NSS11500 Series SDN Core Switch Datasheet

Overview

NSS11500-04/08/12 series switch is a high-performance stackable L3 core routing switch developed by Maipu. It is applied in enterprise campus network and easy to deploy Layer3 switching solution that offers enhanced security and 1GE/10GE/40GE/100GE interfaces, RIP/OSPF/BGP/IS-IS, L2&L3 Multicast, VST stacking enabled and flexible management.

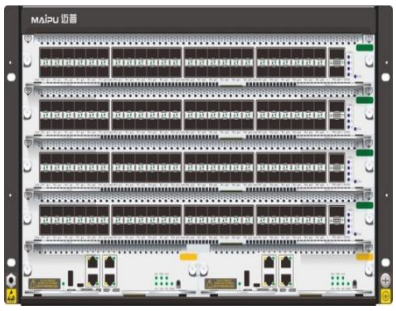
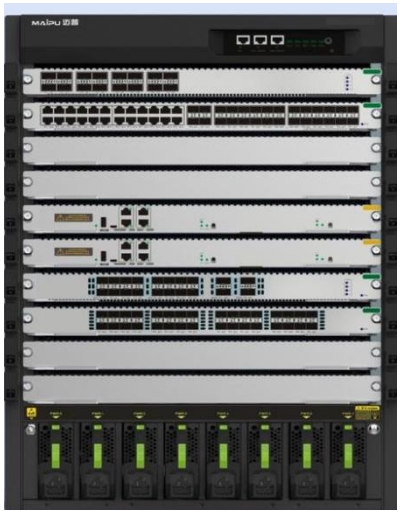
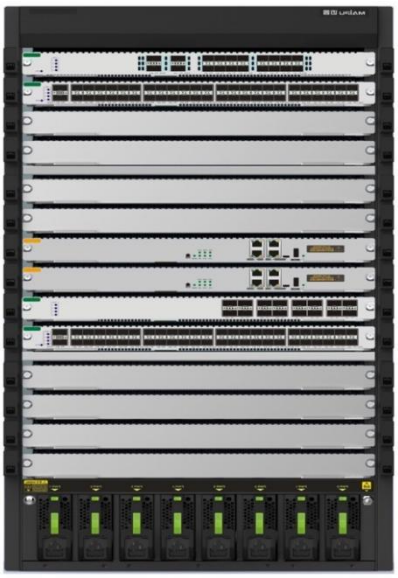
NSS11500 series switch can be used as L3 distribution devices on large-sized campus networks. They can also be used as core devices on small and medium-sized campus networks. The switches help build highly reliable enterprise campus networks that are easy to expand and manage.

NSS11500 series switch includes NSS11500-04, NSS11500-08, NSS11500-12 three models.

NSS11500-04 supports dual control engine slots, six switching engine slots, four line card slots.

NSS11500-08 supports dual control engine slots, six switching engine slots, eight line card slots.

NSS11500-12 supports dual control engine slots, six switching engine slots, twelve line card slots.

Model Name	Specification
 **NSS11500-04(V2)**	● Dual Control Engine Slots ● Six Switching Engine Slots ● Four Line Card Slots ● Four Power Slots ● Dual FAN Array Slots ● Maximum 1G interfaces: 192 ● Maximum 10G interfaces: 192 ● Maximum 40G interfaces: 48 ● Maximum 100G interfaces: 48
 **NSS11500-08(V2)**	● Dual Control Engine Slots ● Six Switching Engine Slots ● Eight Line Card Slots ● Eight Power Slots ● Dual FAN Array Slots ● Maximum 1G interfaces: 384 ● Maximum 10G interfaces: 384 ● Maximum 40G interfaces: 96 ● Maximum 100G interfaces: 96
 **NSS11500-12(V2)**	● Dual Control Engine Slots ● Six Switching Engine Slots ● Twelve Line Card Slots ● Eight Power Slots ● Four FAN Array Slots ● Maximum 1G interfaces: 576 ● Maximum 10G interfaces: 384 ● Maximum 40G interfaces: 96 ● Maximum 100G interfaces: 144

Key Features

- **High-Density Interfaces Line Cards**

NSS11500 series provide maximum 576*1GE, 384*10GE, 96*40GE, 144*100GE interfaces. The port combination fully satisfies the interface density requirement of campus network scenarios.

