H3C S6800 Series

Data Center Switches

Release Date: August, 2021

H3C Technologies Co., Limited

H3C S6800 Series Data Center Switches

Product overview

H3C S6800 series switch is H3C self-developed cloud ready data center intelligent switches. The S6800 series switch delivers cloud ready features, such as VXLAN, OpenFlow and EVPN, a rich set of features for data centers. As the most compact formed 10G/40G/100G solution in the industry, the S6800 series switch is perfectly matched for high density 10GE access or 40G/100G aggregation in intelligent data centers and cloud computing networks. The S6800 series switch can also fit nicely as the TOR switch of overlay networks.

Product Appearance

The S6800 series come in the following models:

- H3C S6800-54QF: 48*1/10G SFP Plus, 6*QSFP+

S6800-54QF Front View   S6800-54QF Rear View

- H3C S6800-54QT: 48*1/10GBase-T, 6*QSFP+

S6800-54QT Front View   S6800-54QT Rear View

- H3C S6800-32Q: 32*QSFP+ (40G)

S6800-32Q Front View   S6800-32Q Rear View

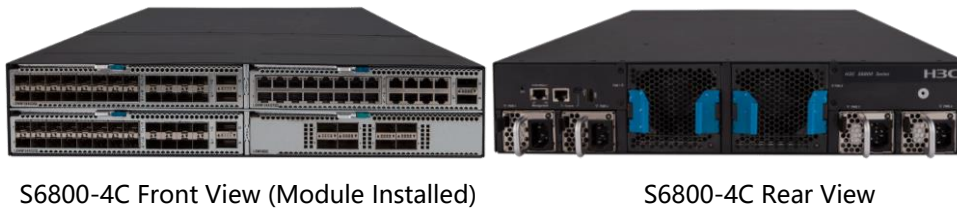- H3C S6800-2C: 2 interface slots

S6800-2C Front View (Module Installed)   S6800-2C Rear View

- H3C S6800-4C: 4 interface slots

S6800-4C Front View (Module Installed)   S6800-4C Rear View

Product Characteristics

Flexible port combination

- H3C S6800-2/4C support various types of interface cards, realize mixed configuration of high-density 10GE optical and copper port / 40GE / 100GE/MACsec/FC interface.
- For S6800-4C, It can support up to 96 10GE ports and 8 40GE ports, or 32 40GE high-speed interfaces.

Data Center-Oriented Features

- The switch supports abundant data center features, including:
- H3C S6800 series switch supports VXLAN (Virtual eXtensible LAN), which provides two major benefits, higher scalability of Layer 2 segmentation and better utilization of available network paths.
- H3C S6800 series switch supports MP-BGP EVPN (Multiprotocol Border Gateway Protocol Ethernet Virtual Private Network) which can run as VXLAN control plane to simplify VXLAN configuration, eliminate traffic flooding and reduce full mesh requirements between VTEPs via the introduction of BGP RR.
- H3C S6800 series switch support Fiber Channel over Ethernet (FCoE), which permits storage, data, and computing services to be transmitted on one network, reducing the costs of network construction and maintenance.
- H3C S6800-2C/4C switch support Fiber Channel interface card, the ports can be switched to FC port to interoperate with FC SAN.
- H3C S6800 series switch support Priority-based Flow Control (PFC), Enhanced Transmission Selection (ETS) and Data Center Bridging eXchange (DCBX). These features ensure low latency and zero packet loss for FC storage and high-speed computing services.
- H3C S6800 series switch support TRILL (Transparent Interconnection of Lots of Links). TRILL is an innovative technology that changes the traditional way to build data center networks. By using TRILL technology, S6800 series switch becomes the ideal choice to build a large, high-performance, and scalable cloud data center networks that support live virtual machines.

H3C Distributed Resilient Network Interconnection (DRNI)

- H3C S6800 series switch 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.

