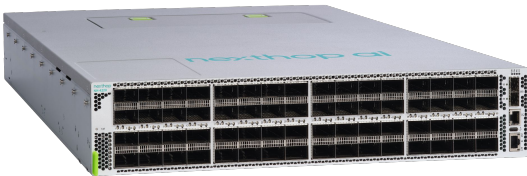


Nexthop NH-4220 Introduction



The NH-4220 Data Center Switch is a low power 2RU, 64-port, 1600 GbE OSFP switch, purpose built for modern cloud and AI data centers. The switch provides 102.4 Tbps of line-rate capacity, powered by flexible SerDes technology, enabling a wide range of port configurations for dense 1600 GbE, 800 GbE, 400 GbE, 200 GbE or 100 GbE applications. The NH-4220 delivers sophisticated packet processing, buffering, traffic management, congestion control, queuing and telemetry capabilities, ideally suited for advanced AI back-end and front-end networks in both leaf and spine roles, running a range of network operating systems (NOS)

Technical Capabilities and Features

The NH-4220 is optimized to handle the extreme demands of advanced AI back-end and front-end networks. Incorporating specialized capabilities essential for high-performance computing, including RoCEv2 and DCQCN (Priority Flow Control and Explicit Congestion Notification) for ensuring low-latency data transport, Dynamic Load Balancing (DLB) and high radix ECMP for efficient traffic distribution across the network and advanced Telemetry and Monitoring for instrumentation, troubleshooting and visibility.

Performance Highlights	Built for AI	Scalable Operations
102.4 Tbps Line-Rate Switching	AI Optimized RoCEv2 and DCQCN	Next Generation Data Center Design
Advanced IPv4/IPv6 Packet Processing	Dynamic Load Balancing (DLB)	High Performance Control Plane
Hardware-based Encapsulation and Tunneling	High Radix ECMP	Flexible NOS Choice
Sophisticated On-Chip Buffering and Traffic Management	Engineered for LPO/LRO	Nexthop NOS
	Best-in-class Efficiency	Community SONiC
		BYoNOS

Platform Overview

The NH-4220 platform delivers 64 ports of 1600 GbE in a 2RU system with a throughput of 102.4 Tbps. The platform also has 2 dedicated dataplane SFP28 front panel ports for telemetry and RJ-45 based console along with a 1GbE out-of-band ethernet port for system management.

A 16-core CPU complex allows for the most demanding control plane applications that are necessary for extremely large scale AI-factory environments.



64 x 1600 GbE OSFP / 1 x 25 GbE SFP
102.4Tbps



Front-to-Back Airflow
1+1 PSU and 3+1 Fans

System Specifications

Model Number	SKU	NH-4220
Control Plane	Processor	AMD Fire Range 16c/32t, 64-bit x86
	Memory	32 GB DDR5-5600
	Security	Infineon SLB 9672 TPM 2.0
	Boot Storage	64 MB SPI
	Storage	960 GB, M.2 2280, NVMe SSD
	Boot Loader	ONIE
Form Factor	Rack Units	2 RU, EIA-310 rack or equivalent type
	Dimensions (H x W x D)	3.5" x 17.5" x 30.9" / 88.9 mm x 445 mm x 785 mm
	Weight	78 lbs (35.4 kg) - with fan and PSU modules
Power and Cooling	Power Supply	PSU-AC-5K211D-SDG-F (Hot swappable, 1+1 Redundant)
	Fan Module	FAN-8122-F (Hot swappable, 3+1 Redundant)
	Cooling	Front-to-back airflow

System Specifications

Ports	Network	64 x 1600 GbE OSFP-IHS, 2 x 10/25 GbE SFP28
	Management	1 x 10/100/1000BASE-T RJ45
	USB	1 x USB 2.0 Type-C
	Console	1 x RJ45 serial console port
System Power¹	Typical Power Maximum Power	3720 W 2993 W

Environmental Specifications

Operating Conditions	Temperature Humidity Altitude	0°C to 35°C / 32°F to 95°F 5% to 90% (RH), non-condensing Sea level
Non-Operating Conditions	Temperature Humidity	-40°C to 70°C / -40°F to 158°F 5% to 95% (RH), non-condensing

Power Supply Specifications

PSU Model	AC	PSU-AC-5K211D-SDG-F
Connector Type	AC	SAF-D-GRID 400
Max Output Power	AC	5200 W
Input Voltage/ Frequency	AC	200-240 Vac, 50-60Hz
Max Input Current	AC	25A at 200Vac
Efficiency	AC	96%

Software Support

Nexthop platforms come preinstalled with the Open Network Install Environment (ONIE) and support multiple Network Operating Systems (NOS), including Nexthop NOS, community SONiC and select third-party NOS.

