

NVIDIA Quantum InfiniBand Switches Product Guide

NVIDIA InfiniBand switches deliver industry-leading, low-latency, high-bandwidth interconnects designed to power modern AI, high-performance computing (HPC), and data-intensive enterprise workloads. From HDR at 200 Gb/s to the latest Quantum NDR and XDR generations, these switches provide the scalable fabric foundation required for demanding applications such as large-scale AI training, real-time analytics, and scientific simulation. With advanced features such as adaptive routing, congestion control, and hardware-accelerated collective operations, NVIDIA InfiniBand ensures predictable performance and optimal resource utilization across clustered environments.

This product guide covers the following NVIDIA InfiniBand switch offerings, most available in both Port Side Exhaust (PSE) and opposite Port Side Exhaust (oPSE) airflow configurations:

- Mellanox QM8700 – 40-port managed HDR 200 Gb/s switch (PSE and oPSE variants)
- Mellanox QM8790 – 40-port unmanaged HDR 200 Gb/s switch (PSE and oPSE variants)
- NVIDIA QM9700 – 64-port managed Quantum NDR switch (PSE and oPSE variants)
- NVIDIA QM9790 – 64-port unmanaged Quantum NDR switch (PSE and oPSE variants)
- NVIDIA Q3200-RA – 72-port managed Quantum XDR switch (oPSE variant)
- NVIDIA Q3400-RA – 144-port managed Quantum XDR switch (oPSE variant)

Together, these switches span multiple generations of InfiniBand technology and management models, enabling customers to design fabrics that balance performance, scalability, and operational simplicity. Whether deploying edge-scale clusters or building exascale-class AI infrastructures, this portfolio provides the flexibility to meet a wide range of workload and data center requirements.

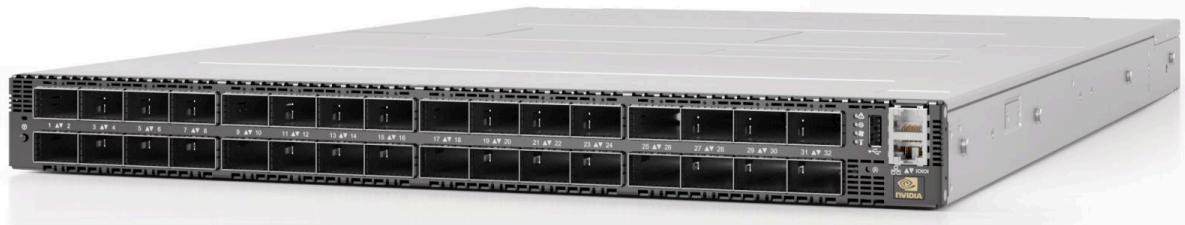


Figure 1. NVIDIA QM9700 64-Port Managed Quantum NDR InfiniBand Switch

Did you know?

NVIDIA InfiniBand switches do far more than just move data—they actively accelerate application performance through in-network computing. Using technologies such as SHARP (Scalable Hierarchical Aggregation and Reduction Protocol), these switches can perform collective operations like reductions directly in the network fabric, significantly reducing the amount of data that must traverse the cluster and offloading work from CPUs and GPUs. This capability becomes increasingly important at scale, where communication overhead can dominate workload runtime; by processing data in transit and enabling advanced routing, congestion control, and self-healing behaviors, modern Quantum, Quantum-2, and Quantum-3 InfiniBand switches help deliver near-linear scalability for AI training and HPC workloads.

Ordering information

The following table lists the NVIDIA InfiniBand switches orderable from Lenovo.

Table 1. Ordering information

Part number	Description*	Managed	Airflow*
InfiniBand HDR - 200Gb/s			
0724HD8	Mellanox QM8700 40-Port Managed 200Gb/s HDR InfiniBand Switch (oPSE)	Managed	oPSE
0724HD7	Mellanox QM8700 40-Port Managed 200Gb/s HDR InfiniBand Switch (PSE)	Managed	PSE
0724HEA	Mellanox QM8790 40-Port Unmanaged 200Gb/s HDR InfiniBand Switch (oPSE)	Unmanaged	oPSE
0724HD9	Mellanox QM8790 40-Port Unmanaged 200Gb/s HDR InfiniBand Switch (PSE)	Unmanaged	PSE
InfiniBand NDR - 400Gb/s			
0724HEB	NVIDIA QM9700 64-Port Managed Quantum NDR InfiniBand Switch (oPSE)	Managed	oPSE
0724HEC	NVIDIA QM9700 64-Port Managed Quantum NDR InfiniBand Switch (PSE)	Managed	PSE
0724HED	NVIDIA QM9790 64-Port Unmanaged Quantum NDR InfiniBand Switch (oPSE)	Unmanaged	oPSE
0724HEE	NVIDIA QM9790 64-Port Unmanaged Quantum NDR InfiniBand Switch (PSE)	Unmanaged	PSE
InfiniBand XDR - 800Gb/s			
7DN0CTO1WW	NVIDIA Q3200-RA 72-Port Managed Quantum XDR InfiniBand Switch (oPSE)	Managed	oPSE
7DN0CTO2WW	NVIDIA Q3400-RA 144-Port Managed Quantum XDR InfiniBand Switch (oPSE)	Managed	oPSE

* PSE = Port Side Exhaust; oPSE = Opposite Port Side Exhaust

Lenovo EveryScale

Lenovo EveryScale is a framework for designing, manufacturing, integrating, and delivering data center solutions, with a focus on High Performance Computing (HPC), Technical Computing, and Artificial Intelligence (AI) environments.

