

Mellanox MQM8700-HS2F

Mellanox MQM8700-HS2F Quantum HDR InfiniBand Switch User Manual

Detailed instructions for installation, operation, and maintenance.

1. INTRODUCTION

The Mellanox MQM8700-HS2F is a Quantum HDR InfiniBand Switch designed for high-performance computing (HPC) environments and enterprise data centers. This 1U switch features 40 QSFP56 ports, supporting 200Gb/s HDR InfiniBand connectivity. It is engineered to meet the increasing data bandwidth demands of modern servers and applications, providing robust and efficient network infrastructure.

Key capabilities include in-network computing through Co-Design Scalable Hierarchical Aggregation and Reduction Protocol (SHARP) technology, which accelerates communication frameworks and improves application performance. The switch also offers advanced features such as adaptive routing, congestion control, and VL mapping (VL2VL).



Figure 1: Front view of the Mellanox MQM8700-HS2F Quantum HDR InfiniBand Switch. The image displays the front panel of the 1U rack-mountable switch, featuring 40 QSFP56 ports arranged in rows, along with status indicator LEDs and management ports on the right side.

2. UNBOXING AND PACKAGE CONTENTS

Carefully unpack the switch and verify that all components are present. Retain the packaging materials for future transport or storage.

2.1 Package Contents

- Mellanox MQM8700-HS2F Quantum HDR InfiniBand Switch
- Rail Kit for rack mounting
- Power Cords (quantity may vary based on region)
- Documentation (Quick Start Guide, Safety Information)

3. SETUP AND INSTALLATION

3.1 Physical Installation

The MQM8700-HS2F switch is designed for rack mounting. Use the included rail kit to securely install the switch into a standard 19-inch server rack. Ensure adequate clearance for front-to-rear airflow (P2C Airflow) to maintain optimal operating temperatures.

3.2 Power Connection

Connect the provided power cords to the two redundant AC power supply units located at the rear of the switch. Connect the other end of the power cords to grounded power outlets. The switch supports 1+1 redundant and hot-swappable power supplies for continuous operation.

3.3 Network Connectivity

Connect InfiniBand cables to the QSFP56 ports on the front panel. The switch provides 40 HDR 200Gb/s ports. Using splitter cables, these ports can also support 80 HDR100 100Gb/s connections. Ensure cables are securely seated in the ports.

4. OPERATING THE SWITCH

4.1 Initial Power-On

After connecting power, the switch will initiate its power-on sequence. Observe the status indicator LEDs on the front panel to monitor the boot process. Refer to the LED status guide in the full product documentation for detailed information.

4.2 Management Interface

The MQM8700-HS2F features an x86 ComEx Broadwell CPU for switch management. Access the management interface via the dedicated management ports (Ethernet or Console) on the front panel. Configuration and monitoring can be performed through the command-line interface (CLI) or a web-based graphical user interface (GUI), depending on the installed firmware.

4.3 Key Features and Performance

- **40 x HDR 200Gb/s Ports:** Provides high-density, high-bandwidth connectivity in a 1U form factor.
- **16Tb/s Aggregate Switch Throughput:** Ensures high data transfer capacity across the network.
- **Sub-130ns Switch Latency:** Minimizes delays in data transmission for critical applications.
- **SHARP Technology:** Enables in-network computing for collective communication acceleration.
- **Adaptive Routing:** Optimizes data paths to prevent congestion and maximize performance.
- **Congestion Control:** Manages network traffic to maintain stable performance under heavy loads.
- **VL Mapping (VL2VL):** Supports Virtual Lane mapping for quality of service (QoS) management.

5. MAINTENANCE

5.1 Redundant Components

The switch is equipped with 1+1 redundant and hot-swappable power supplies, and N+1 redundant and hot-swappable fans. This design allows for component replacement without interrupting switch operation, enhancing system reliability and uptime.

5.2 Cleaning

Periodically inspect the switch for dust accumulation, especially around fan vents. Use a soft, dry cloth or compressed air to gently clean the exterior surfaces. Ensure the switch is powered off and disconnected from power sources before cleaning internal components, if necessary, and follow safety guidelines.

6. TROUBLESHOOTING

This section provides basic troubleshooting steps for common issues. For more complex problems, refer to the comprehensive product documentation or contact technical support.

- **No Power:** Verify that power cords are securely connected to both the switch and the power outlets. Check power supply status LEDs.
- **No Link on Port:** Ensure InfiniBand cables are correctly connected and not damaged. Verify the connected device is powered on and configured correctly.
- **System Overheating:** Check for proper airflow around the switch. Ensure fan units are operating correctly and vents are not obstructed.
- **Management Access Issues:** Confirm network settings for the management interface. Verify console cable connection if using serial access.

7. SPECIFICATIONS

Feature	Specification
Model Number	MQM8700-HS2F
Brand	Mellanox (NVIDIA)
Number of Ports	40 x QSFP56 (HDR 200Gb/s)
Data Transfer Rate	200 Gigabits Per Second (per port)
Aggregate Switch Throughput	16 Tb/s
Switch Latency	Sub-130ns
Power Supplies	2 (AC), 1+1 Redundant & Hot-swappable
Fans	N+1 Redundant & Hot-swappable
Airflow	P2C (Port-to-Cable)
CPU	x86 ComEx Broadwell Dual Core
Item Weight	32 Pounds (approx. 14.5 kg)
Product Dimensions	30 x 24 x 4 inches (approx. 76.2 x 61 x 10.2 cm)

8. WARRANTY AND SUPPORT

For information regarding product warranty, technical support, and service agreements, please refer to the official Mellanox (now NVIDIA Networking) website or contact your authorized reseller. Ensure you have your product model number (MQM8700-HS2F) and serial number available when seeking support.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Email

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Details

Submit question