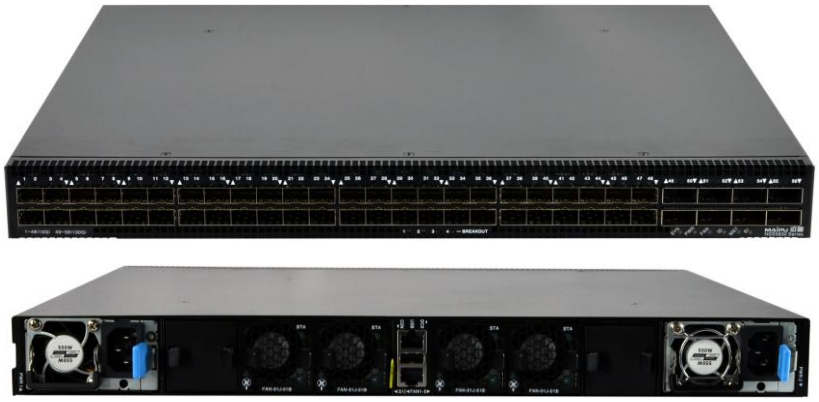
NSS5832 Series Data Center RoCEv2 Switch Datasheet

Product Overview

NSS5832 series switches are Maipu new generation 10GE data center RoCEv2 switches designed for enterprise data center networks, providing high-throughput, high-density interfaces, larger buffer and lower latency. The NSS5832 series adopts advanced hardware architecture with 48*10GE access ports and 8*40/100GE uplinks. By using Maipu MyPowerOS software platform, NSS5832 series provide rich data center service features and management capability.

NSS5832 series 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. NSS5832 series can work with NSS5950 & NSS18500 spine switches to build a complete, scalable, virtualized RoCEv2 fabric network that meets the data center requirements.



NSS5832-48XF8QS Switch

NSS5832-48XF8QS supports 48*1/10G SFP+ optical interfaces, 8*40/100G QSFP28 optical interfaces, five modular fan slots, one modular multi-functional slot and dual modular power slots.

Key Features

- **High-density 10GE Ports with 100GE Uplinks**

  NSS5832 series provide fixed 48*10GE interfaces in compact 1U device. The port combination fully satisfies the interface density requirement of data center scenarios. NSS5832 series have a maximum of 8*100GE QSFP28 uplinks, the uplink ports can be connected to NSS5950 & NSS18500 spine switches to build a non-blocking DC network architecture.

- **RoCEv2 Standard Compliance**

  NSS5832 series fully support the RoCEv2 standards, meeting the requirements for switch performance in high-performance data center scenarios. The NSS5832 supports a wide range of lossless Ethernet technologies, including PFC, ECN, ETS, 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.

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

  NSS5832 series support 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 and EVPN for L2 Virtualized Deployment**

  NSS5832 series 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. NSS5832 series support BGP-EVPN, which is used as the overlay control plane and provides virtual connectivity between different layer 2/3 domains over an IP network.

- **Southbound and Northbound API**

  NSS5832 series support NETCONF and RESTCONF API which can work with 3rd party SDN controller for simplified device remote configuration and management.

- **Telemetry for Intelligent OAM**

  NSS5832 series provide 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.

- **Reliable Hardware Design**

  NSS5832 series use 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	NSS5832-48XF8QS
Hardware Specification	
Physical Ports	Fixed 48*1/10G SFP+ optical interfaces, 8*40/100G QSFP28 optical interfaces
Management Interface	One console port, one management Ethernet port, one USB interface
Switching Capacity	2.56Tbps
Forwarding Performance (128-Byte)	1080Mpps
CPU	4-Core (2-Core/2.0GHz ; 2-Core/1.5GHz)
Flash	8G
Memory	4G (Default)
Interface Buffer Size	16M
Jumbo Frame	12K
VLAN Entry	4094
Max. MAC Address Entry	448K
Max. ARP Entry	129K
Max. IPv4 Routing Entry	393K
Max. IPv6 Routing Entry	196K
Max. VRF Entry	8K
ECMP Path	128
VRRP Group	255
IGMP Group	8K
VxLAN VTEP Instance	8K
Power Supply Slot	2
Fan Module Slot	5
Multi-function Slot	1
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	162W
Dimension(W×D×H)	442mm×420mm×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, BPDU Guard, Root Guard, 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, IRMP, 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 Features	TRILL, VXLAN, M-LAG, M-LAG Lite, MLAG for VXLAN, VXLAN QoS, ESI Multi-Homing, BGP-EVPN, NLB
	RoCEv2	ECN, DCQCN, 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, 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, Encrypted Syslog, CLI, Telnet, SSHv1/v2, HTTP/HTTPS, FTP/TFTP/SFTP, SCP, 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

