BDCOM

High-performance
Core Switches **S9500**
SERIES

✓ Varied Service Characteristics Versatile IPv6 Solution Complete Security Mechanism

⇄ Carrier-Level High Reliability

▦ Advanced Hardware Architecture and Industry-leading Port Density

▥ 100GE Data Center COR switches

Product Overview

BDCOM S9500 Series is a new generation high-performance core switch oriented for high-performance computing, data center and high-end campuses. S9500 Series adopts advanced hardware architecture design.

S9500 Series supports up to 56Tbps switching capacity, 576 10G ports, 192 40G ports and 48 100G ports. Besides, it is to be configured with 256 100G ports in the future.

*S9500 Series supports BVSS, TRILL, SDN and FCoE/FC. By cooperating with S5800 Series, S9500 Series can access to 15000+ 10GE servers.

Developed on the basis of BDROS 6 - a software platform BDCOM with its own independent intellectual property rights, S9500 Series provides high-performance L2/L3/L4 wire speed switching capacity by integrating services such as IPv6, MPLS VPN, network security, flow analysis, virtualization, with high reliable techniques including continuous forwarding, graceful restarting and loop network protection, the work efficiency of S9500 Series and its maximum running time are guaranteed.

S9500 Series supports the "GreenTouch" architecture and "Smart@CHIP". Its power consumption is lower than 200W.

S9500 Series has three models: S9506, S9510 and S9514.

Product Characteristics

Advanced Hardware Architecture Design & Industry Leading Processing Capacity

S9500 Series adopts the industry leading hardware architecture design. Its control engine and SFUs are detached, which provides continuous broadband upgrade capacity.

With high-performance ASIC switch chip and multi-core processor, S9500 Series supports up to 56Tbps switching capacity.

S9500 Series supports high-intensity 10G service cards and realizes the wire-speed switching of 3 layers without blocking.

S9500 Series supports 576 10G ports, 192 40G ports and 48 100G ports. Besides, it is to be configured with 256 100G ports in the future.

A single service card of S9500 Series supports up to 512K MAC address entries and 512K layer-3 routing tables.

Data Center Level High-Reliability

S9500 Series adopts HPS (Hitless Protection System). The key components of S9500 Series such as the power system and the fan system support redundancy design. All system modules support hot-swap and seamless switching without need of manual intervention.

S9500 Series supports redundancy protection mechanism such as STP/RSTP/MSTP protocol, VRRP protocol, ring network protection, dual uplink active/standby link protection and LACP link aggregation.

S9500 Series supports ISSU (In-Service Software Upgrade), guaranteeing the user data non-stop forwarding when the system is upgrading.

S9500 Series supports BFD and realizes fault detection and service recovery in seconds through linking with layer-2 or layer-3 protocol.

S9500 Series has perfect Ethernet OAM, 802.3ah, 802.1ag and ITU-Y.1731 which can real time monitor the network operating state and rapidly detect and locate the malfunction.

High Reliability (99.999%): MTTR of S9500 Series is 50ms, meeting the requirement of the carrier-level service.

Rich Data Center Services

BVSS (BDCOM Virtual Switch System)

S9500 Series supports BVSS, which can virtualize multiple physical devices into one in logic. The virtualized system is superior to the independent physical device in performance, reliability, flexibility and management.

Doubled Performance: The virtualized system makes the best use of each link in the device and avoids the blocking of STP to the link.

High-reliability: Based on the advanced distributed processing technique and the efficient function of cross-physical device link aggregation, S9500 Series provides with non-stop layer-3 routing forwarding and avoids single points of failure.

Flexibility: With the function of S9500 virtual cluster service cards, the distance of virtual cluster system can expand to 80KM, breaking the geographic restriction of traditional cluster technique.

Easy Management: The whole virtual system realizes single IP unified management and simplifies the management of network device and network topology. Large Layer-2 Network Technique: S9500 Series adopts large layer-2 network technique which supports TRILL/SPB protocol. With the technique, the network structure has become simple and compress, which can access to data center large-scale servers.

