

NVIDIA
NVIDIA Spectrum-6
SN6600-LD
(920-9N62F-00LI-GC1)
Datasheet



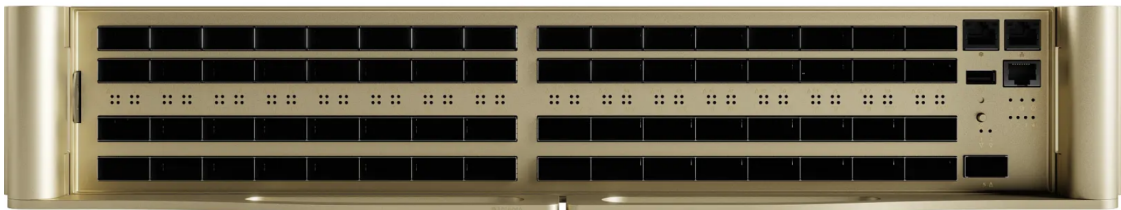
Product Overview

- The NVIDIA Spectrum-6 SN6600-LD is a 2U liquid-cooled open Ethernet switch designed for high-performance AI and data-center fabrics.
- It provides 64 RHS-type OSFP cages and one QSFP112 interface, supporting up to 128 x 800GbE connections in a compact MGX rack platform.
- Built on the 102.4Tb/s NVIDIA Spectrum-6 ASIC, it delivers 102.4Tbps throughput for scalable GPU-cluster leaf, spine, and superspine networks.
- The switch supports 400GbE, 200GbE, and 100GbE breakout modes, helping operators build flexible high-bandwidth Ethernet fabrics as link requirements change.
- A 48-60VDC busbar power design supports efficient rack integration, while OOB management, BMC, serial console, USB, and status interfaces simplify operations.
- Fully liquid-cooled operation, 30W high-power support on OSFP ports, and NVIDIA Spectrum-X Ethernet optimization suit dense AI factories and cloud-scale deployments.

Product Highlights

- **128 x 800GbE Scale:** 64 OSFP cages support up to 128 x 800GbE, 256 x 400GbE, 512 x 200GbE, or 512 plus 2 x 100GbE connections.
- **102.4Tbps Spectrum-6 Fabric:** The NVIDIA Spectrum-6 ASIC provides 102.4Tbps throughput and 256MB shared packet buffering for high-volume data-center traffic.
- **Liquid Cooling and Busbar Power:** The 2U platform uses liquid cooling with 48-60VDC busbar input to support dense rack deployments and simplified power distribution.
- **High-Power Optics Support:** All 64 OSFP ports support optical transceivers up to 30W, while the QSFP112 interface supports up to 10W.

Detailed Features



NVIDIA Spectrum-6 SN6600-LD (920-9N62F-00LI-GC1)

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Component	Specification
System Model	NVIDIA Spectrum-6 SN6600-LD
Official NVIDIA SKU	920-9N62F-00LI-GC1
Data Interfaces	64 OSFP cages and 1 QSFP112 interface
Switching Capacity	102.4 Tbps; up to 128 x 800GbE
Power and Cooling	48-60VDC busbar input; fully liquid-cooled; 2U MGX v1.2 rack platform



Spectrum-6 Switching Performance

The SN6600-LD is based on the NVIDIA Spectrum-6 ASIC and provides 102.4Tbps throughput with a 256MB shared packet buffer. Full wire-speed forwarding and low latency support demanding AI, cloud, analytics, and high-performance data-center traffic.

Dense 800GbE Connectivity

The 2U switch provides 64 RHS-type OSFP cages supporting 128 ports of up to 800GbE. This high-density design supports leaf, spine, and superspine architectures while preserving rack space for large GPU clusters.

Flexible Breakout Modes

Documented breakout configurations support 128 x 800GbE, 256 x 400GbE, 512 x 200GbE, and 512 plus 2 x 100GbE connections. Operators can use supported cables and adapters to match different server, storage, and fabric link speeds.

Spectrum-X Ethernet Optimization

NVIDIA positions the SN6600-LD for Spectrum-X Ethernet and AI-optimized leaf and spine designs. It supports middle-of-row and end-of-row deployments for scalable GPU-cluster connectivity in modern AI factories.

Liquid-Cooled Thermal Design

The fully liquid-cooled chassis uses UQD8 v2 couplers and an open-loop cooling design. The documented configuration provides one cold and one hot coupler per switch, a 5.7 lpm liquid flow rate, and a maximum liquid supply temperature of 45°C.

48-60VDC Busbar Power

The SN6600-LD accepts 48-60VDC busbar power, reducing rack installation effort and simplifying power distribution in high-density data centers. The busbar architecture is designed for NVIDIA MGX v1.2 rack environments.

High-Power Transceiver Support

All 64 OSFP ports support transceivers up to 30W, and the QSFP112 interface supports up to 10W. This capacity helps the switch accommodate high-power optical modules used in 800GbE and breakout deployments.

Open Management and Serviceability

NVIDIA documents pre-installed Cumulus Linux and optional SONiC support depending on the switch. OOB Ethernet, BMC, RJ45 serial console, USB Type-A, reset, and LED interfaces support local setup, remote administration, and troubleshooting.

