Highest Levels of Scalability
Simplified Network Manageability
Maximum System Productivity

40/56/100/200Gb/s InfiniBand
Switch System Family

MELLANOX **SMART** INFINIBAND SWITCH SYSTEMS – THE HIGHEST PERFORMING INTERCONNECT SOLUTION FOR WEB 2.0, BIG DATA, CLOUD COMPUTING, ENTERPRISE DATA CENTERS (EDC) AND HIGH-PERFORMANCE COMPUTING (HPC).

VALUE PROPOSITIONS

- *Mellanox switches come with port configurations from 8 to 800 at speeds up to 200Gb/s per port with the ability to build clusters that can scale out to ten-of-thousands of nodes.*

- *Mellanox switches delivers high bandwidth with sub 90ns latency to get the highest server efficiency and application productivity.*

- *Best price/performance solution with error-free 40-200Gb/s link speed.*

- *World's smartest switches, enabling in-network computing through Co-Design Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)™ technology.*

- *Scalability and subnet isolation using InfiniBand routing and InfiniBand to Ethernet gateway capabilities.*

- *Real-Time Scalable Network Telemetry with built-in hardware sensors for rich traffic data collection.*

Mellanox's family of **InfiniBand switches** delivers the highest performance and port density with a complete chassis and fabric management solution to enable compute clusters and converged data centers to operate at any scale while reducing operational costs and infrastructure complexity.

BENEFITS

- Industry-leading energy efficiency, density, and cost savings
- Ultra low latency
- Granular QoS for Cluster, LAN and SAN traffic
- Quick and easy setup and management
- Maximizes performance by removing fabric congestions
- Fabric management for cluster and converged I/O applications

The Mellanox family of switches includes a broad portfolio of edge and modular switches that range from 8 to 800 ports, and support 40-200Gb/s per port with the lowest latency. Mellanox InfiniBand Software Defined Networking (SDN) switches ensure separation between control and data planes. InfiniBand centralized management and programmability of the network by external applications enables cost effective, simple and flat interconnect infrastructure.

VIRTUAL PROTOCOL INTERCONNECT® (VPI)

Virtual Protocol Interconnect (VPI) flexibility enables any standard networking, clustering, storage, and management protocol to seamlessly operate over any converged network leveraging a consolidated software stack. VPI simplifies I/O system design and makes it easier for IT managers to deploy infrastructure that meets the challenges of a dynamic data center.

SCALABLE HIERARCHICAL AGGREGATION AND REDUCTION PROTOCOL (SHARP)™

The world's smartest network switches are designed to enable in-network computing through the Co-Design SHARP technology. The Co-Design architecture enables the usage of all active data center devices to accelerate the communications frameworks, resulting in order of magnitude applications performance improvements and CPU utilization optimization.

SUSTAINED NETWORK PERFORMANCE

The Mellanox switch family enables efficient computing for clusters of all sizes from the very small to the extremely large while offering near-linear scaling in performance. Advanced features such as static routing, adaptive routing, and congestion management allows the switch fabric to dynamically detect and avoid congestion and to re-route around points of congestion. These features ensure the maximum effective fabric performance under all types of traffic conditions.

REDUCE COMPLEXITY

Mellanox switches reduce complexity by providing seamless connectivity between InifiniBand, Ethernet and Fibre Channel based networks. You no longer need separate network technologies with multiple network adapters to operate your data center fabric. Granular QoS and guaranteed bandwidth allocation can be applied per traffic type. This ensures that each type of traffic has the resources needed to sustain the highest application performance.

REDUCE ENVIRONMENTAL COSTS

Improved application efficiency along with the need for fewer network adapters allows you to accomplish the same amount of work with fewer, more cost-effective servers. Improved cooling mechanism and reduced power and heat consumption allow data centers to reduce the cost associated with physical space.

EDGE SWITCHES

8 to 40-port non-blocking 40 to 200Gb/s InfiniBand Switch Systems
The Mellanox family of switch systems provide the highest-performing fabric solutions in a 1U form factor by delivering up to 16Tb/s of non-blocking bandwidth with the lowest port-to-port latency. These edge switches are an ideal choice for top-of-rack leaf connectivity or for building small to medium sized clusters. The edge switches, offered as externally managed or as managed switches, are designed to build the most efficient switch fabrics through the use of advanced InfiniBand switching technologies such as Adaptive Routing, Congestion Control and Quality of Service.

MODULAR SWITCHES

108 to 800-port full bi-directional bandwidth 40 to 200Gb/s InfiniBand Switch Systems
Mellanox modular switches provide the highest density switching solution, scaling from 8.64Tb/s up to 320Tb/s of bandwidth in a single enclosure, with low-latency and the highest per port speeds of up to 200Gb/s. Its smart design provides unprecedented levels of performance and makes it easy to build clusters that can scale out to thousands-of-nodes.

