

Voltaire® 40Gb InfiniBand Switch Module for IBM BladeCenter

High Performance, Ultra Low Latency, 40 Gb/s InfiniBand Switch Module for IBM BladeCenter-H Platform



Overview

Multi-core processing environments, I/O convergence, and cloud services are fueling the need for higher bandwidth solutions. As these demands for mission-critical and real-time applications continue to grow, servers must offer higher processing capabilities in order to meet and exceed these requirements for performance and scalability.

The Voltaire 40Gb InfiniBand Switch Module for IBM BladeCenter provides the highest performing I/O throughput option for IBM BladeCenter by delivering the industry's highest bandwidth and lowest latency solution.

Combined with Voltaire's external director-class InfiniBand switches and its advanced fabric management software (UFM™), users can fully exploit the benefits of the BladeCenter architecture.

The module's HyperScale™ architecture also provides a unique inter-switch link or mesh capability to form highly scalable, cost effective, and low latency fabrics. As a result, I/O bottlenecks are removed, allowing applications to operate at maximum efficiency.

Leverage the Performance of InfiniBand

Voltaire's solution for IBM BladeCenter includes a 40Gb/s (QDR) InfiniBand Switch Module to deliver superior performance for applications that demand the highest bandwidth and lowest latency available in today's market.

The powerful combination of an industry-leading blade set and InfiniBand technologies provides an ideal solution for scale-out computing fabrics for data centers, high performance computing and cloud environments.

High Performance InfiniBand Switch Module

The Voltaire 40Gb InfiniBand Switch Module provides InfiniBand QDR connectivity between the server platform's high performance blade servers and external InfiniBand fabrics in non-blocking designs—all on a single device. Voltaire's high speed module also accommodates performance optimized fabric designs utilizing a single BladeCenter chassis or stacking multiple BladeCenter chassis without requiring an external InfiniBand switch.

Providing 14 internal ports that are connected to the blades (HSECs) and 16 external ports, Voltaire's high speed switch module provides full connectivity for 14 blades installed in the BladeCenter chassis. The switch module also ensures an upgrade path from SDR to DDR and DDR to QDR because it negotiates data rates automatically.

Voltaire's InfiniBand switch is also the most energy efficient high performance switch for BladeCenter, delivering four times more bandwidth per port while saving almost 300% in energy consumption over bladed systems that use 10 Gigabit Ethernet for the interconnect.



IBM Part Number: 46M6005

Voltaire InfiniBand Solution Features/Benefits:

- Highest performing I/O option in IBM BladeCenter
- Up to 40Gb/s performance for scale-out computing fabrics and cloud environments
- QDR/DDR/SDR auto-negotiation with the Voltaire High Performance InfiniBand Switch Module
- Ultra low latency: under 100 nanoseconds blade to blade connectivity
- Unique HyperScale™ architecture allows scaling to thousands of nodes with a single tier of switches
- Built-in high availability
- Ideal for scientific, commercial HPC and enterprise applications
- Full support for copper and fiber cabling solutions
- Complemented by Voltaire's market leading Grid Director switches and Voltaire Unified Fabric Manager (UFM) software

Scalable, Flexible & Highly Available

Using the Voltaire InfiniBand solution for IBM BladeCenter, you can build cost-effective, high performance grids that scale out with ease. The solution is architected for mission-critical application deployment and offers built-in high availability features. Together, IBM and Voltaire provide the most scalable, high performance InfiniBand blade solution in the market.

Voltaire Switching & Software Solutions

Voltaire's family of server and storage fabric switches and advanced management software improve performance of mission-critical applications, increase efficiency and reduce costs through infrastructure consolidation and lower power consumption.

Voltaire Grid Director switches come with the industry's most advanced routing engine and management features. Users can also enhance the performance of the switches with Voltaire Unified Fabric Manager™ (UFM) software, which automatically discovers, virtualizes, monitors and optimizes the fabric infrastructure and accelerates the active applications.

Voltaire solutions are used by more than 30 percent of the Fortune 100 and other premier organizations across many industries, including many of the TOP500 supercomputers. Combined with integrated Ethernet and Fibre Channel routing capabilities, Voltaire's director-class switches and advanced management software provide unprecedented levels of performance.

Technical Specifications

Voltaire High Performance InfiniBand Switch Module

- HSSM double height FFA form factor

- High temperature monitoring
- Full BC-H AMM interface

InfiniBand Ports

- External: 16 auto-sensing 4X QDR/DDR/SDR InfiniBand ports (40, 20 or 10 Gb/s auto-negotiate)
- Interconnect options: copper and/or fibre-optic, with optional support for optical adapters (MediaConverter)
- Indicators: physical and logical status
- Internal: 14, 4X QDR/DDR/SDR IB ports, connected to the mid-plane and subsequently to the server blades

Power

- Support for two separate 12V sources
- Redundant power sources from the mid-plane
- Low voltage power monitoring
- Maximum power consumption: 140W

Features / Specifications

- Full QDR rate InfiniBand switching
- Hot swap support, with soft start and current limiting
- Onboard microprocessor
- Bay address and presence support

Reliability

- MTBF: over 292,721 hours



Contact Voltaire to Learn More

1.800.865.8247
info@voltaire.com
www.voltaire.com

©2009 Voltaire Inc. All rights reserved. Voltaire and the Voltaire logo are registered trademarks of Voltaire Inc. Grid Director is a trademark of Voltaire Inc. Other company, product, or service names are the property of their respective owners.