

H3C S6860 Series

Data Center Switches

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New H3C Technologies Co., Limited

H3C S6860 Series Data Center Switches

Product overview

S6860 series switch is H3C self-developed intelligent data centers switch with abundant data center features and IPv6 forwarding capability. The series provides flexible combination of 10GE, 40GE and 100GE ports with high port-density. With its modular dual power supply and fan trays design, S6860 provides a high redundant framework.

The switch is suitable for high-density 10GE switching or 40GE/100GE aggregation at data centers and cloud computing networks. It can also operate as a TOR access switch in an overlay or converged network.

The S6860 switch series includes the following models:

- S6860-30HF—Provides 24 × 1/10G SFP Plus ports, 6 × QSFP+ ports or 2 × QSFP28 ports (each QSFP+ port can be split into 4 × 10GE ports), 2 × power module slots, 4 × fan tray slots, 2 × out-of-band management ports, 1 × mini USB port and 1 × USB port.
- S6860-54HF—Provides 48 × 10G SFP+ Plus ports, 6 × QSFP+ ports or 2 × QSFP28 ports (each QSFP+ port can be split into 4 × 10GE ports), 2 × power module slots, 4 × fan tray slots, 2 × out-of-band management ports, 1 × mini USB port and 1 × USB port.
- S6860-54HT—Provides 48 × 10G Base-T ports, 6 × QSFP+ ports or 2 × QSFP28 ports (each QSFP+ port can be split into 4 × 10GE ports), 2 × power module slots, 5 × fan tray slots, 2 × out-of-band management ports, 1 × mini USB port and 1 × USB port.



S6860-30HF front panel



S6860-30HF rear panel



S6860-54HF front panel



S6860-54HF rear panel



S6860-54HT front panel



S6860-54HT rear panel

Features and Benefits

H3C Distributed Resilient Network Interconnection (DRNI)

- H3C S6860 switch series support DRNI, which enables links of multiple switches to aggregate into one to implement device-level link backup. DRNI is applicable to servers dual-homed to a pair of access devices for node redundancy.
- Streamlined topology: DRNI simplifies the network topology and spanning tree configuration by virtualizing two physical devices into one logical device.
- Independent upgrading: The DR member devices can be upgraded independently one by one to minimize the impact on traffic forwarding.
- High availability: The DR system uses a keepalive link to detect multi-active collision to ensure that only one member device forwards traffic after a DR system splits.

Abundant Data Center Features

The switch supports abundant data center features, including:

- EVB—The switch realizes the traffic forwarding between virtual machines (VM) and solves the connection and management boundary between the VM and the network via Virtual Ethernet Port Aggregator (VEPA) mode.
- TRILL—Helps set up a large, resilient, high-performance Layer 2 network with support for long-distance VM mobility and data mobility.
- VXLAN—The switch can operate as a high-performance VXLAN hardware gateway to support multitenant data center services. In conjunction with the H3C cloud management platform, the switch can be used to set up an agile, resilient, highly available high-performance Layer 2 network, with support for long-distance virtual machine mobility, data mobility, and business continuity.
- FCoE—Allows transmission of FC packets over Ethernet so that FC SAN services and LAN services can run over the same network infrastructure.
- PFC, ETS, and DCBX—Helps provide FC storage and high-performance computing services with low-latency and no data loss.

Flexible choice of airflow

- To cope with data center cooling aisle design, the H3C S6860 switch series comes with flexible airflow design, which features bi-cooling aisles in the front and back. Users may also choose the direction of airflow (from front to back or vice versa) by selecting a different fan tray.

Abundant QoS

The switch provides abundant QoS features, including:

- Packet filtering based on packet header fields from Layer 2 through Layer 4.
- Traffic classification by source MAC, destination MAC, source IP, destination IP, TCP/UDP port number, protocol type, and VLAN.

High Availability

- The switch uses removable power modules and allows you to select AC or DC power modules as required. The power modules available for the switch have a self-protection mechanism to prevent overcurrent, overvoltage, and over temperature conditions. The switch can detect faults in power modules and fan trays and will generate an alarm when a fault occurs.
- The switch supports diverse link redundancy technologies such as H3C proprietary RRPP, VRRPE, and Smart Link. These technologies ensure quick network convergence even when large amount of traffic of multiple services runs on the network.

Outstanding Management Capacity

The switch improves system management through the following ways:

- Provides multiple management interfaces, including the console port, mini USB port, USB port, and two out-of-band management ports.
- Supports configuration and management from CLI or a mainstream network management platform and H3C IMC Intelligent Management Center.
- Supports multiple access methods, including SNMPv1/v2c/v3, Telnet, SSH 2.0, SSL, and FTP.
- Supports standard NETCONF APIs that allow users to configure and manage the switch, enhancing the compatibility with third-party applications.
- Provides a variety of traffic monitoring and analytic tools, including sFlow, NetStream, SPAN/RSPAN/ERSPAN mirroring, and port mirroring to help customers perform precise traffic analysis and gain visibility into network application traffic. With these tools, customers can collect network traffic data to evaluate network health status, create traffic analysis reports, perform traffic engineering, and optimize resource allocation.