For software release version support, checkout the [SW Release page](#) or contact support@nexthop.ai.

Switch Silicon Specifications

Network Scaling²	SerDes Technology	200Gbps PAM4, 512 SerDes
	Flexible Port configs	Up to 64 ports 1600 GbE Up to 128 ports of 800 GbE Up to 256 ports of 400 GbE Up to 512 ports of 200 GbE Up to 512 ports of 100 GbE Up to 512 ports of 50 GbE
	Dynamic Buffer	267 MB unified packet buffer (Static & Dynamic Buffer Allocation)
	MAC Addresses	136K
	VLANs	4K w/128 profiles
	ACLs	3K
	Egress ACLs	512
	ECMP	4K groups, 512-way 256K members
	IPv4 Host/LPM Routes	850K
	IPv4 Multicast (S,G)	128K
	IPv6 Host/LPM Routes	600K
	Key Features	Queuing and scheduling
QoS features		DSCP, Hierarchical ECMP, rate limiting, and shaping
Advanced AI		ROCEv2, DCQCN (PFC, ECN), DLB, high-radix ECMP
Telemetry and Monitoring		Port Mirroring, Flow Mirroring, ERSPAN (ingress and egress), Mirror on Drop (MoD), In-band Telemetry (INT)

Regulatory Compliance

Safety	UL/CSA 62368-1:2019, IEC 62368-1:2018	EMC	FCC part 15, Class A ICES-003 VCCI-CISPR 32 AS/NZS CISPR 32 EN 55032 BS EN55032 CISPR 32 KS C 9832 CNS 15936 EN 55035 BS EN55035 CISPR 35 EN 61000-3-2 IEC 61000-3-2 BS EN IEC 61000-3-2 EN 61000-3-3 IEC 61000-3-3 BS EN 61000-3-3 KS C 9835
Certifications	BSMI (Taiwan) CE (European Union) KCC (South Korea) NRTL (North America) RCM (Australia/New Zealand) VCCI (Japan)		
EU Directives	2014/35/EU Low Voltage Directive 2014/30/EU EMC Directive 2012/19/EU WEEE Directive 2011/65/EU RoHS Directive 2015/863/EU Commission Delegated Directive		
Regulatory Model Number		NH26-05	

Datasheet Notes

1. System Power	Typical Power: 1600 GbE, L3, Large frames, Random payload, 25°C, sea level, 50% traffic, LRO Maximum Power: 1600 GbE, L3, Large frames, Random payload, 35°C, sea level, 100% traffic, FRO
2. Network Scaling	Software-supported features and scale numbers depend on the NOS and the software version.

Ordering Information

NH-4220-F	64 port 1.6TbE OSFP-IHS 102.4 Tbps, 2RU scale-out, switch platform with 16-core CPU, front to back airflow, redundant, hot swappable power supplies (1+1) and fans (3+1)
NH-4220-CHS	Bare chassis - 64 port 1.6TbE OSFP-IHS, 102.4 Tbps, 2RU, scale-out switch platform with 16-core CPU. (No power supplies or fans)
NH-SVC-4220-NBD	24x7 Nexthop TAC and next business day RMA support for the NH-4220-F platform; 1 month
PSU-AC-5K211D-SDG-F	AC Power Supply Unit, 5.2 kW, with SAF-D-GRID connector, hot swappable
FAN-8122-F	Dual Rotor Fan Module, front to back airflow, 80mm

Ready to Get Started?

To learn more about Nexthop switches, download quick start guides, safety & regulatory compliance information, and other technical specifications, please visit the [Nexthop platforms page](#).

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