- **Highly Reliable Enterprise-class Hardware Design**

NSS11500 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+1 balance mode. Redundant power supplies support work in N+1 hot backup and redundant fan trays design.

- **Intelligent stacking technology**

NSS11500 series switch supports Maipu VST stacking function. Two NSS11500 supporting stacking feature are combined to form a virtual switch logically. VST stacking system improves the device-class reliability by redundant backup among multiple member devices and improves the link-class reliability by the link aggregation function across devices. VST provides a powerful expansion capability for campus network.

- **High availability**

NSS11500 series switch not only supports the traditional STP/RSTP/MSTP spanning tree protocol, but also supports the G.8032 international standard G.8032 protocol issued by ITU-T. This standard can realize 50ms millisecond fast protection switching of Ethernet ring network.

The NSS11500 also supports Virtual Router Redundancy Protocol (VRRP), which implement backup of uplinks. One switch can connect to multiple aggregation switches through multiple links, significantly improving the reliability of access devices.

- **Perfect security policy**

NSS11500 series switch provides various security policies such as user authority/identity authentication, port security, port rate limitation, port monitoring, ACL, loopback detection, and 802.1X authentication; provides various protect mechanisms for user access and network security. It has perfect security function design and supports MAC+IP+VLAN binding and 802.1X authentication security policies, and anti-network storm attack, anti DOS/DDOS attack, anti ARP attack, and anti-network protocol packet attack security technologies. In this way, the attacks and virus can be prevented, and it is more suitable for large-scale, multi-service and complicated-traffic networks.

- **Advanced QoS**

NSS11500 series switch supports eight queues per port and the queue scheduling policies such as SP, RR, WRR, and WDRR; rich priority mappings including 802.1p, COS, DSCP; Kbps-level port traffic rate restriction and carriers can limit the rate according to the time period; Tail Drop and RED packet loss algorithm.

- **Zero Touch Implementing**

NSS11500 series support Zero Touch Provisioning (ZTP). It enables the switch to automatically obtain and load version files from file server through DHCP server or USB flash disk.

- **IPv4&IPv6 Dual-stack ability**

NSS11500 series switch comes with IPv4/IPv6 dual-stack platform which provides hardware-based IPv4/IPv6 wire-speed forwarding and IPv4/IPv6 Layer3 routing protocols (RIPng, OSPFv3, BGP4+ and IS-IS for IPv6). With these IPv6 features, the NSS11500 can be deployed on a pure IPv4 network, a pure IPv6 network, or a shared IPv4/IPv6 network, helping achieve IPv4-to-IPv6 transition.

- **BD-Campus Controller Management**

NSS11500 can be managed by Maipu BD-Campus controller, which is an integrated SDN platform for campus network. It simplifies campus network security, deployment, and management with the latest software-defined network technologies. It helps the network team complete most of the work on the BD-Campus controller platform. Compared with traditional methods, BD-Campus solution can make the network deployment faster, maintain the network easier, troubleshoot much more efficient, and save customer's overall cost.

- **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	NSS11500-04	NSS11500-08	NSS11500-12
Version	V2	V2	V2
Hardware specification			
Hardware Architecture	Crossbar	Crossbar	Crossbar
Control Engine Slots	2	2	2
Switching Engine Slots	4+2	4+2	4+2
Service Card Slots	4	8	12
Control Engine Model	NSM115-MPUB	NSM115-MPUC	NSM115-MPUC
Switching Engine Model	NSM115-SFUB	NSM115-SFUC	NSM115-SFUF
Switching Capacity	9.6Tbps	19.2Tbps	28.8Tbps
Flash	8G		
Memory	4G(Default)/16G		
Jumbo Frame	12K		
MAC Address Entry	131K/383K		
IPv4 Routing Entry	81K/131K		
IGMP Snooping Entry	3K/5K		
PIM Entry	3K/5K		
ARP Entry	63K		
MSTP Instance	64		
Max. ECMP Path	64		
VRF Entry	1K		
VRRP Group	255		
Power Slots	4	8	8
FAN Array Slots	2	2	4
Air Flow	Front-to-Back	Front-to-Back	Front-to-Back
PoE Standard	802.3 af/at/bt	802.3 af/at/bt	802.3 af/at/bt
Power Input	Input voltage AC: 100V ~ 240V, 50Hz ~ 60Hz		

