NVIDIA MQM9700-NS2R
Datasheet

Product Overview

- The NVIDIA Mellanox MQM9700-NS2R is a high-performance, managed switch designed for large-scale data centers and high-speed networking environments.

- It offers 64 ports with 400Gb/s connectivity, providing ultra-fast data transmission for bandwidth-intensive workloads.

- With 32 OSFP ports, it offers scalable connectivity options, making it suitable for dynamic network expansions.

- With the MQM9700-NS2R, enterprises can deploy advanced, high-performance networks that support AI, cloud computing, and big data processing.

- Designed for long-term reliability, the switch utilizes a connector-to-power (C2P) airflow system in reverse configuration to provide optimal cooling, enhancing overall system performance.

- MQM9700-NS2R is built to deliver superior performance and reliability for future-proof networking solutions.

Product Highlights

- **High-speed Connectivity:** 64 ports supporting 400Gb/s bandwidth, perfect for data-heavy workloads.

- **Scalability:** Features 32 OSFP ports for future-proof network expansion.

- **Efficient Cooling:** Utilizes a connector-to-power (C2P) airflow system with reverse configuration for optimal cooling.

- **Managed Switch:** Offers advanced management tools for centralized monitoring and configuration.

- **Ideal for Data Centers:** Designed for high-demand environments, providing flexibility and reliability.

Detailed Features

MQM9700-NS2R

Component	Specification
Performance	400Gb/s per port, aggregate throughput up to 51.2Tb/s
Switch Radix	64 non-blocking ports
Connectors and Cabling	32 OSFP connectors; passive or active copper or fiber cables
Power Supply	1+1 redundant and hot-swappable, Input range: 200-240Vac
Cooling	Front-to-rear or rear-to-front airflow, 6+1 hot-swappable fans

400Gb/s Per Port

The MQM9700-NS2R features 64 non-blocking ports with an aggregate throughput of up to 51.2 terabits per second (Tb/s), providing a massive data pipeline for demanding HPC, AI, and cloud applications. Each port is capable of delivering 400Gb/s of bandwidth, ensuring that data flows smoothly between systems.

High-Density Port Configuration

With 64 ports available, this switch offers high-density connectivity with low-latency communication, which is crucial for scaling AI, ML, and scientific research applications that rely on fast data exchanges.

State-of-the-Art Connectors and Cabling

The MQM9700-NS2R utilizes 32 octal small form-factor pluggable (OSFP) connectors, supporting both passive and active copper cables, as well as active fiber cables. This flexibility makes it suitable for a wide range of cabling solutions, ensuring seamless integration into existing infrastructure.

Redundant Power Supply

The switch comes with a 1+1 redundant and hot-swappable power supply, with an input voltage range of 200-240V AC, ensuring high availability and reliability. The redundancy ensures that the system can continue to operate without interruption, even if one power supply fails.

Cooling and Airflow

The MQM9700-NS2R provides front-to-rear or rear-to-front airflow options, with a 6+1 hot-swappable fan configuration.

Comprehensive Management Options

The MQM9700-NS2R supports various management ports, including 1x USB 3.0, 1x USB for I2C channels, 1x RJ45, and 1x RJ45 for UART. These ports provide convenient access for system administration and allow for easy integration with existing monitoring and management tools.

Advanced Software and Management Tools

The switch is powered by MLNX-OS, providing a comprehensive suite of features for network management, troubleshooting, and monitoring. This software ensures that the switch can be easily deployed and maintained, with full support for command-line interface (CLI), web-based user interface (WebUI), and SNMP.

Compact and Flexible Design

The MQM9700-NS2R is designed to fit in standard 1U rackmount enclosures, with dimensions of 1.7" (43.6 mm) in height, 17.0" (438 mm) in width, and 26.0" (660.4 mm) in depth. This compact form factor ensures that the switch can be deployed in tight spaces, maximizing data center efficiency.

Environmental Compliance

The MQM9700-NS2R complies with several environmental standards, including RoHS, CE, and FCC certifications, making it a sustainable choice for modern data centers. It operates within a temperature range of 0° to 35°C (forward airflow) and 0° to 40°C (reverse airflow), with a non-operating temperature range of -40° to 70°C. The system also supports high-altitude operation up to 3050m.

Technical Specifications

System Performance

Feature	Value
System Performance	400Gb/s per port, aggregate throughput up to 51.2Tb/s
Switch Radix	64 non-blocking 400Gb/s ports
Connectors and Cabling	32 OSFP connectors; passive or active copper or fiber cables
Power Supply	1+1 redundant and hot-swappable power; Input range: 200-240Vac
Cooling	Front-to-rear or rear-to-front airflow; 6+1 hot-swappable fan unit
Management Ports	1x USB 3.0, 1x USB for I2C channel, 1x RJ45, 1x RJ45 (UART)

