NSS5812 Series 10G mGig L3 Aggregation Switch Datasheet

Product Overview

NSS5812 series switch is MGig high-performance stackable L3 switch developed by Maipu. It is applied in enterprise campus network and easy to deploy Layer3 switching solution that offers enhanced security. It has 100M/1G/2.5G/5G/10G BASE-T ports and offers one flexible network modular slot for 10/40G uplink expansion. It has RIP/OSPF/BGP/IS-IS, L2&L3 Multicast, VST/M-LAG stacking enabled and flexible management methods.

NSS5812 series switch can be used as access devices on large-sized campus networks. They can also be used as aggregation devices in small and medium-sized campus networks. The switch help build highly reliable enterprise campus networks that are easy to expand and manage.

NSS5812 series switch includes NSS5812-28MXT, NSS5812-30MXT, NSS5812-30MXTP.

Model Name	Specification
 NSS5812-28MXT(S1)	● 24*100M/1G/2.5G/5G/10G mGig Ports ● 4*10G SFP+ Ports ● Fixed Single AC Power ● RJ45 Console/RJ45 Management/USB2.0 Port ● Switching Capacity: 560Gbps
 NSS5812-30MXT(V1)	● 24*100M/1G/2.5G/5G/10G mGig Ports ● One Extension Slot (10G/40G Card) ● Dual Power Slots ● Dual FAN Slots ● RJ45 Console/RJ45 Management/USB2.0 Port ● Switching Capacity: 640Gbps
 NSS5812-30MXTP(V1)	● 24*100M/1G/2.5G/5G/10G mGig Ports ● One Extension Slot (10G/40G Card) ● Max. 24*60W PoE++; Max. 90W/Port ● Dual Power Slot ● Dual FAN Slots ● RJ45 Console/RJ45 Management/USB2.0 Port ● Switching Capacity: 640Gbps

Key Features

- **Comprehensive Versatile Port**

The NSS5812 series switch features versatile ports that can automatically negotiate speeds, supporting 100M, 1G, 2.5G, 5G, and 10G NBASE-T. This adaptability ensures seamless connectivity with a wide range of devices, dynamically adjusting to the specific requirements of each connection.

- **Intelligent Stacking Technology**

The NSS5812 series switch is equipped with Maipu VST stacking function. VST (Virtual Switching Technology) stacking combines multiple switches to form a logical virtual switch via the 10G SFP+ ports, improving device and link reliability, network expansion, and simplifying configuration and management.

The NSS5812 series switch also support M-LAG, aggregating links of multiple switches to ensure link backup and uninterrupted services during upgrade.

- **Software Defined Network**

The NSS5812 series switch is capable of being managed by Maipu's BD-Campus controller, an integrated SDN platform designed for campus networks. The utilization of software-defined network technologies in this platform simplifies the deployment, management, and security of campus networks, while also enabling network teams to complete the majority of their work directly on the BD-Campus controller platform. When compared with traditional methods, implementing a BD-Campus solution can significantly reduce network deployment times, simplify network maintenance, improve troubleshooting efficiency, and ultimately lead to overall cost savings for customers.

- **Advanced MPLS Capabilities**

The NSS5812 series switch delivers advanced MPLS capabilities, enhancing your network infrastructure with powerful features. These include seamless MPLS VPN deployment for secure and efficient data transmission, MPLS Traffic Engineering for optimized traffic routing, and MPLS Quality of Service (QoS) support for prioritizing critical applications.

- **Zero Touch Provisioning**

The NSS5812 series switch features advanced Zero Touch Provisioning (ZTP) capabilities, streamlining the deployment process for network administrators. With ZTP, the switch can automatically discover and load necessary version files from a file server via a DHCP server or a USB flash disk, eliminating the need for manual intervention during initial setup. This automation reduces configuration errors, accelerates the deployment process, and enhances overall network efficiency, making the NSS5812 series switch an ideal choice for scalable and dynamic network environments.

- **Advanced Network Virtualization**

The NSS5812 series switch excels in virtualization and congestion management, catering to contemporary network demands. Offering L2 VxLAN Gateway support, it enables flexible deployment with Centralized VxLAN Gateways. Additionally, the switch accommodates IPv4/IPv6 VxLAN Tunnels for seamless overlay networking.