Unified Architecture: S9500 Series supports FCoE (FC over Ethernet) technique, which solves the problem of discrepancy between LAN network and FC storage network and integrates computing, data and storage networking.

*SDN: S9500 Series supports SDN (Software Defined Network), which can realize network virtualization and centralized management.

Comprehensive Service

S9500 Series Supports complete layer-2 and layer-3 multicast routing protocol and meets the access requirement of IPTV, multi-terminal high-definition video monitoring and high-definition video meeting.

Product Characteristics

Comprehensive Service

S9500 Series supports complete layer-3 routing protocol and a super-large routing table capacity, which make super-large data center network, campus network, enterprise network and industry private networks available.

S9500 Series supports complete MPLS VPN of layer-2 and layer-3, which meets the requirement of industry private VPN users and enterprise network VPN users. S9500 Series also provides with value-added services including POE and traffic analysis.

Comprehensive IPv6 Solutions

S9500 Series comprehensively supports IPv6 Neighbor Discovery, ICMPv6, Path MTU Discovery and DHCPv6. S9500 Series supports IPv6 based Ping, Traceroute, Telnet, SSH, ACL, meeting the need of IPv6 network equipment management and service control.

S9500 Series supports IPv6 multicast characteristics including MLD, MLD Snooping and IPv6 layer-3 routing protocols including IPv6 static routing, RIPng, OSPFv3 and BGP4+.

S9500 Series supports IPv4-to-IPv6 technologies including IPv6 manual/automatic tunnel, auto tunnel, IPv6-to-IPv4 tunnel, and ISATAP tunnel.

Comprehensive Security Mechanisms

S9500 Series adopts advanced hardware architecture design, realizing the hierarchical scheduling and protection of the packet. It provides multiple security measures to defend against DOS or TCP attacks; and supports command line authority control based on user levels.

Comprehensive Security Certification: S9500 Series complies with IEEE 802.1x, Radius, BDTacacs+.

Enhanced Service Security Mechanism: S9500 Series supports the plain text or MD5 authentication of relevant routing protocol; uRRF; DPI (Deep Packet Inspection) and (Deep Packet Filtration); DPI for control packets and data packets.

Innovative Green Environmental Design

S9500 Series supports the "GreenTouch" architecture. Smart Power Management System: S9500 Series adopts advanced power system architecture design which can realize the function of efficient power switching, private power monitoring, soft start, real-time monitoring, intelligent adjustment and energy-saving.

Smart Fan Management System: S9500 Series is designed with the intelligent fan and supports switching between front-back mode and back-front mode and fan automatic speed regulation.

S9500 Series supports Efficient Ethernet and complies with International standard IEEE 802.3az.

S9500 SERIES

Note:
The standard configuration
does not include the power supply

MCU slot

business slot

power slot

Model lists

S9506

Integrated data center chassis Ethernet switch

2 fan slots,
7 power slots,
exclude the power supply,
2 MCU slots,
4 SFU slots,
4 business slots

