

# NSS5930-56SQFP Series Data Center Switch

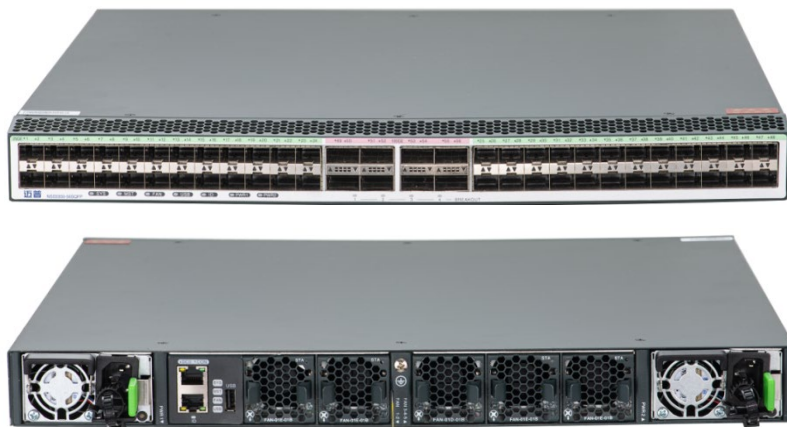
## Datasheet

### Overview

NSS5930-56SQFP is a new generation 25G Ethernet switch designed for enterprise data center and campus LAN networks, providing high-throughput, high-density 25GE interfaces, larger buffer and lower latency. The NSS5930-56SQFP adopts advanced hardware architecture with 48\*10/25GE access ports and multiple 40/100GE uplinks. By using Maipu MyPowerOS software platform, NSS5930-56SQFP provides rich data center service features and management capability.

NSS5930-56SQFP 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.

NSS5930-56SQFP can work with NSS18500 core switches to build a complete, scalable, virtualized fabric network that meets the data center requirements. Meanwhile, NSS5930 can also be deployed as aggregation or core switches for enterprise campus LAN networks.



NSS5930-56SQFP supports 48\*10/25G SFP28 optical interfaces, 8\*40/100G QSFP28 optical interfaces, five fan modular slots and dual modular power slots.

# Key Features

- **High-density 25GE ports with 100GE uplinks**

NSS5930-56SQFP provides fixed 48\*10/25GE interfaces in compact 1U device. The port combination fully satisfies the interface density requirement of data center scenarios. NSS5930-56SQFP have a maximum of eight 40/100GE QSFP28 uplinks, the uplink ports can be connected to NSS18500 core switches to build a non-blocking network architecture.

- **M-LAG for cross-device link aggregation**

NSS5930-56SQFP 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**

NSS5930-56SQFP can work with the industry's mainstream virtualization platforms and acts a hardware gateway on a 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. NSS5930-56SQFP supports BGP-EVPN, which is used as the overlay control plane and provides virtual connectivity between different layer 2/3 domains over an IP network.

- **RoCEv2 Standard Compliance**

NSS5930-56SQFP series fully support the RoCEv2 standards, meeting the requirements for switch performance in high-performance data center scenarios. NSS5930-56SQFP 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.

- **Southbound and Northbound API**

NSS5930-56SQFP supports NETCONF and RESTCONF API which can work with 3rd party SDN controller for simplified device remote configuration and management.

- **Telemetry for intelligent OAM**

NSS5930 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.

- **Reliable hardware design and energy-saving**

NSS5930-56SQFP 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. NSS5930-56SQFP has energy-saving chipsets with EEE technology and can save system power consumption in real time.

