



# NVIDIA Quantum-X800

Also known as: Q3400-RA · Q3200-RA · Quantum-3 XDR switch · 920-9B36F-00RX-8S0

Quantum-X800 is NVIDIA's XDR-generation InfiniBand switch platform, built around the Quantum-3 ASIC and paired with Blackwell-class GPUs (GB200, B200, B300) over ConnectX-8/9 SuperNICs running at up to 1.6 Tb/s per GPU. The Q3400-RA is the 4U flagship: 144 ports of 800 Gb/s XDR across 72 twin-port OSFP cages, 115.2 Tb/s of non-blocking aggregate throughput, and sub-100 ns port-to-port latency. A smaller 2U Q3200-RA (72 ports, 57.6 Tb/s) covers lower-radix leaf roles or bridges legacy Quantum-2 fabrics into an XDR build. Both chassis run as leaf or spine in a two-tier fat tree, and NVIDIA's own reference design scales a single fat tree built from Q3400-RA switches to 10,368 NICs.

|                                                                                                                                |                                                                                         |                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>144 × 800 Gb/s XDR</b><br>Port configuration · Q3400-RA, 72 twin-port OSFP cages; Q3200-RA: 72 × 800 Gb/s over 36 cages, 2U | <b>115.2 Tb/s</b><br>Aggregate throughput · Q3400-RA, non-blocking; Q3200-RA: 57.6 Tb/s | <b>&lt; 100 ns</b><br>Port-to-port latency · reported                                |
| <b>2,900 W typical</b><br>Power · Q3400-RA, passive cables; up to 7,000 W with active cables                                   | <b>4U</b><br>Form factor · Q3400-RA; Q3200-RA is 2U, both air-cooled, 19 in rack        | <b>10,368 NICs</b><br>Fabric scale · two-level fat tree reference design, ConnectX-8 |

|                              |                                                                               |
|------------------------------|-------------------------------------------------------------------------------|
| SWITCHING01/05               |                                                                               |
| ASIC                         | NVIDIA Quantum-3                                                              |
| Switching capacity, Q3400-RA | 115.2 Tb/s                                                                    |
| Switching capacity, Q3200-RA | 57.6 Tb/s                                                                     |
| Radix                        | 144 ports (Q3400-RA) / 72 ports (Q3200-RA) · at 800 Gb/s XDR                  |
| SerDes                       | 200 Gb/s per lane                                                             |
| In-network computing         | SHARPV4 · 14.4 TFLOPS; 9x more in-network compute than the prior NDR platform |
| Routing                      | Adaptive routing, telemetry-based congestion control, performance isolation   |

| PORTS & CABLING                  |                                                                                     | 02/05 |
|----------------------------------|-------------------------------------------------------------------------------------|-------|
| Connectors, Q3400-RA             | 72 × OSFP · twin-port cages, each carrying 2 × 800 Gb/s                             |       |
| Connectors, Q3200-RA             | 36 × OSFP                                                                           |       |
| Management port                  | 1 dedicated OSFP · in-band UFM management, separate from data ports                 |       |
| Front I/O                        | USB 2.0 Type-A, 2 × MGT, console port                                               |       |
| Endpoint NICs                    | ConnectX-8 / ConnectX-9 SuperNICs                                                   |       |
|                                  |                                                                                     |       |
| POWER & THERMAL                  |                                                                                     | 03/05 |
| Power, Q3400-RA                  | 2,900 W typical / 7,000 W max · typical with passive cables, max with active cables |       |
| Power, Q3200-RA                  | 862 W typical / 3,486 W max                                                         |       |
| Input                            | 200-240 VAC                                                                         |       |
| Power supplies                   | 8 (Q3400-RA) / 4 (Q3200-RA) · hot-swappable                                         |       |
| Operating temperature            | 0-35°C · reverse (C2P) airflow                                                      |       |
| Humidity                         | 10%-85% non-condensing                                                              |       |
| Altitude                         | 3,050 m max                                                                         |       |
| Acoustic, Q3400-RA               | 78.4 dBA · at room temperature                                                      |       |
|                                  |                                                                                     |       |
| PHYSICAL                         |                                                                                     | 04/05 |
| Dimensions, Q3400-RA (H x W x D) | 177.8 mm × 438 mm × 850 mm · 4U, 7 in × 17.2 in × 33.5 in                           |       |
| Weight, Q3400-RA                 | 60 kg · with 8 PSUs                                                                 |       |
| Weight, Q3200-RA                 | 24 kg · with 4 PSUs                                                                 |       |
| Rack mount                       | 19 in standard rack, standard depth                                                 |       |
| Airflow                          | Connector-to-power (C2P)                                                            |       |
|                                  |                                                                                     |       |
| MANAGEMENT & FEATURES            |                                                                                     | 05/05 |
| Software                         | NVOS                                                                                |       |
| CPU                              | Intel Coffee Lake i3-8100H, 4 cores, 3 GHz                                          |       |
| Fabric management                | NVIDIA UFM                                                                          |       |
| Security                         | CPU / CPLD / switch IC hardware root of trust (IRoT)                                |       |
| Topologies supported             | Two-level fat tree (up to 10,368 NICs per reference design)                         |       |

