NSS7810-24QV16QE 200G Data Center Switch Datasheet

Product Overview

NSS7810-24QV16QE is Maipu new generation 200GE VxLAN switch designed for AI computing data center, providing high-throughput, high-density 200GE and 400GE interfaces, larger buffer and lower latency. By using Maipu MyPowerOS software platform, NSS7810-24QV16QE provide rich data center service features and management capability.

NSS7810-24QV16QE realize large buffer of the interfaces, meeting the burst flow forwarding without packet loss; provide the M-LAG technology for virtualization scenarios; provide the modular power and fan design for high reliability. The key components adopt "overvoltage" designs to ensure that the product has the strong ability of continuous operation.

NSS7810-24QV16QE adopts advanced hardware architecture with up to 24*200GE+16*400GE ports. It can work together with NSS5830/5930 VxLAN leaf switches to build a complete, scalable, virtualized fabric network that meets the data center requirements.

NSS7810-24QV16QE supports 24*Port 200G QSFP56 interfaces, 16*Port 400G QSFP112 interfaces, 2*Port 25G SFP28 interfaces, 6*Fan slots, 2*Power slots.

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Key Features

- **High-density 100/200GE and 400GE Ports**

The NSS7810-24QV16QE adopts advanced hardware architecture with 24*200GE and 16*400GE interfaces in compact 1U device. The port combination fully satisfies the interface density requirement of data center scenarios.

- **RoCEv2 Lossless Ethernet Technology**

The NSS7810-24QV16QE supports lossless Ethernet (RoCEv2) features such as Priority-based Flow Control (PFC) and Explicit Congestion Notification (ECN) control algorithms which can avoid packet loss and message retransmission that may occur in traditional Ethernet protocols when encountering network congestion, reduce network latency and jitter, and thus achieve higher performance and lower latency.

- **M-LAG for Cross-device Link Aggregation**

The NSS7810-24QV16QE supports multi-chassis link aggregation group (M-LAG), which enables links of multiple switches to aggregate into one to implement cross-device link backup. The rest of switches in the M-LAG group are working actively regardless any switch failure. During the upgrade, other switches in the system take over traffic forwarding to ensure uninterrupted services.

- **VxLAN for Layer2/3 Virtualized Deployment**

The NSS7810-24QV16QE can work with the industry's mainstream virtualization platforms and acts a hardware gateway on an VxLAN overlay network. Virtual extensible LANs (VxLAN), a common network virtualization overlay protocol that expands the layer 2 network address space from 4,000 to 16 million. NSS7810-24QV16QE supports BGP-EVPN, which is used as the overlay control plane and provides virtual connectivity between different layer 2/3 domains over an IP or MPLS network.

- **Telemetry for Intelligent OAM**

The NSS7810-24QV16QE provides telemetry technology to collect device data in real time and send the management data to customer network analyzer platform. Telemetry systems, done properly, play an important role in providing you with information about the health of your network, so you can respond intelligently to prevent hardware failure and network downtime. It can help customers to identify and analyze network problems which affect user experience.

- **Netconf & Restfonf API Integration**

The NSS7810-24QV16QE supports NETCONF and Restconf API and can work with 3rd party SDN controller for simplified device remote configuration.

- **Reliable Hardware Design**

The NSS7810-24QV16QE uses a standard airflow design which isolates cold air channels from hot air channels. This design improves heat dissipation efficiency and meets design requirements of data center. It adopts hot swap redundant power modules and fans which ensure hardware reliability and non-stopping operation. The fan speed can be adjusted dynamically based on system workload.

- **Free Licensing Policy**

Maipu always insists on “One-time investment” free license policy, the standard features and advanced features will be never divided to different version. For any new firmware version, Maipu will share to customers without extra charge. Compared with other manufacturers, Maipu free license policy can better protect users' short-term and long-term investment.