S9510

Integrated data center chassis Ethernet switch

3 fan slots,
7 power slots,
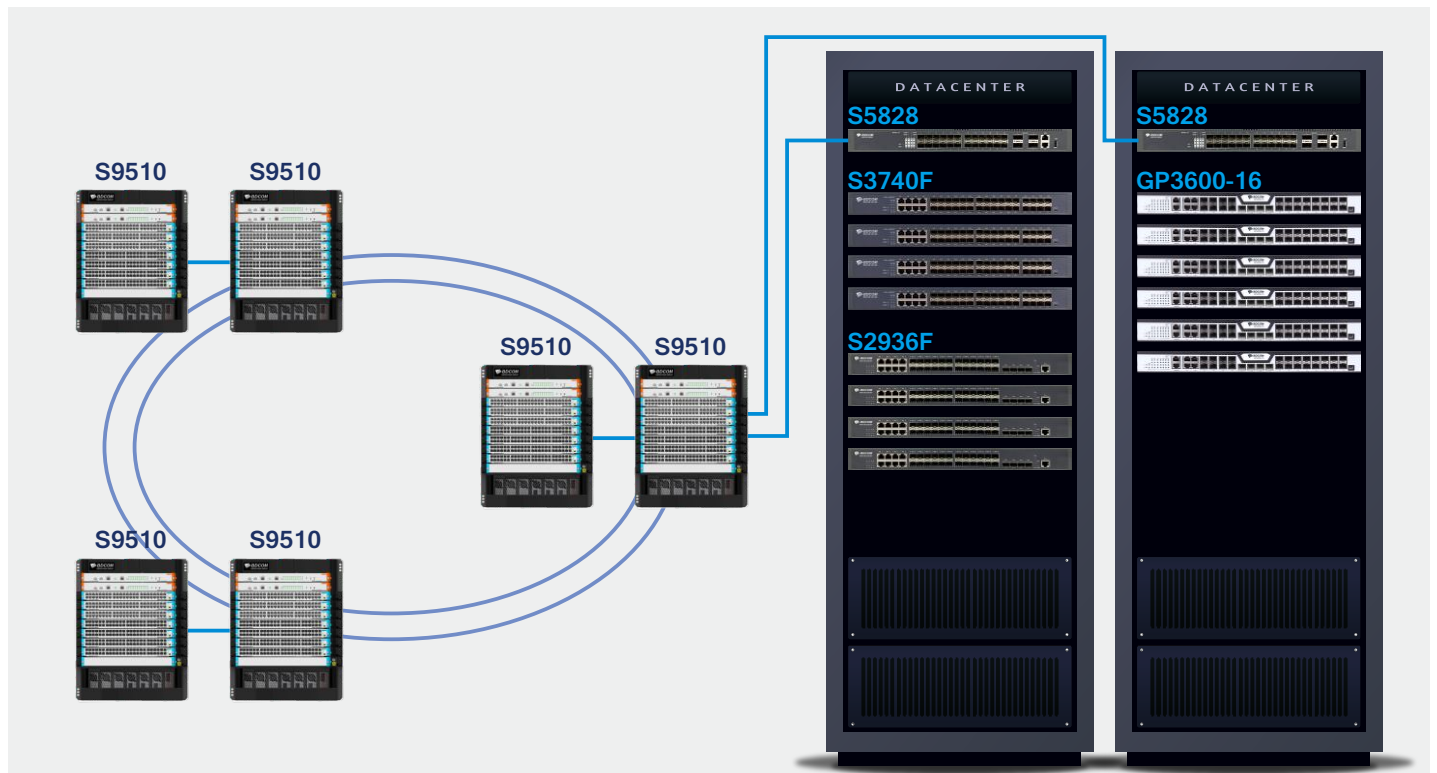exclude the power supply,
2MCU slots,
4 SFU slots,
8 business slots

S9514

Integrated data center chassis Ethernet switch

4 fan slots,
7 power slots,
exclude the power supply,
2 MCU slots,
4 SFU slots,
12 business slots

Application Diagram

Specifications

Items	S9506	S9510	S9514
Interface			
Switching capacity	20.74Tbps/128Tbps	41.47Tbps/204.8Tbps	55.3Tbps/256Tbps
Packet forwarding rate	5040Mpps/36000 Mpps	6720Mpps/48000 Mpps	8400Mpps/67500 Mpps
Total Number of Slots	10	14	18
MCU sbts	2	2	2
SFU slots	4	4	4
Business sbts	4	8	12
Performance/Storage			
Value-added services	PoE function	PoE function	PoE function
Energy saving	IEEE 802.3az green Efficient Ethernet	IEEE 802.3az green Efficient Ethernet	IEEE 802.3az green Efficient Ethernet
Operating temperature	0℃ ~ 40℃	0℃ ~ 40℃	0℃ ~ 40℃
Operating humidity	10%~90% (non-condensing)	10%~90% (non-condensing)	10%~90% (non-condensing)
Power supply	AC:100V-240V, 50Hz±10% DC: -48V	AC:100V-240V, 50Hz±10% DC: -48V	AC:100V-240V, 50Hz±10% DC: -48V
Power consumption(W)	565	938	1313
Dimensions mm (WxDxH)	482×564×486 11U	482×564×620 14U	482×564×798 18U
Weight KG (empty)	40	50	60

