H3C S6550X Series

Data Center Switches

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New H3C Technologies Co., Limited

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Product overview

H3C S6550X high-density intelligent switch series is developed for data centers and cloud computing networks. It provides powerful hardware forwarding capacity and abundant data center features. It provides up to 28*40G ports + 4*100G ports and 1 out-of-band management port (one copper port). The 100G ports are 100G/40G autosensing and each can be split into four interfaces. The switch supports modular power supplies and fan trays. By using different fan trays, the switch can provide field-changeable airflows.

The switch is an ideal product for high-density 100GE or 40GE accessing and aggregation at data centers and cloud computing networks. It can also operate as a TOR access switch on an overlay or integrated network.

The S6550X switch series includes one model:

- S6550X-32Q-HI: The switch provides 28 × 40G QSFP ports, 4 × 100G QSFP28 ports, 4 × fan tray slots, 1× out-of-band management ports, and 1 × USB port. The switch uses 450W AC modules and supports 1+1 power module redundancy.

S6550X-32Q-HI front panel

S6550X-32Q-HI rear panel

Features and Benefits

High port density and powerful forwarding capacity

- The switch offers high-density 100G/40Gports and a forwarding capacity as high as 3.0Tbps, which enables the switch to provide high-density server access in high-end data centers without oversubscriptions.

Flexible programmability

- H3C S6550X switch series adopt industry-leading programmable chips, which can define forwarding logic according to user requirements. Users can develop new features that meet the evolving trend of their networks through simple software updates.

Powerful visibility

With the rapid development of data center, the scale of the data center expands rapidly, reliability, operation and maintenance become the bottleneck of data center for further expansion. H3C S6550X switch series conform to the trend of automated data operation and maintenance, and support visualization of data center. H3C S6550X switch series can send real-time resources information, statistics and alarm of RDMA information to the data center operation and maintenance platform through ERSPAN and GRPC protocols. This can allow the operation and maintenance center to perform real-time analysis in order to achieve network quality tracing, troubleshooting, risk warning and system

optimization, etc. Visualization can even adjust network configuration automatically and reduce network congestion, which makes it possible to move to automated data center operation and maintenance.

Enhanced SDN features

- H3C S6550X switch series adopt the next-generation chip with more flexible Openflow Flow Table, 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 S6550X switch series support standard Openflow protocol, which can be integrated and managed by H3C or mainstream cloud platforms 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.

Abundant data center features

The switch supports abundant data center features, including:

- FCoE—Allows transmission of FC packets over Ethernet so that FC SAN services and LAN services can run over the same network infrastructure.
- PFC, ECN, and DCBX—Helps provide FC storage and high-performance computing services with low-latency and no data loss.
- VXLAN—The switch can operate as a high-performance VXLAN hardware gateway to support 16M 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.
- DCB, RoCE, and OAM—Provides high-performance services.

Flexible choice of airflow

- To cope with data center cooling aisle design, the H3C S6550X 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 management capacity

The switch improves system management through the following ways:

- Provides multiple management interfaces, including the serial console port, USB port, one out-of-band management port.
- 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 GRPC and provides a flexible programmable interface for customized development.
- Supports Telemetry, allowing for real-time, high-speed, and precise data collection.

H3C Distributed Resilient Network Interconnection (DRNI)

- H3C S6550X 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.

Multiple reliability protection

- The S6550X switch series provides multiple reliability protection at both switch and link levels. With over current, overvoltage, and overheat protection, all models have a redundant pluggable power module, which enables flexible configuration of AC 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.
- 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.

Rich QoS features

- H3C S6550X switch series support Layer 2 to Layer 4 packet filtering, which can provide traffic classification based on source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP port number, protocol type, and VLAN.
- Each 100G port provides a flexible queues scheduling algorithm, which can be set based on ports and queues at the same time.
- S6550X switch series supports five queuing modes include SP (Strict Priority), WRR (Weighted Round Robin), SP+WRR.
- S6550X switch series supports CAR (Committed Access Rate) function with a minimum granularity of 1Kbps, and port mirroring on both directions used to monitor packets on the specified port and forward the packets to the monitoring port for network detection and troubleshooting.