- **High Availability**

The NSS5812 series switch offers advanced redundancy and reliability features, catering to diverse networking requirements. In addition to supporting traditional spanning tree protocols such as STP, RSTP, and MSTP, the switch also complies with the ITU-T G.8032 international standard. This Ethernet Ring Protection Switching (ERPS) protocol enables rapid 50ms failover within Ethernet ring network topologies, ensuring seamless connectivity and minimal downtime.

Furthermore, the NSS5812 series switch incorporates the Virtual Router Redundancy Protocol (VRRP), facilitating uplink backup capabilities. By connecting to multiple aggregation switches via multiple links, the switch significantly enhances access device reliability, promoting network stability and resilience.

- **Perfect Security Policy**

The NSS5812 series switch offers a comprehensive suite of security features, including user authentication, port security, ACLs, loopback detection, and 802.1X authentication. It also incorporates IP Source Guard, DHCP/ND Snooping, Host Guard, Dynamic ARP Inspection, and PPPoE+ security mechanisms. These robust security functions ensure user access and network protection.

Additionally, the switch supports MAC+IP+VLAN binding, 802.1X authentication, and countermeasures against network storm, DOS/DDOS, ARP, and protocol packet attacks. This makes the NSS5812 series ideal for large-scale, multi-service, and complex-traffic networks.

- **Advanced QoS**

The NSS5812 series switch offers sophisticated QoS capabilities for optimal network performance. Supporting eight queues per port and advanced scheduling algorithms such as SP, RR, WRR, and WDRR, the switch effectively manages traffic prioritization and resource allocation.

The switch accommodates diverse priority mapping techniques, including 802.1p, CoS, and DSCP, enabling fine-grained control over traffic classification and prioritization. With granular port traffic rate limiting and time-based controls, network administrators can regulate bandwidth usage as needed.

To optimize network performance and minimize congestion, the NSS5812 series switch employs advanced congestion management techniques, such as Tail Drop and RED packet loss algorithms. These mechanisms help maintain seamless network operation while ensuring efficient delivery of critical data.

- **IPv4&IPv6 Dual-stack Ability**

The NSS5812 series switch is built on an IPv4/IPv6 dual-stack platform, delivering hardware-based, wire-speed forwarding for both IPv4 and IPv6 traffic. The switch supports IPv4/IPv6 Layer 3 routing protocols, including RIPng, OSPFv3, BGP4+, and IS-IS for IPv6. These IPv6 capabilities enable seamless deployment on pure IPv4, pure IPv6, or dual-stack networks, facilitating a smooth transition from IPv4 to IPv6 infrastructure.

- **Rich Network Management**

The NSS5812 series switch offers a comprehensive set of management options. These options encompass network management protocols like SNMP and TR-069, configuration and control options like Netconf/Yang and CLI, monitoring and diagnostic tools such as RMON and SYSLOG. These versatile features enable network administrators to effectively manage, monitor, and maintain optimal network performance locally

- **Free Licensing Policy**

Maipu consistently adheres to a "One-time investment" free license policy, ensuring that standard and advanced features are not differentiated across versions. This approach guarantees that customers receive new firmware updates without incurring additional charges. In comparison to other manufacturers, Maipu's free license policy safeguards both short-term and long-term user investments, providing an unparalleled value proposition.

Technical Specifications

Product Model	NSS5812-28MXT	NSS5812-30MXT	NSS5812-30MXTP
Hardware Specification			
Hardware Version	S1	V1	V1
Physical Traffic Ports	24*100M/1G/2.5G/5G/10G mGig interfaces 4*10G SFP+ interfaces	24*100M/1G/2.5G/5G/10G mGig interfaces	24*100M/1G/2.5G/5G/10G mGig PoE/PoE+/PoE++ interfaces
Extension Slot	N/A	One	One
Power Slot	N/A	Dual	Dual
Fan Slot	N/A	Dual	Dual
Power Consumption (Without PoE)	⩽119W	⩽117W	⩽121W
Max PoE Power Consumption	N/A	N/A	760W/1440W
PoE Standard	N/A	N/A	IEEE 802.3 af/at/bt
Dimension(W*D*H) mm	440*220*44.2	442*450*44.2	442*450*44.2
Physical Management Port	1* RJ45 Console Port 1* DC0 Port 1* USB2.0 Port		
Input Voltage	AC:100V ~ 240V/50Hz ~ 60Hz		
Temperature	Work Temperature: -5°C to 50°C Storage Temperature: -40°C to 70°C		
Humidity	Work Humidity:10% ~ 90%, non-condensing Storage Humidity:5% ~ 95%, non-condensing		
Anti-Lightning	6KV		
Anti-Static	6KV		
MTBF	>100000 hours		
Performance Parameters			
Switching Capacity	560Gbps	640Gbps	640Gbps
Forwarding Performance	416.6Mpps	476.2Mpps	476.2Mpps
Flash	8GB	8GB	8GB
RAM	2GB	2GB	2GB
Max MAC Address Entry	393K	393K	393K
Jumbo Frame	12K	12K	12K
ARP Entry	62K	62K	62K
Max ND Entry	19K	19K	19K
VLAN Entry	4K	4K	4K
LACP Group	64	64	64
LACP Member in Group	32	32	32
MSTP Instance	64	64	64
Max IPv4 Routing Entry	114K	114K	114K