The InfiniBand modular switches deliver director-class availability required for mission-critical application environments. The leaf, spine blades and management modules, as well as the power supplies and fan units, are all hot-swappable to help eliminate down time.

ENHANCED MANAGEMENT CAPABILITIES

Mellanox managed InfiniBand switches come with an onboard subnet manager, enabling simple out-of-the-box fabric bring up for up to 2K nodes.

MLNX-OS® (SX6000, SB7000 and QM8000 families) chassis management provides administrative tools to manage the firmware, power supplies, fans, ports, and other interfaces.

All Mellanox switches can also be coupled with Mellanox's Unified Fabric Manager™ (UFM®) software for managing scale-out InfiniBand computing environments. UFM enables data center operators to efficiently provision, monitor and operate the modern data center fabric. UFM boosts application performance and ensures that the fabric is up and running at all times. MLNX-OS provides a license activated embedded diagnostic tool, Fabric Inspector, to check node-to-node, node-to-switch connectivity and ensure the fabric health.

Chassis Management
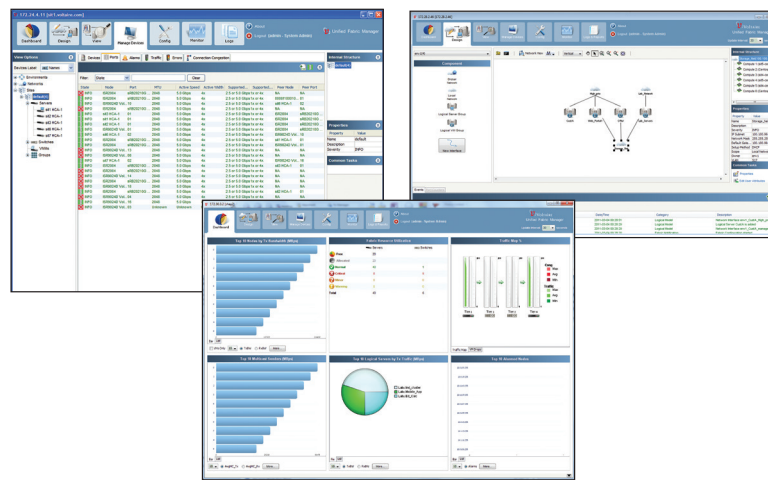
UFM™ Software
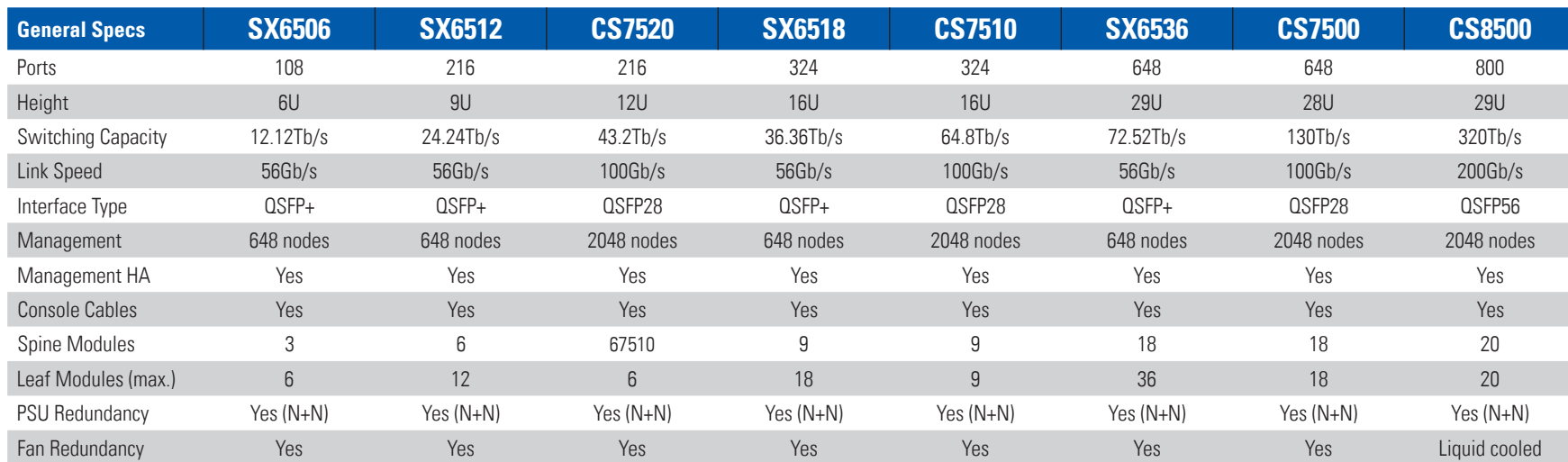
Edge Switches (externally managed)

