

PEX 8508 Key Features

- ◆ 8-lane PCI Express switch
- ◆ Up to five configurable ports (x1, x2, x4)
- ◆ Low latency: under 150ns
- ◆ Integrated SerDes
- ◆ Quality-of-Service with up to 2 Virtual Channels/port
- ◆ Selectable Non-Transparent Bridge Port
- ◆ Peer-to-peer switching and host centric data transfer
- ◆ 19mmx19mm, 296 pin PBGA

PEX 8508 Other Features

- ◆ Standards Compliant-Exceeds PCIe base specification r1.1
- ◆ Non-blocking Switch Fabric with full line rates
- ◆ End-to-end CRC and Poison bit support
- ◆ Standard r1.1 compliant Hot-Plug Controllers with Hot Plug on all ports
- ◆ Basic and Advanced error reporting
- ◆ Dual clocking domain support with simultaneous SSC and constant frequency clocking
- ◆ Hardware fixed and Round Robin packet queue arbitration
- ◆ Vaux, Wake#, & Beacon
- ◆ Configuration through I2C, host or optional EEPROM
- ◆ JTAG boundary scan-AC/DC
- ◆ All Link & device power management states including D3 (cold)
- ◆ Lane and polarity reversal
- ◆ Typical Power: 2.5 Watts

Application:

Fan-out in Network Security Appliances

PLX Product:

PEX 8508 – 8-lane PCI Express Switch

Key Benefit:

Five configurable PCIe Ports

Network Security Appliances Incorporating PCIe Switches for Expanded Services

Networks with dedicated enterprise level security appliances such as Web Application Firewalls as shown in figure 1 are becoming more prevalent. They sit in-line between WAN access routers and firewalls and internal LAN networks and provide security far beyond those of basic Firewall/VPN solutions. These new systems allow dynamic threat detection and protection from application layer hacker intrusions and mutating virus, worms and other malicious traffic. But in order to minimize added latency, provide wire-speed throughput, support SSL encrypted traffic, provide compression and caching, WAN link optimization and other benefits, these integrated systems need multiple dedicated processing boards. PCIe switches are used to interconnect these boards and the controller.

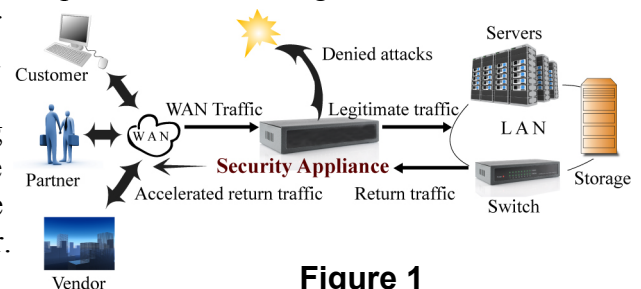


Figure 1

The PEX 8508 Supports Economical Fan-out

The PEX 8508 is an inexpensive 5-port/8-lane PCI Express switch with a host of capabilities applicable to security appliances. These switches provide numerous configuration options including a one x4 port and four x1 ports. These switches support aggregation traffic from upstream to/from downstream ports as well as peer-to-peer data transfers with no host intervention. Ingress to egress throughput latency is under 150 ns which is critical for these data path oriented products. System error management and control is supported through Advanced Error Reporting and data integrity is enhanced through optional ECRC. Non-transparency support allows host and processing board microprocessor domain isolation.

The Key Is High Port/Lane Ratio

Security Appliances are going beyond web application firewall support and providing new forms of data compression to increase WAN throughput, providing new caching techniques to minimize latency and terminating SSL connections to offload servers. These devices often have only one WAN side and one LAN side connection. Yet, internally, with the multitude of data processing present, they require a way to connect several processing boards together.

Figure 2 shows a PEX 8508 connecting several dedicated processing boards which allow parallel processing of data and an uplink to the host controller. Here the boards represent application layer firewall support including dynamic access control lists and active signature recognition, SSL encryption, data compression, and caching. The host controller handles exception packets and enumerates, configures and manages the system.

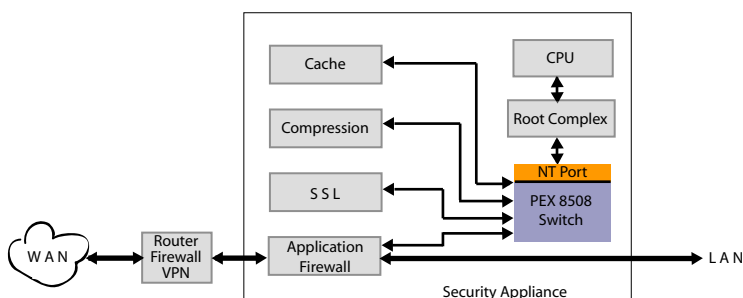


Figure 2

The PEX 8508 is an excellent fit as it has the right amount of ports and lanes for the fan-out needs. The root complex typically provides a x4-lane PCIe interface that matches the switch's upstream port. As the WAN link is typically under one gigabit per second, the x1 lane ports of the switch provide ample throughput. Root complex ICs may have two x4 lane links. So for systems with redundancy, this architecture can be extended with backup added processing boards for failover. Or additional boards could be added for supplementary functionality, dual WAN links or multiple LAN ports.

Added Advantage for PLX

In addition, the PEX 8508 includes many optional PCI Express capabilities such as Hot Swap controllers on every port. This switch supports all of the Hot Swap usage models including a manually operated retention latch, Attention Buttons, and Electromechanical Interlock. This allows individual processing boards to be replaced without a system and thereby WAN link shutdown.

Additional PLX Advantages

- ◆ Superior PCI Express expertise and support
- ◆ Extensive line of compatible PCI Express Switches and Bridges
- ◆ Plug-fest certified PCI Express Compliance for full interoperability

Design Tools & Documentation:

On PLX Public ToolBox:

<http://www.plxtech.com/products/ExpressLane/switches/PEX8508/default.asp>

- ◆ Data book, Reference Design Kit, BSDL and HSPICE Models, Product Brief

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