Comprehensive Security Control Policies

- The switch supports AAA authentications (including RADIUS authentication) and dynamic or static binding of user identification elements such as user account, IP address, MAC address, VLAN ID, and port number. Using the switch in conjunction with H3C IMC, you can manage and monitor online users in real time and take prompt action on illegitimate behaviors.
- The switch offers a large number of inbound and outbound ACLs and VLAN-based ACL assignment. This simplifies user configuration while saving ACL resources.

Hardware Specification

Item	S6860-30HF	S6860-54HF	S6860-54HT
Dimensions (H × W × D)	44 × 440 × 400 mm (1.73 × 17.32 × 15.75 in)	44 × 440 × 400 mm (1.73 × 17.32 × 15.75 in)	44 × 440 × 460 mm (1.73 × 17.32 × 18.11 in)
Weight	≤ 10 kg (22.05 lb)		
CPU cores	2	2	2
CPU frequency	1GHz	1GHz	1GHz
Latency	64 byte	64 byte	64 byte
Console port	1		
Out-of-band management port	One GE copper port and one GE fiber port		
USB port	1	1	1
Mini USB port	1	1	1
SFP Plus port	24	48	N/A
Buffer	12M	12M	12M
10GBase-T port	N/A	N/A	48
QSFP+ port	Max. 6	Max. 6	Max. 6
QSFP28 port	Max. 2	Max. 2	Max. 2
Stack number	Max. 9	Max. 9	Max. 9
Link aggregation group number	1024	1024	1024
Max ports in a group	32	32	32
AC-input voltage	90 VAC to 290 VAC		
DC-input voltage	-36 VDC to -72 VDC		
Power module	2		
Fan tray	4		5
Air flow direction	From front to rear or from rear to front		
Operating temperature	0°C to 45°C (32°F to 113°F)		
Operating humidity	10% to 90%, noncondensing		



Software Specification

Item	S6860-30HF	S6860-54HF	S6860-54HT	
Line-rate switching	Switching capacity	960Gbps	1.44 Tbps	1.44 Tbps
	Forwarding capacity	720Mpps	720 Mpps	720 Mpps
Forwarding mode	Store-forward and cut-through modes			
Dynamic ARP table	260K max	260K max	260K max	
IPV6 routing table	128K max	128K max	128K max	
IPV4 routing table	256K max	256K max	256K max	
MAC address table	272K max	272K max	272K max	
IPv4 multicast table	8K max	8K max	8K max	
IPv6 multicast table	4K max	4K max	4K max	
Maximum unicast tunnel	4K	4K	4K	
Virtualization	IRF2 Distributed device management, distributed link aggregation, and distributed resilient routing Using standard Ethernet interfaces for IRF connection Setting up an IRF fabric by using IRF member devices in the same site or geographically dispersed			
Link aggregation	10GE/40GE port aggregation Static aggregation, dynamic aggregation Link cross board aggregation, cross device link aggregation M-LAG			
Data center	VXLAN Layer 2 gateway, VXLAN Layer 3 gateway EVPN distributed gateway 802.1Qbb PFC, 802.1Qaz ETS, ECN QCN, ETS, DCBX FCOE MAC & ARP assignment on demand EVB (VEB, VEPA, Multi-channel three modes) TRILL/TRILL & IRF SPB Netconf, python Service chain OpenFlow Telemetry Multiple Openflow controller			
Jumbo Frame	Supported			
MAC address table	Static MAC address Blackhole MAC address			



Item	S6860-30HF	S6860-54HF	S6860-54HT
VLAN	Port-based VLAN (quantity: 4094) Super VLAN MAC VLAN Basic QinQ, flexible QinQ		
Traffic monitoring	sFlow		
DHCP	DHCP server/client DHCP snooping/DHCP relay DHCP snooping support for Option 82/DHCP relay agent support for Option 82		
ARP	Gratuitous ARP Dynamic ARP inspection ARP anti-attack ARP source-suppression ARP detection		
IP routing	Static routing, RIPv1/v2, OSPFv1/v2/v3, BGP, IS-IS ECMP, VRRP, policy-based routing BGP4+ for IPv6, VRRP, IPv6 policy-based routing		
IPv6	IPv6 ND IPv6 PMTU ICMPv6, Telnetv6, SFTpv6, SNMPv6, BFDv6, VRRPv3 IPv6 portal/IPv6 tunnel		
Multicast	IGMP snooping v2/v3 IGMPv1/v2/v3 PIM-DM/SM IPv6 PIM-DM/SM/SSM BIDIR-PIM, MSDP MLD snooping Multicast policy		
LLDP	LLDP LLDP-MED		
LACP	LACP LACP local forwarding first LACP short-time LACP Stack split detection		
Zero-configuration	Auto-config and config rollback		
MPLS	MCE MPLS VPN, VPLS		
MSTP	STP/RSTP/MSTP PVST+/RPVST+		