Technical Specifications

Product Model	NSS7810-24QV16QE	
Hardware Specification		
Interfaces	24*200G QSFP56 + 16*400G QSFP112 + 2*25G SFP28 Interfaces	
Management Interface	One console port, one management Ethernet port, one USB interface	
Switching Capacity	22.4Tbps	
Flash	8G	
Memory	8G(Default)	
Interface Buffer Size	64M	
Jumbo Frame	12K	
VLAN Entry	4094	
Max. MAC Address Entry	448K	
Max. ARP Entry	251K	
Max. IPv4 Routing Entry	768K	
Max. IPv6 Routing Entry	384K	
Max. VRF Entry	4K	
VRRP Group	255	
Max. ECMP Path	128	
IGMP Group	8K	
VxLAN VTEP Instance	8K	
Power Supply Slots	2	
FAN Module Slots	6	
Power Supply	Input voltage (AC): 100V ~ 240V, 50Hz ~ 60Hz	
	Input voltage (DC): -40 ~ -72V	
Temperature	Work temperature: 0℃ to 50℃	
	Storage temperature: -40℃ to 70℃	
Humidity	Work humidity: 10% to 90%, no-condensing	
	Storage humidity: 5% to 95%, no-condensing	
Power Consumption	Air front in rear out: 851W Air rear in front out: 892W	
Dimension(W*D*H)	442mm*560mm*44.2mm	
MTBF	>200, 000 hours	
Software Specification		
Standard L2 Protocol	Interface	Port Type UNI/NNI, Port Speed, Port MTU, Port Loopback, Loopback interface, Tunnel interface, Null interface, VXLAN interface
	Ethernet Switching	LACP Link aggregation, LACP Port Priority, LACP Load Balance, LACP Rate Monitor, LACP Debug, Port isolation, QinQ, VLAN mapping, Super VLAN, PVLAN, Voice VLAN, STP, RSTP, MSTP, Loopback-detection, Error-disable, VIST/VIST+, GVRP, MLAG, MLAG Lite, VLAN isolation
Standard L3 Protocol	IP Protocol	ARP, DHCP, DHCPv6, DHCP Server, DHCPv6 Server, DHCPv6 Client, DHCP Relay, DHCPv6 Relay, DHCP Option82, DNS, GRE, IPIP, IPv6 over IPv4, ISATAP, IPv4 over IPv6, IPv6 over IPv6
	Routing Protocol	Static route for IPv4&IPv6, RIPv1/v2, RIPng, OSPFv2, OSPFv3, IS-IS, IS-ISv6, BGP, BGPv6, Policy Route, MP-BGP
Multicast	L2 Multicast	IGMP Snooping, IGMP Snooping over VxLAN, multicast VLAN (MVR, MVP), MLD Snooping, Router-alert Option

	L3 Multicast	IGMPv1/v2/v3, MLDv1/v2, PIM-SM, PIM-DM, PIM-SSM, IPv6 PIM-SM, IPv6 PIM-SSM, MSDP, IGMP Group Filter, MLD Group Filter
QoS & ACL	QoS	802.1p, DSCP, Priority Mapping, SP, WRR, WDRR, SP+WRR, SP+WDRR, WRED, Flow classification, Traffic monitoring, Traffic shaping, Congestion management, Congestion avoidance, Flow-based mirroring
	ACL	Standard IP ACL, extended IP ACL, standard MAC ACL, extended MAC ACL, extended Hybrid ACL, Standard IPv6 ACL, extended IPv6 ACL
Data Center Feature	Basic Feature	TRILL, VXLAN, M-LAG, MLAG for VXLAN, VXLAN QoS, ESI Multi-Homing, BGP-EVPN, NLB
	RoCEv2	ECN, EQCN, ETS, PFC, iNOF, DCBX
MPLS L2/L3 VPN	L3 MPLS VPN	MPLS LDP, MPLS GR, M-VRF, MPLS L3VPN, Inter-AS MPLS VPN Option A/B, MPLS OAM, IPv6 MPLS L3VPN, MPLS TE, MPLS QoS
	L2 VPLS VPN	VPWS, Martini/Kompella VPLS, H-VPLS
Precision Time Protocol (PTP)	IEEE 1588v2	E2ETC, P2PTC
Virtualization	VST	H-VST, M-VST
	MAD	MAD LACP, MAD BFD, MAD Fast-hello
Security & Network Reliability	Security	ARP Check, AARF, AARF ARP-Guard, CPU Protection, Port Security, IP Source Guard, IPv6 Source Guard, ND-Snooping, DHCP Snooping, DHCPv6 Snooping, Dynamic ARP Inspection (DAI), AARF, Host Guard, P2P MACSec, PPPoE+, 802.1x, Portal Authentication, Anti-attack detect|drop|flood|log, URPF
	AAA	Authentication, Authorization, Accounting, Radius, TACACS+
	Network Reliability	HA, ULFD, ERPS, ULPP, Monitor Link, VRRP, VRRPv3, VBRP, BFD, EEP, CPU protection
Management	Network Management	SNMP v1/v2/v3, MIB, RMON, SYSLOG, CLI, Telnet, SSH, HTTP/HTTPS, FTP/TFTP, Debug, NTP, Keepalive Gateway
	Network Monitoring	SPAN, RSPAN, ERSPAN, VLAN SPAN, IPFIX, sFlow, LLDP, LLDP-MED, IP-SLA, CWMP, Telemetry, OpenFlow, Netconf, Restconf, BSM, MOD, Capture Packet