RoCE (RDMA over Converged Ethernet)

- Remote Direct Memory Access (RDMA) directly transmits the user application data to the storage space of the servers, and uses the network to fast transmit the data from the local system to the storage of the remote system. RDMA eliminates multiple data copying and context switching operations during the transmission process, and reduces the CPU load.
- RoCE supports RDMA on standard Ethernet infrastructures. H3C S6800 switch support RoCE and can be used to build a lossless Ethernet network to ensure zero packet loss.
- RoCE include the following key features, include PFC(Priority based Flow Control), ECN(Explicit Congestion Notification), DCBX(Data Center Bridging Capability Exchange Protocol), ETS(Enhanced Transmission Selection).

Powerful SDN capacity

- H3C S6800 series switch adopt the next-generation chip with more flexible OpenFlow, more resources and accurate ACL matching, which greatly improves the software-defined network (SDN) capabilities and meet the demand of data center SDN network.
- H3C S6800 series switch support standard OpenFlow protocol, which can be integrated and managed by H3C VCFC controller or H3C cloud or mainstream cloud platforms or a third-party controller to support flexible network customization and automated management. Users and third-party controllers can use standard interfaces to develop and deploy a dedicated network management strategy for rapid business deployment, functional expansion, and intelligent device management.

MACsec

- H3C S6800 series switch supports hardware level encryption technology MACsec (802.1ae), which is an industry-standard security technology that provides secure communication for all traffic on Ethernet links. Compared with traditional application-based software encryption technology, MACsec provides point to-point security on Ethernet links between directly connected nodes and is capable of identifying and preventing most security threats.

Outstanding security control policies

- H3C S6800 series switch supports AAA, RADIUS and user account based authentication, IP, MAC, VLAN, port-based user identification, dynamic and static binding; when working with the H3C iMC platform, it can conduct real time management, instant diagnosis and crackdown on illicit network behavior.

- H3C S6800 series switch supports enhanced ACL control logic, which enables an enormous amount of in-port and out- port ACL, and delegate VLAN based ACL. This simplifies user deployment process and avoids ACL resource wastage. S6800 switch series can also take advantage of Unicast Reverse Path Forwarding (uRPF). When the device receives a packet, it will perform the reverse check to verify the source address from which the packets are supposedly originated, and will drop the packet if such path doesn't exist. This will curb the increasingly common originating address spoofing.

Flexible choice of airflow

- To cope with data center cooling aisle design, the H3C S6800 series switch 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.

Multiple Reliability

- H3C S6800 series switch provides multiple reliability protection at both switch and link levels. With overcurrent, overvoltage, and overheat protection, all models have a redundant pluggable power module, which enables flexible configuration of AC or DC power modules based on actual needs. The entire switch supports fault detection and alarm for power supply and fan, allowing fan speed to change to suit different ambient temperatures.

Excellent manageability

- H3C S6800 series switch provides a rich management interface, including console, external network and USB. Management protocols such as SNMPv1/v2/v3 are supported aside from iMC Management Console. The network administrator may activate control through CLI, TELNET, SSH, SNMP, RESTful API, which gives maximum flexibility in accessing and managing the device. The administrator may also choose SSH2.0 and SSL encryption to shield the management session.