With EveryScale, Lenovo pre-tests and validates a wide selection of Lenovo and third-party components, including NVIDIA InfiniBand switches, to create a "Best Recipe" of components and firmware levels that work seamlessly together as a solution. From this testing, customers can be confident that these best-practice solutions run optimally for their workloads and are tailored to their specific needs.

Lenovo EveryScale hardware is pre-integrated, pre-cabled, and pre-loaded, optionally with an OS image, and is tested at the rack level during manufacturing. This process ensures reliable delivery and minimizes installation time in the customer data center.

With EveryScale, customers can focus their efforts on maximizing business value instead of consuming valuable resources to design, optimize, install, and support the infrastructure required to meet business demands.

Learn more by reading the [Lenovo EveryScale product guide](#).

Model summary

The NVIDIA switches offered by Lenovo are as follows:

- [Mellanox QM8700 Managed HDR InfiniBand](#)
- [Mellanox QM8790 Unmanaged HDR InfiniBand](#)
- [NVIDIA QM9700 Managed NDR InfiniBand](#)
- [NVIDIA QM9790 Unmanaged NDR InfiniBand](#)
- [NVIDIA Q3200-RA Managed XDR InfiniBand](#)
- [NVIDIA Q3400-RA Managed XDR InfiniBand](#)

Mellanox QM8700 Managed HDR InfiniBand

The Mellanox QM8700 is a 1U, 40-port managed HDR InfiniBand switch based on the NVIDIA Quantum architecture, delivering up to 200 Gb/s per port and 16 Tb/s of non-blocking throughput. Designed for top-of-rack or leaf deployments, it enables scalable AI and HPC fabrics with ultra-low latency and advanced in-network computing capabilities, including SHARP (Scalable Hierarchical Aggregation and Reduction Protocol) acceleration to offload collective operations from CPUs. Features such as adaptive routing, congestion control, and advanced topology support help ensure efficient fabric utilization and consistent application performance.



Figure 2. QM8700 front view



Figure 3. QM8700 rear view

For more information, see the [NVIDIA QM8700 datasheet](#) and [QM8700 user manual](#).

Mellanox QM8790 Unmanaged HDR InfiniBand

The Mellanox QM8790 provides the same 40-port HDR 200 Gb/s performance and 16 Tb/s switching capacity as the QM8700, but in an externally managed (unmanaged) configuration. Built on the same Quantum switch silicon, it delivers ultra-low latency and high message rates optimized for large-scale AI and HPC clusters. With SHARP-based in-network computing, adaptive routing, and congestion management, the QM8790 ensures efficient communication across distributed workloads, making it ideal for environments where fabric management is handled externally or centrally.



Figure 4. QM8790 front view



Figure 5. QM8790 rear view

For more information, see the [NVIDIA QM8790 datasheet](#) and [QM8790 user manual](#).

NVIDIA QM9700 Managed NDR InfiniBand

The NVIDIA QM9700 is a 1U managed switch based on the Quantum-2 architecture, delivering 64 ports of NDR 400 Gb/s InfiniBand connectivity and up to 51.2 Tb/s of aggregated throughput. Designed for next-generation AI and exascale HPC environments, it integrates advanced features such as SHARPV3 in-network computing, adaptive routing, and self-healing fabric capabilities to maximize throughput and minimize latency. With high radix density and support for multiple topologies, the QM9700 enables efficient scale-out designs for large GPU clusters and data-intensive workloads.



Figure 6. QM9700 front view

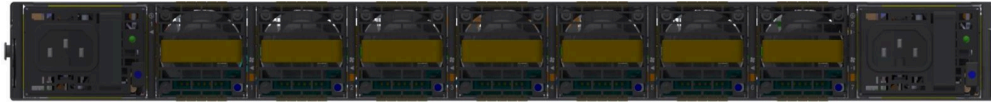


Figure 7. QM9700 rear view

For more information, see the [NVIDIA QM9700 datasheet](#) and [QM9700 user manual](#).

NVIDIA QM9790 Unmanaged NDR InfiniBand

The NVIDIA QM9790 delivers the same Quantum-2 NDR 400 Gb/s performance as the QM9700, with 64 ports and 51.2 Tb/s switching capacity, but is designed for externally managed deployments. It retains all core architectural benefits, including SHARPV3 acceleration, RDMA support, adaptive routing, and congestion control, ensuring high efficiency and scalability for AI and HPC clusters. This model is well suited for environments that rely on centralized fabric management while still requiring state-of-the-art performance and scalability.



Figure 8. QM9790 front view

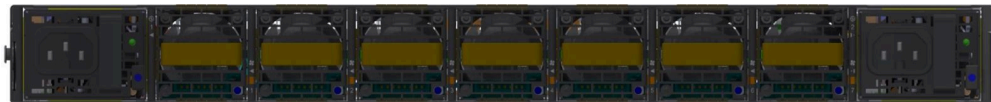


Figure 9. QM9790 rear view

For more information, see the [NVIDIA QM9790 datasheet](#) and [QM9790 user manual](#).