	Input voltage DC:42V~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		
Dimension(W×D×H)	441*748*263mm(6U)	441*645*666mm(15U)	441*645*880mm(20U)
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, MSTP, G.8032, Loopback-detection, Error-disable, GVRP, MLAG, 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	
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	
Virtualization	Stacking	H-VST, M-VST, M-LAG	
	MAD	MAD LACP, MAD BFD, MAD Fast-hello	
Zero Touch Provisioning	ZTP mode A	ZTP provisioning through DHCP server	
	ZTP mode B	ZTP provisioning trough USB flash disk	
MPLS VPN	L3 BGP MPLS	MPLS LDP, MPLS L3 VPN, MPLS Option-A & Option-B, MPLS Ping/traceroute	
	MCE	Multi-VRF	
Data Center	VxLAN	Static VxLAN, EVPN VxLAN	

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, PPPoE+, AAA, 802.1x, Portal, Anti-attack detect|drop|flood|log, URPF, AARF
	Network Reliability	HA, ULFD, G.8032, ULPP, Monitor Link, VRRP, VRRPv3, VBRP, BFD, EEP, CPU protection
Management and Monitoring	Network Management	SNMP v1/v2/v3, MIB, RMON, SYSLOG, DNS, CLI, Telnet, FTP/TFTP, Debug, NTP, Keepalive Gateway
	Network Monitoring	SPAN, RSPAN, IPFIX, Netconf, sFlow, LLDP, IP-SLA, CWMP, NDSP, Telemetry, OAM, SDN Controller

Power Consumption Specification

Model Name	Max. Power Consumption	Model Name	Max. Power Consumption
NSM115-MPUB	42W	NSM115-MPUC	42W
NSM115-SFUB	105W	NSM115-SFUC	150W
NSM115-SFUF	150W	FAN-06A-01B	105W
FAN-15B-01B	125W	FAN-20A-01	150W
NSM115-48GET4XGEF-EC	72W	NSM115-32XGEF-EC	111W
NSM115-48GEF4XGEF-EC	110W	NSM115-48XGEF-EC	162W
NSM115-24GET24GEF4XF-EC	94W	NSM115-16XGEF4QXGE-EC	92W
NSM115-40GETP8LTP4XF-EC	67W (Not including PoE)	NSM115-8QXGE-EC	74W
NSM115-16XGEF-EC	61W	NSM115-12QXGE-EC	111W
NSM115-8QFP-DA	95W	NSM115-12QFP-DA	120W

