H3C S6890 Series

Data Center Switches

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New H3C Technologies Co., Limited

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Product overview

S6890 switch series is the latest development of Cloud ready intelligent data center switches. S6890 switch series delivers industry leading big buffer to address burst traffic in Internet companies and provides large table size for campus network. To cope with the trend of SDN, S6890 switch series offers cloud ready features, such as VXLAN, Openflow and EVPN, providing a rich set of features tailored for data centers as well as L2/L3 feature enhancement for enterprises. H3C S6890 switch series is made for high density 10GE access or 40GE/100GE aggregation in intelligent data centers, large campus network and cloud computing services. The series includes two models: S6890-30HF and S6890-54HF.

The S6890 switch series includes the following models:

- S6890-30HF—Provides 24 × 1/10G SFP Plus ports, 6 × QSFP28 ports, 2 × power module slots, 4 × fan tray slots, 2 × out-of-band management ports, 1 × mini USB port and 1 × USB port.
- S6890-54HF—Provides 48 × 1/10G SFP Plus ports, 6 × QSFP28 ports, 2 × power module slots, 5 × fan tray slots, 2 × out-of-band management ports, 1 × mini USB port and 1 × USB port.

S6890-30HF front panel

S6890-30HF rear panel

S6890-54HF front panel

S6890-5HF rear panel

Features and Benefits

High density 10G/40G/100G access with large buffer

- H3C S6890-30HF can provide 24 1G/10G SFP+ ports, 6 100G QSFP28 ports (40G QSFP+ compatible), 2 modular power supply slots, 4 fan slots, 2 out-of-band management ports, 1 console port and 1 USB port.
- H3C S6890-54HF can provide 48 1G/10G SFP+ ports, 6 100G QSFP28 ports (40G QSFP+ compatible) , 2 modular power supply slots, 5 fan slots, 2 out-of-band management ports, 1 console port and 1 USB port.
- The S6890 switch series delivers industry leading 4G buffer designed to address burst traffic in Internet companies.

H3C Distributed Resilient Network Interconnection (DRNI)

- H3C S6890 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.

DC-oriented features

- VXLAN (Virtual Extensible LAN) — VXLAN uses a MAC-in-UDP encapsulation method where the original Layer 2 package is added with a VXLAN header, and is then placed in a UDP-IP packet. With the help of MAC-in-UDP encapsulation, VXLAN tunnels Layer 2 network over Layer 3 network which provides two major benefits: higher scalability of Layer 2 segmentation and better utilization of available network paths.
- MP-BGP EVPN (Multiprotocol Border Gateway Protocol Ethernet Virtual Private Network) uses standard-based BGP protocol as the control plane for VXLAN overlay networks, providing BGP based VTEP auto peer discovery and end-host reachability information distribution. MP-BGP EVPN delivers many benefits, such as eliminating traffic flooding, reducing full mesh requirements between VTEPs via the introduction of BGP RR, achieving optimal flow based end to end load sharing and more.

High-performance IPv4/IPv6 service capabilities

- H3C S6890 switch series comes with IPv4/IPv6 dual-stack platform that provides sophisticated IPv4/IPv6 solutions by supporting multiple tunnels, IPv4/IPv6 Layer 3 routing protocols, multicasting, and policy-based routing.

Flexible choice of airflow

- To cope with data center cooling aisle design, the H3C S6890 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.

Outstanding security control policies

- H3C S6890 switch series supports AAA, RADIUS authentication and user account, IP, MAC, VLAN, port-based user identification of dynamic and static binding; Working with H3C iMC platform, it can conduct real time management, instant diagnosis and crackdown on illicit network behaviors.
- H3C S6890 switch series supports enhanced ACL control logic, offers a large number of inbound and outbound ACLs and VLAN-based ACL assignment. This simplifies user configuration while saving ACL resources.

Multiple reliability protection

- The S6890 switch series provides multiple reliability protection at both equipment and link levels. With overcurrent, overvoltage and overheat protection, all models have a redundant swappable 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 S6890 switch series provides rich management interfaces, including console port, out-of-band management port and USB port. Management protocols such as SNMPv1/v2/v3 are supported aside from iMC Management Console. The network administrator may activate control through CLI, Web user interface and TELNET which gives maximum flexibility in accessing and managing the device. The administrator may also choose SSH2.0 and SSL encryption to shield the management sessions.