Features

Data Center Characteristics
- BVSS
- *TRILL/SPB large layer-2 technique
- *FCoE technique
- *SDN

MAC Switching Capacity
- Static configuration and dynamically learning of MAC address
- Check and delete MAC address
- Configuring MAC address aging time
- Limit on MAC address learning number
- MAC address filtering function
- Black-hole MAC items

VLAN
- 4K VLAN entries
- GVRP
- 1:1 and N:1 VLAN Mapping
- Basic QinQ and selective QinQ
- Private VLAN

Reliability
- Dual Master Control Redundancy
- Power supply 1+1 backup
- Master control, service card hot swap and service automatic recovery
- Static/LACP link aggregation and cross service card link aggregation
- Ring network protection including EAPS
- VRRP
- Ethernet OAM 802.3ah/802.1ag/ITU-Y.1731
- GR for OSPF and BGP
- BFD for OSPF and BGP
- ISSU

STP
- 802.1D (STP), 802.1W (RSTP), 802.1S (MSTP)
- BPDU protection, root protection and ring protection

Multicast
- IGMP v1/v2/v3
- IGMP Snooping
- IGMP Fast Leave
- Multicast group policy and multicast number limit
- Multicast traffic cross VLAN duplication
- PIM-SM and PIM-DM

IPv4
- Static routing, RIP v1/v2, OSPF and BGP
- Policy routing
- Load balance through equal-cost routing
- Graceful Restart of OSPF and BGP
- BFD for OSPF and BGP

IPv6
- ICMPv6, DHCPv6, ACLv6, IPv6 Telnet
- IPv6 Neighbor Discovery
- Path MTU Discovery
- MLD and MLD Snooping
- IPv6 static routing, RIPng, OSPFv3 and BGP4+
- Manual tunnel, ISATAP tunnel and 6-to-4 tunnel

Management and Maintenance
- Console, Telnet and SSH
- SNMP v1/v2/v3
- Upload and download of TFTP files
- Remote Network Monitoring (RMON)
- Statistics analysis of sFLOW, Netflow

MPLS VPN
- LDP protocol
- MCE
- P/PE of MPLS VPN
- MPLS Traffic Engineering (TE*)
- MPLS Operations, Administration, and Maintenance (OAM*)

QoS
- Traffic classification of each field of L2/L3/L4 protocol headers
- CAR traffic control
- 802.1P/DSCP priority remark
- Multiple queuing algorithms such as SP, WRR or SP+WRR
- Tail-Drop, WRED
- Traffic supervision and traffic shaping

Security features
- Identification and filtering of L2/L3/L4 based ACL
- Defend against DDoS attack, SYN Flood attack of TCP, and UDP Flood attack
- Suppression of broadcast, multicast and unknown unicast packet
- Port isolation
- Port security, IP + MAC + port binding
- DHCP Snooping, DHCP Option 82
- IEEE 802.1x certification
- Radius and BDTacacs+
- uRPF
- Command line authority control based on user levels

