PERICOM
Semiconductor Corporation

Product: PCI-Express Signal Switch Products
Part Number: PI2PCIE412-C, PI2PCIE412 & PI2PCIE212

Bandwidth Allocation Solution for PCI Express

PCI Express is a point-to-point technology. The number of lanes to a root complex represents the bandwidth available for a given system to the memory. This bandwidth is limited by the system architecture and is usually optimized for a given system. If more bandwidth is needed from the memory, the bus of the memory will have to be changed, and additional cost incurred. Pericom's PCI Express signal switch offers a "Bandwidth allocation solution for PCI Express" with a minimum latency compared to PCI Express packet switch, and at a very minimum cost.

Pericom Solution

Pericom's PI2PCIExxx PCI Express Signal Switches offer a way to allocate PCI Express bandwidth by allowing the limited PCI Express lanes from the root complex to be dynamically assigned to different slots of a system, thus enabling the allocation of bandwidth at the same time. The conventional Packet Switch does not always include bandwidth allocation features.

Applications environment:
- Gaming desktop PCs
- Servers
- Laptop Docking stations
- Desktop & Mobile PCs

The PI2PCIE412-C

The PI2PCIE412-C (4-Differential Channel, 2:1 Mux/DeMux) PCI-Express Signal switch was designed using the high-speed differential broadband switching technology that provides industry proven PCI Express compliant physical layer signal processing. PI2PCIE412-C allows bandwidth allocation of two complete PCI Express lanes, each representing differential pairs of Rx and Tx signals, by keeping the RON and CON at the lowest possible denominations. The switch operates at the PCI Express bandwidth standard of 2.5Gbps signal processing speeds with 27" trace lengths at the PCB motherboard board level, providing 100mV of margins at the eye opening.

The PI2PCIE412/212

The PI2PCIE412 (4-Differential Channel, 2:1 Mux/DeMux) PCI-Express Signal switch was designed using the high-speed differential broadband switching technology that provides industry proven PCI Express compliant physical layer signal processing. PI2PCIE412 allows bandwidth allocation of two complete PCI Express lanes, each representing differential pairs of Rx and Tx signals, by keeping the RON and CON at the lowest possible denominations. The switch operates at the PCI Express bandwidth standard of 2.5Gbps signal processing speeds with 16" trace lengths at the PCB motherboard board level, providing 50mV of margins at the eye opening.

The PI2PCIE212 is a 2-Differential Channel, 2:1 Mux.DeMux) PCI-Express Signal switch with identical specifications as the PI2PCIE412 as described above. PI2PCIE212-C allows bandwidth allocation of one complete PCI Express lane, representing differential pairs of Rx and Tx signals.

Key Features & Specifications
- Single device can offer bandwidth allocation of PCI Express signals of up to 4-Differential channels
- Provides signal transfers and receives capacity from two complete PCI Express lanes
- Operating Voltage: 1.8V
- Maximum trace length coverage is 27"
- PCI Express signal compliant
- TQFN package (Pb-free & Green)
- Bandwidth: 2.5Gbps
- Crosstalk: -60dB@10MHz
- Isolation: -65dB@10MHz
- ESD: 2KV HBM
- For PCI Express signal switching applications

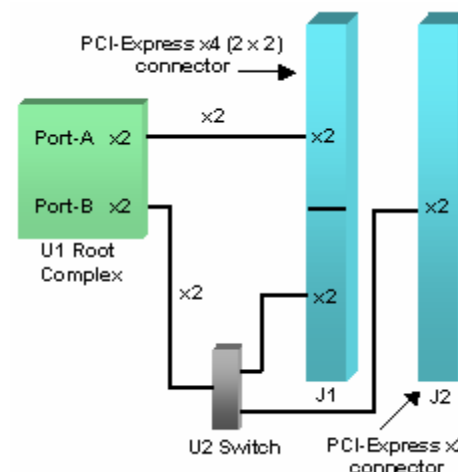## Applications of PCI-E Signal Switch

Figure 1: Server Applications. Reconfiguration of two PCI-Express connectors. The two x2 ports in the root complex can be configured as one 4x port or two 2x ports.

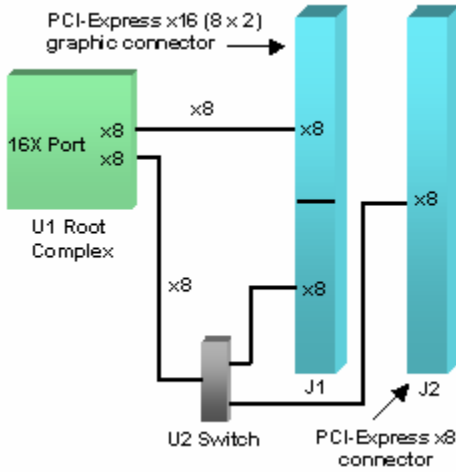Pericom is The Complete Interface Solution, visit www.pericom.com for more information

Figure 2: Gaming Desktop PCs. Reconfiguration between the two graphic cards options. The two 8x ports in the root complex can be configured as one 16x port or two 8x ports.
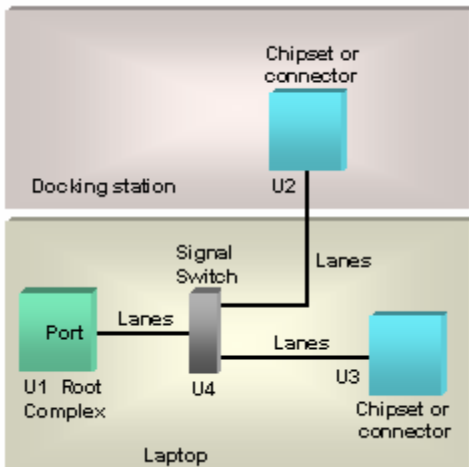

Figure 3: Laptop docking stations. Signal switch between a laptop and a docking station.

Availability & Status

Part #	Samples	Production	Demo board
PI2PCIExxx	NOW	NOW	NOW