The Leader in New IT

H3C S5560X-EI Next Generation Intelligent High Performance Ethernet Switch

S5560X-34S-EI

S5560X-54S-EI

S5560X-30C-EI

S5560X-54C-EI

S5560X-30C-PWR-EI

S5560X-54C-PWR-EI

S5560X-30F-EI

S5560X-54F-EI

Overview

H3C S5560X-EI is the latest development of Gigabit speed Layer 3 Ethernet switch. This powerful and highly secure switch series is built based on industry-leading high performance hardware architecture and H3C Comware V7 platform. It supports diversified services, high capacity GE access port as well as high density 10GE uplink, which meet the requirements for high density campus access and high performance aggregation.

H3C S5560X-EI series Ethernet switch includes the following models:

- S5560X-34S-EI: 28 10/100/1000BASE-T Ethernet ports, 4 SFP (Combo) ports, 4 10G/1G BASE-X SFP+ ports; 2 40G QSFP+ ports;
- S5560X-54S-EI: 48 10/100/1000BASE-T Ethernet ports, 4 10G/1G BASE-X SFP+ ports; 2 40G QSFP+ ports;
- S5560X-30C-EI: 24 10/100/1000BASE-T Ethernet ports, 8 SFP (Combo) ports, 4 10G/1G BASE-X SFP+ ports; 1 expansion slot; 2 fan module slots; 2 power module slots;
- S5560X-54C-EI: 48 10/100/1000BASE-T Ethernet ports, 4 10G/1G BASE-X SFP+ ports; 1 expansion slot; 2 fan module slots; 2 power module slots;
- S5560X-30C-PWR-EI: 24 10/100/1000BASE-T Ethernet ports, 4 10G/1G BASE-X SFP+ ports; 1 expansion slot; 2 fan module slots; 2 power module slots;
- S5560X-54C-PWR-EI: 48 10/100/1000BASE-T Ethernet ports, 4 10G/1G BASE-X SFP+ ports; 1 expansion slot; 2 fan module slots; 2 power module slots;
- S5560X-30F-EI: 24 SFP ports; 8 10/100/1000BASE-T Ethernet (Combo) ports; 4 10G/1G BASE-X SFP+ ports; 1 expansion slot; 2 fan module slots; 2 power module slots;
- S5560X-54F-EI: 48 SFP ports; 4 10G/1G BASE-X SFP+ ports; 1 expansion slot; 2 fan module slots; 2 power module slots;

Features

High scalability and high port density

- S5560X-EI has 4 fixed 10GE ports with expansion slots, supporting multiple types of interface cards: 2-port 10GBaseT / SFP+; 8-port 10G SFP+ card; 2-port 40G QSFP+ card. The switch supports up to 12 10G ports or 2 40G ports. The scaling flexibility and the high port density satisfy the requirements for hybrid configuration of copper ports and fiber ports at the distribution layer in large sized networks or at the core layer in SMB sized networks.

VXLAN (Virtual eXtensible LAN) technology

- Virtual eXtensible LAN (VXLAN) is a MAC-in-UDP technology that provides Layer 2 connectivity between distant network sites across an IP network. VXLAN enables long-distance virtual machine and data mobility and is typically used in data centers and the access layer of campus networks for multitenant services. The H3C implementation of VXLAN supports automatic VXLAN tunnel establishment with EVPN.

Open Application Architecture

- In H3C open application architecture (OAA), the switch can accommodate high-performance OAP modules to offer dedicated services such as firewall, IPS, or load balancing in addition to conventional forwarding services. By installing OAP modules, customers can use the switch as a multiservice device without having to buy separate service appliances, such as a firewall device.

High-performance IPv4/IPv6 service capabilities

- The S5560X-EI switch series comes with IPv4/IPv6 dual-stack platform which provides sophisticated IPv4/IPv6 solutions by supporting multiple tunnels, IPv4/IPv6 Layer 3 routing protocols, multicasting, and policy-based routing. The S5560X-EI switch series is a mature commercial IPv6 product that has passed the IPv6 network access certification of the Chinese Ministry of Industry and Information Technology and the IPv6 Ready Phase II certification.

Intelligent Resilient Framework 2 (IRF2)

H3C S5560X-EI 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.

Intelligent Resilient Framework 3.1 (IRF 3.1) technology

Intelligent Resilient Framework 3.1 technology (IRF 3.1) is implemented based on IEEE 802.1BR. It integrates lower-layer devices (PEXs) such as access devices with a higher-layer IRF fabric (parent fabric) to provide high-density, low-cost connectivity at the access layer. PEXs can be managed and configured from the parent fabric as if they were interface modules on the parent fabric.

