



# H3C S6860 Series

# Data Center Switches

Release Date: March, 2021



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

### Intelligent Resilient Framework 2 (IRF2)

H3C S6800 switch series is pre-built with Intelligent Resilient Framework 2 (IRF2). IRF2 provides the following benefits:

- **High scalability:** With IRF2, plug-n-play device aggregation can be achieved by adding one or more switches into the IRF2 stack and enabling IRF2 stacking on the new device. New devices can be managed with a single IP, and upgraded at the same time to reduce network expansion cost.
- **High reliability:** The IRF2 patented 1:N backup technology allows each slave device in the IRF2 stack to serve as the backup of the master, creating control and data link redundancy, as well as uninterrupted layer-3 forwarding. This improves the reliability, avoids unplanned business downtime and serves to improve overall performance. When the master device fails, traffic remains uninterrupted.
- **Load balancing:** IRF2 supports cross-device link aggregation, upstream and downstream can be connected to more than one physical link, which creates another layer of network redundancy and boosts the network resource utilization.
- **Availability:** H3C Implements IRF2 through standard Forty Gigabit Ethernet (40GE) or Ten Gigabit Ethernet (10GE) ports which allocates bandwidth for business and application access and reasonably splits local traffic and upstream traffic. IRF2 rules can not only be obeyed within and across the rack, but also across the LAN.

### 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 S6800 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

## 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)		
Console port	1		
Out-of-band management port	One GE copper port and one GE fiber port		
Mini USB port	1		
SFP Plus port	24	48	N/A
10GBase-T port	N/A	N/A	48
QSFP+ port	Max. 6		
QSFP28 port	Max. 2		
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
	Forwarding capacity	720Mpps	720 Mpps
Forwarding mode	Store-forward and cut-through modes		
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		
VLAN	Port-based VLAN (quantity: 4094)		
	Super VLAN		
	MAC VLAN		
	Basic QinQ, flexible QinQ		

Item	S6860-30HF	S6860-54HF	S6860-54HT
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		
Zero-configuration	Auto-config and config rollback		
MPLS	MCE MPLS VPN, VPLS		
MSTP	STP/RSTP/MSTP PVST+/RPVST+ STP root guard BPDU guard		
RPR	RRPP, Smart Link		



Item	S6860-30HF	S6860-54HF	S6860-54HT
QoS/ACL	<ul style="list-style-type: none"> <li>Inbound and outbound traffic rate limit</li> <li>CAR</li> <li>Eight output queues on each port</li> <li>Flexible port-and queue-based queuing and scheduling algorithms</li> <li>SP, WRR, WFQ, SP+WRR, and SP+WFQ queuing</li> <li>802.1p and DSCP priority marking</li> <li>Packet filtering at Layer 2 to Layer 4</li> <li>Traffic classification based on source MAC address, destination MAC address, source IPv4/IPv6 address, destination IPv4/IPv6 address, port number, protocol type, and VLAN</li> <li>Time range</li> <li>WRED</li> </ul>		
Mirroring	<ul style="list-style-type: none"> <li>Traffic mirroring</li> <li>N:4 port mirroring</li> <li>Local port mirroring, remote port mirroring</li> </ul>		
Security	<ul style="list-style-type: none"> <li>Hierarchical user management and password protection</li> <li>AAA (RADIUS/HWTACACS)</li> <li>SSH 2.0</li> <li>IP address, MAC address, and port number binding</li> <li>IP source guard</li> <li>HTTPS/SSL</li> <li>PKI</li> </ul>		
Loading and upgrading	<ul style="list-style-type: none"> <li>Loading/upgrading through the XMODEM protocol</li> <li>Loading/upgrading through FTP and TFTP</li> </ul>		
Management and maintenance	<ul style="list-style-type: none"> <li>Configuration at the CLI</li> <li>Telnet configuration</li> <li>Configuration through the console port</li> <li>RMON, Event log</li> <li>SNMPv1/v2c/v3</li> <li>IMC</li> <li>NETCONF configuration</li> <li>System logs</li> <li>Hierarchical alarms</li> <li>NTP, SNTP</li> <li>Power module status alarming</li> <li>Fan tray status alarming</li> <li>Temperature alarming</li> <li>Debugging information output</li> <li>Ping and tracer</li> <li>File uploading and downloading through the USB port</li> </ul>		



Item	S6860-30HF	S6860-54HF	S6860-54HT
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		
Safety	ETSI EN 300 386		
	GB/T 9254		
	YD/T993		
	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			

## 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
<b>Power</b>	
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
<b>Fan</b>	
LSPM1FANSA	Ethernet Switch Fan Module(Power to Port Airflow)
LSPM1FANSB	Ethernet Switch Fan Module(Port to Power Airflow)
<b>Transceiver</b>	
SFP-FE-SX-MM1310-A	100BASE-FX SFP Transceiver, Multi-Mode (1310nm, 2km, LC)
SFP-FE-LX-SM1310-A	100BASE-LX SFP Transceiver, Single Mode (1310nm, 15km, LC)
SFP-FE-LH40-SM1310	100BASE-LH40 SFP Transceiver, Single Mode (1310nm, 40km, LC)
SFP-GE-T	1000BASE-T SFP
SFP-GE-SX-MM850-A	1000BASE-SX SFP Transceiver, Multi-Mode (850nm, 550m, 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-LH80-SM1550	1000BASE-LH80 SFP Transceiver, Single Mode (1550nm, 80km, LC)
SFP-XG-SX-MM850-A	SFP+ Module(850nm,300m,LC)
SFP-XG-LX-SM1310	SFP+ Module(1310nm,10km,LC)
QSFP-40G-LR4-WDM1300	40GBASE-LR4 QSFP+ Optical Transceiver Module
QSFP-40G-CSR4-MM850	QSFP+ 40GBASE Optical Transceiver Module (850nm,300m,CSR4,Support 40G to 4*10G)
QSFP-40G-SR4-MM850	QSFP+ 40GBASE Optical Transceiver Module (850nm,100m,SR4,Support 40G to 4*10G)
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-100G-SR4-MM850	100G QSFP28 Optical Transceiver Module (850nm,100m OM4,SR4,MPO)
QSFP-100G-PSM4-SM1310	100G QSFP28 Optical Transceiver Module (1310nm,500m,PSM4,MPO/APC)
QSFP-100G-LR4L-WDM1300	100G QSFP28 Optical Transceiver Module (1310nm,2km,LR4L,CWDM4,LC)
QSFP-100G-LR4-WDM1300	100G QSFP28 Optical Transceiver Module(1310nm,10km,LR4,WDM,LC)
<b>Cable</b>	
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
LSWM1QSTK3	40G QSFP+ to 4x10G SFP+ Cable 1m
LSWM1QSTK4	40G QSFP+ to 4x10G SFP+ Cable 3m
LSWM1QSTK5	40G QSFP+ to 4x10G SFP+ Cable 5m
QSFP-100G-D-CAB-1M	100G QSFP28 to 100G QSFP28 1m Passive 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
<b>License</b>	
LIS-S6800-DC	H3C S6800 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.



The Leader in Digital Solutions

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