

## 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
- ◆ 19 x 19mm, 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)
- ◆ 256 Byte maximum data payload size
- ◆ Lane and polarity reversal
- ◆ Typical Power: 2.5 Watts

## Application:

### ***Network Printer Engine Controller***

## PLX Product:

### ***PEX 8508 – 8-lane PCI Express Switch***

## Key Benefit:

### ***Highly Flexible Port/Lane Configuration***

## New Network Printer Architectures Migrating to PCI Express Designs

Corporate networks today are providing greater bandwidth than ever before with LANs routinely allowing 100Mbps network connections. This throughput will naturally promote network users to request more of this bandwidth to such devices as web servers, workstations, and office automation. Current high speed network printers with multifunction/inputs shown in figure 1 often are designed with the ubiquitous internal PCI interconnect for its low cost, standardized interfaces, and availability. Going forward new printer designs will necessitate more internal bandwidth to keep up with the network demands, require multiple data input methods, yet have “green” low power operation.



Figure 1

## PEX 8508 Supports Print Engine Controllers

The PEX 8508 is an economical 5-port/8-lane PCI Express switch with a host of capabilities that match printer engine controller designs. The switch has extensive throughput with up to eight lanes available, a wide variety of lane-to-port configuration options including a one x4-lane and 4 x-1 lane setting, and has a complete line of power management options. Some higher end designs may involve dual processors for local data image processing and the switch’s selectable non-transparent port can isolate these processor domains.

## The Key Is Port Flexibility

Figure 2 shows the PEX 8508 used in a network based printer engine controller design where the switch is used to interconnect several data flows. One flow is the transfer of traffic from a gigabit Ethernet input through an I/O Hub controller to the local processor and back through the switch to the marking engine. A separate scanner input to the print engine CPU and back to a marking engine is also provided for. With five ports available, additional sources of data to the switch can be provided through a separate PCIe slot, USB, or 1394 interface. Many endpoint devices incorporate native PCI Express support to allow the use of all five ports of the PEX 8508 switch.

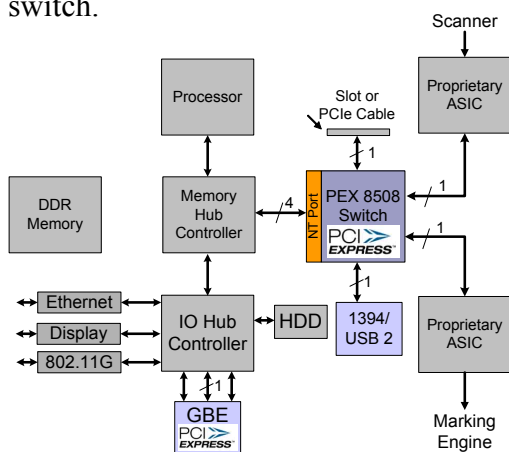


Figure 2

## Key Advantage for PLX

Such applications require large numbers of narrow port widths and lower cost. The PEX 8508 maximizes the port/lane count ratio yet provides a very economical solution. No other switch on the market has this combination in addition to numerous other features.

Along with all PLX switch products, the PEX 8508 has a selectable non-transparent port to isolate dual processors and provide full on-chip address translation for device ID or address based routing.

In addition, the PEX 8508 includes complete power management for all link and device state support including the ultra-low power D3(cold) with wake-up; here the switch can essentially be powered off, but return to full power upon an in-band or out-of-band alert. With a small 19 x 19mm footprint and minimal 4 trace lengths per lane, the controller board space can be minimized.

## Additional PLX Advantages

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

## Design Tools & Documentation:

On PLX Public ToolBox:

[http://www.plxtech.com/products/pci\\_express/PEX8508/default.asp](http://www.plxtech.com/products/pci_express/PEX8508/default.asp)

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

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