	9	Sampling Now
PEX 8532	32	8	In Production
PEX 8524	24	6	In Production
PEX 8516	16	4	In Production
PEX 8518	16	5	In Production
PEX 8517	16	5	In Production
PEX 8508	8	5	In Production

More than just ports and lanes

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

Design Tools & Documentation:

<http://www.plxtech.com/8548>

- ◆ Data Book, Product Brief
- ◆ HSPICE/BSDL/IBIS Models
- ◆ Rapid Development Kit

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