

Voltaire® sRB-20210G InfiniBand-10GbE Gateway Module for Grid Director™ Switches

Create Next Generation High Performance Data Centers Using Seamless 10 Gigabit Ethernet/InfiniBand Connectivity



Overview

Next generation data centers require high performance computing and storage infrastructures that support dynamic fabric and IO virtualization as well as high-performance, no-compromise connectivity options. Voltaire Grid Director switches offer the perfect platform with the world's fastest switching performance and support for InfiniBand, Gigabit Ethernet, 10 Gigabit Ethernet and Fibre Channel-based connectivity.

Using the Voltaire sRB-20210G InfiniBand-10GbE Gateway Modules in combination with Voltaire Grid Director switches enables multiple virtual networks to span across InfiniBand and Ethernet-based networks providing network agnostic enterprise-class connectivity. With this solution, InfiniBand can be used to accelerate applications without the need to replace Ethernet-based services and devices while adding the ability to provision multiple virtual Ethernet and storage networks on the same director class switch.

High Performance Integrated Switch Silicon

The Voltaire sRB-20210G Gateway Module features Voltaire-developed high performance switch silicon that forwards traffic between the InfiniBand fabric and two 10 Gigabit Ethernet ports. By using custom silicon, the Voltaire sRB-20210G Gateway Module achieves wire speed protocol processing at 10 Million packets per second per port with less than 2 microseconds forwarding latencies while transparently providing layer 2/3/4+ switching, network virtualization, and host stack offload. It is also possible to aggregate multiple 10 GbE ports to scale connectivity to meet application requirements.

Select the Best Fabric for the Application

With its high bandwidth, low latency and reduced overhead, InfiniBand is the ideal choice for speeding application performance while simultaneously consolidating network and IO infrastructure. Combining InfiniBand and Ethernet into a single solution provides the ideal rack backbone for next generation Data Centers. There are many applications, services and resources that reside on Ethernet LANs or that cannot benefit from the capabilities of InfiniBand. By utilizing InfiniBand to connect application servers and Voltaire's multi-service switch solutions to seamlessly connect Ethernet, InfiniBand and Fibre Channel networks, IT organizations reduce complexity and cost and can concentrate on providing reliable, scalable, high performance solutions rather than on the specifics of the technology.

Scalability and High Availability

Voltaire's GridVision™ management software in combination with the integrated silicon's advanced traffic flow management capabilities optimally distributes traffic over available 10 GbE interconnect ports using layer 3-4 hashing and advanced credit based flow control. For systems demanding the utmost scalability, multiple 10 GbE interconnect ports can be pooled to support thousands of nodes and to automatically distribute the traffic between ports.

In addition, link monitoring ensures that a failure by any port is discovered and the load is automatically redistributed among the remaining ports. Voltaire server and storage switching solutions provide additional application performance improvements in mixed fabric environments with the ability to offload server processing using advanced protocols supported by Voltaire's high performance InfiniBand drivers and the Voltaire sRB-20210G InfiniBand 10GbE Gateway Module.

- Ideal for high performance connectivity to Ethernet-based services and resources
- Create multiple seamless virtual networks that span Ethernet and InfiniBand ports
- Reduce switching and adapter costs by consolidating network and IO infrastructure
- Powerful onboard integrated switch silicon delivers 10 Million packets per second per port with latencies of less than 2 microseconds
- Delivers layer 2/3/4+ switching, network and IO virtualization with host stack offload
- Wire-speed stateful packet filtering, classification and real-time non intrusive Layer-4 traffic monitoring
- Aggregate ports across multiple gateway modules or switch chassis to create scalable solutions



Comprehensive Management

The management of the Voltaire sRB-20210G Gateway Module is fully integrated into GridVision Management Software. GridVision is an easy-to-use management suite that provides a single point of management for grid resources. GridVision management software discovers, configures and manages the Voltaire sRB-20210G Gateway Module and can be used to create Service Oriented Infrastructures that seamlessly span between Ethernet and InfiniBand-based networks. Voltaire GridVision Management software is integrated with leading third party grid and on-demand management platforms providing a comprehensive data center management solution.

Voltaire Server and Storage Switching 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. Leveraging the InfiniBand standard, Voltaire solutions offer improved performance, utilization and scalability across compute clusters, storage and IP networks. The Voltaire sRB-20210G Gateway Module is part of a complete family of solutions from Voltaire that offer enterprise data centers and HPC clusters the highest performance and a reduced total cost of ownership.

TECHNICAL SPECIFICATIONS

Voltaire sRB-20210G

- Line board for Voltaire Grid Director ISR 2012 and ISR 2004 chassis
- Power and info LED indicators
- Full non-blocking connectivity

10 Gigabit Ethernet

- IEEE 802.3ab, and 802ad (link aggregation) compliant
- Two 10GbE interconnect ports, XFP interfaces
- IEEE P802.3ak and IEEE P802.3ae 10GBASE-SR, 10GBASE-LR, 10GBASE-CX4
- Port LED indicators: Physical connectivity and traffic indication
- Support for up to 64 partitions/VLAN groups
- Support for Jumbo frames

InfiniBand

- 22, auto-sensing 20/10 Gb/s (4X) InfiniBand ports
 - ▶ Connectors: 8-pair MicroGigaCN / LANELINK F CONN
 - ▶ Supports hot-pluggable media converters for optical InfiniBand connectivity
- Port LED indicators: Physical connectivity and logical connectivity

IETF Protocols

- TCP/IP: IETF RFC-793, IETF RFC-791, IETF RFC-768, RFC-926, RFC-1812, RFC-1027
- IPoB: IETF RFC 4391, 4392
- VLAN support according IEEE 802.1q (up to 64 VLANS)
- IP multicast (IETF RFC 3171) and IGMPv2 (up to 3000 multicast groups)
- SNMP v2c: IETF — RFC190x

Management Interfaces

- Full management access via Grid Director chassis management or Voltaire GridVision management software

Physical Characteristics

- Voltaire Grid Director ISR 2012 and ISR 2004 Line Board compatible
- Supports any combination of sLB-2024 and sRB-20210G Line Boards
- Power and cooling through ISR 2012 or ISR 2004 chassis

Environmental

- Operating
 - ▶ Temperature: 32° to 104°F (0° to 45°C)
 - ▶ Humidity: 15 to 80%, non-condensing
 - ▶ Altitude: 0 to 9843 ft (3000m)
- Storage
 - ▶ Temperature: -13° to 158°F (-25° to 70°C)
 - ▶ Humidity: 5 to 90% non-condensing
 - ▶ Altitude: 0 to 15,000 ft (4570m)

Certifications

- Full safety and EMC as a part of the Voltaire Grid Director ISR 2012 and ISR 2004

