KEY FEATURES

- Eight 10Gb/s InfiniBand 4X Ports
- 160 Gb/s of Available Bandwidth
- 2 Gb/s PCI Bus Bandwidth
- Scalable to 32 Non-Blocking Full Wire Speed 1X Ports
- Scalable to 192 Ports 1X (2.5Gb/s)
- Integrated SMA and GSA
- Inbound and Outbound Partition (P_KEY) Checking
- 32 Integrated 2.5Gb/s SerDes
- Cut-Through Switching
- InfiniPCI Technology Support
- InfiniRISC Embedded RISC Processor
- Large On Chip Port Buffering

Packages

- Package Size: 40mm x 40mm
- Package: L2BGA, with 520 balls
- Typical Power: 18 Watts

Mellanox InfiniScale™
Eight-Port 10 Gb/s 4X InfiniBand Switch

Overview

The InfiniScale is the second generation of Mellanox's InfiniBand switch silicon devices and the first member of the InfiniScale switching product family. The InfiniBand Architecture delivers "Bandwidth Out of the Box" on a reliable, simple to manage and highly available fabric. The InfiniScale is the first single chip InfiniBand switch that enables 10Gb/s data center bandwidth for clustering, communication and storage.
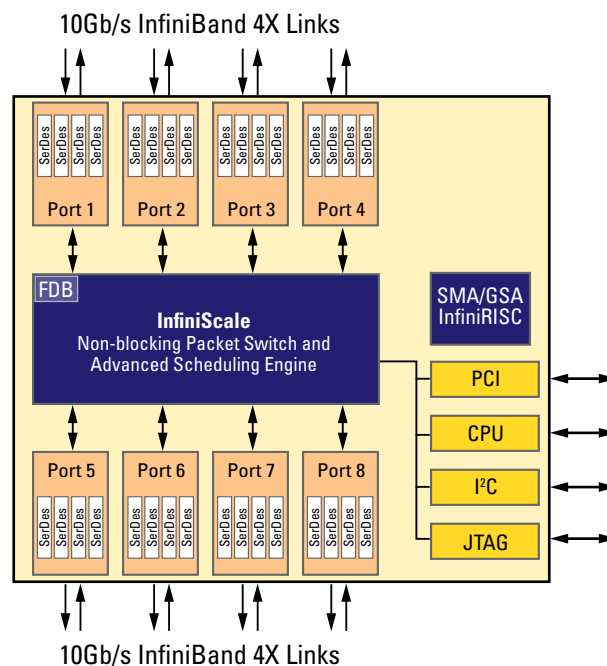
High Performance Silicon

The InfiniScale is an eight-port 10Gb/s 4X InfiniBand switch with integrated physical layer. The device features eight full wire speed, non-blocking full duplex 10Gb/s ports with more than 160Gb/s of aggregate bandwidth. The architecture features an intelligent non-blocking, packet switch design with an advanced scheduling engine that provides quality of service with breakthrough performance. The InfiniScale architecture has the ability to scale beyond its eight non-blocking 10Gb/s ports with multiple switch devices.

Complete Integrated Physical Layer

The InfiniScale device integrates thirty-two 2.5Gb/s SerDes in a single 520-pin package, making it the first InfiniBand semiconductor to include both core logic and physical layer in a single device. This high level of integration reduces both power and system cost, simplifies board designs, reduces PCB size, and eliminates external physical layer parts which makes it an ideal switching solution for today's data center applications. This level of integration enables system vendors to build a complete eight-port 10Gb/s InfiniBand switch using only a single chip.

InfiniScale Block Diagram

InfiniScale MT43132

- PowerQUICC CPU Interface
- 32-bit/66MHz PCI v2.2 Compatible Interface
- General Purpose IO Pins
- I²C Compatible Bus
- Flash interface
- Boundary Scan (JTAG) interface

Key Applications

- Virtualized data centers that require a high-bandwidth, low-latency interconnect for server and storage grids
- High performance parallelized computing leveraging
- Message Passing Interface (MPI) based applications such as molecular modeling, oil and gas exploration, car crash simulations, etc.
- Clustered database applications, parallel RDBMS queries, high-throughput data warehousing
- Performance storage applications such as backup, restore, mirroring, etc.
- High bandwidth streaming content such as video-on-demand and HDTV
- Electronic Design Automation (EDA)
- Networking, Telecom and Industrail data acquisition
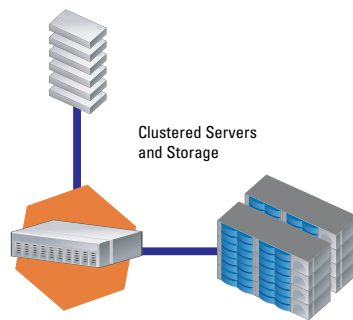
INFINIBAND BENEFITS

- Industry-standard technology
- Unified communications, computing, management, and storage
- High-bandwidth, low-latency
- Performance roadmap to 120Gb/s
- Highly-efficient clustering
- Ultimate reliability and scalability
- Multi-platform support
- Congestion management and QoS
- Virtualized I/O fabric
- World-Class price/performance

InfiniScale Product Development Kit

Mellanox offers customers a complete Product Development Kit (PDK) for the InfiniScale device. The PDK includes an eight-port switch with standard 4X copper connectors packaged in a 1U chassis and includes schematics, layout, bill of materials, and a software development kit (SDK). The SDK contains driver development code, application examples, and debug/development tools, enabling customers to develop InfiniBand switches based on the reference software. The PDK is also supported by software management solutions from third-party InfiniBand software suppliers.

InfiniScale based InfiniBand Switch Products from Mellanox as Production Development Kits (PDK)

Clustered Servers and Storage

8-port 4X 1U InfiniBand Switch

8-port 4X InfiniBand Switch

Switch Silicon Family

Product	Switch Capacity	Switch Ports	Typical Power	Part Number
InfiniScale	160Gb/s	8-10Gb/s 4X	18W	MT43132
InfiniScale III SDR	480Gb/s	24-10Gb/s (4X) or 8-30Gb/s (12X)	25W	MT47396A1-FDC
InfiniScale III DDR	960Gb/s	24-20Gb/s (4X) or 8-60Gb/s (12X)	34W	MT47396A1-FDC-D

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