# NSS5932 Series Data Center RoCEv2 Switch Datasheet

## Product Overview

NSS5932 series switches are Maipu new generation 25GE data center RoCEv2 switches designed for enterprise data center networks, providing high-throughput, high-density interfaces, larger buffer and lower latency. The NSS5932 series adopts advanced hardware architecture with 48*25GE access ports and 8*40/100GE uplinks. By using Maipu MyPowerOS software platform, NSS5932 series provide rich data center service features and management capability.

NSS5932 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. NSS5932 series can work with NSS5950 & NSS18500 spine switches to build a complete, scalable, virtualized RoCEv2 fabric network that meets the data center requirements.

NSS5932-48FP8QS DC Switch

NSS5932-48FP8QS supports 48*10/25G SFP28 optical interfaces, 8*40/100G QSFP28 optical interfaces, five modular fan slots, one modular multi-function slot and dual modular power slots.

# Key Features

- **High-density 25GE Ports with 100GE Uplinks**

NSS5932 series provide fixed 48*25GE interfaces in compact 1U device. The port combination fully satisfies the interface density requirement of data center scenarios. NSS5932 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**

NSS5932 series fully support the RoCEv2 standards, meeting the requirements for switch performance in high-performance data center scenarios. The NSS5932 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**

NSS5932 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**

NSS5932 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. NSS5932 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**

NSS5932 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**

NSS5932 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**

NSS5932 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 | NSS5932-48FP8QS | |
|---|---|---|
| **Hardware Specification** | | |
| Physical Ports | Fixed 48*10/25G SFP28 optical interfaces, 8*40/100G QSFP28 optical interfaces | |
| Management Interface | One console port, one management Ethernet port, one USB interface | |
| Switching Capacity | 4Tbps | |
| 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°C to 50°C | |
| | Storage temperature: -40°C to 70°C | |
| Humidity | Work humidity: 10% to 90%, no-condensing | |
| | Storage humidity: 5% to 95%, no-condensing | |
| Power Consumption | 220W | |
| 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 Feature | 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 |

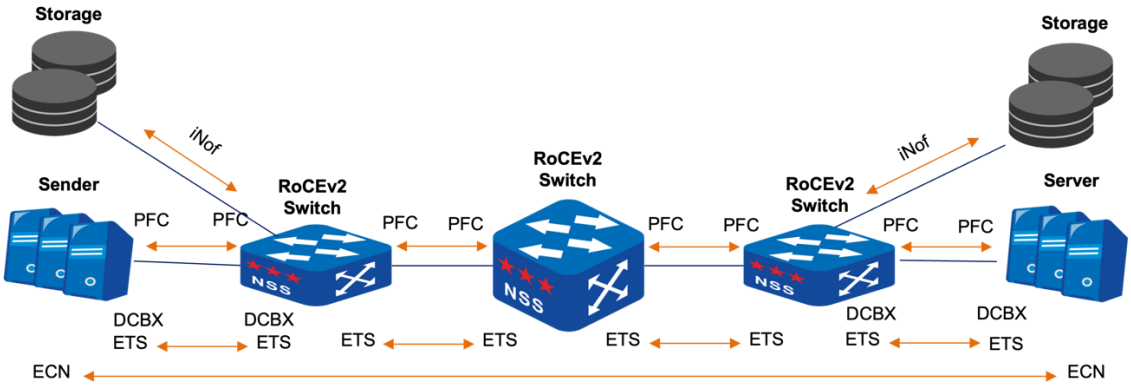
# Order Information

| Product model | Description |
|---|---|
| **NSS5932 Series Host** | |
| NSS5932-48FP8QS | 48-Port 25G SFP28 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 |
| **25G SFP28 AOC Cable** | |
| SFP28-STACK-AOC100 | SFP28 AOC cable, SFP28 to SFP28, 25Gbps, 10 meters length |
| SFP28-STACK-AOC200 | SFP28 AOC cable, SFP28 to SFP28, 25Gbps, 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 |
| **25G SFP28 DAC Cable** | |
| SFP28-STACK-15 | SFP28 DAC stacking cable, SFP28 to SFP28, 25Gbps, 1.5 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.

NSS5932 series fully support the RoCEv2 standards, meeting the requirements for switch performance in high-performance data center scenarios. The NSS5932 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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