NVIDIA Q3200-RA Managed XDR InfiniBand

The NVIDIA Q3200-RA is a Quantum-3–based XDR InfiniBand switch delivering up to 800 Gb/s per port in a high-density 2U design with 72 ports (across dual internally integrated switches). It is engineered for hyperscale AI and HPC environments, offering massive bandwidth, ultra-low latency, and advanced in-network computing capabilities, along with adaptive routing and telemetry-driven congestion control. This design enables efficient scaling of next-generation GPU clusters and supports very high port density for modern AI fabrics.

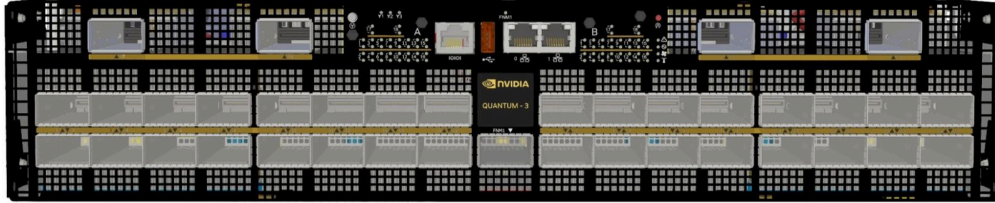


Figure 10. Q3200-RA front view



Figure 11. Q3200-RA rear view

For more information, see the [NVIDIA Q3200-RA datasheet](#) and [Q3200-RA user manual](#).

NVIDIA Q3400-RA Managed XDR InfiniBand

The NVIDIA Q3400-RA is a flagship 4U Quantum-3 XDR InfiniBand switch that provides 144 ports of 800 Gb/s connectivity, delivering exceptional radix and scalability for the largest AI and HPC deployments. It incorporates next-generation in-network computing, adaptive routing, and self-healing capabilities to optimize large-scale distributed workloads. Its extremely high port density and throughput make it ideal for spine or core layers in exascale-class AI infrastructures.

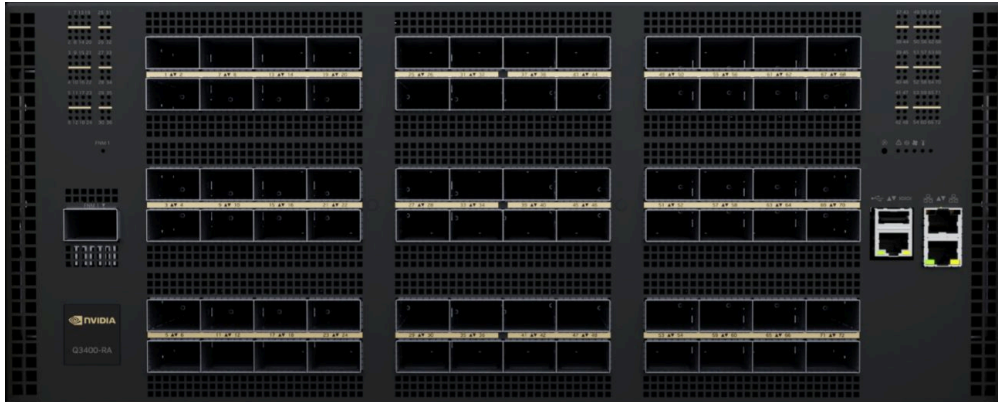


Figure 12. Q3400-RA front view



Figure 13. Q3400-RA rear view

For more information, see the [NVIDIA Q3400-RA datasheet](#) and [Q3400-RA user manual](#).

Specifications

The following table shows the specifications of each switch. There are two variants for some switches:

- **PSE** (Port Side Exhaust): Airflow is Back-to-front - Air enters from power side and exits at port side
- **oPSE** (Opposite / reversed airflow): Airflow is Front-to-back - Air enters from port side and exits at power side