Max IPv6 Routing Entry	40K	40K	40K
L2 Multicast Entry	8K	8K	8K
L3 Multicast Entry	8K	8K	8K
VRF Entry	1K	1K	1K
VRRP Group	255	255	255

Software Specification

Interface	Basic Port Configuration	Auto MDI/MDIX, Port Type UNI/NNI, Port Speed, Port MTU, Switch Port, Port Loopback, Port Energy Control
	Logic Interface	Loopback Interface, Tunnel Interface, Null Interface, L2/L3 VLAN Interface, L3 Ethernet Interface, VxLAN Interface
	MAC Address Management	Storm Control, Flood Control, MAC Address Aging Time, Mac Address Learning on|off, Mac Address Learning Limitation, Mac Address VLAN Binding, MAC Debug
VLAN	VLAN Management	VLAN, QinQ, Flexible QinQ, VLAN PVID, VLAN Tag/Untag, VLAN Trunk, MAC VLAN, Protocol VLAN, Subnet VLAN, Super VLAN, Voice VLAN, Private VLAN, Guest VLAN, VLAN Debug, GVRP, VLAN Isolation
Ring Protection	Spanning Tree Protocols	STP/RSTP/MSTP, BPDU Guard, Flap Guard, Loop Guard, Root Guard, TC Guard
	Other Ring Protocols	VIST/VIST+, G.8032(ERPSv1&v2)
Link Aggregation	LACP Configuration	LACP Link Aggregation, LACP Port Priority, LACP Load Balance, LACP Rate Monitor, LACP Debug
Error Handling	Error-disable Configuration	Error-disable Based on bpduguard|Dai|DHCP Snooping|Link-Flap|Loopback-detect|Port Security|Storm Control|Transceiver Power, Error-disable Recovery
Fault Detection	Fault Detection Features	ULFD, Track, Loop-back Detection, CFM (802.1ag)
IP Services	IP Protocol	ARP, DNS, NTP Server/Client, ICMP, ECMP, GRE, IPIP, IPv6 over IPv4, ISATAP, IPv4 over IPv6, IPv6 over IPv6
	Routing Protocol	Static Routing v4/v6, RIP/RIPng, IRMP, OSPF v2/v3, BGP/BGP+, ISIS/ISIS v6, VRRP/VRRP v3, VBRP, PBR/PBR v6, IP-VRF
	DHCP Service	DHCP v4/v6 Server, DHCP v4/v6 Client, DHCP v4/v6 Relay, DHCP Snooping, DHCP Option51/82
Multicast Protocols	L2 Multicast Protocols	IGMPv1/v2/v3 Snooping, IGMP Snooping Proxy, MLD Snooping, MVR, MVP
	L3 Multicast Protocols	IGMPv1/v2/v3, PIM v4/v6-SM, PIM v4/v6-SSM, PIM-DM, PIM-SDM,
QoS	Priority Mapping	802.1P Priority, DSCP priority
	Traffic Classification	Three Color Marker, Priority Remark, Traffic Redirect, Traffic Meter, Traffic Mirror
	Traffic Control	Rate Limit, Traffic Shaping
	Scheduling Algorithm	SP, RR, WRR, WDRR, SP+WRR, SP+WDRR
	Congestion Management	Tail-drop, RED, WRED
MPLS	MPLS L3 VPN	LDP, MPLS BGP, MPLS Option-A & Option-B, Multi-VRF
	MPLS OAM	MPLS Ping/Traceroute, MPLS QoS, MPLS TE
Security	Port Security	Port Security On aging|deny|permit|violation|ACL

