



IXS600 Gen3 PCIe Switch



8 Port Gen3 PCIe Switch

PCI Express provides low latency, highly efficient switching for high performance applications. The IXS600 Gen3 PCI Express switch delivers a powerful, flexible, Gen3 switching solution. This powerful switch enables I/O scaling and inter-processor communication by combining transparent and non-transparent bridging capabilities with Dolphin's software and clustering technology. IXS600 users can connect multiple PCI Express devices or create a highly efficient compute cluster with PCs, servers, or SBCs with XMC sites.

The IXS600 is the switching element of Dolphin's product line. This eight port, 1U cluster switch delivers 64 Gb/s of non-blocking bandwidth per port at ultra-low latencies. Each x8 PCI Express port delivers maximum bandwidth to each device while maintaining backwards compatibility with Gen1 and Gen2 components. As

with other Dolphin products, the IXS600 utilizes standard iPassconnectors to string components via copper or fiber-optic cabling. IXS600 customer can link multiple standardized PCI Express products such as PXI chassis, storage, and I/O expansion units.

For Non Transparent Bridging (NTB) or clustering applications, the IXS600 integrates with Dolphin's PCI Express Host Adapters or XMC Adapter. The total NTB solution solves many of the problems related to PCI Express operations, such as power sequencing and standard software. Dolphin customers avoid the severe power-on requirements normally associated with PCI Express. Hosts, cables, and the switch can be hot-swapped and power cycled in any sequence for real plug and play.

The IXS600 switch can also be partitioned into several virtually independent partitions,

e.g. mixing NTB and Transparent functionality on separate ports.

The IXS600 switch supports Dolphin's comprehensive software suite. The Shared-Memory Cluster Interconnect (SISCI) API is a robust and powerful programming environment for easy development of shared memory applications. The optimized TCP/IP driver and SuperSockets software remove traditional networking bottlenecks. IP and Sockets applications can take advantage of the high performance PCI Express interconnect. This comprehensive solution is ideal for real-time, technical and high performance computing, cloud computing, and enterprise business applications.

The IXS600 switch is compatible with all Dolphin Gen2 and Gen3 iPass based PCI Express products.

Features

- PCI Express 3.0 compliant -8.0 Gb/s per lane
- Eight PCI Express Gen3 x8 ports
- PCI Express x8 iPass Connectors
- Auto-training to lower lane widths
- Supports x4 lanes with a transition cable
- Link compliant with Gen1 and Gen2 PCI Express
- Transparent and Non Transparent support
- PCI Express External Cabling Specification
- Fiber-optic and copper cable support
- Hot Plug PCI Express cabling support in NTB mode
- Built in management processor
- Boot configuration and user data support for cluster and system configuration
- 19 Inch 1U rack mountable chassis
- Front and rear operational status and alert LEDs
- Redundant Fans





Cluster connections

The IXS600 is a key element in Dolphin’s inter-processor connectivity strategy. Industrial, military, or enterprise customer can create diverse multiprocessing configurations. The hybrid configuration illustrated shows single board computers and data nodes connected through the switch. The IXH610 host adapter and IXH620 XMC adapter are used to connect to different compute nodes.

Increasing the number of I/O components in a system is accomplished by using the IXS600 with PCIe I/O expansion boxes. Figure 22 illustrates the IXS600 connecting 7 additional I/O expansion boxes. These boxes can accommodate components such as sensors, graphics, coprocessors, video capture cards, and other I/O devices.

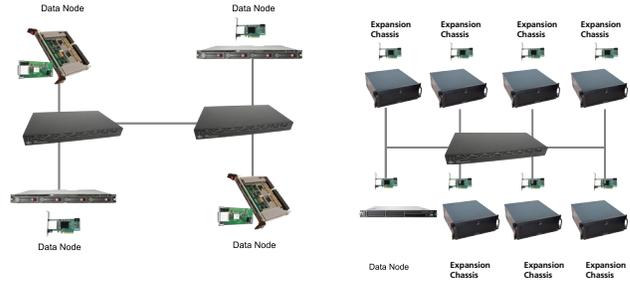


Figure 22: I/O and hybrid configuration

Scalability

Scalability is achieved by connecting multiple switches. Multiple IXS600 switches are used for larger reflective memory applications or creating larger processing clusters.

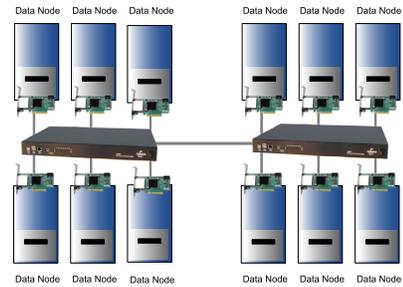


Figure 23: Scalability of switches

Specifications

Link Speeds	64 Gb/s per port
Application Performance	6595 MB/s application data rate 200ns port latency
Ports	8 - x8 non-blocking 64 Gb/s ports
Cable connections	x8 iPass copper cables
Management	Ethernet management port Operational status and alert LEDs
Power	Auto-sensing power supply 110 - 240 V AC 50-60Hz Power consumption : Max 80 Watts
Mechanical	1U, 19 inch rackmountable chassis 440mm (W) x 300mm (D) x 45mm(H) Redundant Fans

User Configuration Modes	Transparent/non-transparent(NTB)
Operating Environment	Operating Temperature: 0°C -55°C Relative Humidity: 5% -95% non-condensing
Regulatory	CE Mark EN 55022,EN 55024-A1&A2, EN 61000-6-2 FCC Class A UL94V-0 compliant RoHS
Product Codes	IXS600 Gen3 100 Mhz