Product Specification

Functions and Features

Features	S6800-32Q	S6800-54QF	S6800-54QT	S6800-2C	S6800-4C
Port Switching Capacity	2.56Tbps	1.44Tbps	1.44Tbps	1.44Tbps	2.56Tbps
Forwarding performance	1440Mpps	1080Mpps	1080Mpps	1080Mpps	1440Mpps
Device Virtualization	IRF2				
	DRNI				
Network Virtualization	VXLAN				
	MP-BGP EVPN				
	TRILL				
	SPB				
SDN	VCFC Controller				
Data center features	FC/FCoE				
	RDMA and RoCE				
	802.1Qbb PFC, 802.1Qaz ETS, ECN, DCBX				
	SPB				
	TRILL				
	OpenFlow1.3.1				
	Service chain				
	Netconf , Python				
Jumbo Frame	Support				
MAC address	Static MAC address				
	Blackhole MAC address				
VLAN	Port-based VLAN (4094)				
	Default VLAN				
Traffic monitoring	sFlow				
DHCP	DHCP Server/Client				
	DHCP Snooping				
	DHCP Relay				
	DHCP Snooping option82/DHCP Relay option82				
ARP	Static table entry				
	Gratuitous ARP				
	Dynamic ARP Inspection				
	ARP anti-attack				
	ARP source suppression				
	ARP Detection function (check according to DHCP Snooping safety entry, 802.1x table entry or IP/MAC static binding table entry)				
IPv4 routing	Static routing, RIP v1/2, OSPFv1/v2/v3, BGP, IS-IS				
	Equal-Cost Multi-Path routing (ECMP), VRRP, policy-based routing				
IPv6 routing	RIPng, OSPF v3, IS-IS v6				
	BGP4 + for IPv6, VRRP, IPv6 routing strategy				
	ND (Neighbor Discovery)				
	PMTU				
	ICMP v6, Telnet v6, SFTP v6, SNMP v6, BFD v6, VRRP v3				
	IPv6 Portal				
	IPv6 tunnel				
Multicast protocol	IGMP Snooping v2/v3				
	IGMP v1/v2/v3				
	PIM-DM/SM				
	IPv6 PIM-DM/SM/SSM				
	PIM, MSDP				
	MLD Snooping				
	Multicast policy				

Features	S6800-32Q	S6800-54QF	S6800-54QT	S6800-2C	S6800-4C
Zero configuration	Auto-config and Configure Rollback				
MPLS	MCE MPLS VPN and VPLS				
MSTP	STP/RSTP/MSTP PVST+/RPVST+ STP Root Guard BPDU Guard				
LLDP	LLDP LLDP-MED				
LACP	LACP LACP local forwarding first LACP short-time LACP Stack split detection				
QoS/ACL	Flow control Committed Access Rate (CAR) Eight output queues per port Flexible queue scheduling algorithm can be set based on port and queue, support SP, WRR, WFQ, SP + WRR, SP + WFQ and other models 802.1p and DSCP priority re-marking L2 (Layer 2) ~ L4 (Layer 4) packet filtering based on source MAC address, destination MAC address, source IP (IPv4/IPv6) address, destination IP (IPv4/IPv6) address, port, protocol, and VLAN Traffic Classification Time range Weighted Random Early Detection (WRED)				
Mirror	Flow Mirroring N: 4 port mirroring Local and remote port mirroring				
Security	Hierarchical user management and password protection AAA authentication support RADIUS authentication HWTACACS SSH 2.0，SCP IP + MAC + port binding IP Source Guard HTTPs SSL Public Key Infrastructure (PKI) Unicast/Multicast/Broadcast Suppression (percent or pps) Support max 2K 802.1x USERS total				
Firmware upgrade	Upgrade via the XModem, File Transfer Protocol (FTP) and Trivial File Transfer Protocol (TFTP)				
Management and maintenance	Configuration via CLI, Telnet, and Console port Schedule job ISSU SNMP (Simple Network Management Protocol) Remote Monitoring(RMON) alarm, event, and history recording H3C Intelligent Management Centre (iMC) System log，syslog Hierarchical alarm NTP Power, fan and temperature alarms Debug string output Ping, Tracert Track, LLDP, LLDP-MED Telnet remote maintenance Copy switch files to and from a USB flash drive				
IEEE Standard	802.3x/802.3ad/802.3AH 802.1P/802.1Q/802.1X/802.1D/802.1w/802.1s/802.1AG/802.1Qbb 802.1az/802.1Qaz/802.1Qbg/802.1Qau/802.1aq				

Features	S6800-32Q	S6800-54QF	S6800-54QT	S6800-2C	S6800-4C
EMC	FCC Part 15 Subpart B 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				
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				