Table 2. Specifications

Specification	QM8700 / QM8790	QM9700 / QM9790	Q3200-RA	Q3400-RA
Generation	Quantum	Quantum-2	Quantum-3	Quantum-3
Typical use	HDR InfiniBand leaf / top-of-rack switch for AI and HPC fabrics	NDR InfiniBand switch for scale-out AI and HPC clusters	XDR InfiniBand switch for mid-scale Quantum-X800 fabrics	High-radix XDR InfiniBand switch for large-scale AI fabrics
Airflow	PSE or oPSE	PSE or oPSE	oPSE only	oPSE only
Form factor	1U	1U	2U	4U
Managed	QM8700: Yes QM8790: No*	QM9700: Yes QM9790: No*	Yes	Yes
Throughput (FD)	16 Tb/s	51.2 Tb/s	57.6 Tb/s (2 independent 28.8Tb/s switches)	115.2 Tb/s
Ports	40x QSFP56 cages supporting 40x 200 Gb/s HDR ports	32x OSFP cages supporting 64x 400 Gb/s NDR ports	36x OSFP cages supporting 72x 800 Gb/s XDR ports	72x OSFP cages supporting 144x 800 Gb/s XDR ports
Additional ports	QM8700: <ul style="list-style-type: none"> • USB (Micro USB) • Ethernet (RJ45) • Console (RJ45) QM8790: <ul style="list-style-type: none"> • I2C (Micro USB) 	QM9700: <ul style="list-style-type: none"> • USB (USB-A 3.0) • Ethernet (RJ45) • Console (RJ45) QM9790: <ul style="list-style-type: none"> • I2C (USB-A 3.0) 	<ul style="list-style-type: none"> • 1x Fabric Management Port (OSFP) • USB (USB-A 2.0) • 2x Ethernet (RJ45) • Console (RJ45) 	<ul style="list-style-type: none"> • 1x Fabric Management Port (OSFP) • USB (USB-A 2.0) • 2x Ethernet (RJ45) • Console (RJ45)
Native speeds	40, 56, 100, 200 Gb/s per port	40, 56, 100, 200, 400 Gb/s per port	40, 56, 100, 200, 400, 800Gb/s per port	400, 800Gb/s per port
Subnet management**	Onboard fabric manager included; Optional external manager	Onboard fabric manager included; Optional external manager	Requires external manager	Requires external manager
Power supplies	2x hot-swap redundant AC power supplies (C14 sockets)	2x hot-swap redundant AC power supplies (C16 sockets)	4x hot-swap N+N redundant AC power supplies (C16 sockets)	8x hot-swap N+N redundant AC power supplies (C16 sockets)
Fans	6x hot-swap N+1 redundant	7x hot-swap N+1 redundant	5x hot-swap N+1 redundant	10x hot-swap N+1 redundant
Network OS	MLNX-OS (QM8700 only)	MLNX-OS (QM9700 only)	NVOS	NVOS
Dimensions (H x W x D)	44mm x 433mm x 591mm 1.7" x 17.0" x 23.2"	44mm x 438mm x 660mm 1.7" x 17.2" x 26.0"	88mm x 438mm x 680mm 3.64" x 17.24" x 26.77"	178mm x 438mm x 850mm 7.0" x 17.24" x 33.5"
Weight	12.5 kg (27.5 lb)	14.8 kg (32.6 lb)	24 kg (52.9 lb)	60 kg (132.2 lb)

* QM8790 and QM9790 support external management

** See the [Fabric Manager](#) section

Transceivers

The following table lists the supported transceivers.

Table 3. Transceivers

Part number	Feature	Description	Maximum supported					
			QM8700	QM8790	QM9700	QM9790	Q3200-RA	Q3400-RA
NDR transceivers								
None	BQJE	ThinkSystem NDRx2 OSFP800 IB Single Mode Twin-Transceiver	No	No	No	No	37	73
4TC7A81740	BQJD	ThinkSystem NDRx2 OSFP800 IB Multi Mode Twin-Transceiver	No	No	32	32	37	73
XDR transceivers								
4TC7B05745	C98Q	Lenovo NVIDIA XDR OSFP Single Mode Twin-Transceiver (Generic)	No	No	No	No	37	73

Networking cables

The following table lists the supported cables.

In this section:

- [Optical cables](#)
- [Copper cables](#)
- [RJ45 cables](#)

Optical cables

Table 4. Optical cables

Part number	Feature	Description	Maximum supported					
			QM8700	QM8790	QM9700	QM9790	Q3200-RA	Q3400-RA
QSFP56 HDR InfiniBand / 200 GbE Optical Cables								
4Z57A14188	B4QW	3m Mellanox HDR IB Active Optical QSFP56 Cable	40	40	No	No	No	No
4Z57A14189	B4QX	5m Mellanox HDR IB Active Optical QSFP56 Cable	40	40	No	No	No	No
4Z57A14190	B4QY	10m Mellanox HDR IB Active Optical QSFP56 Cable	40	40	No	No	No	No
4Z57A14191	B4QZ	15m Mellanox HDR IB Active Optical QSFP56 Cable	40	40	No	No	No	No
4Z57A14192	B4R0	20m Mellanox HDR IB Active Optical QSFP56 Cable	40	40	No	No	No	No
NVIDIA NDR Multi Mode Fibre Optical Cables								
4X97A81748	BQJN	Lenovo 3m NVIDIA NDR Multi Mode Optical Cable	No	No	64	64	73	145