General Specs	SX6005	SX6015	SX6025	SB7790/SB7890	QM8790
Ports	12	18	36	36	40
Height	1U	1U	1U	1U	1U
Switching Capacity	1.3Tb/s	2.016Tb/s	4.032Tb/s	7.2Tb/s	16Tb/s
Link Speed	56Gb/s	56Gb/s	56Gb/s	100Gb/s	200Gb/s
Interface Type	QSFP+	QSFP+	QSFP+	QSFP28	QSFP56
PSU Redundancy	No	Yes	Yes	Yes	Yes
Fan Redundancy	No	Yes	Yes	Yes	Yes
Integrated Gateway	--	--	--	--	--

Edge Switches (managed)

General Specs	SX6012	SX6018	SX6036	SB7700/SB7800	QM8700
Ports	12	18	36	36	40
Height	1U	1U	1U	1U	1U
Switching Capacity	1.3Tb/s	2.016Tb/s	4.032Tb/s	7.2Tb/s	16Tb/s
Link Speed	56Gb/s	56Gb/s	56Gb/s	100Gb/s	200Gb/s
Interface Type	QSFP+	QSFP+	QSFP+	QSFP28	QSFP56
Management	648 nodes	648 nodes	648 nodes	2048 nodes	2048 nodes
Management Ports	1	2	2	2	1
PSU Redundancy	Optional	Yes	Yes	Yes	Yes
Fan Redundancy	No	Yes	Yes	Yes	Yes
Integrated Gateway	Optional	Optional	Optional	--	--

![Mellanox Technologies logo]

Modular Switches

General Specs	SX6506	SX6512	CS7520	SX6518	CS7510	SX6536	CS7500	CS8500
Ports	108	216	216	324	324	648	648	800
Height	6U	9U	12U	16U	16U	29U	28U	29U
Switching Capacity	12.12Tb/s	24.24Tb/s	43.2Tb/s	36.36Tb/s	64.8Tb/s	72.52Tb/s	130Tb/s	320Tb/s
Link Speed	56Gb/s	56Gb/s	100Gb/s	56Gb/s	100Gb/s	56Gb/s	100Gb/s	200Gb/s
Interface Type	QSFP+	QSFP+	QSFP28	QSFP+	QSFP28	QSFP+	QSFP28	QSFP56
Management	648 nodes	648 nodes	2048 nodes	648 nodes	2048 nodes	648 nodes	2048 nodes	2048 nodes
Management HA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Console Cables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spine Modules	3	6	67510	9	9	18	18	20
Leaf Modules (max.)	6	12	6	18	9	36	18	20
PSU Redundancy	Yes (N+N)	Yes (N+N)	Yes (N+N)	Yes (N+N)	Yes (N+N)	Yes (N+N)	Yes (N+N)	Yes (N+N)
Fan Redundancy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Liquid cooled

FEATURE SUMMARY

HARDWARE
- 40-200Gb/s per port
- Full bisectional bandwidth to all ports
- IBTA 1.21 and 1.3 compliant
- QSFP connectors supporting passive and active cables
- Redundant auto-sensing 110/220VAC power supplies
- Per port status LED Link, Activity
- System LEDs: System, fans, power supplies
- Unit ID LED
- Hot-swappable replaceable fan trays

MANAGEMENT
- Mellanox Operating System (MLNX-OS)
  - *Switch chassis management*
  - *Embedded Subnet Manager*
  - *Error, event and status notifications*
  - *Quality of Service based on traffic type and service levels*
- Coupled with Mellanox Unified Fabric Manager (UFM)
  - *Comprehensive fabric management*
  - *Secure, remote configuration and management*
  - *Performance/provisioning manager*
- Fabric Inspector
  - *Cluster diagnostics tools for single node, peer-to-peer and network verification*

COMPLIANCE

SAFETY
- CB
- cTUVus
- CE
- CU

EMC (EMISSIONS)
- CE
- FCC
- VCCI
- ICES
- RCM

OPERATING CONDITIONS
- Operating 0°C to 40°C, Non-Operating -40°C to 70°C
- Humidity: Operating 10% to 85%
- Altitude: Operating up to 3200m

ACOUSTIC
- ISO 7779
- ETS 300 753

OTHERS
- RoHS-6 compliant
- 1-year warranty

For detailed information on features, compliance, and compatibility, please see each product's specific product brief.

WARRANTY INFORMATION

Mellanox switches come with a one-year limited hardware return-and-repair warranty, with a 14 business day turnaround after the unit is received. For more information, please visit the Mellanox Technical Support User Guide.

ADDITIONAL INFORMATION

Support services including next business day and 4-hour technician dispatch are available. For more information, please visit the Mellanox Technical Support User Guide. Mellanox offers installation, configuration, troubleshooting and monitoring services, available on-site or remotely delivered. For more information, please visit the Mellanox Global Services web site.

350 Oakmead Parkway, Suite 100, Sunnyvale, CA 94085
Tel: 408-970-3400 • Fax: 408-970-3403
www.mellanox.com

53546BR
Rev 5.2