Order Information

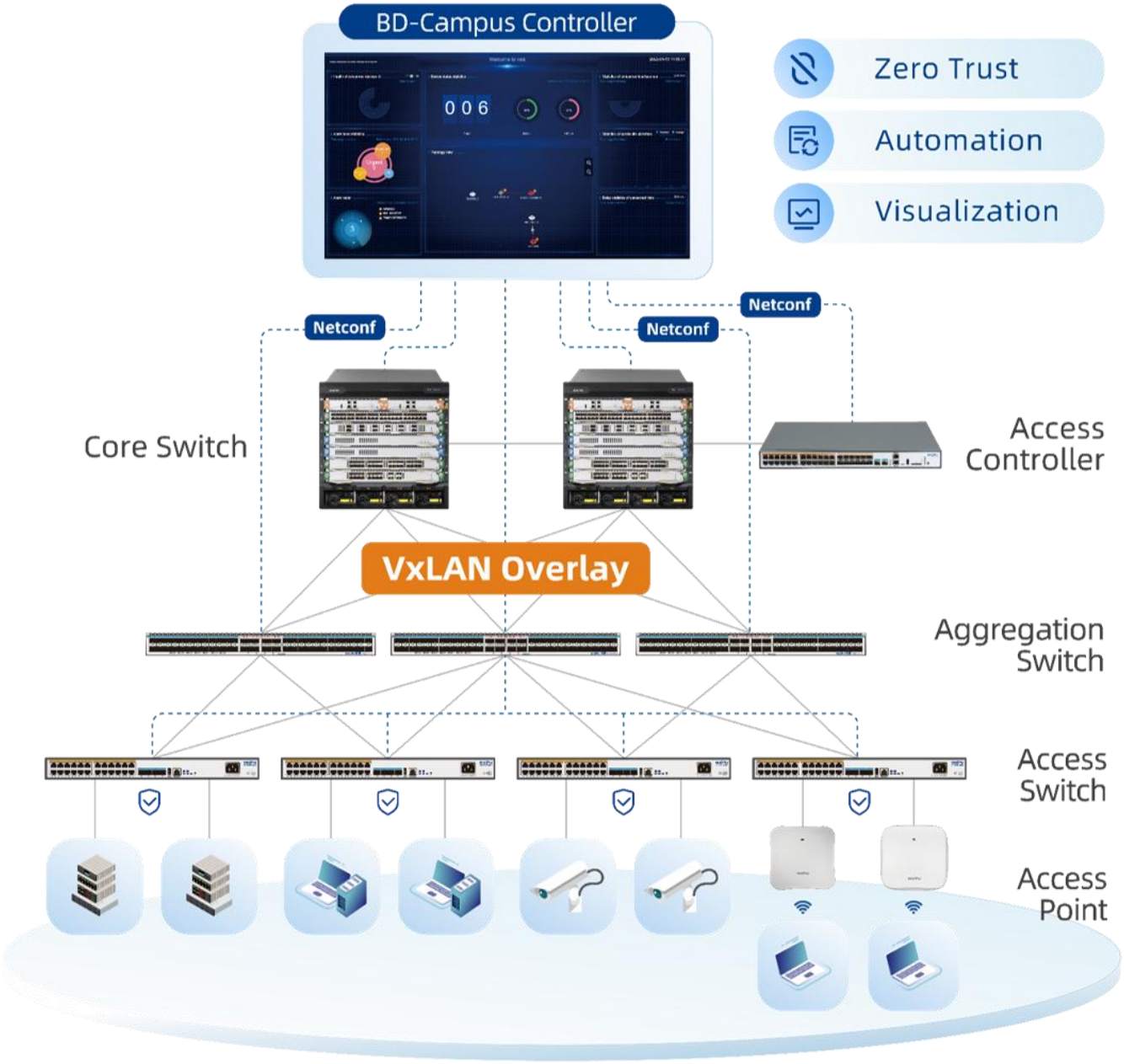
Model	Description
NSS11500-04 Host	
NSS11500-04	V2 Version: NSS11500-04 chassis, two control engine slots, six switching engine slots, four line card slots, two fan slots, four power slots.
NSM115-MPUB	NSM115-MPUB Control Engine, for NSS11500-04, supporting active/standby backup function
NSM115-SFUB	NSM115-SFUB Switching Engine, for NSS11500-04 (Note: SFU slot 2 and slot 3 are available, the rest are reserved slots)
FAN-06A-01B	FAN-06A-01B Fan module for NSS11500-04
AD800M-HV1B	AD800M-HV1B, 800W AC power module
AD1600M-HV0B	AD1600M-HV0B, 1600W AC power module
DD1600M-5V0B	DD1600M-5V0B, 1600W DC power module
NSS11500-04 Line Cards	
NSM115-48GET4XGEF-EC	48-Port 100/1000M electric interfaces, 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-48GEF4XGEF-EC	48-Port 1000M SFP interfaces, 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-24GET24GEF4XF-EC	24-Port 100/1000M electric interfaces, 24-Port 1000M SFP interfaces, 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-40GETP8LTP4XF-EC	40-Port 100/1000M electric PoE+ interfaces (Support 802.3af/at), 8-Port 100M/1G/2.5G electric PoE++ interfaces (Support 802.3af/at/bt), 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-16XGEF4QXGE-EC	16-Port 10G SFP+ interfaces, 2-Port 40G QSFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-16XGEF-EC	16-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-32XGEF-EC	32-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-48XGEF-EC	48-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-8QXGE-EC	8-Port 40G QSFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-12QXGE-EC	12-Port 40G QSFP+ interfaces line card (Note: Configure 2*NSM115-SFUB Switching Engines)
NSM115-8QFP-DA	8-Port 40/100G QSFP28 interfaces line card (Note: Configure 4*NSM115-SFUB Switching Engines)