IRF 3.1 brings the following benefits:

- **Single point of management** - accessible at a single IP address on the network. IP address can be used to log in through any network port to configure and manage all the devices in the system.
- **Unified security policy** - enforces the same security policy, avoiding the policy conflicts that typically occur when the network devices are configured one by one.
- **Simplified network topology** - combines the access and distribution layers, streamlining the conventional three-layer network model to two layers and making cabling easier.
- **Simplified service deployments** - act as a single node for IP services, routing protocols, VLANs, and other services. Services can be deployed in the same way as a single device. This significantly reduces service deployment complexities and the risks of inadvertent deployment errors when numerous devices are involved.
- **Easy scalability and maintenance** - enables plug-and-play of PEXs without network topology changes and automatically pushes configuration and software from the parent fabric to the PEXs. IRF 3.1 also reduces the numerous points of failure into one, improving the efficiency in troubleshooting.

Software Defined Network (SDN)

- Software Defined Network (SDN) is an innovative network architecture that simplifies network management and reduces maintenance complexity by separating network control layer and network forwarding layer through Openflow. More importantly, it implements flexible network flow control and provides a well-defined network platform for core network application and innovation.
- The S5560-EI network switch series supports a large network flow table. Combined with H3C SDN controller, it can easily implement a two-layer network architecture and quickly add functions in existing network in order to drastically reduces network management complexity while substantially lowers network maintenance cost.

Comprehensive security control policies

- H3C S5560X-EI switch series supports innovative single-port multi-authentication function, the access authentication modes supported by different clients are different. For example, some clients can only perform MAC addresses Authentication (such as the printer terminal), and some user host for 802.1X authentication, and some user hosts only want to access through the Web portal authentication. In order to flexibly adapt to the multi-authentication requirements of the network environment, the S5130S-EI switch series support single-port

multi-authentication unified deployment.

- H3C S5560X-EI switch series supports SSH V2 (Secure Shell V2) to secure information security, and strong authentication protect the Ethernet network switch from attacks such as IP address spoofing and clear text interception.
- ARP attack and ARP virus are major threats to LAN security, the S5560X-EI switch series comes with diverse ARP protection functions such as ARP Detection to challenge the legitimacy of client, validate the ARP packets, and set a speed limit for ARP to prevent ARP swarm attacks from targeting CPU.
- H3C S5560X-EI switch series support EAD (End User Admission Domination) function. Once working with the iMC (intelligent Management Centre) system, EAD integrates terminal security policies, such as anti-virus and patch update, into network access control and access right control policies to form a cooperative security system. By checking, isolating, updating, managing, and monitoring access terminals, EAD changes passive, single point network protection to active, comprehensive network protection, and changes separate management to centralized management, enhancing the network capability for preventing viruses, worms, and new threats.

Multiple high availability measures

- The S5560X-EI switch series supports high availability at device level and link level.
- The S5560X-EI switch series adopts hot swappable dual-power supply and dual fan module design, which allows you to configure AC or DC power supplies as needed. The switch can detect faults in power supplies and fans, and will if any such faults are found, respond with an alarm. It can automatically adjust fan speed according to the temperature.
- Apart from device level redundancy, the S5560X-EI series switch also provides diverse link redundancy support such as LACP/STP/RSTP/MSTP/Smart Link protocols. It supports IRF2 and 1:N redundancy backup as well as cross-device link aggregation which substantially increases network reliability.

Abundant QoS policies

- The S5560X-EI switch series supports packet filtering at Layer 2 through Layer 4, and traffic classification based on source MAC addresses, destination MAC addresses, source IP addresses, destination IP addresses, TCP/UDP port numbers, protocol types, and VLANs. It supports flexible queue scheduling algorithms based on ports and queues, including strict priority (SP), weighted round Robin (WRR), SP+WRR and WDRR. The S5560X-EI switch series enables committed access rate (CAR) with the minimum granularity of 8 kbps. It supports port mirroring in the outbound and inbound directions, to monitor the packets on the specific ports, and to mirror the packets to the monitor port for network detection and troubleshooting.

Professional Anti-lighting function

- The S5560X-EI switch series uses built-in lighting protection technology and supports industry leading switch port 6KV anti-lighting capability, which can greatly reduce the rate of lightning damage to the equipment.

Enhanced PoE+ capability

- H3C S5560X-EI switch series supports 802.3af/802.3at PoE function, single port can provide maximum 30w, providing power to connected devices, such as IP phones, wireless APs, and high power cameras. H3C S5560X-EI switch series supports multiple PoE modules for flexible PoE output selections, single switch can provide total 1680W PoE power, 30w per port and total 48 ports PoE+ function.

