Huawei S5720-HI Series Switches
Prodcut Brochure

HUAWEI TECHNOLOGIES CO., LTD.

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S5720-HI Series Switches

Product Overview

Huawei S5720-HI series switches are advanced gigabit Ethernet switches that provide various agile features. The switches are developed based on Huawei Versatile Routing Platform (VRP), and use the fully programmable structure to implement software definition and service change on demand. With services and network convergence as the core, the switches provide the free mobility function to ensure consistent user experience. The Super Virtual Fabric (SVF) function virtualizes the entire network into one device. In addition, the switches support flexible Ethernet networking, comprehensive VPN tunnel solutions, various security control methods, intelligent deployment, and simple operations & maintenance (O&M). The S5720-HI series switches are the best choices for the branches of high-quality large- and middle-sized campus networks, the core layer of small-sized campus networks, and the access layer of data center networks.

Models and Appearances

The following models are available in the S5720-HI series.

S5720-32C-HI-24S-AC

- 24 Gig SFP ports, 8 of which are dual-purpose 10/100/1000 or SFP,4 10 Gig SFP+
- One port extended slot
- Dual pluggable AC or DC power supplies, one 600 W AC power supply equipped by default
- Forwarding performance: 168 Mpps
- Switching capacity: 598 Gbit/s

S5720-56C-HI-AC

- 48 Ethernet 10/100/1000Base-T ports, 4 10 Gig SFP+
- One port extended slot
- Dual pluggable AC or DC power supplies, one 600 W AC power supply equipped by default
- Forwarding performance: 192 Mpps
- Switching Capacity: 598 Gbit/s

S5720-56C-PWR-HI-AC

- 48 Ethernet 10/100/1000Base-T ports, 4 10 Gig SFP+
- One port extended slot
- Dual pluggable AC power supplies, one 1150 W AC power supply equipped by default
- PoE+
- Forwarding performance: 192 Mpps
- Switching Capacity: 598 Gbit/s

S5720-56C-PWR-HI-AC1

- 48 Ethernet 10/100/1000Base-T ports, 4 10 Gig SFP+
- One port extended slot
- Dual pluggable AC power supplies, one 580 W AC power supply equipped by default
- PoE+
- Forwarding performance: 192 Mpps
- Switching Capacity: 598 Gbit/s

Product Features and Highlights

Enabling networks to be more agile for services

- The high-speed Ethernet Network Processor (ENP) embedded in the S5720-HI is tailored for Ethernet. The chip's flexible packet processing and traffic control capabilities can meet current and future service requirements, helping build a highly scalable network.
- In addition to capabilities of traditional switches, the S5720-HI provides fully programmable open interfaces and supports user-defined forwarding behaviors. Enterprises can use the open interfaces to develop new protocols and functions independently or jointly with equipment vendors to build campus networks meeting their own needs.
- The ENP has a fully programmable architecture, on which enterprises can define their own forwarding models, forwarding behaviors, and lookup algorithms. Microcode programmability makes it possible to provide new services within six months, without the need of replacing the hardware. In contrast, traditional ASIC chips use a fixed forwarding architecture and follow a fixed forwarding process. For this reason, new services cannot be provisioned until new hardware is developed to support the services one to three years later.

Delivering abundant services more agilely

- The S5720-HI integrates the AC function, so customers do not need to buy independent AC devices or hardware components. An S5720-HI switch can manage up to 1K APs and 16K users, adapting to the fast growth of wireless services.
- With the unified user management function, the S5720-HI authenticates both wired and wireless users, ensuring a consistent user experience no matter whether they are connected to the network through wired or wireless access devices. The unified user management function supports various authentication methods, including 802.1x, MAC address, and Portal authentication, and is capable of managing users based on user groups, domains, and time ranges. These functions visualize user and service management and boost the transformation from device-centric management to user-centric management.
- The S5720-HI provides excellent quality of service (QoS) capabilities and supports queue scheduling and congestion control algorithms. Additionally, it adopts innovative priority queuing and multi-level scheduling mechanisms to implement fine-grained scheduling of data flows, meeting service quality requirements of different user terminals and services.

Providing fine granular network management more agilely

- The S5720-HI uses the Packet Conservation Algorithm for Internet (iPCA) technology that changes the traditional method of using simulated traffic for fault location. iPCA technology can monitor network quality for any service flow anywhere and anytime, without extra costs. It can detect temporary service interruptions in a very short time and can identify faulty ports accurately. This cutting-edge fault detection technology turns "extensive management" to "fine granular management."
- The S5720-HI supports Two-Way Active Measurement Protocol (TWAMP) to accurately check any IP link and obtain the entire network's IP performance. This protocol eliminates the need of using a dedicated probe or a proprietary protocol.
- The S5720-HI supports SVF and functions as a parent switch. With this virtualization technology, a physical network with the "Small-sized core/aggregation switches + Access switches + APs" structure can be virtualized into a "super switch", offering the industry's simplest network management solution.