NSS11500-08 Host	
NSS11500-08	V2 Version: NSS11500-08 chassis, two control engine slots, six switching engine slots, eight line card slots, two fan slots, eight power slots.
NSM115-MPUC	NSM115-MPUC Control Engine, for NSS11500-08, supporting active/standby backup function
NSM115-SFUC	NSM115-SFUC Switching Engine, for NSS11500-08 (Note: SFU slot 2 and slot 3 are available, the rest are reserved slots)
FAN-15B-01B	FAN-15B-01B Fan module for NSS11500-08
AD800-1D005M	AD800-1D005M, 800W AC power module
AD1600-1D005M	V2 Version: AD1600-1D005M, 1600W AC power module
DD1600M-5V1F	DD1600M-5V1F, 1600W DC power module
NSS11500-08 Line Cards	
NSM115-48GET4XGEF-EC	48-Port 100/1000M electric interfaces, 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-48GEF4XGEF-EC	48-Port 1000M SFP interfaces, 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-24GET24GEF4XF-EC	24-Port 100/1000M electric interfaces, 24-Port 1000M SFP interfaces, 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-40GETP8LTP4XF-EC	40-Port 100/1000M electric PoE+ interfaces (Support 802.3af/at), 8-Port 100M/1G/2.5G electric PoE++ interfaces (Support 802.3af/at/bt), 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-16XGEF4QXGE-EC	16-Port 10G SFP+ interfaces, 2-Port 40G QSFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-16XGEF-EC	16-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-32XGEF-EC	32-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-48XGEF-EC	48-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-8QXGE-EC	8-Port 40G QSFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-12QXGE-EC	12-Port 40G QSFP+ interfaces line card (Note: Configure 2*NSM115-SFUC Switching Engines)
NSM115-8QFP-DA	8-Port 40/100G QSFP28 interfaces line card (Note: Configure 4*NSM115-SFUC Switching Engines)
NSS11500-12 Host	
NSS11500-12	V2 Version: NSS11500-12 chassis, two control engine slots, six switching engine slots, twelve line card slots, four fan slots, eight power slots.

NSM115-MPUC	NSM115-MPUC Control Engine, for NSS11500-12, supporting active/standby backup function
NSM115-SFUF	NSM115-SFUF Standard Switching Engine, for NSS11500-12 (Note: SFU slot 2 and slot 3 are available, the rest are reserved slots)
FAN-20A-01	FAN-20A-01 Fan module for NSS11500-12
AD1600-1D005M	V2 Version: AD1600-1D005M, 1600W AC power module
DD1600M-5V1F	DD1600M-5V1F, 1600W DC power module
NSS11500-12 Line Cards	
NSM115-48GET4XGEF-EC	48-Port 100/1000M electric interfaces, 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUF Switching Engines)
NSM115-48GEF4XGEF-EC	48-Port 1000M SFP interfaces, 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUF Switching Engines)
NSM115-24GET24GEF4XF-EC	24-Port 100/1000M electric interfaces, 24-Port 1000M SFP interfaces, 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUF Switching Engines)
NSM115-40GETP8LTP4XF-EC	40-Port 100/1000M electric PoE+ interfaces (Support 802.3af/at), 8-Port 100M/1G/2.5G electric PoE++ interfaces (Support 802.3af/at/bt), 4-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUF Switching Engines)
NSM115-16XGEF4QXGE-EC	16-Port 10G SFP+ interfaces, 2-Port 40G QSFP+ interfaces line card (Note: Configure 2*NSM115-SFUF Switching Engines)
NSM115-16XGEF-EC	16-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUF Switching Engines)
NSM115-32XGEF-EC	32-Port 10G SFP+ interfaces line card (Note: Configure 2*NSM115-SFUF Switching Engines)
NSM115-8QXGE-EC	8-Port 40G QSFP+ interfaces line card (Note: Configure 2*NSM115-SFUF Switching Engines)
NSM115-8QFP-DA	8-Port 40/100G QSFP28 interfaces line card (Note: Configure 4*NSM115-SFUF Switching Engines)

Typical Application

Maipu BD-Campus Network



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