

PEX 8518 Key Features

- ◆ 16-lane PCI Express switch
- ◆ Integrated SerDes
- ◆ Up to 5 configurable ports (x1, x2, x4, x8)
- ◆ Cut-thru architecture with 150ns packet latency
- ◆ Quality-of-Service with two Virtual Channels
- ◆ Non-blocking switch fabric with full line-rates
- ◆ True peer-to-peer switching and host-centric data transfers
- ◆ Hot-Plug controller on Five Ports
- ◆ I²C interface for configuration
- ◆ 23x23 mm² PBGA package

PEX 8518 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
- ◆ 256B Max Payload Size
- ◆ Lane and polarity reversal
- ◆ Configuration through strapping pins, I²C, EEPROM, or host
- ◆ JTAG Boundary Scan
- ◆ WAKE#, VAUX, Beacon support

Application:

I/O Expansion

PLX Product:

PEX 8518 – 16-Lane PCI Express Switch

Key Benefit:

Increase the number of I/O devices in a PCI Express System

Computer Systems

Computer Systems in their many forms (PC, Server, etc) are an essential element in today's world. Processors are constantly improving in performance thus increasing the capabilities on these systems while increasing the overall system performance. However, with the increase of CPU performance, there are side effects that require careful consideration. As



an example, the heat dissipation for such devices increases and must be taken into account when designing the entire system as it could result in component limitations which can affect the overall system performance. Consequently, the ability to expand the I/O devices in a system becomes a necessity.

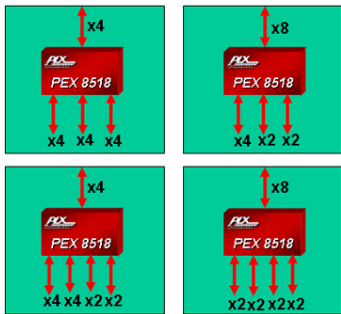
Modular System Components

An effective way for scaling a system is to make its components modular. In this approach, there is much finer granularity and control in the expansion of the system. Additionally, this is an inexpensive solution since off-the-shelf components based on industry standards can be used. The entity that governs the PCI Express specification, PCI-SIG, has defined a cable specification which allows PCI Express signals across copper wires. Independent blocks can be added, removed and/or exchanged based on the system requirements. Moreover, a modular system also provides upgrade flexibility based on system and/or application needs. This approach also simplifies the design effort which translates into less complex boards and better power dissipation margins. This means that in a rack mount form factor, the computing power of a system can be increased by replacing the existing rack mount server without having to disturb the existing entity of I/O modules. Furthermore, with the Non-Transparency functionality of the PEX 8518, redundancy can be readily available by adding a backup server in the switch fabric.



PEX 8518 – Flexible & Versatile PCIe Switches

The PEX 8518 is based on PLX’s 2nd generation switch architecture that has been optimized for switch fabric applications such as I/O Expansion. With its flexibility,



18 PCIe lanes, 5 ports, and cut-thru architecture, the PEX 8518 can be used to expand the I/O in a system without sacrificing performance. PEX 8518 offers many port configurations, some common ones are shown here. The device also

supports true peer-to-peer communication (downstream port to downstream port switching) for direct communication between I/O devices.

It also supports dual clock domains which simplifies the design for applications that require Spread Spectrum Clock (SSC) support. Furthermore, the Non-Transparent port in the PEX 8518 allows for the expansion of intelligent modules such as processing engines.

All PLX products go through rigorous simulation verification, pre-silicon emulation, post silicon validation, system interoperability and PCI-SIG compliance testing.

The PEX 8518 also supports hot-plug controllers on all ports allowing hot insertion and extraction of I/O devices within the expansion module.



Switches & Bridges Available Today!

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

Device	Lanes	Ports	Availability
PEX 8548	48	9	Sampling Now
PEX 8547	48	3	Sampling Now
PEX 8533	32	6	Sampling Now
PEX 8525	24	5	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/pex8518>

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

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