Maipu NSS18500 Series Data Center Core Switch Datasheet

Product Overview

NSS18500 series switches are Maipu new generation 100G Ethernet switches designed for enterprise data center and large campus networks, providing high-throughput, high-density 10GE/40G/100G interfaces, larger buffer and lower latency. The NSS18500 series adopts advanced hardware architecture with 48*10GE access ports and multiple 100GE uplinks. By using Maipu MyPowerOS software platform, NSS18500 series provide rich data center service features and management capability.

NSS18500 series switches adopts an advanced hardware architecture design. It provides up to 288 *100GE, 272*40GE, 384*10GE, 384*1GE line-rate ports and use an industry-leading Crossbar architecture and provide industrial- grade reliability. The switches support comprehensive data center service features. Their front-to-back airflow design suits data center equipment rooms, and the innovative energy conservation technologies greatly reduce power consumption.

NSS18500 series switches can build a complete, scalable, virtualized fabric network that meets the data center requirements. Meanwhile, NSS18500 can also be deployed as core switches for large enterprise campus networks.

NSS18500 series includes NSS18500-04, NSS18500-08 two models:
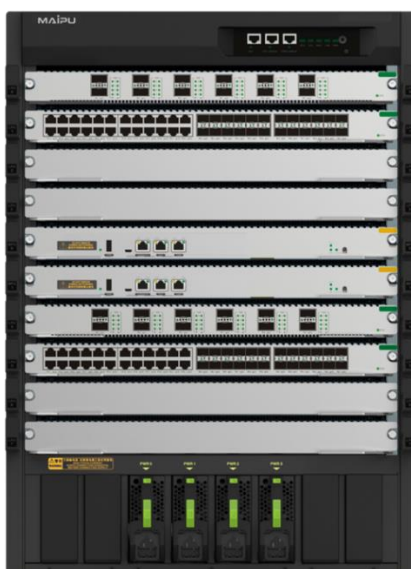
NSS18500-04 supports dual control engines, 6 switching fabrics and 4 service slots.

NSS18500-08 supports dual control engines, 6 switching fabrics and 8 service slots.

Key Features

- ## High-Density Interfaces Line Cards

NSS18500 series provide maximum 288*100GE, 272*40GE, 384*10GE, 384*1GE interfaces and use an industry-leading crossbar architecture. The port combination fully satisfies the interface density requirement of data center and campus network scenarios.

- ## Highly Reliable Enterprise-class Hardware Design

NSS18500 has enterprise-class reliability and stability to ensure long-term service continuity. Redundant MPUs work in 1+1 hot backup mode. Redundant SFUs work in N+M hot backup mode. Redundant power supplies support work in N+M hot backup and also redundant fan trays design. The fan trays work in 1+1 backup mode to ensuring efficient heat dissipation.

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

NSS18500 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 for Layer2 Virtualized Deployment

NSS18500 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.

NSS18500 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 or MPLS network.

- ## Zero Touch Implementing

NSS18500 series support Zero Touch Provisioning (ZTP). It enables the switch to automatically obtain and load version files from file server through DHCP option and XML mechanism.

NSS18500 series also support NETCONF and can work with 3rd party SDN controller for simplified device remote configuration.

- ## Telemetry for intelligent OAM

NSS18500 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

NSS18500 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. NSS18500 series have 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	NSS18500-04	NSS18500-08
Hardware specification		
Service Card	4	8
Control Engine	2	2
Switching Engine	4+2	4+2
Switching capacity	25.6Tbps	51.2Tbps
Crossbar Architecture	Yes	Yes
Air Flow	Front-to-Back	Front-to-Back
Power Slot	4	8
FAN slot	2	2
Dimension(W×D×H)	442mm×747mm×262.5mm	442mm×645mm×666mm
Power Input	Input voltage (AC): 100V ~ 240V, 50Hz ~ 60Hz	
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	
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, VXLAN distribute-gateway
	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, MSTP, Loopback-detection, Error-disable, GVRP, MLAG, VLAN isolation
Standard L3 protocol	IP	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, IRMP, BGP, BGPv6, Policy Route
Multicast	L2 multicast	IGMPv1/v2/v3 Snooping, multicast VLAN
	L3 multicast	IGMPv1/v2/v3, PIM-SM, IPv6 PIM-SM, IPv6 PIM-SSM, PIM-DM, MSDP, MLD-snooping
QoS & ACL	QoS	802.1p, DSCP, and other priority mapping, SP, WRED, WDRR, 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

