PEX 8547 Key Features

- 48-lane PCI Express switch
- Three x16 ports (x1, x2, x4, x8, x16)
- Integrated SerDes
- Cut-thru architecture with 110ns packet latency
- 1KB Max Payload Size
- Quality-of-Service with ingress port arbitration
- Non-blocking switch fabric
- Full line-rate on each port
- True peer-to-peer switching and host-centric data transfers
- I^2C interface for configuration
- 37.5 x 37.5mm^2 PBGA pkg.

PEX 8547 Other Features

- PCIe Base Specification r1.1 compliant
- Advanced Error Reporting
- PCIe Baseline Error Reporting
- Link power management states: L0, L0s, L1, L2/L3 Ready, L3
- Device states: D0 & D3hot
- INTA and FATAL ERROR signal support
- Lane and polarity reversal
- Configuration through strapping pins, I^2C, EEPROM, or host
- Per port performance monitoring
- JTAG Boundary Scan

Application:

Dual-Graphics

PLX Product:

PEX 8547 – 48-Lane PCIe Switch

Key Benefit:

High Performance Fan-Out & Peer-to-Peer Communication

Dual-Graphics Fan-Out

Increasing memory and bandwidth requirements have put a strain on local GPU memory. The PEX 8547 allows for highly efficient data transfers over the PCI Express bus, allowing the Graphics Module to utilize the system memory and render it as if it were local graphics memory. In a dual-graphics fan-out application (see Figure 1), the PEX 8547 will fan-out to two Graphics Modules (GPUs) via the two x16 downstream ports while the x16 upstream port links to the Root Complex. Each graphics module drives its own monitor. In a fan-out application such as this one, the traffic patterns are host-centric, with each Graphics Module driving its own output.

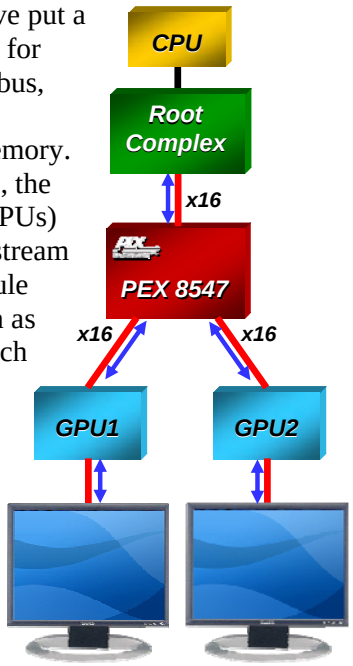

Figure 1. Dual Graphics Fan-Out

Dual-Graphics with Peer-to-Peer Communication

Applications such as high-resolution gaming, high resolution scientific use, and image processing can benefit from the performance of the PEX 8547 switch. Figure 2 illustrates the use of the device in a high resolution gaming application where two Graphics Modules drive a single monitor for the ultimate gaming experience. The upstream x16 port links to the Root Complex and the two downstream ports connect to the Graphics Modules. The peer-to-peer support of the PEX 8547 allows the two Graphics Modules to communicate with each other for maximum performance.

In this example, the two Graphics Modules divide the screen into a checkerboard pattern. In Figure 2, the screen is divided into white frames and blue frames, with one GPU managing the white frames and the other managing the blue frames. This mode of operation is referred to as 'supertiling', and is generally the most efficient because it evenly divides the processing and graphics rendering workload across the two Graphics Modules.

This usage model calls for heavy peer-to-peer communication between the two Graphics Modules. The PEX 8547 can also support dual-graphics solutions running in scissor, or alternate frame-rate modes. In each of these modes, the processing and graphics rendering workload is shared by the Graphics Modules, and therefore requires a great amount of peer-to-peer communication between the Graphics Modules to monitor each other's progress and execution.

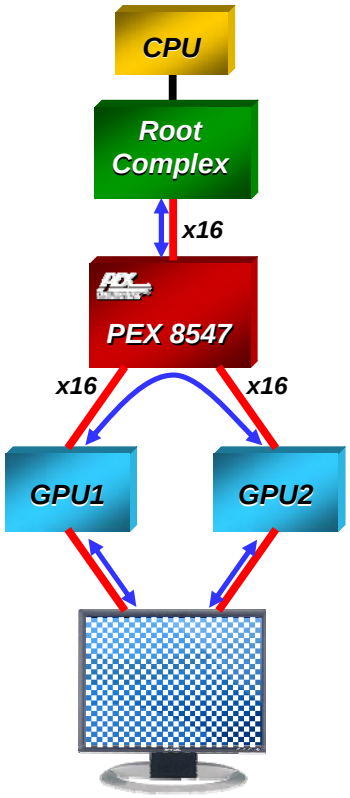

Figure 2. Dual Graphics with Peer-to-Peer Communication

PEX 8547 – Flexible & Versatile PCIe Switches

The PEX 8547 is based on PLX's 3rd generation switch architecture that is optimized for high performance fan-out and peer-to-peer traffic communication. With its 48 PCIe lanes, 3 x16 ports, enhanced cut-thru architecture (industry-best 110ns latency), and true peer-to-peer communication (no involvement of CPU required to handle/manage peer-to-peer traffic), the PEX 8547 is the ideal solution for dual-graphics applications.

All PLX products go through rigorous design verification, pre-silicon emulation, and post silicon validation. The PEX 8547 can be found listed on the PCI-SIG Integrators list today. Furthermore, the PEX 8547 undergoes thorough testing in PLX's Interoperability Lab. The Interoperability Reports can be found online at www.plxtech.com.

Samples of the PEX 8547 are available today!

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 8547	48	9	Sampling Now
PEX 8533	32	6	Sampling Now
PEX 8532	32	8	In Production
PEX 8525	24	5	Sampling Now
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

Design Tools & Documentation:

www.plxtech.com/8547

- Data Book
- Product Brief
- Interoperability Report
- Design Notes
- Rapid Development Kit Hardware Reference Manual
- Software Development Kit
- OrCAD Symbol
- BSDL, IBIS, & HSPICE Models

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