MXS924 PCIe Gen4 Switch

24 port Gen4 PCIe SFF-8644 Switch

Dolphin MXS924 switch box provides low latency, highly efficient switching for high performance applications. This powerful switch product enable inter-processor communication by combining non-transparent bridging capabilities with Dolphin's eXpressWare software and clustering technology. This creates a highly efficient compute cluster with PCs, servers, embedded systems, or SBCs with XMC sites. In addition, it supports standard PCI Express transparent opperations. Users can connect multiple PCIe end points to scale out the I/O capabilities of the system.

Dolphin's MXS924 switch box acts as a Gen4 switching element within Dolphin's product line. Each switch port delivers maximum bandwidth to each device while maintaining backwards compatility with Gen1, Gen2 and Gen3 components. This product utilizes standard SFF-8644 cable connectors with support for PCIe 4.0 and 3.0 cables. It supports both copper or fiber-optic cabling. Customers can link multiple standardized PCI Express products such as PXI chassis, storage, and I/O expansion units. You can also scale to multiple MXS924 switchboxes connected together to create a larger topology.
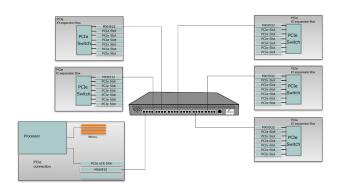
Features

- PCI Express Gen4 - 16.0 GT/s per lane
- 24 PCIe 4.0 x4 ports
- Microchip PFX Gen4 chipset
- Link compliant with Gen1, Gen2, and Gen3, Gen4 PCIe

- SFF-8644 connectors
  - » PCIe4.0 cables
  - » PCIe 3.0 cables
- Scalable to mutiple switches
- Copper and fiber-optic cable support
- Hot plug cabling support
- 19 inch 1U rackmountable chassis
- Port status LEDs through face plate

- <100ns - Cut Through latency
- Redundant Fans
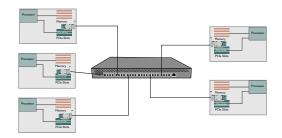- Ethernet based management and monitoring

REV 1.0

Transparent Expansion

The MXS924 can be used for regular Transparent PCIe IO expansion. A MXH932 adapter card or other compatible card in host transparent mode is connected to the switch upstream port. The MXH932 Transparent target adapters or other compliant transparent devices are connected to the other downstream ports. Figure 5: Transparent PCIe IO Expansion below shows 5 expansion chassis connected to a single host. The IO devices can be connected using x16, x8 or x4 links depending on the required scale out and performance requirements.

Cluster Support

The MXS924 switch can be used as a standalone PCI Express switch, or several switches can be cascaded to build larger PCIe expansion systems or PCIe fabrics. It can be combined with compliant PCIe cards available from Dolphin or compliant customer designs.

Specifications

Feature	
Link Speeds	64GT/s per x4 port
Active Components	Microchip PFX Switchtec PCIe Express Gen4 switch with DMA
PCI Express	Base Specification 4.0 External Cabling Specification 3.0/4.0 (draft)
Ports	24x4 non-blocking PCIe Gen4 ports
Cut-Through Latency	<100ns
Port Configurations	Flexible port configurations - E.g 24 -x4, 12 -x8, 6 - x16 ports or 2x16+2x+12x4
Operating Modes	NTB and Transparent
Cable Connections	PCIe 4.0 cable connection
Cable Types	Copper cables - up to 3 meters at Gen4 speeds Fiber-Optic cables - up to 100 meters at Gen4 speeds
Dimensions	1U, 19 inch rack mountable chassis 440mm x 357mm x 45mm (17" x 14" x 1.75") (WxDxH) Four Redundant Fans
Power Supply Input	Auto-sensing power supply 110-240v AC 50- 60 Hz - 2.8A
Power Consumption	Max 80 Watt (including active optical transceivers)
Operating temperature	0°C to 40°C, Relative Humidity 5% - 95% non-condensing
Storage Environment	-25°C to 70°C, Relative Humidity 10% - 90% non-condensing

Weight	4.6 Kilo (10 lbs.)
RoHS	Compliant
Safety Test	Pending
EMC Testing	EN 55032:2012 EN 55024:2010 EN 61000-3-2:2014 EN 61000-3-3:2013
FCC and CE Mark	Pending
Management	Built in management processor for monitoring and firmware upgrade and management RJ45 Ethernet (1Gb/100Mb Ethernet) connector (optional use) USB port for firmware upgrade SD-card boot medium
Orderable part number	MXS924