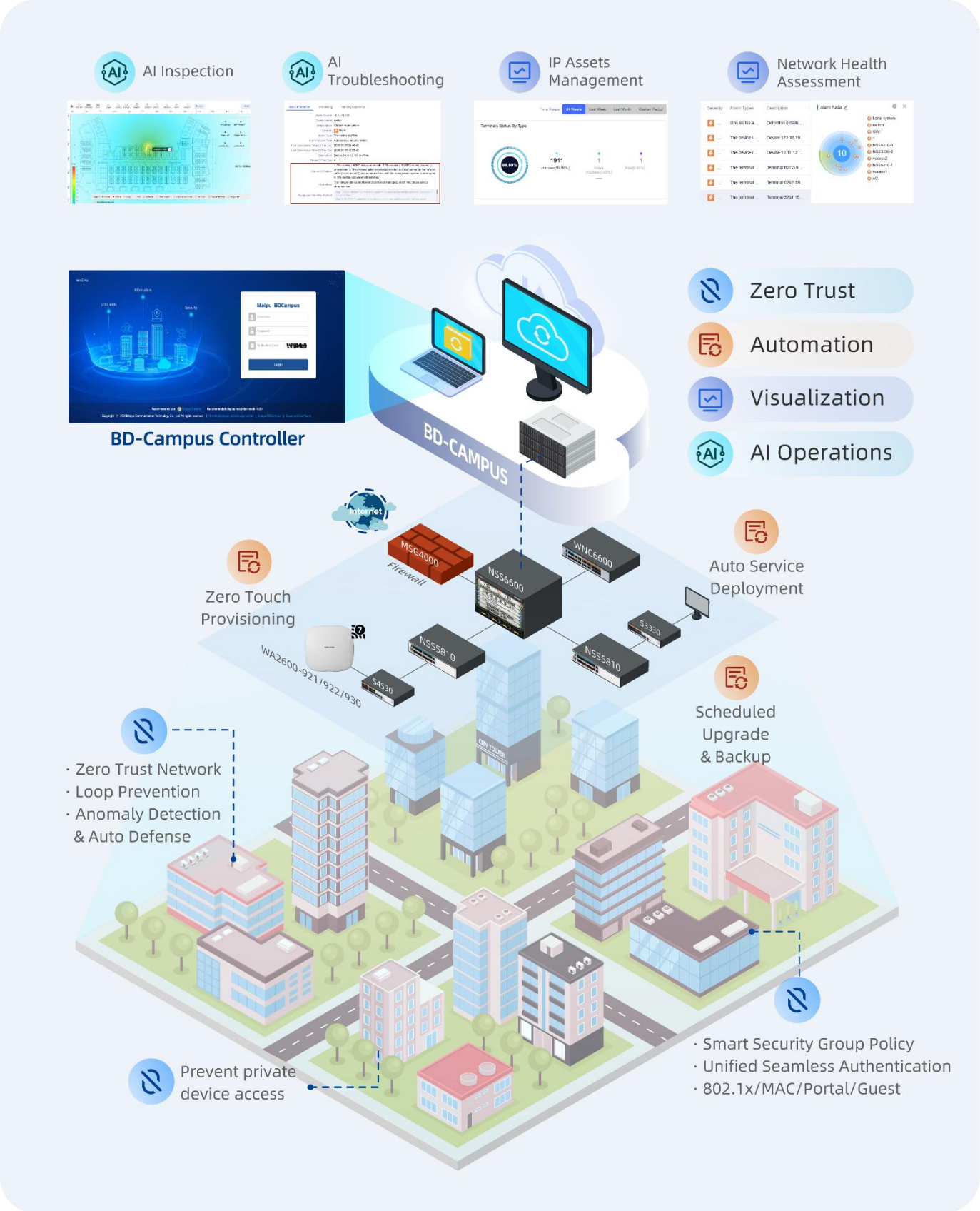
	Network Access Control	IP Source Guard (ISG), DHCP Snooping, ND Snooping, Host Guard
	Threat Prevention	Dynamic ARP Inspection (DAI), ARP Check, AARF ARP-Guard, ARP Speed Limit, ARP Source Suppression, PPPoE+
	Access Control List	Standard IP ACL, Extended IP ACL, Standard MAC ACL, Extended MAC ACL, Standard Hybrid ACL, Extended Hybrid ACL, Standard IPv6 ACL, Extended IPv6 ACL, Time-based ACL
	Anti-Attack	Anti-Attack Detect|Drop|Flood|Log, URPF, White List, Black List
	AAA	AAA, Radius, TACACS+, 802.1x, Portal
High Availability	Device Virtualization	H-VST, M-VST, M-LAG
	Multi-Active Detection	MAD LACP, MAD BFD, MAD Fast-Hello
	High availability Protocols	HA, ULFD, UDLD, G.8032, ULPP, Monitor Link, Track, VRRP, VRRPv3, VBRP, EEP, BFD with Static|RIP|OSPF|BGP|ISIS
Configuration and Maintenance	Monitoring and Diagnostics	SPAN, RSPAN, ERSPAN, VLAN SPAN, sFlow, Telemetry, LLDP, IP-SLA
	Device Management	TR069, SNMP v1/v2/v3, MIB, RMON, SYSLOG, WEB(HTTP/HTTPS), CLI, Telnet, FTP/TFTP, Debug, Telemetry, ISSU, Hot Patch, Keepalive Gateway
	Zero Touch Provisioning	ZTP Provisioning Through DHCP Server, ZTP Provisioning Through USB Flash Disk
Network Virtualization	VxLAN/EVPN	IPv4/IPv6 VxLAN Tunnel, Distributed VxLAN Gateway, VxLAN Static Centralized Gateway, VxLAN QoS, BGP-EVPN
	Data Center Interconnect (DCI)	END-TO-END VxLAN, VLAN Hand-Off, Cross As Segment VxLAN
	Software Defined Networking (SDN)	OpenFlow, Netconf/Yang
