Astek A73208-PCI
16-Port 8Gb/s Gen3 PCIe Switch External HBA Card
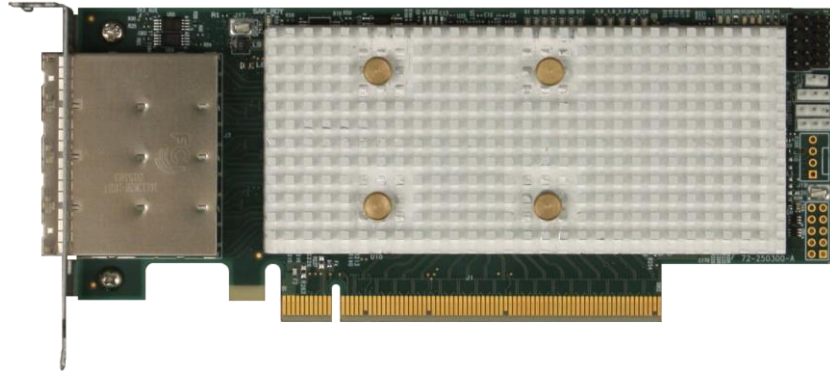
Key Features

- **PCIe Gen3 8Gb/s External Connectivity**
- **High Performance with 8Gb/s PCIe Data Transfer Rates**
- **PLX PEX9733 Switch Chip**
- **Quad Mini-SAS HD (SFF-8644) External Connectors**
- **x16 Gen3 Host Interface**
- **x4, x8, x16 External Port Configurations**
- **100% Compliant with PCI SIG External Cabling Revision 3.0, Version 0.7**
- **Heartbeat LEDs**
- **HHHL PCIe CEM Form Factor**
- **Active Optical Cable Support**

Key Advantages

- **External UART with CLI**
- **FW Upgradeable**
- **Supports CMI PCI SIG Messaging Between Upstream and Downstream Ports**
- **Software Configurable Sideband Signals**
    – **PCI SIG Compliant**
    – **100Mhz Differential PCIe Reference Clock**
    – **Downstream PCIe Resets**
- **Downstream Port Containment (DPC) and eDPC**
- **100% Passive Cooling (No Active Fans Required)**
- **Multiple PCIe Downstream Clocking Options**
    – **SRIS, NON-SRIS, SRNS**

The A73208-PCI HBA Provides External PCIe Gen3 8Gb/s Connectivity

Astek A73208-PCI

Overview

The Astek A73208-PCI 8Gb/s PCIe Switch HBA (A73208) provides external PCIe connectivity for applications needing low-latency, high-speed, high-bandwidth performance. The A73208 enables external direct connect PCIe Gen3 between servers and NVMe JBOFs and avoids any latency issues caused by protocol conversions. The A73208 automatically configures itself to provide four independent x4 connections, two x8 connections or one x16 connection providing up to 128Gb/s of external bandwidth. The A73208 Switch is enterprise class with passive cooling and fully enabled Downstream Port Containment (DPT) to avoid system issues in the event of cable disconnects or drive failures. The A73208 directly attaches to drives or connects to another PCIe Switch for expansion purposes. The A73208 automatically provides the maximum speed and bandwidth available with the target device. The A73208 PCIe HBA is based on the PLX PEX9733 Gen3 PCIe Switch.

External High Speed Interfaces

The Astek A73208-PCI HBA Switch provides a quad external SFF-8644 (Mini-SAS HD) connector for the downstream (DS) ports which provides up to 16 lanes of Gen3 PCIe. The internal upstream (US) host interface to the server is also x16 Gen3 PCIe that enables 128Gb/s of data to occur across the HBA. The pinout of the high-speed lanes is compliant to the PCI Sig External Cabling Specification, Revision 3.0, Version 0.7. The Downstream ports support SRIS, NON-SRIS and SRNS PCIe Clocking options.

Sideband Signals

There are eight Sideband Signals on the external Mini-SAS HD connectors of the A73208. The Sideband Signals are software configurable with the primary mode complying with the PCI SIG External Cabling Specification, Revision 3.0, Version 0.7. Through software

configuration, the Sideband Signals also support a differential 100Mhz PCIe reference clock and various fundamental hardwired PCIe Resets for downstream ports. The Sideband Signals support Active Optical Cable (AOC) and PCI SIG CMI messaging between Upstream and Downstream ports.

CLI Interface

The A73208 provides a CLI accessed through an external UART. The CLI provides HBA status, test features and allows software configuration of the HBA. Basic status information includes firmware revisions, temperature and voltage measurements. Test features allow the user to Read/Write on the SMBus to the external Mini-SAS HD connectors, put the PEX9733 in different operating modes and Read/Write to test features of the PEX9733. The CLI also allows the user to configure the sideband signals of the HBA (100Mhz reference clock, PCIe Resets, etc.), initiate PCIe Resets, and to upgrade the HBA firmware.

Bus Protocols	PCIe Gen1 (2.5Gb/s), Gen2 (5Gb/s) and Gen3 (8Gb/s)
Storage Protocol	NVMe
Internal PCIe Host Bus (Upstream Port)	x16 PCIe
External PCIe Connectivity (Downstream Ports)	x16 Quad Mini-SAS
External PCIe Port Configurations	x4, x8, x16
Form Factor	Half-Height, Half-Length (HHHL) PCIe CEM
Physical Dimensions	4.3" (111mm) x 6.6" (167mm)
Cable Support	Passive Copper (2M), Active Copper and Active Optical Cable up to 1.5W/port.
Operating Voltage	+12V +/-8%
PCI Power (Nominal)	22W
Environmental	Operating: 0ºC to 40ºC Storage: -45°C to 105°C 5 to 90% Non-condensing
Operating Systems	Windows, RHEL, Ubuntu, CentOS
Regulatory Certifications	Designed to be compliant to Safety standards UL-60950-1, CSA-60950-1, and IEC-60950-1. Designed to be compliant to Emissions standards EN-55022:2010/CISPR 22:2010, FCC Part 15 Subpart B Class A, ICES-003 and Immunity standard EN 55024:2010/CISPR 24:2010.
Warranty	Limited 1 year warranty
Astek Ordering Part Number	A73208-PCI-01

About Astek Corporation
Astek manufactures storage products for embedded markets including medical, telecommunications and military applications. In addition to Host Bus Adapters, Astek also supplies Serial Attached SCSI (SAS) solutions including edge and fan-out expanders.

For more information please visit the Astek web site at:
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