Item	S6860-30HF	S6860-54HF	S6860-54HT
MSTP	STP root guard BPDU guard		
RPR	RRPP, Smart Link		
QoS/ACL	Inbound and outbound traffic rate limit CAR Eight output queues on each port Flexible port-and queue-based queuing and scheduling algorithms SP, WRR, WFQ, SP+WRR, and SP+WFQ queuing 802.1p and DSCP priority marking Packet filtering at Layer 2 to Layer 4 Traffic classification based on source MAC address, destination MAC address, source IPv4/IPv6 address, destination IPv4/IPv6 address, port number, protocol type, and VLAN Time range WRED		
Mirroring	Traffic mirroring N:4 port mirroring Local port mirroring, remote port mirroring		
Security	Hierarchical user management and password protection AAA (RADIUS/HWTACACS) SSH 2.0 IP address, MAC address, and port number binding IP source guard HTTPS/SSL PKI		
Loading and upgrading	Loading/upgrading through the XMODEM protocol Loading/upgrading through FTP and TFTP		
Management and maintenance	Configuration at the CLI Telnet configuration Configuration through the console port RMON, Event log SNMPv1/v2c/v3 IMC NETCONF configuration System logs Hierarchical alarms NTP, SNTP Power module status alarming Fan tray status alarming Temperature alarming		



Item	S6860-30HF	S6860-54HF	S6860-54HT
Management and maintenance	Debugging information output Ping and tracet File uploading and downloading through the USB port		
EMC	FCC Part15 SubpartB CLASS A ICES-003 CLASS A VCCI CLASS A CISPR 32 CLASS A EN 55032 CLASS A AS/NZS CISPR32 CLASS A CISPR 24 EN 55024 EN 61000-3-2 EN 61000-3-3 ETSI EN 300 386 GB/T 9254 YD/T993		
Safety	UL 60950-1 CAN/CSA C22.2 No 60950-1 IEC 60950-1 EN 60950-1 AS/NZS 60950-1 FDA 21 CFR Subchapter J GB 4943.1		
IEEE Standard	802.3x/802.3ad/802.3AH/802.1P/802.1Q/802.1X/802.1D/802.1w/802.1s/802.1AG/802.1x/802.1Qbb 802.1az/802.1Qaz/802.1Qbg/802.1Qau/802.1aq		

Order information

PID	Description
LS-6860-30HF	H3C S6860-30HF L3 Ethernet Switch with 24 SFP Plus Ports and 6 QSFP Plus or 2 QSFP28 Ports
LS-6860-54HF	H3C S6860-54HF L3 Ethernet Switch with 48 SFP Plus Ports and 6 QSFP Plus or 2 QSFP28 Ports
LS-6860-54HT	H3C S6860-54HT L3 Ethernet Switch with 48 10GBASE-T Ports and 6 QSFP Plus or 2 QSFP28 Ports
Power	
PSR250-12A	250W AC Power Supply Module
PSR250-12A1	250W AC Power Supply Module
PSR450-12A1	450W AC Power Supply Module
PSR450-12A	450W AC Power Supply Module
PSR450-12AHD	450W AC Power Supply Module,Support 240V/336V HVDC Input
PSR450-12D	450W DC Power Supply Module