Hardware Specification

Item	S6890-30HF	S6890-54HF
Dimensions (W × D × H)	440x460x43.6 mm (1U)	
Weight	<10kg	<13kg
Console port	1	
Ethernet port for management	2	
USB port	1	
1/10G SFP+ port	24	48
QSFP28 port	6	
CPU	1GHz@2Core	
Flash/SDRAM	1G/8G	
Buffer	4G Byte	
Latency	< 1μs	
Switching capacity	1.68Tbps	2.16Tbps
Throughput	720Mpps	720Mpps
MTBF(years)	62.7	32.9
MTTR(hour)	1	1
Power modules	2	
Fan modules	4	5
Power consumption (Static)	Single AC 117W Single DC 112W Dual AC 122W Dual DC 117W	Single AC 140W Single DC 135W Dual AC 155W Dual DC 148W
Maximum heat consumption (BTU/hour)	Single AC 880 Single DC 850 Dual AC 887 Dual DC 856	Single AC : 1116 Single DC 1092 Dual AC 1160 Dual DC 1126
Input Voltage	AC: Rated voltage: 100 VAC to 240 VAC @ 50 or 60 Hz Max voltage: 90 VAC to 264 VAC @ 47 to 63 Hz DC: Rated voltage: –48 VDC to –60 VDC Max voltage: –40 VDC to –72 VDC	
Operating temperature	0°C to 45°C (32°F to 113°F)	

Operating relative humidity	10% to 90%

Software Specification

Item	Feature description
Device Virtualization	IRF
Network Virtualization	BGP-EVPN
	VxLAN
VxLAN	L2 VxLAN gateway
	L3 VxLAN gateway
	Distributed VxLAN gateway
	Centralized VxLAN gateway
	EVPN VxLAN
	manual configured VxLAN
	IPv4 VxLAN tunnel
Programmability	Openflow1.3
	Netconf
	Ansible
	Python//TCL/Restful API to realize DevOps automated operation and maintenance
Traffic analysis	Sflow
VLAN	Port-based VLANs
	VLAN mapping
	L2PT
	MVRP(Multiple VLAN Registration Protocol)
MAC address	Dynamic learning and aging of mac address entries
	Dynamic,static and blackhole entries
IPv4 routing	RIP(Routing Information Protocol) v1/2
	OSPF (Open Shortest Path First) v1/v2
	ISIS(Intermediate System to Intermediate system)
	BGP (Border Gateway Protocol)
	Routing policy
	VRRP
	PBR
IPv6 routing	RIPng
	OSPFv3
	IPv6 ISIS
	BGP4+
	Routing policy

Item	Feature description
	VRRP
	PBR
MPLS/VPLS	Support L3 MPLS VPN
	Support MCE
	VPLS
	Support MPLS OAM
	Support P/PE function
	Support LDP protocol
Multicast	IGMP snooping
	MLD snooping
	IPv4 and IPv6 multicast VLAN
	IPv4 and IPv6 PIM snooping
	IGMP and MLD
	PIM and IPv6 PIM
	MSDP
Reliability	LACP
	STP/RSTP/MSTP protocol, PVST compatible
	STP Root Guard and BPDU Guard
	RRPP and ERPS(ITU-T G.8032)
	Loopback detection
	Ethernet OAM
	Smartlink
	DLDP
	BFD for OSPF/OSPFv3, BGP/BGP4, IS-IS/IS-ISv6, PIM/IPM for IPv6 and Static route
	VRRP and VRRPE
Telemetry	ERSPAN
	Packet capture
QOS	Weighted Random Early Detection (WRED) and tail drop
	Flexible queue scheduling algorithms based on port and queue, including strict priority (SP), Weighted Deficit Round Robin (WDRR), Weighted Fair Queuing (WFQ), SP + WDRR, and SP + WFQ.
	Traffic shaping
	Packet filtering at L2 (Layer 2) through L4 (Layer 4); flow classification based on source MAC address, destination MAC address, source IP (IPv4/IPv6) address, destination IP (IPv4/IPv6) address, port, protocol, and VLAN to apply qos policy,including mirroring,redirection,priority remark etc.
	Committed access rate (CAR)
	Account by packet and byte
	COPP
Configuration and maintenance	Console telnet and SSH terminals

Item	Feature description
	SNMPv1/v2/v3
	ZTP
Configuration and maintenance	System log
	File upload and download via FTP/TFTP BootRom update and remote update
	NQA
	ping,tracert
	NTP
Security and management	Hierarchical management and password protection of users
	Authentication methods,including AAA,RADIUS and HWTACACS
	Support DDos, ARP attack and ICMP attack function
	SSH 2.0
	HTTPS
	SSL
	PKI
	Boot ROM access control (password recovery)
	RMON
	permit third party transceivers (license)
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 GB/T 9254 YD/T 993
IEEE Standard	802.3ab/802.3ae/802.3z/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
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