Comprehensive security control policies

- H3C S6550X switch series 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 behaviors
- H3C S6550X switch series 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. S6550X switch series can also take advantage of Unicast Reverse Path Forwarding (Unicast RFP). 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.

• Hardware Specification

Item	S6550X-32Q-HI
Dimensions (H × W × D)	43.6 × 440 × 400 mm (1.72 × 17.32 × 15.75 in)
Weight(Full loaded)	≤ 8.5kg
CPU cores	4

CPU frequency	2.0GHz
Buffer	24M
Serial console port	1
Out-of-band management port	One GE copper port
USB port	1
Flash/SDRAM	8GB/8GB
QSFP28	4
QSFP port	28
Expansion slot	1
AC-input voltage	90v to 264v
DC-input voltage	–36v to –72v
Power module slot	2
Fan tray slot	4
Air flow direction	From front to rear or from rear to front
Static power consumption	-
Typical power consumption	-
Operating temperature	-5~45℃
Operating humidity	5%～95%

Software Specification

Item		Specification
Line-rate switching	Switching capacity	3.0 Tbps
	Forwarding capacity	2232Mpps
Dynamic ARP table siz		96K max
IPV4 routing table		504K max 324K
IPV6 routing table		252K max
MAC address table		256K max
Forwarding mode		Store-forward and cut-through modes
Virtualization		Distributed device management, distributed link aggregation, and distributed resilient routing Local and remote stacking
Link aggregation		40GE/100GE port aggregation Static aggregation, dynamic aggregation
Data center		VXLAN 802.1Qbb PFC, 802.1Qaz ETS, ECN, DCBX FCoE OpenFlow 1.3.1

Item	Specification
	Multiple types of OpenFlow controllers
	EVPN distributed gateway
	NETCONF, Python
	Service chain
	RDMA, RoCE
Jumbo frame	Supported
MAC address table	Static MAC address
	Black hole MAC address
VLAN	Port-based VLAN (quantity: 4094)
	Default VLAN
Traffic monitoring	sFlow
DHCP	DHCP server/client
	DHCP snooping/DHCP relay
	DHCP snooping support for Option 82/DHCP relay agent support for Option 82
	IPv6 DHCP server/client
	IPv6 DHCP snooping/DHCP relay
ARP	Gratuitous ARP
	Dynamic ARP inspection
	ARP source-suppression
	ARP black hole
	Multicast ARP
	ARP detection
IP routing	Stating routing, RIPv1/v2, OSPFv1/v2/v3, BGP, IS-IS
	ECMP, VRRP, policy-based routing
	BGP4+ for IPv6, VRRP, IPv6 policy-based routing
	RIPng, OSPFv3, ISISv6
IPV6	IPv6 ND
	IPv6 PMTU
	ICMPv6, Telnetv6, SFTPv6, SNMP over IPv6, BFDv6, VRRPv3
	IPv6 portal/IPv6 tunnel
Multicast	IGMP snooping v2/v3
	IGMPv1/v2/v3
	PIM-DM/SM
	IPv6 PIM-DM/SM/SSM
	Bi-directional -PIM, MSDP
	MLD snooping
	Multicast VPN
	MBGP

Item	Specification
	Multicast policy
Zero-configuration	Auto-config
MPLS	MPLS L3VPN VPLS
MSTP	STP/RSTP/MSTP PVST+/RPVST+ STP root guard BPDU guard
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, and SP+WRR queuing 802.1p and DSCP priority re-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 Inbound and outbound ACLs VLAN-based ACL assignment
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
Mirroring	Traffic mirroring N:4 port mirroring Local port mirroring, remote port mirroring Multiple remote mirroring ports (reflector-port)
Security	Hierarchical user management and password protection AAA/RADIUS/HWTACACS SSH 2.0 IP address+ MAC address+port number binding IP Source Guard HTTPs/SSL PKI 802.1X MAC authentication EAD IPv6 RADIUS Sever IPv6 port binding