Part number	Feature	Description	Maximum supported					
			QM8700	QM8790	QM9700	QM9790	Q3200-RA	Q3400-RA
4X97A81749	BQJP	Lenovo 5m NVIDIA NDR Multi Mode Optical Cable	No	No	64	64	73	145
4X97A81750	BQJQ	Lenovo 7m NVIDIA NDR Multi Mode MPO12 APC Optical Cable	No	No	64	64	73	145
4X97A81751	BQJR	Lenovo 10m NVIDIA NDR Multi Mode Optical Cable	No	No	64	64	73	145
4X97A81752	BQJS	Lenovo 20m NVIDIA NDR Multi Mode Optical Cable	No	No	64	64	73	145
4X97A85349	BSN6	Lenovo 30M NVIDIA NDR Multi Mode MPO12 APC Optical Cable	No	No	64	64	73	145
NVIDIA NDR Multi Mode Fibre Optical Splitter Cables								
4X97A81837	BQK5	Lenovo 5m NVIDIA NDR to 2x NDR200 Multi Mode Optical Cable	No	No	64	64	No	No
4X97A81838	BQK6	Lenovo 7m NVIDIA NDR to 2x NDR200 Multi Mode MPO12 APC Optical Cable	No	No	64	64	No	No
4X97A81839	BQK7	Lenovo 10m NVIDIA NDR to 2x NDR200 Multi Mode Optical Cable	No	No	64	64	No	No
4X97A81840	BQK8	Lenovo 20m NVIDIA NDR to 2x NDR200 Multi Mode Optical Cable	No	No	64	64	No	No
NVIDIA XDR SM MPO12 APC Optical Cable								
4X97B11375	CCVD	Lenovo 3M NVIDIA SM MPO12 APC Optical Cable (Generic)	No	No	No	No	73	145
4X97B05747	C98S	Lenovo 5M NVIDIA XDR SM MPO12 APC Optical Cable (Generic)	No	No	No	No	73	145
4X97B05748	C98T	Lenovo 10M NVIDIA XDR SM MPO12 APC Optical Cable (Generic)	No	No	No	No	73	145
4X97B05750	C98U	Lenovo 15M NVIDIA XDR SM MPO12 APC Optical Cable (Generic)	No	No	No	No	73	145
4X97B05751	C98V	Lenovo 20M NVIDIA XDR SM MPO12 APC Optical Cable (Generic)	No	No	No	No	73	145
4X97B05752	C98W	Lenovo 30M NVIDIA XDR SM MPO12 APC Optical Cable (Generic)	No	No	No	No	73	145
4X97B09056	CB2T	Lenovo 50M NVIDIA SM MPO12 APC Optical Cable (Generic)	No	No	No	No	73	145
NVIDIA NDR NDRx2 OSFP800 to 2x HDR QSFP56 Optical Splitter Cables								
4X97A81844	BQKC	Lenovo 5m NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Active Optical Splitter Cable	40	40	32	32	36	No
4X97A81845	BQKD	Lenovo 10m NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Active Optical Splitter Cable	40	40	32	32	36	No
4X97A87753	BVB8	Lenovo 20M NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Active Optical Splitter Cable	40	40	32	32	36	No
4X97A87754	BVB9	Lenovo 30M NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Active Optical Splitter Cable	40	40	32	32	36	No

Copper cables

Table 5. Copper cables

Part number	Feature	Description	Maximum supported					
			QM8700	QM8790	QM9700	QM9790	Q3200-RA	Q3400-RA
QSFP56 HDR InfiniBand / 200 GbE Passive DAC Cables								
4Z57A14182	B4QQ	0.5m Mellanox HDR IB Passive Copper QSFP56 Cable	40	40	No	No	No	No
4Z57A14183	B4QR	1m Mellanox HDR IB Passive Copper QSFP56 Cable	40	40	No	No	No	No
4Z57A14184	B4QS	1.5m Mellanox HDR IB Passive Copper QSFP56 Cable	40	40	No	No	No	No
4Z57A14185	B4QT	2m Mellanox HDR IB Passive Copper QSFP56 Cable	40	40	No	No	No	No
QSFP56 HDR InfiniBand to 2x HDR100 Passive DAC Splitter Cables								
4Z57A14193	B4R1	1m Mellanox HDR IB to 2x HDR100 Splitter Passive Copper QSFP56 Cable	40	40	No	No	No	No
4Z57A14194	B4R2	1.5m Mellanox HDR IB to 2x HDR100 Splitter Passive Copper QSFP56 Cable	40	40	No	No	No	No
4Z57A11477	B68L	2m Mellanox HDR IB to 2x HDR100 Splitter Passive Copper QSFP56 Cable	40	40	No	No	No	No
NVIDIA NDRx2 OSFP800 Finned to NDRx2 OSFP800 Flat Copper Cables								
4X97A84581	BRKC	Lenovo 1M NVIDIA NDRx2 OSFP800 Finned to NDRx2 OSFP800 Flat Top Passive Copper Cable	No	No	32	32	No	No
4X97A84582	BRKD	Lenovo 1.5M NVIDIA NDRx2 OSFP800 Finned to NDRx2 OSFP800 Flat Top Passive Copper Cable	No	No	32	32	No	No
4X97A84583	BRKE	Lenovo 2M NVIDIA NDRx2 OSFP800 Finned to NDRx2 OSFP800 Flat Top Passive Copper Cable	No	No	32	32	No	No
4X97A84584	BRKF	Lenovo 3M NVIDIA NDRx2 OSFP800 Finned to NDRx2 OSFP800 Flat Top Active Copper Cable	No	No	32	32	No	No
NVIDIA NDRx2 OSFP800 Finned to NDRx2 OSFP800 Finned Copper Cables								
4X97A81744	BQJF	Lenovo 0.5m NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Passive Copper Cable	No	No	32	32	36	No
4X97A82957	BQJG	Lenovo 1m NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Passive Copper Cable	No	No	32	32	36	No
4X97A82958	BQJH	Lenovo 1.5m NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Passive Copper Cable	No	No	32	32	36	No
4X97A82959	BQJJ	Lenovo 2m NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Passive Copper Cable	No	No	32	32	36	No
4X97A81747	BQJK	Lenovo 3m NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Active Copper Cable	No	No	32	32	36	No
4X97A82960	BQJL	Lenovo 5M NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Active Copper Cable	No	No	32	32	36	No
NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Splitter Copper Cables								
4X97A81827	BQJV	Lenovo 1m NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable	No	No	32	32	36	72
4X97A81828	BQJW	Lenovo 1.5m NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable	No	No	32	32	36	72
4X97A81829	BQJX	Lenovo 2m NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable	No	No	32	32	36	72