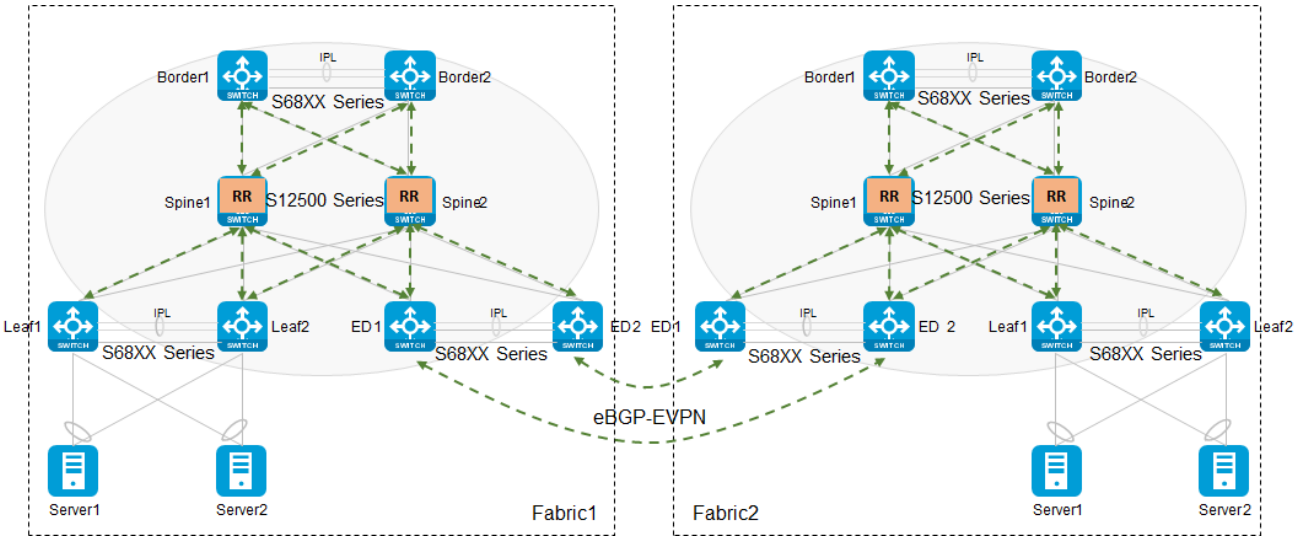
Performance and scalability

Item	Description	
Virtualization	IRF2.0 stack	2
	M-LAG device number	2
ACL	max number of ingress ACLs	40K
	max number of ingress Car	8K
	max number of ingress Counter	8K
	max number of egress ACLs	20K
	max number of egress Counter	4K
Forwarding table	Jumbo frame length(byte)	12288
	Mirroring group	15
	PBR policy	1000
	PBR node	256
	max number of MACs per switch	750K
	max number of ARP entries IPv4	350K
	max ND table size for IPv6	48K
	max number of unicast routes IPv4	250K
	max number of unicast routes IPv6	64K
	IPv4 l2 multicast group	2000
	IPv4 l3 multicast group	2000
	IPv4 multicast routing	16K
	IPv6 l2 multicast group	1000
	IPv6 l3 multicast group	1000
	IPv6 multicast routing	8K
	LAGG group	1024
	LAGG member per group	64
	ECMP group	max 2047
	ECMP member per group	2-128
	VRF	4095
Interface	Loopback interface number	1K
	L3 sub interface number	4094
	SVI interface number	4094
	VxLAN AC number	16K
	VxLAN VSI number	16K
	VxLAN tunnel number	4K
	VSI interface number	8K
	IPv4 tunnel number	127
	IPv6 tunnel number	127
	VLAN number	4094
Performance	RIB	1M
	MSTP instance	64
	PVST instance	128
	PVST logical port number	1000
	VRRP VRID	16

Item	Description	
Performance	VRRP group	256
	NQA group	32
MPLS/VPLS	LDP peer	128(local),256(remote)
	VRF	4000
	VPLS: Number of Pseudo Wires	4000
	VPLS: number of peers/single VPLS full mesh instance	100
	RSVP adjacency	200
Static table	static mac-address	20K
	static multicast mac-address	256
	static ARP	8K
	static ND	1K
	static IPv4 routing table	250K
	static IPv6 routing table	128K

Data Center Application

The typical data center application is an EVPN-VxLAN design,S12500G-AF or S12500X-AF swithes work as spine or spine/border, S68XX series work as leaf and border or ED. From this design ,the users can get a non-blocking large L2 system.



Order information

PID	Description
LS-6890-30HF	H3C S6890-30HF L3 Ethernet Switch with 24 SFP Plus Ports and 6 QSFP28 Ports,Without Power Supplies
LS-6890-54HF	H3C S6890-54HF L3 Ethernet Switch with 48 SFP Plus Ports and 6 QSFP28 Ports,Without Power Supplies
Power	
LSVM1AC650	650W AC Power Supply Module
LSVM1DC650	650W DC Power Supply Module

PID	Description
LSVM1AC300	300W AC Power Supply Module
LSVM1DC300	300W DC Power Supply Module
Fan	
LSWM1FANSAB	Fan Module with Port to Power Airflow
LSWM1FANSA	Fan Module with Power to Port Airflow
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-SX-MM850-A	SFP+ Module(850nm,300m,LC)
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-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)
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)
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)
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
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
LSWM1QSTK0	40G QSFP+ Cable 1m
LSWM1QSTK1	40G QSFP+ Cable 3m
LSWM1QSTK2	40G QSFP+ Cable 5m

The Leader in Digital Solutions

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