Excellent manageability

- The S5560X-EI switch series supports abundant management ports, such as the console port, mini-USB and the out-of-band network management port. It supports the Simple Network Management Protocol (SNMP) v1/v2/v3, Open View, IMC, CLI, Web-based NMS and Telnet allowing easy device management. It also supports SSH2.0 to provide better protection management.
- The S5560X-EI switch supports SPAN/RSPAN/ERSPAN mirroring, and multiple mirroring ports so that network traffic can be analyzed to carry out corresponding management and maintenance measures and traffic of network services and applications is visible. The S5500X-EI switch provides network stream analysis reports, which help users to promptly optimize the network structure and adjust resource deployment.

Specifications

Features	S5560X-34S-EI	S5560X-54S-EI	S5560X-30C-EI	S5560X-54C-EI	S5560X-30C-PWR-EI	S5560X-54C-PWR-EI	S5560X-30F-EI	S5560X-54F-EI
Switching capacity	598G							
Forwarding capacity	216Mpps	252Mpps	216Mpps	252Mpps	216Mpps	252Mpps	216Mpps	252Mpps
Dimensions (W × D × H)	440×260 ×43.6	440×260 ×43.6	440×360 ×43.6	440×360 ×43.6	440×460 ×43.6	440×460 ×43.6	440×360 ×43.6	440×360 ×43.6
Weight	≤3.6kg	≤3.9kg	≤6.7kg	≤7kg	≤9.2kg	≤9.6kg	≤6.6kg	≤6.7kg
Out of band management	1	1	1	1	1	1	1	1
Management ports	RJ-45 Console port, One Mini USB Console port (Mini USB first priority)							
Front panel data ports	28 10/100/1000 BASE-T Ethernet ports, 4 SFP (Combo) ports, 4 10G/1G BASE-X SFP+ ports; 2 40G QSFP+ ports	48 10/100/1000 BASE-T Ethernet ports, 4 10G/1G BASE-X SFP+ ports; 2 40G QSFP+ ports	24 10/100/1000 BASE-T Ethernet ports, 8 SFP (Combo) ports; 4 10G/1G BASE-X SFP+ ports	48 10/100/1000 BASE-T Ethernet ports, 4 10G/1G BASE-X SFP+ ports	24 10/100/1000 BASE-T Ethernet ports, 4 10G/1G BASE-X SFP+ ports	48 10/100/1000 BASE-T Ethernet ports, 4 10G/1G BASE-X SFP+ ports	24 SFP ports; 8 10/100/1000 BASE-T Ethernet (Combo) ports; 4 10G/1G BASE-X SFP+ ports	48 SFP ports; 4 10G/1G BASE-X SFP+ ports
Expansion slots	0		1					
Interface card	0		2-port 40GE QSFP+ interface card 2-port 10G SFP+ interface card 2-port 10GBaseT interface card 8-port 10G SFP+ interface card					
SDN / OpenFlow	OpenFlow 1.3							
	Multiple controllers (EQUAL, master/slave)							
	Multiple tables flow							
	Group table							
	Meter							
VXLAN	VXLAN Layer 2 switching							
	VXLAN routing switching							
	VXLAN gateway							
	Centralized VXLAN control through OpenFlow+Netconf							
	MP-BGP+EVPN distributed control plane							
Port aggregation	GE/10GE/40GE port aggregation							
	Dynamic aggregation							
	Static aggregation							
	Cross-device aggregation							
Port features	IEEE802.3x flow control (full duplex)							
	Storm control based on port rate percentage							
	PPS/BPS-based storm control							
Jumbo Frame	10000							
MAC table	Blackhole MAC address							
	Configurable maximum number of MAC addresses that can be learned by a port							

Specifications (continued)

Features	S5560X-34S-EI	S5560X-54S-EI	S5560X-30C-EI	S5560X-54C-EI	S5560X-30C-PWR-EI	S5560X-54C-PWR-EI	S5560X-30F-EI	S5560X-54F-EI
VLAN	Port-based VLAN							
	MAC-based VLAN							
	Protocol-based VLAN							
	Subnet-based VLAN							
	QinQ and selective QinQ							
	VLAN mapping							
	Voice VLAN							
	GVRP							
Layer 2 ring network protocol	STP/RSTP/MSTP							
	RRPP							
	Smart Link							
	G.8032 Ethernet ring protection switching (ERPS)							
DHCP	DHCP client							
	DHCP snooping							
	DHCP relay							
	DHCP server							
	DHCP snooping option82/DHCP Relay option82							
IRF2	IRF2							
	Distributed device management, distributed link aggregation, and distributed resilient routing							
	Stacking through standard Ethernet interfaces							
	Local device stacking and remote device stacking							
IP routing	Static routing							
	RIPv1/v2 and RIPng							
	OSPFv1/v2 and OSPFv3							
	BGP4 and BGP4+ for IPv6							
	ECMP and policy-based routing							
	VRRP/VRRPv3							
IPv6	Neighbor discovery (ND)							
	PMTU							
	IPv6-Ping, IPv6-Tracert, IPv6-Telnet, and IPv6-TFTP							
	Manual tunnel configuration							
	6to4 tunnel							
	ISATAP tunnel							
	IPv6 in IPv6 tunnel							
	IPv4 in IPv6 tunnel							
	GRE tunnel							
Multicast	IGMP snooping v1/v2/v3 and MLD Snooping v1/v2							
	PIM snooping							
	MLD proxy							
	Multicast VLAN							
	IGMP v1/v2/v3 and MLD v1/v2							
	PIM-DM, PIM-SM, and PIM-SSM							