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Data center feature	Data center feature	TRILL, M-LAG, VXLAN, EVPN VXLAN, BGP EVPN VXLAN, NLB, OpenFlow
L3 MPLS	BGP MPLS	MPLS LDP, MPLS GR, M-VRF, MPLS L3 VPN
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, Host Guard, AAA, 802.1x, Portal Authentication, Anti-attack detect | drop | flood | log, URPF, PPPoE+
	Network Reliability	HA, ULFD, ERPS, ULPP, Monitor Link, VRRP, VRRPv3, VBRP, BFD, EEP
Management	Network Management	SNMP v1/v2/v3, MIB, RMON, SYSLOG, DNS, CLI, Telnet, FTP/TFTP, Debug, NTP, Keepalive Gateway
	Network Monitoring	SPAN, RSPAN, ERSPAN, VLAN SPAN, IPFIX, LLDP, IP-SLA, CWMP, Netconf, Telemetry, BSM

Order Information

Model	Description
NSS18500 Series	
NSS18500-04 Host	
NSS18500-04	NSS18500-04 chassis, two control engine slots, six switching engine slots, four service slots, two fan slots, four power slots.
NSM185-MPUA	NSM185-MPUA Control Engine, for NSS18500-04, supporting active/standby backup function
NSM185-SFUA-EX	NSM185-SFUA-EX Advanced Switching Engine, for NSS18500-04
NSM185-SFUA	NSM185-SFUA Standard Switching Engine, for NSS18500-04
FAN-06A-01B	FAN-06A-01B Fan module for NSS18500-04
AD800M-HV1B	AD800-HV1B, 800W AC power module
DD1600M-5V0B	DD1600M-5V1F, 1600W DC power module
NSS18500-04 Line Cards	
NSM185-36QFP-DA	36-port 100GE QSFP28 interface line card (Note: Configure 4* NSM185-SFUA+2* NSM185-SFUA-EX Switching Engines)
NSM185-24QFP-DA	24-port 100GE QSFP28 interface line card (Note: Configure 4* NSM185-SFUA Switching Engines)
NSM185-12QFP-DA	12-port 100GE QSFP28 interface line card (Note: Configure 4* NSM185-SFUA Switching Engines)
NSM185-34QXGE-DA	34-port 40GE QSFP+ interface line card (Note: Configure 4* NSM185-SFUA Switching Engines)
NSM185-16QXGE-DA	16-port 40GE QSFP+ interface line card (Note: Configure 4* NSM185-SFUA Switching Engines)

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| NSM185-48XGEF2QXGE-DA	48-port 10GE SFP+ interface, 2-port 40GE QSFP+ interface line card (Note: Configure 4* NSM185-SFUA Switching Engines)
NSM185-48GET4XGEF-DA	48-port 1G Base-T electrical interface, 4-port 10GE SPF+ interface line card (Note: Configure 4* NSM185-SFUA Switching Engines)
NSS18500-08 Host	
NSS18500-08	NSS18500-08 chassis, two control engine slots, six switching engine slots, eight service slots, two fan slots, eight power slots.
NSM185-MPUB	NSM185-MPUB Control Engine, for NSS18500-08, supporting active/standby backup function
NSM185-SFUC-EX	NSM185-SFUC-EX Advanced Switching Engine, for NSS18500-08
NSM185-SFUC	NSM185-SFUC Enhanced Switching Engine, for NSS18500-08
NSM185-SFUB	NSM185-SFUB Standard Switching Engine, for NSS18500-08
FAN-15B-01B	FAN-15B-01B Fan module for NSS18500-08
AD800-1D005M	AD800-1D005M, 800W AC power module
DD1600M-5V1F	DD1600M-5V1F, 1600W DC power module
NSS18500-08 Line Cards	
NSM185-36QFP-DA	36-port 100GE QSFP28 interface line card (Note: Configure 4* NSM185-SFUC+2* NSM185-SFUC-EX Switching Engines)
NSM185-24QFP-DA	24-port 100GE QSFP28 interface line card (Note: Configure 4* NSM185-SFUC Switching Engines)
NSM185-34QXGE-DA	34-port 40GE QSFP+ interface line card (Note: Configure 4* NSM185-SFUC Switching Engines)
NSM185-12QFP-DA	12-port 100GE QSFP28 interface line card (Note: Configure 4* NSM185-SFUB Switching Engines)
NSM185-16QXGE-DA	16-port 40GE QSFP+ interface line card (Note: Configure 4* NSM185-SFUB Switching Engines)
NSM185-48XGEF2QXGE-DA	48-port 10GE SFP+ interface, 2-port 40GE QSFP+ interface line card (Note: Configure 4* NSM185-SFUB Switching Engines)
NSM185-48GET4XGEF-DA	48-port 1G Base-T electrical interface, 4-port 10GE SPF+ interface line card (Note: Configure 4* NSM185-SFUB Switching Engines)

