

# 1U DDR Optical InfiniBand Switch



## The Ultimate Optical InfiniBand Switch

The Flextronics 1U Optical DDR InfiniBand Switch is based on Mellanox InfiniScale™ III third generation InfiniBand™ DDR switch device and the AVDAT 4X™ optical interconnect solution. Using a single switching chip, this device delivers an unmatched 960 Gb/s of switching bandwidth. This is the highest performance available communicating over a standard multimode 12-fiber-ribbon with MPO fiber-ribbon connectors.

Flextronics 1U switch is suitable for multiple networking environments and is available in the following Dual Data Rate (DDR) configurations, the:

- 24 **optical** InfiniBand 4X 20Gb/s ports
- 12 **optical** InfiniBand 4X 20Gb/s ports with 12 **copper** InfiniBand 4X 20Gb/s ports

All configurations support non-blocking switching performance running at the line rate with ultra low latencies.

The Flextronics 1U Optical DDR InfiniBand Switch is optimized for building flexible, scalable, robust and reliable InfiniBand fabrics for the servers, storage and enterprise data centers and high performance computing (HPC) markets. Boasting industry leading price/performance, Flextronics' switch is designed to create low cost, high performance clusters. Reliability and intelligent manageability features are included along with built in enterprise levels of operational performance and fault tolerance.

Integrated into the Flextronics 1U Optical DDR InfiniBand Switch, AVDAT 4X optical transceivers provide direct optic-fiber connectivity, which contributes to increased overall system reliability and removing external copper-to-fiber conversion. With small ribbon cable bending radius and full flexibility in cable length selection, it provides the highest serviceability solution for large and complex fabrics.

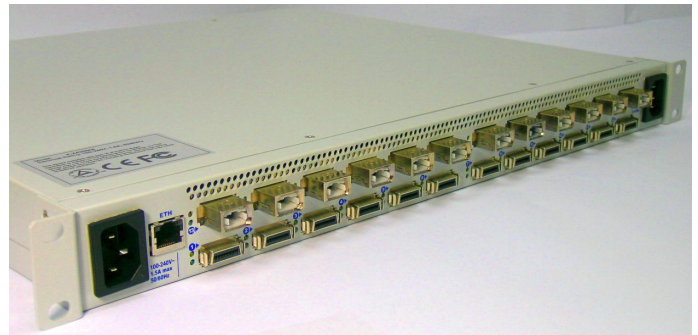
## Applications

The Flextronics 1U Optical DDR InfiniBand Switch is ideal for use with DDR optical links, allowing for switch-to-HCA and in-between-switches connectivity in the following markets:

- Enterprise Data Center Clusters – Clustered Database, Application Servers, Storage, etc.
- High Performance Computing Clusters (HPPC) for Scientific, Automotive, Seismic, Medical Imaging and other Numerically Intensive Applications.
- Embedded Applications – Communications, Telemetry, Avionics, Medical and Video.

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## Key Features

- High port-density 1U device
- Modular 24-ports, allowing full fiber-optic connectivity or mixed optical and copper connectivity
- Onboard XLoom AVDAT 4X compact four-lane optical transceiver, uses standard multimode 12-fiber-ribbon with standard MPO connector
- No blocking full-wire speed
- Ultra-low latency cut through switching (less than 200 nanoseconds)
- 960 Gigabits/sec of total bandwidth
- At least 150-meters reach with fiber-optic cables providing high-speed intersystem links and allowing for patch panel use
- Low power consumption
- Hot swappable redundant power supplies and fan tray modules
- Mellanox InfiniScale III switch silicon - 3<sup>rd</sup> generation switching device (single chip implementation)
- Chassis Management software
- LED status indicator for InfiniBand ports and other major components.



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## Scalability

The Flextronics 1U Optical DDR InfiniBand Switch configuration can easily connect many nodes, or multiple switches together, virtually enabling any cluster size. Whether the cluster is a few nodes or significantly larger, the switch meets growing cluster needs of the market today. This 24-port switch architecture has the ability to scale in order to meet the needs of the HPC market. When combined with larger switch system, the architecture supports low latency 2-stage cluster of over 1,500 nodes and 3-stage cluster well beyond 5000 nodes. For these, the Flextronics 1U Optical DDR InfiniBand Switch acts as either an edge or a core switch, enabling long distance interconnect using its onboard fiber-optic ports.

## Management

The Flextronics 1U Optical DDR InfiniBand Switch features built-in Subnet Management Agent (SMA) and Performance Management Agent (PMA). These intelligent agents support sophisticated subnet management, fabric discovery and initialization and quality of service. In addition, the performance management agent monitors fabrics health and link and package errors. Providing intelligence in every switch means that sophisticated management packages can detect and isolate potential problems before they occur.

In addition, the Flextronics 1U Optical DDR InfiniBand Switch fully supports multi-pathing and automatic path migration, enabling fault tolerance and failover and providing notification of self-healing fabric events as well as for maintenance requirements.

## Unprecedented Affordability

Thanks to the high integrated Infiniscale III switch silicon, the Flextronics 1U Optical DDR InfiniBand Switch is based on a single semiconductor device in a compact 1U form factor. Other switches do not match this solution in price of performance: This 20Gb/sc switch is projected to cost less than existing 2Gb/s Fiber Channel switches and even some non-blocking 1Gb/sec Ethernet switches in the market today. Other 10Gb/s technologies average at more than 20 times the cost of the Flextronics 1U Optical DDR InfiniBand Switch.

## Enterprise Class Switch

The compact 1U chassis features ports density, low power consumption and robustness, all major requirements of data centers. In addition to extremely high-density of 24-20Gb/s ports in just 1U, the Flextronics 1U Optical DDR InfiniBand Switch provides dual redundant hot swappable power supply modules and fan tray modules. The switch also enables all the key RAS (Reliability, Availability and Serviceability) features of the InfiniBand architecture including: QoS, multicast, automatic node recognition, multipathing, automatic fail-over, virtual lenses and more. Benefiting from the highly integrated single chip implementation and redundant subsystem components, the product offers a high reliability for improved up-time. With power requirement of less than 50W (with a single supply) and less than 75W (including onboard fiber-optic interfaces), the Flextronics 1U Optical DDR InfiniBand Switch delivers the lowest power consumption per Gb/s in the market.

## Ordering Part Number

	<u>24-fiber-optic 4X port</u>	<u>12-fiber-optic +12 copper 4X port</u>
Single power supply	F-X4300XX	F-X4300XX
Dual power supply	F-X4300XX	F-X4300XX
Managed, single power supply	F-X4300XX	F-X4300XX
Managed, dual power supply	F-X4300XX	F-X4300XX

## Power Supply

- 120/220V 50/60 Hz input with hot-swap controller
- Second power supply unit enables N+1 redundancy
- Dual AC power inputs

## Mechanical and Environmental

- Standard 19" rack mount chassis, 1U (1.75") height, 15" depth
- Weight: approximately 16 lbs.
- Operating temperature: 0°C to 55°C
- Air flow: front to rear (ports side)
- Maximum power consumption: 75 W when populated with fiber-optic interfaces. (50W – unpopulated)

## Advanced Management

- RJ-45 10/100 Ethernet port
- Embedded CPU with RS-232 console (optional)
- Management configuration feature - factory installed (optional)
- Consult provider for more details