Specifications (continued)

Features	S5560X-34S-EI	S5560X-54S-EI	S5560X-30C-EI	S5560X-54C-EI	S5560X-30C-PWR-EI	S5560X-54C-PWR-EI	S5560X-30F-EI	S5560X-54F-EI
	MSDP and MSDP for IPv6							
	MBGP and MBGP for IPv6							
Mirroring	Traffic mirroring							
	N:4 port mirroring							
	Local and remote port mirroring							
OAM	802.1ag							
	802.3ah							
ACL\QoS	Packet filtering at Layer 2 through layer 4							
	Traffic classification based on source MAC addresses, destination MAC addresses, source IPv4/IPv6 addresses, destination IPv4/IPv6 addresses, TCP/UDP port numbers, protocol types, and VLANs							
	Time range-based ACL							
	Bidirectional ACL							
	VLAN-based ACL							
	Port rate limit (receiving and transmitting)							
	Packet redirection							
	802.1p DSCP remarking							
	Committed access rate (CAR)							
	Eight output queues on each port, and 48 queues on the CPU port							
	Flexible queue scheduling algorithms based on ports and queues, including SP, WRR, SP+WRR, and WDRR							
	WRED							
Security	Hierarchical user management and password protection							
	802.1X authentication, centralized MAC authentication							
	Guest VLAN							
	RADIUS authentication							
	SSH 2.0							
	Port isolation							
	Port security							
	Portal authentication							
	EAD							
	DHCP snooping and anti-fraud DHCP server							
	Dynamic ARP inspection, preventing man-in-the-middle attacks and ARP DoS attacks							
	BPDU guard and Root guard							
	URPF, prevent source IP spoofing, viruses and attacks							
	IP/Port/MAC binding							
	Plaintext and MD5 authentication of OSPF and RIPv2 packets							
	PKI							
	CPU protection							
Management and maintenance	Loading and upgrading through XModem/FTP/TFTP							
	Configuration through CLI, Telnet, and console port							
	SNMPv1/v2/v3 and Web-based NMS							
	Remote monitoring (RMON) alarm, event, and history recording							
	IMC NMS							

Specifications (continued)

Features	S5560X-34S-EI	S5560X-54S-EI	S5560X-30C-EI	S5560X-54C-EI	S5560X-30C-PWR-EI	S5560X-54C-PWR-EI	S5560X-30F-EI	S5560X-54F-EI
	System log, alarming based on severities, and output of debugging information							
	NTP							
	Alarm for power supplies, fans, and temperature							
	Ping and Tracert							
	Virtual cable test (VCT)							
	Device link detection protocol (DLDP)							
	LLDP							
	Loopback-detection							
Green power	EEE(802.3az)							
	Port auto Power down							
	Port schedule down							
Input voltage	Non PoE model input voltage: AC:Rated voltage range: 100V~240V AC, 50/60Hz DC:Maximum voltage range -36V~-72V DC PoE model input voltage: 360W AC: 100V~240V, 50Hz~60Hz 720W AC: 100V~240V, 50Hz~60Hz 1110W AC: 115V~240V, 50Hz~60Hz							
Power consumption (full configuration)	AC:56W DC:57W	AC:66W DC:68W	Single AC:87W Single DC:88W Dual AC:91W Dual DC:95W	Single AC:88W Single DC:89W Dual AC:93W Dual DC:96W	Single AC: Upto 926W (including 810W PoE) Dual AC: Upto 928W (including 810W PoE)	Single AC: Upto 1090W (including 810W PoE) Dual AC: Upto 1742W (including 1680W PoE)	Single AC:112W Single DC:113W Dual AC:116W Dual DC:122W	Single AC:130W Single DC:132W Dual AC:134W Dual DC:140W
Operating temperature	0°C~45 °C							
Operating relative humidity (non-condensing)	5%~95%							

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