

# 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 helps build highly reliable enterprise campus networks that are easy to expand and manage.

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

| Model Name                                                                                                            | Specification                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>NSS5812-28MXT(S1)</b></p>   | <ul style="list-style-type: none"> <li>• 24*100M/1G/2.5G/5G/10G mGig Ports</li> <li>• 4*10G SFP+ Ports</li> <li>• Fixed Single AC Power</li> <li>• RJ45 Console/RJ45 Management/USB2.0 Port</li> <li>• Switching Capacity: 560Gbps</li> </ul>                                                                                  |
|  <p><b>NSS5812-30MXT(V1)</b></p>   | <ul style="list-style-type: none"> <li>• 24*100M/1G/2.5G/5G/10G mGig Ports</li> <li>• One Extension Slot (10G/40G Card)</li> <li>• Dual Power Slots</li> <li>• Dual FAN Slots</li> <li>• RJ45 Console/RJ45 Management/USB2.0 Port</li> <li>• Switching Capacity: 640Gbps</li> </ul>                                            |
|  <p><b>NSS5812-30MXTTP(V1)</b></p> | <ul style="list-style-type: none"> <li>• 24*100M/1G/2.5G/5G/10G mGig Ports</li> <li>• One Extension Slot (10G/40G Card)</li> <li>• Max. 24*60W PoE++; Max. 90W/Port</li> <li>• Dual Power Slot</li> <li>• Dual FAN Slots</li> <li>• RJ45 Console/RJ45 Management/USB2.0 Port</li> <li>• Switching Capacity: 640Gbps</li> </ul> |

# 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

[NSS5812 Series L3 mGig 10G Switch Datasheet](#)

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<br>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<br>1* DC0 Port<br>1* USB2.0 Port                                |                                        |                                                       |
| Input Voltage                   | AC:100V ~ 240V/50Hz ~ 60Hz                                                           |                                        |                                                       |
| Temperature                     | Work Temperature: -5°C to 50°C<br>Storage Temperature: -40°C to 70°C                 |                                        |                                                       |
| Humidity                        | Work Humidity:10% ~ 90%, non-condensing<br>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                                                                                  |                                        |                                                       |
| RAM                             | 2GB                                                                                  |                                        |                                                       |
| Max MAC Address Entry           | 384K                                                                                 |                                        |                                                       |
| Jumbo Frame                     | 12K                                                                                  |                                        |                                                       |
| ARP Entry                       | 62K                                                                                  |                                        |                                                       |
| Max ND Entry                    | 19K                                                                                  |                                        |                                                       |
| VLAN Entry                      | 4K                                                                                   |                                        |                                                       |
| LACP Group                      | 64                                                                                   |                                        |                                                       |
| LACP Member in Group            | 32                                                                                   |                                        |                                                       |
| MSTP Instance                   | 64                                                                                   |                                        |                                                       |

|                               |                             |                                                                                                                                                                                            |
|-------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max IPv4 Routing Entry        |                             | 632K                                                                                                                                                                                       |
| Max IPv6 Routing Entry        |                             | 383K                                                                                                                                                                                       |
| L2 Multicast Entry            |                             | 8K                                                                                                                                                                                         |
| L3 Multicast Entry            |                             | 8K                                                                                                                                                                                         |
| VRF Entry                     |                             | 1K                                                                                                                                                                                         |
| VRRP Group                    |                             | 255                                                                                                                                                                                        |
| <b>Software Specification</b> |                             |                                                                                                                                                                                            |
| 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)<br>IEEE 802.3u (100 BASE-T)<br>IEEE 802.3z (1000 BASE-X)<br>IEEE 802.3ab (1000 BASE-T)<br>IEEE 802.3ae (10G BASE-X)<br>IEEE 802.3ba (40G BASE-X)<br>IEEE 802.3ah (Ethernet in the First Mile Operations, Administration, and Maintenance)<br>IEEE 802.1x (Port-Based Network Access Control)<br>IEEE 802.3ad (Link Aggregation)<br>IEEE 802.3x (Flow Control)<br>IEEE 802.1d (Spanning Tree Protocol)<br>IEEE 802.1ab (Link Layer Discovery Protocol)<br>IEEE 802.1Q (Virtual LAN)<br>IEEE 802.1w (Rapid Spanning Tree Protocol)<br>IEEE 802.1s (Multiple Spanning Tree Protocol)<br>IEEE 802.1p (Class of Service Priority)<br>IEEE 802.1ag (Connectivity Fault Management) |                                                                                                                                                                      |

## Order Information

| Product model                                                    | Description                                                                                                                     |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>NSS5812 mGig Series</b>                                       |                                                                                                                                 |
| 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-01F-01B                                                      | FAN-01F-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-01F-01B                                                      | FAN-01F-01B FAN Module                                                                                                          |
| <b>Extension Module (For NSS5812-30MXT &amp; NSS5812-30MXTP)</b> |                                                                                                                                 |
| 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                                                                                     |

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