MXH832 PCIe Host/Target Adapter

Transparent x16 Gen3 SFF-8644 Adapter

The MXH832 Gen3 Host/Target Adapter is our high performance transparent solution for connecting servers to external I/O subsystems. Based on Microsemi® Gen3.1 PCI Express bridging architecture, the MXH832 adapter enables reliable transparent PCIe cable connections and clock isolation.

For high performance application, such as GPU farms, test and measurement equipment, medical equipment, and storage subsystem, the MXH832 delivers flexibility and performance with extremely high data quality. It combines 128 Gb/s performance with the low latency of PCI Express, which is ideal for external I/O Expansion systems. The MXH832 card has a quad SFF-8644 cable connector and supports MiniSAS-HD cables as well as the new PCIe 3.0 cables. Using the MXH832 as both Host and Target, standard MiniSAS-HD cables enables basic transparent Host and Target operations

including propagation of host reset signal to the downstream device.

The card also supports the new PCIe 3.0 cables and the new PCI-SIG CMI (Cable Management Interface) protocol including WAKE and POWER-ON functionality as defined in the current PCI-SIG External Cable specification 3.0. When the MXH832 is used in conjunction with the new PCI-SIG external PCIe 3.0 cables, it can connected to any compliant downstream device.

The adapter is carefully designed to ensure maximum cable length and signal quality, with a target of up to 9 meters at full PCI Express Gen3 speed. Fiber optic cables will extend this distance to 100 meters.

The MXH832 uses an on-board DIP-Switch to select between Host and Target operations and to set other operational parameters. The

adapter cable port can be configured as four x4, two x8 or one x16 PCIe connections.

The MXH832 card is a transparent only product. It comes with optional support for SMbus and configuration via a Board Management Controller.

To utilize the Dolphin's PCIe eXpressWare™ clustering software, you need to purchase the MXH830 PCIe Gen3 NTB adapter card.

Features

- PCI Express Gen3 compliant - 8.0 GT/s per lane
- Microsemi PFX 32 lane switch
- Link compliant with Gen 1, Gen 2, and Gen 3 PCIe
- Host and target operation
- Quad SFF-8644 connector
  - » PCI Express 3.0 cables
  - » MiniSAS-HD cables
- Copper and fiber-optic cables
- MXH832 supports the following port configurations
  - » One - x16 PCIe port
  - » Two - x8 PCIe ports
  - » Four - x4 PCIe ports

- Full host Clock isolation support. Automatic support for host running CFC or SSC.
- Low Profile, half length PCIe form factor
- EEPROM for custom system configuration
- Link status LEDs through face plate

I/O Expansion

The MXH832 adapter is capable of being configured as a host or a target adapter. Figure 1 illustrates the various configurations supported by the MXH832.   It can support up to 4 PCIe expansion units without an external switch. As a host adapter, the MXH832 connects to PCIe targets via an SFF-8644 connector, which support PCIe 3.0 and MiniSAS HD cables. It can connect to other MXH832 boards as a target or to custom target adapters with PCIe 3.0 cables. The MXH832 configurations support x16, x8, or x4 connections.
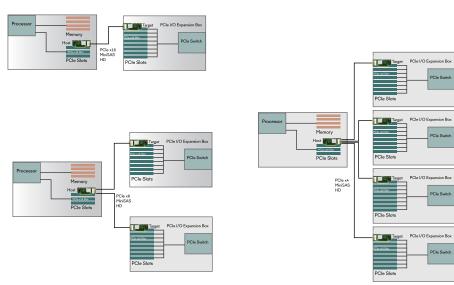
Figure 1:MXH832 I/O Expansion Configurations

Specifications

Link Speeds	32 GT/s per port / 128 GT/s
Application Performance	170 nanoseconds cut through latency port to port
Active Components	Microsemi PFX Gen 3 PCIe Switch
PCI Express	Base Specification 3.1 Cable Specification 3.0 (preliminary) Card Electromechanical Specification 3.0
Topologies	Transparent Host/Target up to 4 devices
Cable Connections	SFF-8644 connector for copper / fiber cables Supports 4 - x4/ 2 - x8 or 1 - x16 connections PCIe 3.0 copper and MiniSAS-HD copper / fiber Distance - up to 9m with copper, 100m with fiber
Power Consumption	12 Volt: Max 19.6 Watts 12 Volt: Max 24 Watts including AOC +3.3 Volt: Not connected +3.3 Volt AUX: Max 1 Watt
Mechanical Dimensions	Low profile, Half Length - 69.2 mm (2.7 inches) x 168.2 mm (6.6 inches)

PCIe Bracket	Full height plate mounted Half height plate included
Regulatory	CE Mark FCC Class A UL94V-0 compliant RoHS Compliant
Operating Environment	Operating Temperature: 0°C - 55°C (32°F - 131°F) Air Flow: 150 LFM Relative Humidity: 5% - 95% (non- condensing)
Configuration	DIP-switch Host / Target / x4,x8,x16 link / Safe Boot / Edge Clock Select
Product Codes	MXH832 Host/Target Adapter