IEEE Standard	IEEE 802.3 (10 BASE-T) IEEE 802.3u (100 BASE-T) IEEE 802.3z (1000 BASE-X) IEEE 802.3ab (1000 BASE-T) IEEE 802.3bz (2.5G BASE-T and 5G BASE-T) IEEE 802.3an (10G BASE-T) IEEE 802.3ae (10G BASE-X) IEEE 802.3ba (40G BASE-X) IEEE 802.3ah (Ethernet in the First Mile Operations, Administration, and Maintenance) IEEE 802.1x (Port-Based Network Access Control) IEEE 802.3ad (Link Aggregation) IEEE 802.3x (Flow Control) IEEE 802.1d (Spanning Tree Protocol) IEEE 802.1ab (Link Layer Discovery Protocol) IEEE 802.1Q (Virtual LAN) IEEE 802.1w (Rapid Spanning Tree Protocol) IEEE 802.1s (Multiple Spanning Tree Protocol) IEEE 802.1p (Class of Service Priority) IEEE 802.1ag (Connectivity Fault Management)	

Order Information

Product model	Description
NSS5812 mGig Series	
NSS5812-28MXT	S1 Version:24*100M/1G/2.5G/5G/10G mGig interfaces, 4*10G SFP+ interfaces, One Fixed AC Power
NSS5812-30MXT	V1 Version: 24*100M/1G/2.5G/5G/10G mGig interfaces, One Extension Slot, Dual FAN Slots, Dual Power Slots
AD120M-HS0N	120W AC Power Supply Module
FAN-01H-01B	FAN-01H-01B FAN Module
NSS5812-30MXTP	V1 Version: 24*100M/1G/2.5G/5G/10G mGig interfaces, PoE/PoE+/PoE++ Enable, One Extension Slot, Dual FAN Slots, Dual Power Slots
AD880-1D005E	880W AC Power Supply Module
FAN-01H-01B	FAN-01H-01B FAN Module
Extension Module (For NSS5812-30MXT & NSS5812-30MXTP)	
NM4A-2QXGEF	2-Port 40G QSFP+ interfaces Extension Module
NM4A-4XGEF	4-Port 10G SFP+ interfaces Extension Module
NM4A-6XGEF	6-Port 10G SFP+ interfaces Extension Module

Typical Application

- **SDN Campus Network**



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