SWITCH SYSTEM

PRODUCT BRIEF

# Grid Director™ 4036

36-port Non-blocking Managed 40Gb/s InfiniBand Switch System

The Grid Director™ 4036 is a high-performance, low-latency and fully non-blocking InfiniBand switch for high performance clusters.

*Grid Director 2036*

## Scaling-Out Data Centers with InfiniBand

Faster servers combined with high performance storage and applications that use increasingly complex models are causing data bandwidth requirements to spiral upward. As clusters grow in size and complexity, efficient routing and advanced management tools become mandatory for quick fabric bring-up and minimal fabric downtime.

Grid Director 4036 is a high performance, low latency and fully non-blocking InfiniBand switch for high performance clusters. Delivering 2.88 Tb/s of non-blocking bandwidth with less than 100 nanoseconds of port-to-port latency, I/O bottlenecks are removed making applications operate at maximum efficiency.

The Grid Director 4036 was designed to fit into today's densely configured racks. It has thirty-six 40Gb/s ports that use a QSFP connector in a 1U chassis that is only 15" deep. The efficient smart design makes it easy to build clusters that can scale-out to thousands of nodes.

## Simple Management Interface

The Grid Director 4036 switch includes smart device management providing a simple interface for deploying, troubleshooting, maintaining and upgrading the switch. Simple and intuitive CLI or web base interface makes switch monitoring or software/firmware upgrade an easy task.

## Advanced Port and Signal Optimization

Mellanox's smart switch design leverages advances in cabling technology in concert to determine the optimal settings for the connected QSFP cable. This makes the selection of cables more flexible and provides for simpler and faster cluster deployments without errors caused by degraded signal integrity.

## On-board Device and Fabric Management

The Grid Director 4036 comes with an onboard subnet manager, enabling simple, out-of-the-box fabric bring-up for small to medium clusters.

## Enhanced Software Stack

The Grid Director 4036 can be coupled with Mellanox's Unified Fabric Manager™ (UFM™) software, which automatically discovers, virtualizes, monitors and optimizes the fabric infrastructure and accelerates the active applications.

## Advanced Routing Engine

UFM™ provides leading-edge routing algorithms that maximize the use of available fabric bandwidth and enable the creation of scale-out clusters from tens to thousands of nodes with advanced multi path and adaptive routing capabilities.

## Building Efficient Clusters & Grids

The Grid Director 4036 is the industry's most cost-effective building block for deploying high performance clusters and data centers. Whether looking at price-to-performance or energy-to-performance, the Grid Director 4036 reaches new levels of achievement.

## HIGHLIGHTS

- Extreme application performance by removing I/O bottlenecks
- Unlimited scalability across storage, application and database servers
- Ideal for scientific, commercial HPC and enterprise applications
- 36 QDR (40Gb/s) ports in a 1U switch
- Available bandwidth: up to 2.88 Tb/s
- Ultra-low latency: less than 100 ns
- Simple and fast device management
- Fully managed by Unified Fabric Manager (UFM™)
- Fast fabric bring-up and advanced routing algorithms
- Advanced congestion management
- Support for longer and more varied cable options

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# SPECIFICATIONS

### GRID DIRECTOR 4036
- 19" rack mountable chassis, 1U height
- Aggregate data throughput: 2.88 Tb/s
- Port-to-port Latency: less than 100 ns
- 9 Virtual lanes: 8 data + 1 management
- MTU: 4096 Bytes (max.)

### INFINIBAND PORTS
- 36 4X Quad Data Rate ports (QDR)
- IBTA 1.2 compliant
- Interconnect options:
  QSFP passive and/or active copper/fiber optic cables

### MANAGEMENT
- Physical Ports:
  - *DB-9 connector on the rear panel*
  - *RJ45 jack connector for 10/100/1000 Ethernet port on the rear panel*
  - *Chassis Reset Button on the front and rear panels*
  - *USB port on the rear panel*
- Device Management:
  - *CLI*
  - *SNMP*
- Fabric Management:
  - *On-board SM for fabrics up to 648 nodes*
  - *Unified Fabric Manager (UFM™)*

### INDICATORS
- Fan unit LED indicator on the fan unit
- PSU LED indicator on the power supply
- Power Supply/Fan LEDs indicator on the front and rear panels
- Info/SM LED on the front and rear panels
- System Power LED on the front and rear panels
- System Temp LED on the rear panel

### POWER REQUIREMENTS
- Dual redundant power supply slots
- Two hot-swappable power supplies
- Power entries: 100 to 240 VAC, 50/60 Hz, auto-sensing
- Power supply with built-in power inlet

### COOLING
- Front-to-rear or rear-to-front cooling (fan unit ordering option)
- Hot-swappable fan unit containing three fans for high availability
- Auto-heat sensing for silent fan operation

### PHYSICAL CHARACTERISTICS
- Dimensions (H x W x D):
  1.69" (43 mm) x 16.93" (430 mm) x 15.7" (400 mm) [including handles]
- Fixed rack-mount bracket kit included
- Optional cabling guide brackets kit designed for cable management
- Weight: 17 Lbs (7.7 Kgs)

### 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 158° F (-25° to 70° C)*
  - *Humidity: 5 to 90 non-condensing*
  - *Altitude: 0 to 15,000 ft (4570m)*

### CERTIFICATIONS
- Safety
  - *UL60950*
  - *CB IEC60950*
  - *CSA-C22.2 No.60950-00*
- EMC
  - *47CFR FCC part 15*
  - *EN55022:98/EN55024:98/EN61000-3-2:00/ EN61000-3-3:95*
- VCCI

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