PID	Description
Fan	
LSPM1FANSA	Fan Module (SW, 4028, Air Inlets in Panel)
LSPM1FANSB	Fan Module (SW, 4028, Air Outlets in Panel)
Transceiver	
SFP-GE-LH80-SM1550	1000BASE-LH80 SFP Transceiver, Single Mode (1550nm, 80km, LC)
SFP-GE-LX-SM1310-A	1000BASE-LX SFP Transceiver, Single Mode (1310nm, 10km, LC)
SFP-GE-LH40-SM1310	1000BASE-LH40 SFP Transceiver, Single Mode (1310nm, 40km, LC)
SFP-GE-LH40-SM1550	1000BASE-LH40 SFP Transceiver, Single Mode (1550nm, 40km, LC)
SFP-GE-SX-MM850-A	1000BASE-SX SFP Transceiver, Multi-Mode (850nm, 550m, LC)
SFP-GE-T	SFP GE Copper Interface Transceiver Module (100m,RJ45)
SFP-XG-LX-SM1310	SFP+ Module(1310nm,10km,LC)
SFP-XG-LH40-SM1550	SFP+ Module(1550nm,40km,LC)
SFP-XG-LH80-SM1550	SFP+ Module(1550nm,80km,LC)
SFP-XG-SX-MM850-A	SFP+ Module(850nm,300m,LC)
SFP-FE-LX-SM1310-A	100BASE-LX SFP Transceiver, Single Mode (1310nm, 15km, LC)
SFP-FE-SX-MM1310-A	100BASE-FX SFP Transceiver, Multi-Mode (1310nm, 2km, LC)
SFP-FE-LH40-SM1310	100BASE-LH40 SFP Transceiver, Single Mode (1310nm, 40km, LC)
QSFP-40G-LR4-WDM1300	QSFP+ 40GBASE Optical Transceiver Module (1310nm,10km,LR4,LC)
QSFP-40G-BIDI-SR-MM850	QSFP+ 40GBASE BIDI Optical Transceiver Module (850nm,100m,SR)
QSFP-40G-LR4L-WDM1300	QSFP+ 40GBASE Optical Transceiver Module (1310nm,2km,LR4L,LC)
QSFP-40G-LR4-PSM1310	QSFP+ 40GBASE Optical Transceiver Module (1310nm,10km,MPO/APC,LR4,Parallel Single Mode)
QSFP-40G-SR4-MM850	QSFP+ 40GBASE Optical Transceiver Module (850nm,100m,SR4,Support 40G to 4*10G)
QSFP-40G-CSR4-MM850	QSFP+ 40GBASE Optical Transceiver Module (850nm,300m,CSR4,Support 40G to 4*10G)
QSFP-100G-LR4-WDM1300	100G QSFP28 Optical Transceiver Module(1310nm,10km,LR4,WDM,LC)
QSFP-100G-LR4L-WDM1300	100G QSFP28 Optical Transceiver Module (1310nm,2km,LR4L,CWDM4,LC)
QSFP-100G-ER4L-WDM1300	100G QSFP28 Optical Transceiver Module (1310nm,40km,ER4L,WDM,LC)
QSFP-100G-PSM4-SM1310	100G QSFP28 Optical Transceiver Module (1310nm,500m,PSM4,MPO/APC)
QSFP-100G-SR4-MM850	100G QSFP28 Optical Transceiver Module (850nm,100m OM4,SR4,MPO)
Cable	
SFP-XG-D-AOC-10M	SFP+ to SFP+ 10m Active Optical Cable
SFP-XG-D-AOC-20M	SFP+ to SFP+ 20m Active Optical Cable
SFP-XG-D-AOC-7M	SFP+ to SFP+ 7m Active Optical Cable
LSWM1STK	SFP+ Cable 0.65m
LSWM2STK	SFP+ Cable 1.2m
LSWM3STK	SFP+ Cable 3m
LSTM1STK	SFP+ Cable 5m
LSWM1QSTK0	40G QSFP+ Cable 1m
LSWM1QSTK1	40G QSFP+ Cable 3m
LSWM1QSTK2	40G QSFP+ Cable 5m
QSFP-40G-D-AOC-10M	40G QSFP+ to 40G QSFP+ 10m Active Optical Cable
QSFP-40G-D-AOC-20M	40G QSFP+ to 40G QSFP+ 20m Active Optical Cable
QSFP-40G-D-AOC-7M	40G QSFP+ to 40G QSFP+ 7m Active Optical Cable
LSWM1QSTK3	40G QSFP+ to 4x10G SFP+ Cable 1m
LSWM1QSTK4	40G QSFP+ to 4x10G SFP+ Cable 3m
LSWM1QSTK5	40G QSFP+ to 4x10G SFP+ Cable 5m



PID	Description
Cable	
QSFP-100G-D-AOC-10M	100G QSFP28 to 100G QSFP28 10m Active Optical Cable
QSFP-100G-D-CAB-1M	100G QSFP28 to 100G QSFP28 1m Passive Cable
QSFP-100G-D-AOC-20M	100G QSFP28 to 100G QSFP28 20m Active Optical Cable
QSFP-100G-D-CAB-3M	100G QSFP28 to 100G QSFP28 3m Passive Cable
QSFP-100G-D-CAB-5M	100G QSFP28 to 100G QSFP28 5m Passive Cable
QSFP-100G-D-AOC-7M	100G QSFP28 to 100G QSFP28 7m Active Optical Cable
License	
LIS-S6800-DC	H3C S6800/S6860/S6861 Data Center License FCoE, FC, SPB, Trill, EVB require a software license. Only one license is required even if multiple features are installed on the switch.

Contact Us

Skype: wendycisco

WhatsApp: +852-57008326

E-mail: wendy@donewin.com.hk

Website: <https://www.uritprice.com>

<https://www.uritprice.com>



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