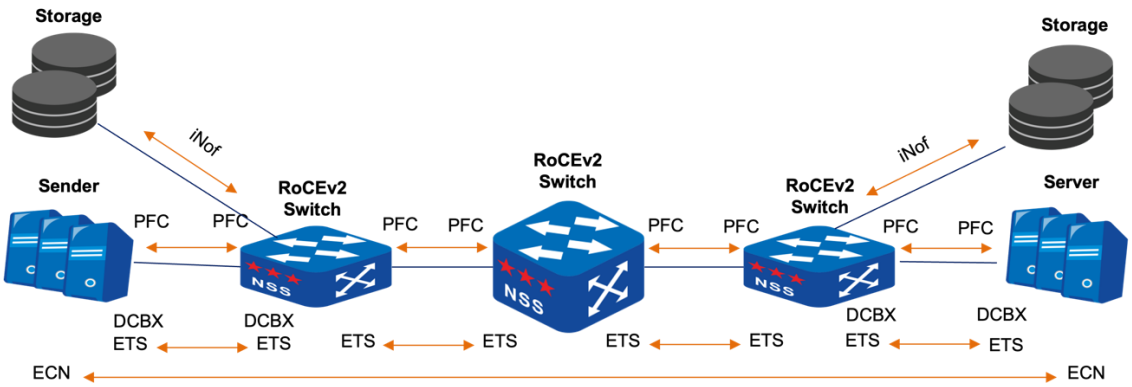
Order Information

Product model	Description
NSS5832 Series Host	
NSS5832-48XF8QS	48-Port 10G SFP+ interfaces, 8-Port 100G QSFP28 interfaces, 5 Fan Slots, 1 Multi-function Slot, Dual Power Slots
Fan Modules	
FAN-01J-01B	V1 Version: FAN-01J-01B, Modular Fan Slot, Hot-swappable, Air front in rear out
FAN-01J-01F	V1 Version: FAN-01J-01F, Modular Fan Slot, Hot-swappable, Air rear in front out
Power Modules	
AD550M-HV0B	V3 Version: AC input 100-240VAC/7A, 550W, output 12V_45A, current sharing, supporting hot-swap, Air front in rear out. (Note: Need work together with FAN-01J-01B)
AD550M-HV0F	V3 Version: AC input 100-240VAC/7A, 550W, output 12V_45A, current sharing, supporting hot-swap, Air rear in front out. (Note: Need work together with FAN-01J-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-01J-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-01J-01F)
AOC Cables	
10G SFP+AOC Cable	
SFP-STACK-AOC50	SFP+ AOC cable, SFP+ to SFP+, 10Gbps, 5 meters length
SFP-STACK-AOC100	SFP+ AOC cable, SFP+ to SFP+, 10Gbps, 10 meters length
SFP-STACK-AOC200	SFP+ AOC cable, SFP+ to SFP+, 10Gbps, 20 meters length
40G QSFP+AOC Cable	
QSFP-STACK-AOC50	QSFP AOC cable, QSFP to QSFP, 40Gbps, 5 meters length
QSFP-STACK-AOC100	QSFP AOC cable, QSFP to QSFP, 40Gbps, 10 meters length
QSFP-STACK-AOC200	QSFP AOC cable, QSFP to QSFP, 40Gbps, 20 meters length
100G QSFP28 AOC Cable	
QSFP28-STACK-AOC100	QSFP28 AOC cable, QSFP28 to QSFP28,100G, 10 meters length
QSFP28-STACK-AOC200	QSFP28 AOC cable, QSFP28 to QSFP28,100G, 20 meters length
DAC Cables	
10G SFP+DAC Cable	
SFP-STACK-15	SFP+ DAC stacking cable, SFP+ to SFP+,10Gbps, 1.5 meters length
SFP-STACK-30	SFP+ DAC stacking cable, SFP+ to SFP+,10Gbps, 3 meters length
SFP-STACK-50	SFP+ DAC stacking cable, SFP+ to SFP+,10Gbps, 5 meters length
40G QSFP+DAC Cable	
QSFP-STACK-10	QSFP DAC stacking cable, QSFP to QSFP, 40Gbps, 1.0 meters length
QSFP-STACK-30	QSFP DAC stacking cable, QSFP to QSFP, 40Gbps, 3 meters length
QSFP-STACK-50	QSFP DAC stacking cable, QSFP to QSFP, 40Gbps, 5 meters length
100G QSFP28 DAC Cable	

QSFP28-STACK-30	QSFP28 DAC stacking cable, QSFP28 to QSFP28, 100Gbps, 3 meters length

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.

NSS5832 series fully support the RoCEv2 standards, meeting the requirements for switch performance in high-performance data center scenarios. The NSS5832 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.

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