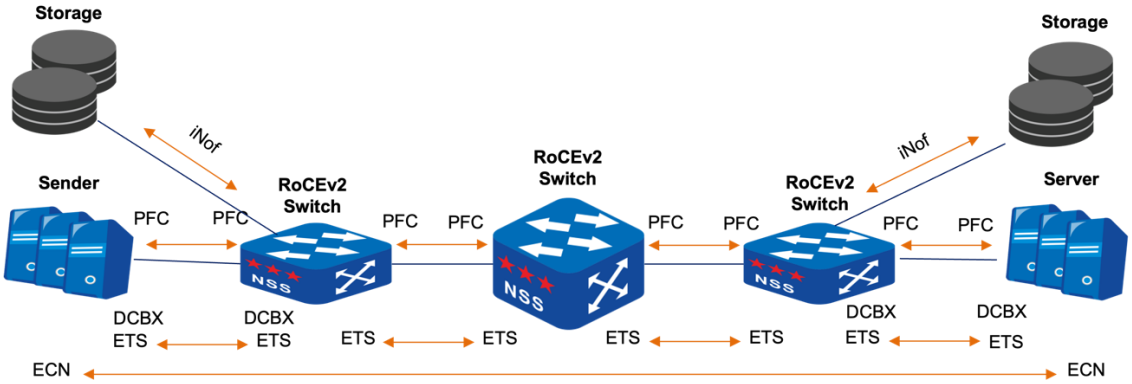
Order Information

Product Model	Description
NSS7810-24QV16QE Series Host	
NSS7810-24QV16QE	24*200G QSFP56 Interfaces, 16*400G QSFP112 interfaces, 2*25G SFP28 Interfaces, 6*Fan slots, 2*Power slots
Power Modules	
AD1300M-HV1B	CPRS AC Power Supply, AC input 100-127V/12A, output 12V/1000W or AC input 200-240V/8A, output 12V/1300W, current sharing, supporting hot-swap, Air front in rear out. (Note: Need work together with FAN-01K-01B)
AD1300M-HV0F	CPRS AC Power Supply, AC input 100-127V/12A, output 12V/1000W or AC input 200-240V/8A, output 12V/1300W, current sharing, supporting hot-swap, Air rear in front out. (Note: Need work together with FAN-01K-01F)
DD1300M-5V1B	CPRS DC Power Supply, DC input 40-72V/40-22A, output 12V/106A current sharing, supporting hot-swap, Air front in rear out. (Note: Need work together with FAN-01K-01B)
DD1300M-5V0F	CPRS DC Power Supply, DC input 40-72V/40-22A, output 12V/106A current sharing, supporting hot-swap, Air rear in front out. (Note: Need work together with FAN-01K-01F)
FAN Modules	
FAN-01K-01B	FAN-01K-01B FAN Module, Hot-swappable, Air front in rear out
FAN-01K-01F	FAN-01K-01F FAN Module, Hot-swappable, Air rear in front out
Fiber Transceivers	

SFP-M1-L192P8	10G SFP+, 850nm, 300m, LC, DDM, Multi-Mode
SFP-S1-L192P3	10G SFP+, 1310nm, 10km, LC, DDM, Single-Mode
SFP-S4-L192P5	10G SFP+, 1550nm, 40km, LC, DDM, Single-Mode
SFP-S8-L192P5	10G SFP+, 1550nm, 80km, LC, DDM, Single-Mode
SFP28-M1-L480C8D	25G SFP28, 850nm, 100m, LC, DDM, Multi-Mode
SFP28-S1-L480C3D	25G SFP28, 1310nm, 10km, LC, DDM, Single-Mode
QSFP28-M1-M1920C8D	100Gbps QSFP28, 850nm, 70m(OM3), 100m(OM4), MPO, SR4, DDM, Multi-Mode
QSFP28-M1-100G-LD3-S	100Gbps QSFP28, 1310nm, 100m, LC, LX4, DDM, Multi-Mode
QSFP28-S1-100G-LD7	100Gbps QSFP28, 1310nm, 2Km, LC, CWDM4, DDM, Single-Mode
QSFP28-S1-L1920C3D	100Gbps QSFP28, 1310nm, 10Km, LC, LAN-WDM, DDM, Single-Mode
QSFP28-S4-100G-LD7	100Gbps QSFP28, 1550nm, 40km, LC, LAN-WDM, DDM, Single-Mode
Q56-200G-SR4-MM	200Gbps QSFP56, 850nm, 100m(OM4), MPO, SR4, DDM, Multi-Mode
Q56-200G-FR4-LS	200Gbps QSFP56, 1310nm, 2km(OS1), LC, FR4, DDM, Single-Mode
Q112-400G-VR4-MMA	400Gbps QSFP112, 850nm, 50m(OM4), MPO12-APC, VR4, DDM, Multi-Mode

Typical Application

RoCEv2 Lossless Ethernet Solution for Data Center



RoCEv2 is a network protocol that enables servers in data centers to perform Remote Direct Memory Access (RDMA) directly over Ethernet. RoCEv2 benefits significantly from a lossless Ethernet environment because it relies on high reliability and low latency for performance efficiency. Lossless Ethernet technology ensures that RoCEv2 can deliver its full potential benefits by avoiding the typical challenges associated with standard Ethernet communications.

NSS7810 series fully support the RoCEv2 standards, meeting the requirements for switch performance in high-performance data center scenarios. The NSS7810 supports a wide range of lossless Ethernet technologies, including ETS, PFC, ECN, DCBX, etc. This helps create an end-to-end, zero-jitter, low-latency, lossless Ethernet network that meets the demands of cloud computing, big data, artificial intelligence, and high-performance computing deployments in data centers.

Maipu values and appreciates comments you may have concerning our products or this document. Please address comments to:

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