Performance and Scalability

Item	S6800-32Q	S6800-54QF	S6800-54QT	S6800-2C	S6800-4C
Maximum number of MAC address entries	288K				
Maximum number of IPv4 Forwarding routes (FIB IPv4)	250K				
Maximum number of IPv6 Forwarding routes (FIB IPv6)	120K				
Dynamic ARP table size	208K				
IPv6 ND (Neighbor Discovery) table size	104K				
Maximum Number of multicast routes (Multicast FIB IPv4/IPv6)	16K/8K				
Maximum ACL number	16K ingress 1K egress				
Maximum number of VSI-interface	(8k-1) (4K-1 border)				
Maximum number of tunnel endpoints (VTEP)	4K				
Maximum number of VLAN-interface	2K				
Maximum number of lag group	1024				
Maximum number of links in a lag group	32				
Jumbo	10,000				

Hardware Specification

Features	S6800-32Q	S6800-54QF	S6800-54QT	S6800-2C	S6800-4C
Dimensions (H ×W ×D)	43.6×440×660 mm (1U) 1.72×17.32×18.11 in	44×440×400 mm (1U) 1.73×17.32×15.75 in	44×440×460 mm (1U) 1.73×17.32×18.11 in	44.2×440×660 mm (1U) 1.74×17.32×18.11 in	88.1×440×660 mm (2U) 3.4×17.32×18.11 in
Weight	≤13kg (28.66 lb)	≤13kg (28.66 lb)	≤13kg (28.66 lb)	≤16Kg (35.27 lb)	≤27Kg (59.52 lb)
CPU cores	2	2	2	2	2
CPU main frequency	1GHz	1GHz	1GHz	1GHz	1GHz
Buffer	16M	16M	16M	16M	16M
Latency	64 byte	64 byte	64 byte	64 byte	64 byte
Flash/Memory	1GB/4GB				
Console port	1	1	1	1	1
Ethernet port for management	1	10M/100M/1000M Base-T: 1 SFP 1000Base-X: 1		1	1
Mini USB port	1	1	1	1	1
USB port	1	1	1	1	1
1/10G Base-T port	-	-	48	-	-
1/10G SFP+ port	-	48	-	-	-
QSFP port	32	6	6	2	-
QSFP28 port	-	-	-	-	-
Module slot	-	-	-	2	4
Input Voltage – AC	Related voltage range: 100V to 240V AC, 50/60Hz Maximum voltage range: 90V to 290V AC,				
Input Voltage – DC	Related voltage range: -38.4V to -72V DC				
Power module	Two	Two	Two	Two	Four
Fan	Two hot-swappable fan	Three hot-swappable fan	Five hot-swappable fan	Two hot-swappable fan	
Power consumption (idle)	Single AC: 132W Dual AC: 145W Single DC: 128W Dual DC: 142W	PSR250-12A /PSR250-12A1: Single AC: 65W Dual AC: 71W PSR450-12A1: Single AC: 68W Dual AC: 79W PSR450-12D: Single DC: 67W Dual DC: 76W	PSR450-12A1: Single AC: 103W Dual AC: 109W PSR450-12D: Single DC: 107W Dual DC: 113W	Single AC: 95W Dual AC: 110W Single DC: 91W Dual DC: 105W	Dual AC: 135W Three AC: 150W Four AC: 165W Dual DC: 131W Three DC: 145W Four DC: 155W
Power consumption (fully loaded)	Single AC: 291W Dual AC: 301W Single DC: 291W Dual DC: 299W	PSR250-12A /PSR250-12A1: Single AC: 165W Dual AC: 175W PSR450-12A1: Single AC: 166W Dual AC: 175W PSR450-12D: Single DC: 166W Dual DC: 171W	PSR450-12A1: Single AC: 103W Dual AC: 109W PSR450-12D: Single DC: 107W Dual DC: 113W	Single AC:439W Dual AC: 450W Single DC: 443W Dual DC: 445W	Dual AC: 827W Three AC: 837W Four AC: 856W Dual DC: 823W Three DC: 825W Four DC: 828W
Operating temperature	0℃ to 45℃ (32°F to 113°F)				
Operating humidity	10% to 90% (noncondensing)				