Item	Specification
LACP	LACP LACP local forwarding first LACP short-time LACP Stack split detection
LLDP	LLDP LLDP-MED
Loading and upgrading	Loading/upgrading through the XMODEM protocol Loading/upgrading through FTP and TFTP
Management and maintenance	Configuration via CLI, Telnet, and Console port Scheduled job SNMPv1/v2c/v3 Telemetry GRPC PTP IMC System logs Hierarchical alarms NTP, SNTP Power, fan and temperature alarms Debugging information output Ping and Tracert File uploading and downloading through the USB port
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
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 GB4943.1

Order information

PID	Description
LS-6550X-32Q-HI	H3C S6550X-32Q-HI L3 Ethernet Switch with 28*QSFP Plus Ports,4*QSFP28 Ports and 1*Slot,Without Power Supplies
Power	
LSWM1PSRAC450	450W AC Power Supply Module(Air Onlets in Panel)
Fan	
LSWM1FAN4056EX	Fan Module (Air Outlets in Panel)
Module	
LSPM6FWD	H3C SecBlade IV Next Generation Firewall Module
Transceiver	
QSFP-40G-LR4-WDM1300	QSFP+ 40GBASE Optical Transceiver Module (1310nm,10km,LR4,LC)
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-BIDI-WDM850	QSFP+ 40GBASE BIDI Optical Transceiver Module (850nm,300m)
QSFP-100G-SR4-MM850	100G QSFP28 Optical Transceiver Module (850nm,100m OM4,SR4,MPO)
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)
Cable	
QSFP-100G-4SFP-25G-CAB-5M	100G QSFP28 to 4x25G SFP28 5m Passive Cable
QSFP-100G-4SFP-25G-CAB-3M	100G QSFP28 to 4x25G SFP28 3m Passive Cable
QSFP-100G-4SFP-25G-CAB-1M	100G QSFP28 to 4x25G SFP28 1m Passive Cable
QSFP-100G-D-CAB-5M	100G QSFP28 to 100G QSFP28 5m Passive Cable
QSFP-100G-D-AOC-20M	100G QSFP28 to 100G QSFP28 20m Active Optical Cable
QSFP-100G-D-AOC-10M	100G QSFP28 to 100G QSFP28 10m Active Optical Cable
QSFP-100G-D-AOC-7M	100G QSFP28 to 100G QSFP28 7m Active Optical Cable
QSFP-100G-D-CAB-3M	100G QSFP28 to 100G QSFP28 3m Passive Cable
QSFP-100G-D-CAB-1M	100G QSFP28 to 100G QSFP28 1m Passive Cable
QSFP-40G-D-AOC-20M	40G QSFP+ to 40G QSFP+ 20m Active Optical Cable
QSFP-40G-D-AOC-10M	40G QSFP+ to 40G QSFP+ 10m Active Optical Cable
QSFP-40G-D-AOC-7M	40G QSFP+ to 40G QSFP+ 7m Active Optical Cable
LSWM1QSTK5	40G QSFP+ to 4x10G SFP+ Cable 5m
LSWM1QSTK4	40G QSFP+ to 4x10G SFP+ Cable 3m
LSWM1QSTK3	40G QSFP+ to 4x10G SFP+ Cable 1m
LSWM1QSTK2	40G QSFP+ Cable 5m
LSWM1QSTK1	40G QSFP+ Cable 3m
LSWM1QSTK0	40G QSFP+ Cable 1m

The Leader in Digital Solutions

New H3C Technologies Co., Limited

Beijing Headquarters

Tower 1, LSH Center, 8 Guangshun South Street, Chaoyang District, Beijing, China

Zip: 100102

Hangzhou Headquarters

No.466 Changhe Road, Binjiang District, Hangzhou, Zhejiang, China

Zip: 310052

Tel: +86-571-86760000

http://www.h3c.com