Part number	Feature	Description	Maximum supported					
			QM8700	QM8790	QM9700	QM9790	Q3200-RA	Q3400-RA
4X97A81830	BQJY	Lenovo 3m NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable	No	No	32	32	36	72
4X97B08451	CAGG	Lenovo 5M NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Active Copper Splitter Cable Generic	No	No	32	32	36	72
NVIDIA NDRx2 OSFP800 to 4x NDR200 QSFP112 Splitter Copper Cables								
4X97A81832	BQK0	Lenovo 1m NVIDIA NDRx2 OSFP800 to 4x NDR200 QSFP112 Passive Copper Splitter Cable	No	No	32	32	36	No
4X97A81833	BQK1	Lenovo 1.5m NVIDIA NDRx2 OSFP800 to 4x NDR200 QSFP112 Passive Copper Splitter Cable	No	No	32	32	36	No
4X97A81834	BQK2	Lenovo 2m NVIDIA NDRx2 OSFP800 to 4x NDR200 QSFP112 Passive Copper Splitter Cable	No	No	32	32	36	No
4X97A81835	BQK3	Lenovo 3m NVIDIA NDRx2 OSFP800 to 4x NDR200 QSFP112 Passive Copper Splitter Cable	No	No	32	32	36	No
NVIDIA NDR NDRx2 OSFP800 to 2x HDR QSFP56 Copper Splitter Cables								
4X97A81841	BQK9	Lenovo 1m NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Passive Copper Splitter Cable	40	40	32	32	36	No
4X97A81842	BQKA	Lenovo 1.5m NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Passive Copper Splitter Cable	40	40	32	32	36	No
4X97A81843	BQKB	Lenovo 2m NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Passive Copper Splitter Cable	40	40	32	32	36	No
NVIDIA NDR NDRx2 OSFP800 to 4x HDR QSFP56 Copper Splitter Cables								
4X97A81846	BQKE	Lenovo 1m NVIDIA NDRx2 OSFP800 to 4x HDR100 QSFP56 Passive Copper Splitter Cable	40	40	32	32	36	No
4X97A81847	BQKF	Lenovo 1.5m NVIDIA NDRx2 OSFP800 to 4x HDR100 QSFP56 Passive Copper Splitter Cable	40	40	32	32	36	No
4X97A81848	BQKG	Lenovo 2m NVIDIA NDRx2 OSFP800 to 4x HDR100 QSFP56 Passive Copper Splitter Cable	40	40	32	32	36	No
NVIDIA XDR OSFP to 2xOSFP Active Copper Splitter Cable								
4X97B05741	C98M	Lenovo 1m NVIDIA XDR OSFP to 2xOSFP Active Copper Splitter cable (Generic)	No	No	No	No	36	72
4X97B05742	C98N	Lenovo 1.5m NVIDIA XDR OSFP to 2xOSFP Active Copper Splitter cable (Generic)	No	No	No	No	36	72
4X97B05743	C98P	Lenovo 2m NVIDIA XDR OSFP to 2xOSFP Active Copper Splitter cable (Generic)	No	No	No	No	36	72
NVIDIA IB twin port XDR OSFP224 IHS Active Copper Cable								
4X97B13359	CE8R	Lenovo 1.1m NVIDIA IB twin port XDR OSFP224 IHS Active Copper Cable(Generic)	No	No	No	No	36	72
4X97B13360	CE8S	Lenovo 1.5m NVIDIA IB twin port XDR OSFP224 IHS Active Copper Cable(Generic)	No	No	No	No	36	72
4X97B13356	CE8N	Lenovo 2m NVIDIA IB twin port XDR OSFP224 IHS Active Copper Cable(Generic)	No	No	No	No	36	72
4X97B13358	CE8Q	Lenovo 2.5m NVIDIA IB twin port XDR OSFP224 IHS Active Copper Cable(Generic)	No	No	No	No	36	72

Part number	Feature	Description	Maximum supported					
			QM8700	QM8790	QM9700	QM9790	Q3200-RA	Q3400-RA
4X97B13357	CE8P	Lenovo 3m NVIDIA IB twin port XDR OSFP224 IHS Active Copper Cable(Generic)	No	No	No	No	36	72

