

- **PEX 8624 Vitals**
 - 24-lane, 6-port PCIe Gen 2 switch
 - Integrated 5.0 GT/s SerDes
 - 19 x 19mm², 324-pin FCBGA package
 - Typical Power: 3.0 Watts
- **PEX 8624 Key Features**
 - **Standards Compliant**
 - PCI Express Base Specification, r2.0 (backwards compatible w/ PCIe r1.0a/1.1)
 - PCI Power Management Spec, r1.2
 - Microsoft Vista Compliant
 - Supports Access Control Services
 - Dynamic link-width control
 - Dynamic SerDes speed control
 - **High Performance**
 - ◆ **performancePAK™**
 - ✓ Read Pacing™ (bandwidth throttling)
 - ✓ Dual-Cast™
 - ✓ Dynamic Buffer/FC Credit Pool
 - Non-blocking switch fabric
 - Full line rate on all ports
 - Packet Cut-Thru with 160ns max packet latency (x8 to x8)
 - 2KB Max Payload Size
 - **Flexible Configuration**
 - Ports configurable as x1, x2, x4, x8
 - Registers configurable with strapping pins, EEPROM, I²C, or host software
 - Lane and polarity reversal
 - Compatible with PCIe 1.0a PM
 - **Dual-Host & Fail-Over Support**
 - Configurable Non-Transparent port
 - Moveable upstream port
 - Crosslink port capability
 - **Quality of Service (QoS)**
 - Eight traffic classes per port
 - Weighted round-robin source port arbitration
 - **Reliability, Availability, Serviceability**
 - ◆ **visionPAK™**
 - ✓ Per Port Performance Monitoring
 - Per port payload & header counters
 - ✓ SerDes Eye Capture
 - ✓ PCI Express Packet Generator
 - ✓ Error Injection and Loopback
 - 3 Hot-Plug Ports with native HP Signals
 - All ports hot plug capable thru I²C (Hot-Plug Controller on every port)
 - ECRC and Poison bit support
 - Data Path parity, RAM Error Correction
 - INTA# and FATAL_ERR# signals
 - Advanced Error Reporting
 - Per port error diagnostics
 - JTAG AC/DC boundary scan

Application:

Failover Storage Systems

PLX Product:

PEX 8624 – 24-Lane PCIe Gen 2 Switch

Key Benefit:

Dual Cast for Redundancy and Integrated Non-Transparent Port for Failover

Failover Storage Systems

In today's data-intensive work environments, trying to keep up with storage requirements can be overwhelming. In the era of emails, large presentations, digital multimedia (music, videos, and high-res pictures), PCs and notebooks quickly run thin on storage space, causing users to offload onto external hard drives and storage networks. Furthermore, due to today's legal policies, it has become a necessity to backup everything from financial records and corporate contracts to internal memos and specifications. These trends are responsible for the enormous, and still growing, storage market. From large corporations using high-end storage systems (see Figure 1) to small businesses and home offices using entry level storage boxes (see Figure 2), external storage has become a necessity for today's businesses.



Figure 1. High-End SAN/NAS System

Two features commonly utilized in such storage systems are failover and redundancy. Having only a single point of failure puts the precious data being stored at risk. What happens if the processor running the system fails? This may lead to information not being stored, not being readily accessible, or both. Hence, most enterprise class storage systems today feature failover to safeguard from a failing CPU. When the initial host CPU fails, a second CPU jumps in to take ownership of the system. This ensures a quick recovery and very limited system downtime.



Figure 2. Entry-Level NAS

Another common practice in storage applications is to copy the same data in two separate physical locations to allow for redundancy in case of failure of the storage disk itself. This way, if one storage disk fails or is inaccessible for some reason, the data can still be accessed on a separate storage disk.