Typical Application

Enterprise Data Center VXLAN Application
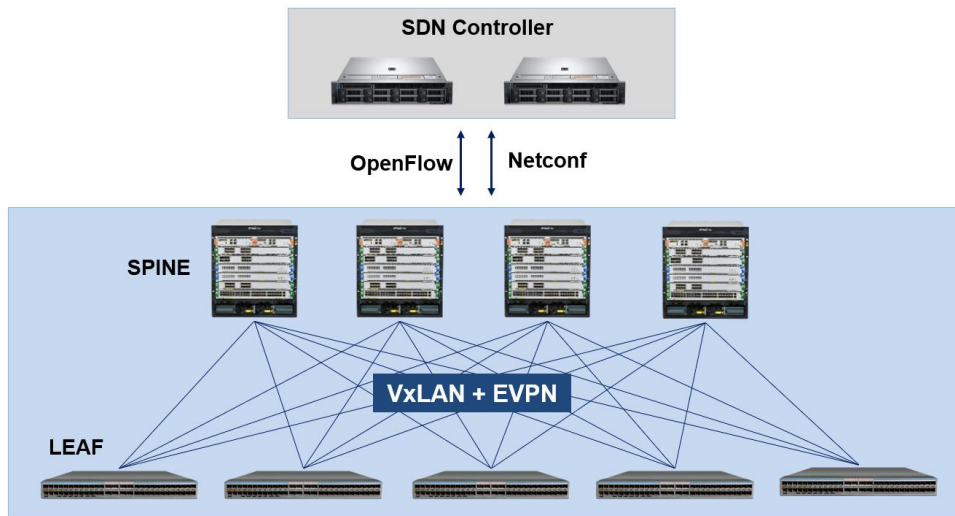
Fabric architecture has become a common and popular design option for building new-generation enterprise data center networks. Virtual Extensible LAN (VXLAN) and Ethernet VPN (EVPN) is essentially becoming the standard technology used for deploying network virtualization overlays in data center fabrics.

ISP Metro Ethernet Network Application
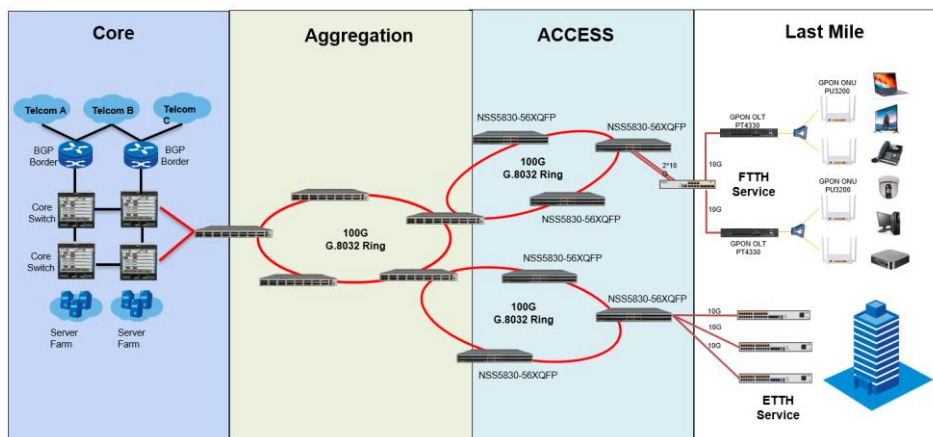
With the rapid growth of triple-play services, higher requirements are put forward for the performance, bandwidth and quality of the ISP Metro Ethernet networks. The NSS18500 series 100G core switch have been developed to meet the increasing demand of FTTx services for ISPs. The NSS18500 series provide up to 288-Port 100G interfaces for building backbone network. It will greatly increase the bandwidth and improve the internet experience of end users.