RJ45 cables

Table 6. RJ45 Cables

Part number	Feature	Description	Maximum supported					
			QM8700	QM8790	QM9700	QM9790	Q3200-RA	Q3400-RA
CAT6 Green cables								
00WE123	AVFW	0.75m Green Cat6 Cable	1	1	1	No	2	2
00WE127	AVFX	1.0m Green Cat6 Cable	1	1	1	No	2	2
00WE131	AVFY	1.25m Green Cat6 Cable	1	1	1	No	2	2
00WE135	AVFZ	1.5m Green Cat6 Cable	1	1	1	No	2	2
00WE139	AVG0	3m Green Cat6 Cable	1	1	1	No	2	2
90Y3718	A1MT	10m Green Cat6 Cable	1	1	1	No	2	2
90Y3727	A1MW	25m Green Cat6 Cable	1	1	1	No	2	2
CAT6 Blue cables								
90Y3721	A1MU	10m Blue Cat6 Cable	No	No	1	No	2	2
90Y3730	A1MX	25m Blue Cat6 Cable	No	No	1	No	2	2
CAT6 Yellow cables								
90Y3715	A1MS	10m Yellow Cat6 Cable	No	No	1	No	2	2
90Y3724	A1MV	25m Yellow Cat6 Cable	No	No	1	No	2	2
CAT5e Blue Cables								
40K5679	3801	e1350 .6 Meter Blue Ethernet Cable	No	No	1	No	2	2
00WE111	AVFT	0.75m Blue Cat5e Cable	1	1	No	No	No	No
00WE115	AVFU	1.0m Blue Cat5e Cable	1	1	No	No	No	No
00WE119	AVFV	1.25m Blue Cat5e Cable	1	1	No	No	No	No
40K8785	3802	1.5 Meter Blue Ethernet Cable	1	1	1	No	2	2
40K5581	3803	3m Blue Cat5e Cableupdate	1	1	1	No	2	2
40K8927	3804	e1350 10 Meter Blue Ethernet Cable	1	1	1	No	2	2
40K8930	3805	25m Blue Cat5e Cable	1	1	1	No	2	2
CAT5e Green Cables								
00WE099	AVFQ	0.75m Green Cat5e Cable	1	1	No	No	No	No
00WE103	AVFR	1.0m Green Cat5e Cable	1	1	No	No	No	No
00WE107	AVFS	1.25m Green Cat5e Cable	1	1	No	No	No	No
40K5643	3797	e1350 1.5 Meter Green Ethernet Cable	1	1	1	No	2	2

Part number	Feature	Description	Maximum supported					
			QM8700	QM8790	QM9700	QM9790	Q3200-RA	Q3400-RA
40K5793	3798	e1350 3 Meter Green Ethernet Cable	1	1	1	No	2	2
40K5794	3799	10m Green Cat5e Cable	1	1	1	No	2	2
40K8869	3800	25m Green Cat5e Cable	1	1	1	No	2	2
CAT5e Yellow Cables								
40K8933	3791	e1350 .6 Meter Yellow Ethernet Cable	No	No	1	No	2	2
40K8951	3792	e1350 1.5 Meter Yellow Ethernet Cable	No	No	1	No	2	2
40K8801	3794	10 Meter Yellow Ethernet Cable	No	No	1	No	2	2
40K8807	3795	25m Yellow Cat5e Cable	No	No	1	No	2	2

Fabric Manager

For InfiniBand networks to operate, there must always be a Fabric Manager present on the network providing subnet management functionality. The QM8700 Managed HDR InfiniBand Switch and QM9700 Managed NDR InfiniBand Switch come with an on-board Fabric Manager that can be used for this purpose. For all other switches (and as an alternative for the QM8700 and QM9700), an external Fabric Manager will need to be installed on a server that is connected to the InfiniBand fabric using an InfiniBand adapter.

There are two software options available for the Fabric Manager:

- OpenSM
- NVIDIA Unified Fabric Manager

OpenSM is included with the NVIDIA DOCA software package. OpenSM discovers, initializes, and configures InfiniBand fabrics, managing routing paths and switch forwarding tables. It runs in the background to ensure continuous communication between servers and storage. For more information, see the [NVIDIA DOCA help center](#) and search on OpenSM.

NVIDIA Unified Fabric Manager (UFM) is InfiniBand networking management software that combines enhanced, real-time network telemetry with fabric visibility and control to support scale-out InfiniBand data centers. The two UFM offerings are available from Lenovo:

- **UFM Telemetry** for Real-Time Monitoring

The UFM Telemetry platform provides network validation tools to monitor network performance and conditions, capturing and streaming rich real-time network telemetry information, application workload usage, and system configuration to an on-premises or cloud-based database for further analysis.

- **UFM Enterprise** for Fabric Visibility and Control

The UFM Enterprise platform combines the benefits of UFM Telemetry with enhanced network monitoring and management. It performs automated network discovery and provisioning, traffic monitoring, and congestion discovery. It also enables job schedule provisioning and integrates with industry-leading job schedulers and cloud and cluster managers, including Slurm and Platform Load Sharing Facility (LSF).

The following table lists the UFM subscription licenses available from Lenovo.

Table 7. NVIDIA Unified Fabric Manager subscriptions

Part number	Feature code (7S09CTO6WW)	Description	NVIDIA part number
UFM Telemetry			
7S090011WW	S921	NVIDIA UFM Tel Subscription SW with Business Critical for up to 1000 InfiniBand Adapters (HCAs), 1 Year	797-YUFTMA+P3CMI12
7S090012WW	S922	NVIDIA UFM Tel Subscription SW with Business Critical for up to 1000 InfiniBand Adapters (HCAs), 3 Year	797-YUFTMA+P3CMI36
7S090013WW	S923	NVIDIA UFM Tel Subscription SW with Business Critical for up to 1000 InfiniBand Adapters (HCAs), 5 Year	797-YUFTMA+P3CMI60
UFM Enterprise			
7S09000XWW	S91Y	NVIDIA UFM Ent Subscription SW with Business Critical for up to 1000 InfiniBand Adapters (HCAs), 1 Year	797-YUFETA+P3CMI12
7S09000YWW	S91Z	NVIDIA UFM Ent Subscription SW with Business Critical for up to 1000 InfiniBand Adapters (HCAs), 3 Year	797-YUFETA+P3CMI36

Part number	Feature code (7S09CTO6WW)	Description	NVIDIA part number
7S09000ZWW	S920	NVIDIA UFM Ent Subscription SW with Business Critical for up to 1000 InfiniBand Adapters (HCAs), 5 Year	797-YUFETA+P3CMI60

For more information on NVIDIA UFM, see the [NVIDIA Unified Fabric Manager product page](#).

