

Voltaire® Grid Switch™ ISR 9024

High Performance, Low Latency InfiniBand Switching for Small-to-Medium-Sized Clusters and Grids



Overview

The Voltaire Grid Switch ISR 9024 is a high performance, low latency, fully non-blocking switch for high performance computing (HPC) clusters and enterprise grids. Offering available bandwidth of up to 960 Gbps, the Grid Switch ISR 9024 is a cost-effective alternative to proprietary interconnect technologies. With twenty-four 20 Gbps ports in a 1U chassis, the standards-based Grid Switch ISR 9024 delivers high bandwidth and low latency at affordable pricing. Using the Grid Switch ISR 9024, you can build high performance clusters and grids that scale from several to thousands of nodes.

Leverage the Performance of InfiniBand

InfiniBand is an industry standard high performance interconnect for high performance computing clusters and enterprise grids. InfiniBand offers high speed 20-120 Gbps link bandwidth and low latency capabilities that deliver impressive price/performance. It is the first high speed networking technology to enable low cost server clusters and grids to accomplish complex computing tasks at the same or greater speeds than expensive high-end servers.

High Performance Computing Clusters & Grids

The Grid Switch ISR 9024 is a fully non-blocking switch for configurations of up to 24 ports and also serves as a cost-effective building block for cluster topologies of tens of nodes for HPC and enterprise applications. When combined with the Voltaire Grid Director™ ISR 2012 and/or ISR 2004 high port density switch, the Grid Switch ISR 9024 enables the formation of clusters scaling to thousand of nodes.

High Availability

The Grid Switch ISR 9024 is built for mission-critical application deployment, featuring redundant, hot-swappable power supplies, as well as a hot-

swappable fan unit. Benefiting from robust InfiniBand architecture, the Grid Switch ISR 9024 offers a true plug-and-play environment, allowing servers to be added without taking down the fabric.

Management

The Grid Switch ISR 9024 is available with an active CPU board (ISR 9024, internally managed) with the embedded GridVision Device and Fabric Manager, or without a CPU board (ISR 9024, externally managed).

GridVision provides comprehensive and powerful management capabilities, delivering real-time proactive management by providing: Aggregated fabric and resource views, access to a suite of fabric and switch diagnostics, the ability to manage fail-over on all levels, and provisioning of InfiniBand fabrics and the attached server, networking and storage resources.

The management capabilities are enabled in the internally managed Grid Switch ISR 9024 and can be accessed via CLI, GUI or SNMP managers, or in-band via InfiniBand (IPoIB.) The externally managed Grid Switch ISR 9024 can be accessed in-band via InfiniBand (IPoIB.)

Voltaire Family of Switching and Software Solutions

Voltaire designs and develops server and storage switching and software solutions that enable high-performance grid computing within the data center. Voltaire's integrated family of multi-service switching solutions and network virtualization software delivers the highest performance, intelligent backbone for grid computing architectures. Leveraging the InfiniBand standard, Voltaire solutions offer improved performance, utilization and scalability across compute clusters, storage and IP networks.



- 20 Gbps link performance for clusters and grids
- Ultra-low latency: under 140 nanoseconds
- Available bandwidth of up to 960 Gbps
- Built-in high availability
- Ideal for scientific, commercial HPC and enterprise applications
- Architected to provide high MTBF
- Powerful CPU to allow management of fabrics, as well as device management capabilities

TECHNICAL SPECIFICATIONS

Voltaire Grid Switch ISR 9024

- 19-inch rack mountable chassis, 1U height

Available Configurations

- ISR 9024D — Externally managed 24 4X DDR ports
- ISR 9024D-M — Internally managed 24 4X DDR ports (active CPU)

InfiniBand Ports

- 24 4X Dual Data Rate ports (DDR — 20 or 10 Gbps auto-negotiate)
- Interconnect options: copper and/or fibre-optic, with optional support for optical adaptors (MediaConverter) on top row 12 ports
- Indicators: physical and logical status
- All ports are located on the rear panel

Switch Specifications

- Aggregate Data Throughput: 960 Gbps (DDR)
- Port-to-port Latency: 140 nanoseconds (max.)
- Linear Forwarding Table: 48K entries
- Multicast Table Size: 1K entries
- Data Virtual Lanes: 8
- Management Virtual Lanes: 1
- MTU: 4096 Bytes (max)

Management

- Remote InfiniBand (in-band) management, both for internally and externally managed devices
- On-board processor running GridVision™ fabric and device manager software with GUI, CLI and SNMP (ISR 9024 D-M only)
- Connectors: EIA/TIA-232 console and RJ-45 Ethernet (ISR 9024 D-M only)

Power Requirements

- Two hot-swap Power Supplies (PS-24)
- Power entry: 100 to 240 VAC, 50/60 Hz, auto-sensing
- Power consumption*:
 - ▶ ISR 9024D — 58W, max.
 - ▶ ISR 9024D-M — 69W, max.

* Each MediaConverter in use adds 1W max to the above consumption, up to 12 MediaConverters supported

Cooling

- Front-to-rear cooling
- Passive cooling hot-swappable fan unit (FN-24) containing two fans for high availability
- Auto-heat sensing for silent fan operation

Reliability

- MTBF: over 220,000 hours

Physical Characteristics

- 19-inch rack-mountable chassis
- Dimensions (H x W x D): 1.69 in. (43 mm) x 16.93 in. (430 mm) x 20.59 in. (523 mm)
- Front or rear rack mountable
- Fixed rack-mount bracket kit (RM-24) or sliding rail kit (RK-24 — optional)
- Optional cabling guide brackets kit (CG-24) designed for ultimate cable management
- Weight: 17 lb (7.7 Kg), excluding rack mounting

Environmental

Operating

- Ambient temperature: 32° to 113° F (0° to 45° C)
- Humidity: 15 to 80%, non-condensing
- Altitude: 0 to 9843 ft (3000m)

Storage

- Temperature: -13° to 185° F (-25° to 85° C)
- Humidity: 5 to 90% non-condensing
- Altitude: 0 to 15,000 ft (4570m)

Certifications

- Safety: cULus (USA/CAN); CE according to EN 60950-1 First Ed.; CB according to IEC 60950-1 First Ed
- EMC: EN55022:98/EN55024:98/EN61000-3-2:00/ EN61000-3-3:95; FCC Part 15 Class B; VCCI; ICES-003; C-Tick
- IBTA 1.2
- RoHS

