

PEX 8509 Key Features

- ◆ 8-lane PCI Express switch
- ◆ Up to 8 configurable ports (x1, x2, x4)
- ◆ Cut-through architecture with 118ns latency
- ◆ One virtual channel per port
- ◆ Eight traffic classes per port
- ◆ WRR ingress port arbitration
- ◆ Non-blocking switch fabric
- ◆ Full line rate on all ports
- ◆ Peer-to-peer switching and host centric data transfers
- ◆ 3 standard Hot-Plug controllers supporting PCI SHPC r1.0
- ◆ Lane and polarity reversal
- ◆ Typical Power: 1.2W
- ◆ 15x15 mm² PBGA package

PEX 8509 Other Features

- ◆ PCIe Base Specification r1.1 compliant
- ◆ PCI power management interface specification r1.2 compliant
- ◆ Transaction layer end-to-end CRC
- ◆ Poison bit support
- ◆ Basic and Advanced Error Reporting support
- ◆ Link power management states: L0, L0s, L1, L2/L3 Ready & L3
- ◆ Device states: D0 and D3_{hot}
- ◆ 1KB Max Payload Size
- ◆ Fatal error (FATAL_ERR#) signal (legacy SERR equivalent)
- ◆ INTA# signal
- ◆ 8 GPO signals
- ◆ Configuration through strapping pins, I²C, EEPROM, or host
- ◆ JTAG Boundary Scan

Application:

Control Planes in Telecom Applications

PLX Product:

PEX 8509 – 8 Lane, 8 Port PCIe Switch

Key Benefit:

PCIe Connectivity & Fan-Out

Telecom Systems Migrating to PCI Express

PCI Express, in addition to storage, server & graphics markets, is now being used in the telecom market. With processors from companies such as Freescale, AMCC and others integrating PCIe ports (in some cases more than 1 PCIe port), telecom applications are beginning to use PCIe on both control & data planes. Also, customers prefer PCIe to replace legacy PCI due to the ease-of-design & layout, higher throughput with lower latency and lower costs. A typical application, as shown in Figure 1, with a control plane on the board would involve a large number of ASICs and FPGAs all needing to connect to the control processor. With a large number of x1 ports, the PLX PEX 8509 PCIe switch would provide the connectivity to these ASICs and FPGAs.

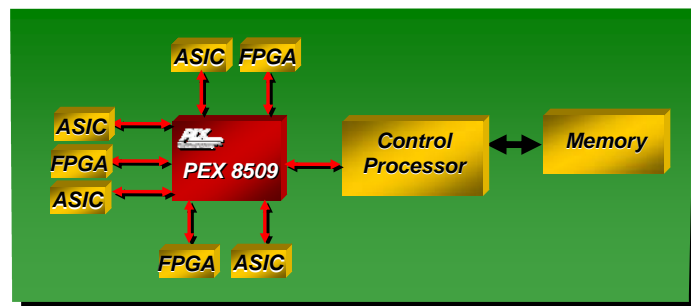


Figure 1. On-board control plane

Another typical application, as shown in Figure 2, would involve a PCIe switch on the line card aggregating traffic from a Network Processor, Traffic Manager, Security Processor, Co-Processor, ASICs and etc... over the PCI Express interface. Several such line cards can then be connected, via PCI Express, to the controller card which also has a PCIe switch. The PEX 8508 is used on the line cards to aggregate traffic and its NT port isolates the local processor from the control processor. The PEX 8509 is used on the controller card to connect up to 7 different line cards.

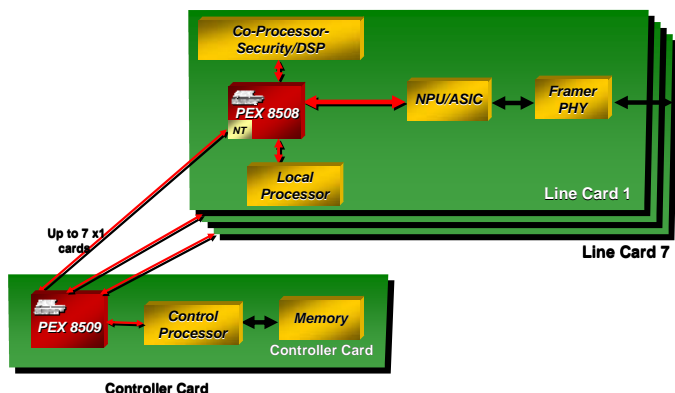


Figure 2. Control plane across backplane

Those applications that need redundancy can use the same line cards shown in Figure 2 and design a controller card with PEX 8509 and the PEX 8508 switch device which offers an NT (non-transparency) port.

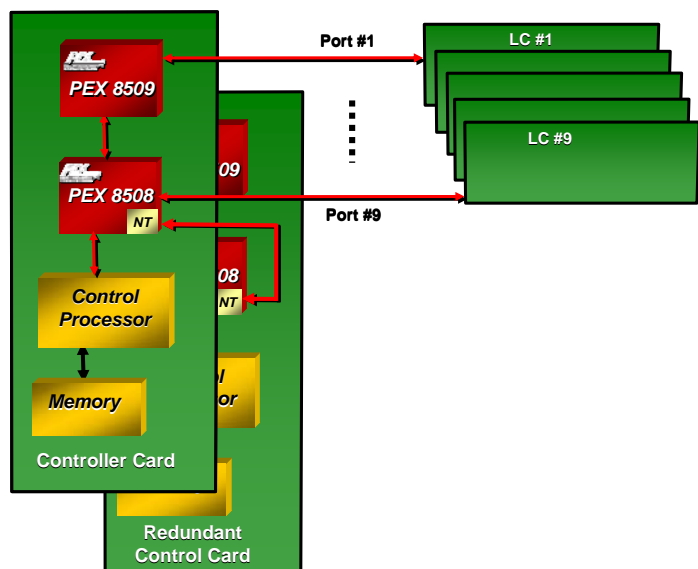


Figure 3. Redundant Control Planes

One additional benefit of Figure 3 is the increase in the number of line cards that can be connected – nine as opposed to seven in Figure 2.

Flexible & Versatile PCIe Switches

The PEX 8509 offers flexible ports that can be configured up to x4 while providing high-performance, cut-through architecture (118ns latency), and Quality of Service (QoS).

Switches & Bridges Available Today!

PLX is shipping four PCIe bridges (PEX 8111, PEX 8112, PEX 8114 and PEX 8311) and the PCIe switches listed below (as of August 7, 2007).

Device	Lanes	Ports	Availability
PEX 8548	48	9	Shipping in Volume
PEX 8547	48	3	Shipping in Volume
PEX 8533	32	6	Shipping in Volume
PEX 8532	32	8	In Production
PEX 8525	24	5	Shipping in Volume
PEX 8524	24	6	In Production
PEX 8516	16	4	In Production
PEX 8517	16	5	In Production
PEX 8518	16	5	In Production
PEX 8512	12	5	In Production
PEX 8508	8	5	In Production
PEX 8509	8	8	Sampling Now
PEX 8505	5	5	Sampling Now

Design Tools & Documentation:

<http://www.plxtech.com/8509>

Data Book, App Notes, Product Brief, HRM, Models

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