Technical Specifications

Product Specifications

Feature	Value
User SKU	MLNX-SN6600-LD
Official NVIDIA ordering SKU	920-9N62F-00LI-GC1
System model	SN6600-LD
Product family	NVIDIA Spectrum-6 SN6000 Ethernet switch systems
Product type	2U liquid-cooled open Ethernet switch
Switch ASIC	NVIDIA Spectrum-6
Data interfaces	64 RHS-type OSFP cages; 1 QSFP112 interface
High-speed port scale	128 x 800GbE; 256 x 400GbE; 512 x 200GbE; 512 plus 2 x 100GbE
Maximum throughput	102.4 Tbps
Packet buffer	256 MB shared packet buffer
Lane signaling	8 x 200G PAM4 per OSFP or MMC-16 interface
High-power transceiver support	64 OSFP ports up to 30W; 1 QSFP112 interface up to 10W



Feature	Value
Software options	Pre-installed NVIDIA Cumulus Linux; SONiC support varies by switch
Firmware updates	Handled through the management software
Management interfaces	1 x RJ45 100/1000M Base-T OOB management; 1 x RJ45 100/1000M Base-T BMC; 1 x RJ45 RS232 serial console
USB interface	1 x USB Type-A 2.0-compliant port
Local controls	Reset button; status and port LEDs; lane-select LEDs; power button
Form factor	2U
Mounting	19-inch MGX v1.2 rack
Dimensions (H x W x D)	88 mm x 438 mm x 900 mm, including UQD and front levers
Dimensions, imperial	3.43 in x 17.2 in x 35.4 in, including UQD and front levers
Weight	33 kg
Cooling	Fully liquid-cooled
Coolant	Recochem PG-25% propylene-glycol based heat transfer fluid
Cooling design	Open-loop design
Universal quick disconnects	UQD8 v2
UQD couplers	1 cold and 1 hot coupler per switch
Liquid flow rate	5.7 lpm per system
Working pressure	5 bar
Outburst pressure	15 bar
Pressure drop	16.5 PSI
Maximum liquid supply temperature	+45 °C
Minimum liquid supply temperature	+17 °C
Power input	48VDC nominal busbar input; 40-60VDC operating range
Typical power consumption with FRO	3.3 kW
Typical power consumption with TRO	2.79 kW
CPU	8-core x86 processor
System memory	32 GB DDR5
Storage	80 GB NVMe SSD



Feature	Value
PCIe	Gen4 x4
Operating temperature	5 to 40 °C ambient, ASHRAE A3
Non-operating temperature	-40 to 70 °C
Operating humidity	10% to 85%, non-condensing
Operating altitude	Up to 3050 m
Safety and EMC	CB, cTUVus, CE, CU, S_Mark, FCC, VCCI, ICES, RCM, BSMI, KCC, CQC
RoHS	RoHS compliant
Rack compatibility	NVIDIA MGX v1.2 rack
Rail kit	930-9SKIT-00L0-00F installation kit for standard 2U switches in MGX v1.2 racks

Product Comparison

Feature	NVIDIA Spectrum-6 SN6600-LD / 920-9N62F-00LI-GC1	NVIDIA Spectrum-6 SN6600 / 920-9N63F-00RI-3C0	NVIDIA Spectrum-6 SN6810-LD / 920-9N64K-00LI-GC0
System model	SN6600-LD	SN6600	SN6810-LD
Chassis	2RU	3RU	2RU
High-speed interfaces	64 OSFP plus 1 QSFP112	64 OSFP plus 1 QSFP112 plus 2 SFP28	128 MMC-16 plus 1 QSFP112
Maximum 800GbE scale	128	128	128
Maximum 400GbE scale	256	256	256
Maximum 200GbE scale	512	512 plus 2	512
Maximum 100GbE scale	512 plus 2	512 plus 2	512 plus 2
Maximum throughput	102.4 Tbps	102.4 Tbps	102.4 Tbps
Switch ASIC	NVIDIA Spectrum-6	NVIDIA Spectrum-6	NVIDIA Spectrum-6



Feature	NVIDIA Spectrum-6 SN6600-LD / 920-9N62F-00LI-GC1	NVIDIA Spectrum-6 SN6600 / 920-9N63F-00RI-3C0	NVIDIA Spectrum-6 SN6810-LD / 920-9N64K-00LI-GC0
Cooling	Liquid cooling	Air cooling, connector-to-power, 5 fans, N+1 redundant	Liquid cooling
Power input	48-60VDC busbar	200-240VAC	48-60VDC busbar
CPU	8-core x86 processor	8-core x86 processor	8-core x86 AMD processor
PCIe	Gen4 x4	Gen4 x4	Gen3 x4
System memory	32 GB DDR5	32 GB DDR5	32 GB DDR5
Storage	80 GB NVMe SSD	80 GB NVMe SSD	80 GB NVMe SSD
Dimensions (H x W x D)	88 x 438 x 900 mm	133.35 x 438 x 767 mm	87 x 438 x 900 mm
Weight	33 kg	52 kg	32.5 kg
Operating temperature	5 to 40 °C	0 to 35 °C	5 to 40 °C
Best-fit role	Liquid-cooled 800GbE AI leaf or spine	Air-cooled 800GbE Ethernet switch	Liquid-cooled 800GbE CPO-oriented AI switch

Accessories

Category	Accessories
Included Accessories	- SN6600-LD switch system - NVIDIA MGX v1.2 rack installation kit - RS-232 DB9-to-RJ45 2M harness, part number HAR000631
Optional Accessories	- 930-9SKIT-00L0-00F: installation kit for standard 2U switches in MGX v1.2 racks - UQD8 v2 liquid-cooling couplers and compatible CDU infrastructure - Supported OSFP and QSFP112 optical transceivers, cables, adapters, and breakout cables



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