- **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	NSS5930-56SQFP
<b>Hardware specification</b>	
Physical Ports	Fixed 48*10/25G SFP28 optical interfaces, 8*40/100G QSFP28 optical interfaces, five modular fan slots, and dual modular power slots.
Management Interface	One Console port, one management Ethernet port, one USB interface
Switching Capacity	4Tbps
Forwarding Capability	1049Mpps
Flash	8G
Memory	4G(Default)
Interface Buffer Size	32MB
Jumbo Frame	12K
VLAN Entry	4K
MAC Address Entry	224K/720K
ARP Entry	56K/129K
IPv4 Routing Entry/Unicast LPM	294K/294K
IPv6 Routing Entry	98K/393K
MSTP Instance	64
VRF Entry	4K/8K
VRRP Group	255
Max. ECMP Path	128
IGMP Group	8K
Multicast Routes	32K
LACP Group	128
LACP Link Per Group	32
VxLAN VTEP Instance	8K
Redundant Design	Support power redundancy, 1+1 backup mode
Power Supply	Two Power Slots
	Input voltage (AC): 100V ~ 240V, 50Hz ~ 60Hz
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	Max 260W (25°C) Max 294W (40°C)
Dimension(W×D×H)	442mm×420mm×44.2mm
MTBF	>100, 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, ESI Multi-Homing, BGP-EVPN, NLB, OpenFlow
	RoCEv2	ECN, ETS, PFC, iNOF, DCBX
MPLS L2/L3 VPN	L3 MPLS VPN	MPLS LDP, MPLS GR, M-VRF, MPLS L3VPN, MPLS OAM, IPv6 MPLS L3VPN, MPLS TE, MPLS QoS
	L2 VPLS VPN	VPWS, Martini/Kompella 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, DNS, CLI, Telnet, SSH, HTTP/HTTPS, FTP/TFTP, Debug, NTP, Keepalive Gateway
	Network Monitoring	SPAN, RSPAN, ERSPAN, VLAN SPAN, IPFIX, sFlow, LLDP, DDMI, LLDP-MED, IP-SLA, CWMP, Telemetry, Netconf, Restconf, BSM, MOD, Capture Packet

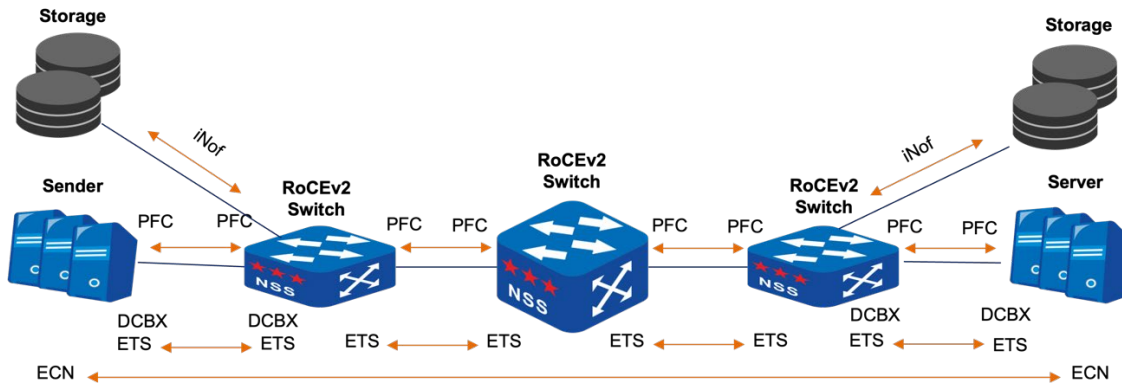
# Order Information

Product Model	Description
<b>NSS5930 Series Host</b>	
NSS5930-56SQFP	48*10/25G SFP28 optical interfaces, 8*40/100G QSFP28 optical interfaces, five modular fan slots, dual modular power slots.
<b>Power &amp; Fan Modules</b>	
AD550M-HV0B	V1 Version: AC input 100-240VAC/7A, 550W, output 12V_45A, current sharing, supporting hot-swap, Air rear out.
AD550M-HV0F	V2 Version: AC input 100-240VAC/7A, 550W, output 12V_45A, current sharing, supporting hot-swap, Air rear in.
DD800M-5V0B	V1 Version: DC input -40-72VDC/25A, 800W, output 12V/64A, current sharing, supporting hot-swap, Air rear out.
FAN-01E-01B	FAN-01E-01B, Modular Fan Slot, Hot-swappable, Air front in rear out
FAN-01E-01F	FAN-01E-01F, Modular Fan Slot, Hot-swappable, Air rear in front out
<b>AOC Cables</b>	
<b>10G SFP+AOC Cable</b>	
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
<b>25G SFP28 AOC Cable</b>	
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
<b>40G QSFP+AOC Cable</b>	
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
<b>100G QSFP28 AOC Cable</b>	
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
<b>DAC Cables</b>	
<b>10G SFP+DAC Cable</b>	
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
<b>25G SFP28 DAC Cable</b>	
SFP28-STACK-15	SFP28 DAC stacking cable, SFP28 to SFP28, 25Gbps, 1.5 meters length
SFP28-STACK-30	SFP28 DAC stacking cable, SFP28 to SFP28, 25Gbps, 3 meters length
<b>40G QSFP+DAC Cable</b>	
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
<b>100G QSFP28 DAC Cable</b>	
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.

NSS5930-56SQFP fully supports the RoCEv2 standards, meeting the requirements for switch performance in high-performance data center scenarios. NSS5930-56SQFP 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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