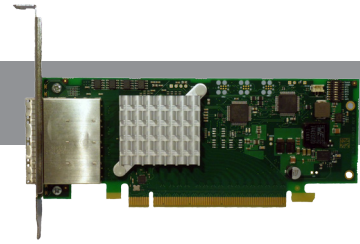


# PXH830 PCIe NTB Adapter

## Gen3 PCIe Host Adapters



The PXH830 Gen3 PCI Express NTB Host Adapter is our high performance cabled interface to external processor subsystems. Based on Broadcom® Gen3 PCI Express bridging architecture, the PXH830 host adapter includes advanced features for non-transparent bridging (NTB) and clock isolation. The PXH830 card will utilize the new MiniSAS-HD / iPass+™ HD connectors currently being standardized by the PCI-SIG as the new PCIe Gen3 cable option.

For high performance application developers, the PXH830 host adapter combines 128 Gb/s performance with an application to application latency starting at 0.54 microseconds. Inter-processor communication benefits from the high throughput and low latency. Using the latest SmartIO technology software from Dolphin, applications can now access remote PCIe devices as if they were attached to the local system.

The PXH830 performs both Remote Direct Memory Access (RDMA) and Programmed IO (PIO) transfers, effectively supporting both large and small data packets. RDMA transfers result in efficient larger packet transfers and processor off-load exceeding 11 Gigabytes per second. PIO transfers optimize small packet transfers at the lowest latency. The combination of RDMA and PIO creates a highly potent data transfer system.

Dolphin's software suite takes advantage of PCI Express' RDMA and PIO data transfer scheme. Delivering a complete deployment environment for customized and standardized applications. The suite includes a Shared-Memory Cluster Interconnect (SISCI) API as well as a TCP/IP driver and SuperSockets software. The SISCI API is a robust and powerful shared memory programming environment.

The optimized TCP/IP driver and

SuperSockets™ software remove traditional networking bottlenecks, allowing standard IP and sockets applications to take advantage of the high performance PCI Express interconnect without modification. The overall framework is designed for rapid development of inter-processor communication systems.

The PXH830 is carefully designed for maximum cable length and supports copper cables up to 9 meters at full PCI Express Gen3 speed. Fiber optics extends this distance to 100 meters.

The PXH830 card comes with a full license to the Dolphin eXpressWare software.

## Features

- PCI Express Gen3 compliant - 8.0 Gbps per lane
- Link compliant with Gen1, Gen2, and Gen3 PCIe
- PCI Express iPass+ HD interconnect System/ SFF-8644/ MiniSAS-HD® Connectors
- Four x4 Gen3 PCI Express cable ports that can be configured as:
  - One - x16 PCI Express port
  - Two - x8 PCI Express ports
- Two NTB ports max
- RDMA support through PIO and DMA
- Copper and fiber-optic cable connectors
- Full host clock isolation. Supports hosts running both CFC and SSC
- Non-transparent bridging to cabled PCI Express systems
- Low Profile PCIe form factor
- EEPROM for custom system configuration
- Link status LEDs through face plate





## Cluster connections

When used for multi-processor connections, the PXH830 adapter is capable of connecting up to three nodes at Gen3 x8 without a switch as shown in figure 1 or two nodes at Gen3 x16. Each port is 32 Gb/s. Two ports create a 64 Gb/s x8 link. Four ports create a 128 Gb/s x16 link. All ports have latencies as low as 0.54 microseconds. The PXH830 supports any system with a standard x16 PCIe slot.

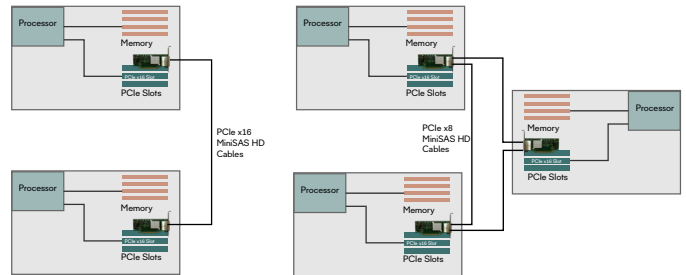


Figure 1: Two and Three node PXH830 cluster

## Performance

Each connection supports 32 Gb/s with a maximum of 128 Gb/s. Figure 2 illustrates the latency at various packet sizes. The bottom axis are packet sizes the side axis is latency in microseconds. PXH830 latencies are as low as 0.54 microseconds.

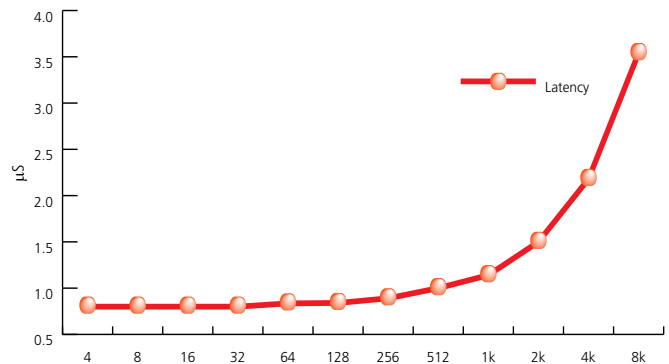


Figure 2: PXH830 Latency

## Specifications

Link Speeds	32 Gb/s per port /128 Gb/s	Regulatory	CE Mark FCC Class A UL94V-0 compliant RoHS Compliant
Application Performance	0.54 microsecond latency (application to application) <130 nanoseconds cut through latency port to port	Configuration	DIP-switch NTB /Long cable /short cable /safe boot
Active Components	Broadcom/PLX Gen 3 PCIe Switch with DMA	Operating Systems	Windows Linux VxWorks RTX
PCI Express	Base Specification 3	Operating Systems supported	Windows, RTX, Linux, VxWorks
Topologies	Point to point or 3 node Mesh Topology	Operating Environment	Operating Temperature: 0°C - 55°C (32°F - 131°F) Operating Temperature with AOC: 0°C - 45°C (32°F - 113°F) Air Flow: 150 LFM  Operating Temperature: 0°C - 50°C (32°F - 122°F) Air Flow: ~0 LFM  Relative Humidity: 5% - 95% (non- condensing)
Cable Connections	Four x4 iPass®+ HD / MiniSAS-HD /SFF-8644 copper cables, 0.5 - 9 meters	Product Codes	PXH830 PCIe Network Adapter
Power Consumption	10 Watts (typical, 14 Watts worst case ) + 800 miliwatts (typical) pr connected x4 AOC		
Mechanical Dimensions	Low profile, Half Lenght - 68.90 mm (2.731 inches) x 167.65 mm (6.600 inches)		
Dolphin Software	SuperSockets Berkley Sockets API Microsoft WinSock2 /LSP support IPoPCIe driver SISCI API		
PCIe Bracket	Full height plate mounted Half height plate included		