PEX 8624 – PCIe Gen 2 Switch

The PEX 8624, a 24-lane, 6-port PCIe Gen 2 switch based on PLX's 4th generation switch architecture, is an ideal solution for today's storage systems. Its integrated Non-Transparent (NT) port allows for host isolation in failover systems utilizing two hosts (CPUs) and its Dual Cast feature allows for simultaneous copying of data to two locations in one transaction – ideal for redundant applications. Moreover, the PEX 8624 draws on PLX's dynamic buffer pool allocation scheme to allow for faster credit updates, hence producing the industry's highest performing switches. The PEX 8624 also utilizes PLX's renowned Cut-Thru architecture, well-known for yielding the industry's lowest packet latency (160ns for PEX 8624).

In the example shown in Figure 3, two redundant storage chassis are connected to two hosts via the PEX 8624 and the PEX 8616 (16-lane, 4-port Gen 2 PCIe switch from PLX). The Dual Cast feature enables the PEX 8624 to copy incoming data from the host to two downstream ports (see yellow traffic patterns) in one transaction as opposed to having to execute two separate transactions to send data to the redundant chassis. By offloading the task of backing up data onto the secondary system onto the PEX 8624, processor and system performance is enhanced.

Figure 3 also shows the PEX 8624's NT port being used to isolate the backup system from the primary system. The NT port allows both hosts to connect to the redundant chassis, but isolates the backup system while the primary system is active. If/When the primary system fails, the backup system will take over and assume all host responsibility.

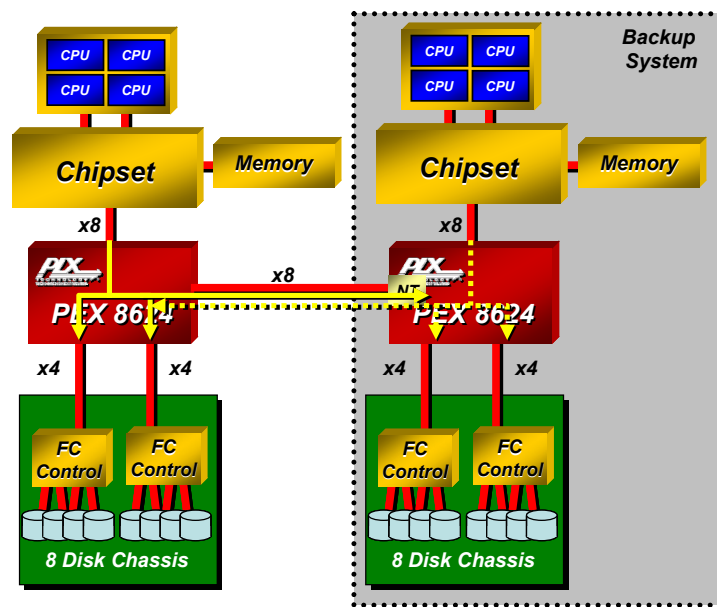


Figure 3. Dual Cast & Failover in Storage Systems

The PEX 8624 also features many PLX exclusive and industry leading features such as Read Pacing and diagnostic tools. Be sure to reference the PEX 8624 Product Brief, Data Book, White Papers, and other documentation at www.plxtech.com.

Gen 2 Switches Shipping Today!

PLX offers 25 PCIe switches & bridges today! More information on these can be found at www.plxtech.com. Below is a list of available Gen 2 switches that PLX is offering today:

Device	Lanes	Ports	Availability
PEX 8648	48	12	Now!
PEX 8632	32	12	Now!
PEX 8624	24	6	Now!
PEX 8618	16	16	Now!
PEX 8616	16	4	Now!
PEX 8614	12	12	Now!
PEX 8612	12	3	Now!
PEX 8608	8	8	Now!

Design Tools & Documentation:

www.plxtech.com/8624

- ◆ Product Brief and Data Book
- ◆ Design Notes & White Papers
- ◆ Rapid Development Kit (RDK) Schematics
- ◆ Rapid Development Kit (RDK) Gerber Files
- ◆ RDK Hardware Reference Manual
- ◆ Software Development Kit
- ◆ HSPICE Models
- ◆ OrCAD Library

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