Feature	Value
CPU	x86 Coffee Lake i3 Single
System Memory	8GB, DDR4 SO-DIMM, 2,666 MT/s
Firewall Throughput (1518/512/64 byte UDP packets)	39/39/28 Gbps
Storage	M.2 SSD SATA 16GB 2242 FF
Software	MLNX-OS
System Weight	14.5 kg
System Dimensions	Rack mount: Height 1.7" (43.6 mm), Width 17.0" (438 mm), Depth 26.0" (660.4 mm)
Environmental Conditions	Operational Temp: 0° to 35°C (forward), 0° to 40°C (reverse); Non-operational Temp: -40° to 70°C
Humidity	Operating: 10% to 85% non-condensing; Non-operating: 10% to 90% non-condensing
Altitude	Up to 3050m
EMC (Emissions)	CE, FCC, VCCI, ICES, RCM
Product Safety Certified	RoHS, CB, cTUVus, CE, CU
Warranty	1 year

Product Comparison

Feature	MQM9700-NS2R	MQM9700-HS2R	MQM8700-NS2F
Performance	400Gb/s per port, 51.2Tb/s total throughput	400Gb/s per port, 51.2Tb/s total throughput	200Gb/s per port, 25.6Tb/s total throughput
Switch Radix	64 non-blocking ports	64 non-blocking ports	128 non-blocking ports
Connectors	32 OSFP connectors	32 OSFP connectors	64 QSFP56 connectors
Power Supply	1+1 redundant, hot-swappable, 200-240Vac	1+1 redundant, hot-swappable, 200-240Vac	1+1 redundant, hot-swappable, 200-240Vac
Cooling	Front-to-rear or rear-to-front, 6+1 fans	Front-to-rear or rear-to-front, 6+1 fans	Front-to-rear or rear-to-front, 6+1 fans
Management Ports	1x USB 3.0, 1x USB for I2C, 1x RJ45, 1x UART	1x USB 3.0, 1x USB for I2C, 1x RJ45, 1x UART	1x USB 3.0, 1x USB for I2C, 1x RJ45, 1x UART
CPU	x86 Coffee Lake i3 Single	x86 Coffee Lake i3 Single	x86 Coffee Lake i3 Single
Storage	M.2 SSD SATA 16GB	M.2 SSD SATA 16GB	M.2 SSD SATA 16GB
Software	MLNX-OS	MLNX-OS	MLNX-OS

Feature	MQM9700-NS2R	MQM9700-HS2R	MQM8700-NS2F
Memory	8GB DDR4 SO-DIMM, 2,666 MT/s	8GB DDR4 SO-DIMM, 2,666 MT/s	8GB DDR4 SO-DIMM, 2,666 MT/s
System Weight	14.5 kg	14.5 kg	14.5 kg
Dimensions	1U (1.7" x 17.0" x 26.0")	1U (1.7" x 17.0" x 26.0")	1U (1.7" x 17.0" x 26.0")
Power Supply	1+1 redundant, hot-swappable, 200-240Vac	1+1 redundant, hot-swappable, 200-240Vac	1+1 redundant, hot-swappable, 200-240Vac
Environmental	0° to 35°C (forward), 0° to 40°C (reverse)	0° to 35°C (forward), 0° to 40°C (reverse)	0° to 35°C (forward), 0° to 40°C (reverse)
Warranty	1 year	1 year	1 year

Accessories

Category	Accessories
Included Accessories	- Power Cable
	- Mounting Bracket
	- Quick Installation Guide
Optional Accessories	- Rack Mount Kit: MQM9700-RACK-KIT
	- OSFP Transceivers: OSFP-400G-SR8, OSFP-400G-LR4
	- Direct Attach Cables (DAC): DAC-OSFP-400G-2M
	- Active Optical Cables (AOC): AOC-OSFP-400G-5M
	- Power Supply: MQM9700-PSU-AC-2000W, MQM9700-PSU-DC-2000W
	- Cooling Modules: MQM9700-FAN-FR, MQM9700-FAN-RF
	- Software Licenses: MLNX-OS-ADVANCED, MLNX-OS-SECURITY

Support & Warranty

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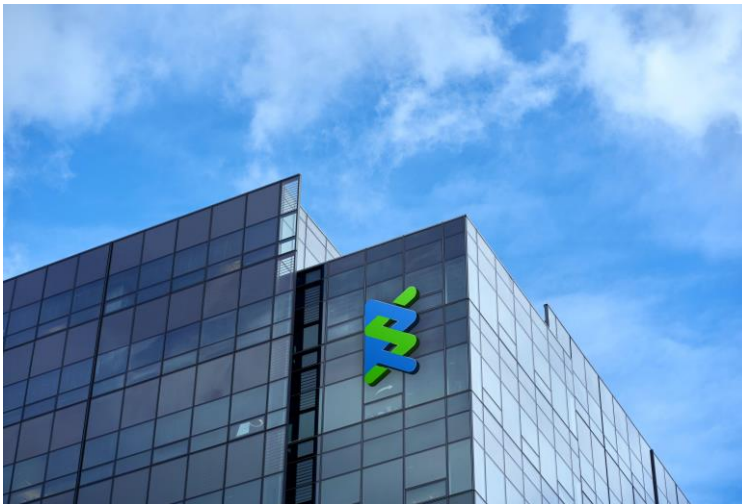Technical Support

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[2] FS. Product Datasheet: 400G Data Center Networking Solutions. Retrieved from https://resource.fs.com/mall/doc/20240108152052e0eako.pdf