## PROCUREMENT

### Typical lead time

Quote-only across resellers; no published standard lead time. As a newer platform ramping behind Blackwell GPU demand, expect allocation windows at least as long as Quantum-2, and longer for 1.6T-class optics and splitter cables that are still thinly stocked.

### Pricing

\$107,000 to \$150,000, reported, for the Q3400-RA. Colfax Direct listed it at \$119,450; 4S Technologies at \$107,177; NADDOD at \$149,939. Most other resellers (HPE, HighendCompute, Lasysco, Server Simply) list it as quote-only with no public price. No reliable street price was found for the Q3200-RA.

- Q3400-RA (4U, 144 ports) is the spine-class chassis for new XDR builds; Q3200-RA (2U, 72 ports) is the smaller chassis for lower-radix leaf roles or for bridging a legacy Quantum-2 fabric into an XDR upgrade.
- Chassis power draw is roughly 4x a QM9700 (2,900 W vs 747 W typical); rack power and cooling capacity need to be re-planned before switch procurement, not discovered afterward.
- 800G XDR optics and splitter cables are new to the market and thinner-stocked than the mature NDR ecosystem; fewer third-party alternatives exist today than for Quantum-2 gear, which keeps optics cost as a share of fabric spend high.
- Quantum-X800 is not a drop-in upgrade for existing NDR fabrics: cabling, optics and endpoint NICs (ConnectX-8/9) are a different generation from Quantum-2 gear and do not interoperate at line rate.

## FIELD NOTES

- Quantum-X800 is the fabric to specify for Blackwell/GB200-class 800G endpoints; it is not a drop-in upgrade path for existing NDR fabrics, since cabling and optics are a different generation end to end.
- A documented GTC 2024 reference design builds a 576-GPU rail group as a 'virtual modular switch' from 4 Quantum-X800 switches in a 3-tier topology; treat single-switch radix numbers as a building block for such designs, not a cluster-sizing shortcut on their own.
- The dedicated management OSFP port keeps UFM traffic off the data plane; budget a cable and a port for it even though it does not show up in the headline 144-port count.
- Chassis power draw (2,900 W typical, up to 7,000 W with active cabling on the Q3400-RA) approaches the power budget of a full GPU compute node; rack-level power planning should treat the switch as a first-class consumer, not an afterthought.

## QUESTIONS WE GET ON THIS PART

### How many GPUs can a Quantum-X800 fabric support?

NVIDIA's published two-level, non-blocking fat-tree reference design for the Q3400-RA connects up to 10,368 ConnectX-8 NICs. Actual GPU count depends on topology tier count and oversubscription choices; larger builds add a third tier.

### Quantum-2 QM9700 vs Quantum-X800: which one for a new build?

QM9700 runs NDR at 400 Gb/s per port and pairs naturally with H100/H200 and ConnectX-7; it is the mature, widely available choice for 2026 procurement. Quantum-X800 doubles port speed to XDR 800 Gb/s, targets Blackwell-class GPUs with ConnectX-8/9, and is the platform to specify for new 800G-endpoint builds.

### Q3200-RA vs Q3400-RA, which chassis?

Q3400-RA is the 4U, 144-port spine-class chassis with 115.2 Tb/s of switching capacity. Q3200-RA is the 2U, 72-port chassis (57.6 Tb/s) built for smaller deployments or for bridging legacy Quantum/Quantum-2 infrastructure into an XDR fabric.

### Is Quantum-X800 backward compatible with NDR gear?

Not at the port level. XDR runs 800 Gb/s per port over new OSFP optics and 200 Gb/s-per-lane SerDes, so it requires its own cabling and ConnectX-8/9 endpoints rather than reusing NDR transceivers or NICs.

#### REFERENCES

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- [2] <https://networking-docs.nvidia.com/xdrswitcheshw/specifications>
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