Ordering Information

Item	Picture	Description
Chassis of S9500 Series		
LS9506		Integrated Chassis of S9506 switch (2 fan trays, 7 power slots, 2 MCU slots, 4 SFU slots, 4 business slots)
LS9510		Integrated Chassis of S9510 switch (3 fan trays, 7 power slots, 2 MCU slots, 4 SFU slots, 8 business slots)
LS9514		Integrated Chassis of S9514 switch (4 fan trays, 7 power slots, 2 MCU slots, 4 SFU slots, 12 business slots)
Power Supply of S9500 Series		
LS95-PWR-AC		S9500 Series 1200W AC power module
LS95-PWR-DC		S9500 Series 1200W DC power module
LS95-PWR-PoE		S9500 Series 1000W PoE AC power module
SFU of S9500 Series		
LS9506-SFU		SFU of S9506 Series
LS9510-SFU-II		SFU-II of S9510 Series
LS9514-SFU-II		SFU-II of S9514 Series
Console Board of S9500 Series		
LS95-MCU		Console Board of S9500 Series
Business Board of S9500 Series		
GE Business Board		
LS95-48GT		Business board with 48 GE Base-T ports
LS95-48GS		Business board with 48 GE SFP ports
LS95-48GT-PoE		Business board with 48 GE PoE ports
10GE Business Board		
LS95-48TS		Business board with 48 10GE SFP+ ports
40GE Business Board		
LS95-8QS		Business board with 8 40GE QSFP+ ports
100GE Business Board		
LS95-4CF*		Business board with 4 100GE QSFP28 ports

Ordering Information

Item	Description
Optical modules	
GE optical modules	
GSFP-TX-B	GE SFP-to-RJ45 module
GSFP-SX-D	Gigabit SFP multi-mode (500m, 850nm, LC, DDM)
GSFP-LX-10-D	Gigabit SFP single mode (10Km, 1310nm, LC, DDM)
GSFP-LX-20-D	Gigabit SFP single mode (20Km, 1310nm, LC, DDM)
GSFP-LX-40-D	Gigabit SFP single mode (40Km, 1310nm, LC, DDM)
GSFP-ZX-80-D	Gigabit SFP single mode (80Km, 1550nm, LC, DDM)
GSFP-LX-SM1310-10-BIDI **GSFP-LX-SM1550-10-BIDI**	Gigabit SFP single mode, single-core bidirectional (10Km, TX1310/RX1550, LC, DDM) Gigabit SFP single mode, single-core bidirectional (10Km, TX1550/RX1310, LC, DDM)
GSFP-LX-SM1310-20-BIDI **GSFP-LX-SM1550-20-BIDI**	Gigabit SFP single mode, single-core bidirectional (20Km, TX1310/RX1550, LC, DDM) Gigabit SFP single mode, single-core bidirectional (20Km, TX1550/RX1310, LC, DDM)
GSFP-LX-SM1310-40-BIDI **GSFP-LX-SM1550-40-BIDI**	Gigabit SFP single mode, single-core bidirectional (40Km, TX1310/RX1550, LC, DDM) Gigabit SFP single mode, single-core bidirectional (40Km, TX1550/RX1310, LC, DDM)
GSFP-LX-SM1490-80-BIDI **GSFP-LX-SM1550-80-BIDI**	Gigabit SFP single mode, single-core bidirectional (80Km, TX1490/RX1550, LC, DDM) Gigabit SFP single mode, single-core bidirectional (80Km, TX1550/RX1490, LC, DDM)
10GE optical modules	
SFP+SX	10G SFP+ multi-mode (300m, 850nm, LC)
SFP+LX-10	10G SFP+ single mode (10Km, 1310nm, LC, DDM)
SFP+LX-20	10G SFP+ single mode (20Km, 1310nm, LC, DDM)
SFP+LX-40	10G SFP+ single mode (40Km, 1310nm, LC, DDM)
SFP+LX-80	10G SFP+ single mode (80Km, 1550nm, LC, DDM)
40GE optical modules	
QSFP+LX-20	40G QSFP+ Single-mode (20Km, 1310nm, LC, DDM)
100GE optical modules	
QSFP28-LX-20	100G QSFP28 Single-mode (20Km, 1310nm, LC, DDM)

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