Rack mount kit

The following table lists the optional rack mount kit for the NVIDIA switches.

Tip: The Q3200-RA and Q3400-RA both include a rack mount kit as standard:

- Q3200-RA: Includes Rack mount kit 930-9SKIT-00L0-00C
- Q3400-RA: Includes Rack mount kit 930-9SKIT-00L0-00B

Table 8. Rack installation

Part number	Feature	Description	Maximum supported									
			QM8700 oPSE	QM8700 PSE	QM8790 oPSE	QM8790 PSE	QM9700 oPSE	QM9700 PSE	QM9790 oPSE	QM9790 PSE	Q3200-RA oPSE	Q3400-RA oPSE
Rack mounting kits												
4M27A16332	B5RW	Mellanox QM87xx Enterprise RMK for Recessed Mounting	1	No	1	No	No	No	No	No	No	No
4M27A16331	B5RV	Mellanox QM87xx Enterprise RMK w/Air Duct	No	1	No	1	No	No	No	No	No	No
None	BP66	NVIDIA QM97xx Enterprise Rack Mount Kit	No	No	No	No	1	No	1	No	No	No
None	BRET	NVIDIA QM97xx Enterprise RMK w/Air Duct	No	No	No	No	No	1	No	1	No	No
Switch Sealing kit												
00Y3001	A4WX	Switch Seal Kit	99	No	99	No	No	No	No	No	No	No

Power cables

The following table lists the power cables that can be ordered with the NVIDIA switches.

Tip: The QM8700 and QM8790 use C13 power cables; all other switches use C15 cables.

Table 9. Power cables

Part number	Feature	Description	Maximum supported					
			QM8700	QM8790	QM9700	QM9790	Q3200-RA	Q3400-RA
C13 to C14 line cords								
None	BPHZ	0.5m, 10A/100-250V, C13 to C14 Jumper Cord	2	2	No	No	No	No
39Y7937	6201	1.5m, 10A/100-250V, C13 to C14 Jumper Cord	2	2	No	No	No	No
4L67A08366	6311	2.8m, 10A/100-250V, C13 to C14 Jumper Cord	2	2	No	No	No	No
39Y7932	6263	4.3m, 10A/100-250V, C13 to C14 Jumper Cord	2	2	No	No	No	No
C13 to C20 rack power cables								
39Y7938	6204	2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable	2	2	No	No	No	No
C15 to C14 line cords								
4L67A84863	BRQ8	0.5m, 10A/100-250V, C15 to C14 Jumper Cord	No	No	2	2	4	8
4L67A84862	BRQ7	1.5m, 10A/100-250V, C15 to C14 Jumper Cord	No	No	2	2	4	8
4L67A84861	BRQ6	2.8m, 10A/100-250V, C15 to C14 Jumper Cord	No	No	2	2	4	8
4L67A84860	BRQ5	4.3m, 10A/100-250V, C15 to C14 Jumper Cord	No	No	No	No	4	8
C15 to C20 rack power cables								
4L67A84859	BRQ4	1.5m, 10A/100-250V, C15 to C20 Jumper Cord	No	No	2	2	4	8

Operating environment

The NVIDIA switches have the following operating characteristics:

- Normal operating temperature range (sustained): 0°C to +40°C (32°F to +104°F)
- Shipping and storage temperature range: -40°C to +70°C (-40°F to +158°F)
- Normal operating humidity: 10% to 85%, non-condensing
- Non-operating humidity: 10% to 90%, non-condensing

Related publications and links

For more information, see these resources:

- Lenovo EveryScale product guide
<https://lenovopress.lenovo.com/lp0900-lenovo-everyyscale-lesi>
- NVIDIA Quantum InfiniBand Switches
<https://www.nvidia.com/en-us/networking/infiniband-switching/>
- NVIDIA QM8700 and QM8790 datasheet
<https://nvdam.widen.net/s/zmbw7rdjml/infiniband-qm8700-datasheet-us-nvidia-1746790-r12-web>
- NVIDIA QM9700 and QM9790 datasheet
<https://nvdam.widen.net/s/k8sqcr6gzb/infiniband-quantum-2-qm9700-series-datasheet-us-nvidia-1751454-r8-web>
- NVIDIA Q3200-RA and Q3400-RA datasheet
<https://nvdam.widen.net/s/nfdzskhmnc/infiniband-datasheet-quantum-family-3231555>
- NVIDIA Quantum User Manuals (select the "InfiniBand ToR/Fixed-Conf. Switches" link)
<https://networking-docs.nvidia.com/switches#nvidiatab-hw-documentation>
- NVIDIA Unified Fabric Manager
<https://www.nvidia.com/en-us/networking/infiniband/ufm/>

Related product families

Product families related to this document are the following:

- [InfiniBand Switches](#)

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