Order information

PID	Description
LS-6800-54QT-H3	H3C S6800-54QT L3 Ethernet Switch with 48 10GBASE-T and 6 QSFP Plus Ports
LS-6800-54QF-H3	H3C S6800-54QF L3 Ethernet Switch with 48 SFP Plus Ports and 6 QSFP Plus Ports,No Power
LS-6800-2C-H1	H3C S6800-2C L3 Ethernet Switch with 2*QSFP Plus Ports and 2*Interface Module Slots
LS-6800-4C-H1	H3C S6800-4C L3 Ethernet Switch with 4*Interface Module Slots
LS-6800-32Q-H1	H3C S6800-32Q L3 Ethernet Switch with 32 QSFP+ Ports
Power	
LSVM1AC650	650W AC Power Supply Module, for 2C/4C/32Q/54HT/54HF
LSVM1DC650	650W DC Power Supply Module, for 2C/4C/32Q/54HT/54HF
PSR250-12A	250W AC Power Supply Module, for 54QF, Power to Port Airflow
PSR250-12A1	250W AC Power Supply Module, for 54QF, Port to Power Airflow
PSR450-12D	450W DC Power Supply Module, for 54QT/54QF
PSR450-12A1	450W AC Power Supply Module, for 54QT/54QF
Fan	
LSWM1HFANSCB	Fan Module with Port to Power Airflow for 2C/32Q/54HF/54HT
LSWM1HFANSC	Fan Module with Power to Port Airflow for 2C/32Q/54HF/54HT
LSWM1BFANSCB	Fan Module with Port to Power Airflow for 4C
LSWM1BFANSC	Fan Module with Power to Port Airflow for 4C
LSPM1FANSA	Fan Module(Power to Port Airflow) for 54QF/54QT
LSPM1FANSB	Fan Module(Port to Power Airflow) for 54QF/54QT
Module	
LSWM18QC	8-Port QSFP Plus Interface Card
LSWM124XG2Q	24-Port SFP Plus and 2-Port QSFP Plus Interface Card with MACSec
LSWM124XGT2Q	24-Port 10GBASE-T and 2-Port QSFP Plus Interface Card with MACSec
LSWM124XG2QL	24-Port SFP Plus and 2-Port QSFP Plus Interface Card
LSWM124XG2QFC	24 Ports SFP Plus and 2 Ports QSFP Plus Interface Card with FC
LSWM12H2Q	H3C S6800 2-Port QSFP28 and 2-Port QSFP Plus Ethernet Optical Interface Module
Transceiver	
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
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-SR4-MM850	QSFP+ 40GBASE Optical Transceiver Module (850nm,100m,SR4,Support 40G to 4*10G)

PID	Description
Transceiver	
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)
Cable	
LSWM1STK	SFP+ Cable 0.65m
LSWM2STK	SFP+ Cable 1.2m
LSWM3STK	SFP+ Cable 3m
LSTM1STK	SFP+ Cable 5m
SFP-XG-D-AOC-7M	SFP+ to SFP+7m AOC
SFP-XG-D-AOC-10M	SFP+ to SFP+10m AOC
SFP-XG-D-AOC-20M	SFP+ to SFP+20m AOC
LSWM1QSTK0	40G QSFP+ Cable 1m
LSWM1QSTK1	40G QSFP+ Cable 3m
LSWM1QSTK2	40G QSFP+ Cable 5m
QSFP-40G-D-AOC-7M	40G QSFP+ to 40G QSFP+7m AOC
QSFP-40G-D-AOC-10M	40G QSFP+ to 40G QSFP+10m AOC
QSFP-40G-D-AOC-20M	40G QSFP+ to 40G QSFP+20m AOC
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
License	
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

http://www.h3c.com