- With the Easy Deploy function, the S5720-HI manages access switches in a similar way an AC manages APs. In deployment, access switches and APs can go online with zero-touch configuration. In the Easy Deploy solution, the Commander collects topology information about the connected clients and stores the clients' startup information based on the topology. Clients can be replaced with zero-touch configuration. The Commander can deliver configurations and scripts to clients in batches and query the delivery results. In addition, the Commander can collect and display information about power consumption on the entire network.

Comprehensive VPN technologies

- The S5720-HI supports the MPLS function, and can be used as access devices of high-quality enterprise leased line. The S5720-HI allows users in different VPNs to connect to the same switch and isolates users through multi-instance routing. Users in multiple VPNs connect to a provider edge (PE) device through the same physical port on the switch, which reduces the cost on VPN network deployment.

Flexible Ethernet networking

- In addition to traditional Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP), the S5720-HI supports Huawei-developed Smart Ethernet Protection (SEP) technology and the latest Ethernet Ring Protection Switching (ERPS) standard. SEP is a ring protection protocol specific to the Ethernet link layer, and applies to various ring network topologies, such as open ring topology, closed ring topology, and cascading ring topology. This protocol is reliable, easy to maintain, and implements fast protection switching within 50 ms. ERPS is defined in ITU-T G.8032. It implements millisecond-level protection switching based on traditional Ethernet MAC and bridging functions.
- The S5720-HI supports Smart Link and Virtual Router Redundancy Protocol (VRRP), which implement backup of uplinks. One S5720-HI switch can connect to multiple aggregation switches through multiple links, significantly improving reliability of access devices.
- The S5720-HI has large entry sizes and buffers, coping with the fast growth of data volume in the big data era. With the support for 128K MAC addresses, 1M FIB entries, and 200 ms buffering on each port, the S5720-HI meets the requirements of educational networks and metro area networks and allows the access of a large number of terminals. The S5720-HI is the best choice in cloud computing era.

Various security control methods

- The S5720-HI supports 802.1x authentication, MAC address authentication, Portal authentication, and hybrid authentication, and can dynamically delivery user policies such as VLANs, QoS policies, and access control lists (ACL). It also supports user management based on user groups.
- The S5720-HI provides a series of mechanisms to defend against DoS and user-targeted attacks. DoS attacks are targeted at switches and include SYN flood, Land, Smurf, and ICMP flood attacks. User-targeted attacks include bogus DHCP server attacks, IP/MAC address spoofing, DHCP request flood, and change of the DHCP CHADDR value.
- The S5720-HI sets up and maintains a DHCP snooping binding table, and discards the packets that do not match the table entries. You can specify DHCP snooping trusted and untrusted ports to ensure that users connect only to the authorized DHCP server.
- The S5720-HI supports strict ARP learning, which prevents ARP spoofing attackers from exhausting ARP entries.

Mature IPv6 features

- The S5720-HI is developed based on the mature, stable VRP and supports IPv4/IPv6 dual stacks, IPv6 routing protocols (RIPng, OSPFv3, BGP4+, and IS-IS for IPv6). With these IPv6 features, the S5720-HI can be deployed on a pure IPv4 network, a pure IPv6 network, or a shared IPv4/IPv6 network, helping achieve IPv4-to-IPv6 transition.

Intelligent stack (iStack)

- The S5720-HI supports the iStack function that combines multiple switches into a logical switch. Member switches in a stack implement redundancy backup to improve device reliability and use inter-device link aggregation to improve link reliability. iStack provides high network scalability. You can increase a stack's ports, bandwidth, and processing capacity by simply adding member switches. iStack also simplifies device configuration and management. After a stack is set up, up to nine physical switches can be virtualized into one logical device. You can log in to any member switch in the stack to manage all the member switches in the stack.

VXLAN features

- VXLAN is used to construct a Unified Virtual Fabric (UVF). As such, multiple service networks or tenant networks can be deployed on the same physical network, and service and tenant networks are isolated from each other. This capability truly achieves 'one network for multiple purposes'. The resulting benefits include enabling data transmission of different services or customers, reducing the network construction costs, and improving network resource utilization. The S5720-HI series switches are VXLAN-capable and allow centralized and distributed VXLAN gateway deployment modes. These switches also support the BGP EVPN protocol for dynamically establishing VXLAN tunnels and can be configured using NETCONF/ YANG.

Big Data security collaboration

- Agile switches use NetStream to collect campus network data and then report such data to the Huawei Cybersecurity Intelligence System (CIS). The purposes of doing so are to detect network security threats, display the security posture across the entire network, and enable automated or manual response to security threats. The CIS delivers the security policies to the Agile Controller. The Agile Controller then delivers such policies to agile switches that will handle security events accordingly. All these ensure campus network security.

Open Programmability System (OPS)

- Open Programmability System (OPS) is an open programmable system based on the Python language. IT administrators can program the O&M functions of a switch through Python scripts to quickly innovate functions and implement intelligent O&M.

Product Specifications

Item	S5720-32C-HI-24S-AC	S5720-56C-HI-AC	S5720-56C-PWR-HI-AC	S5720-56C-PWR-HI-AC1
Fixed ports	24 × Gig SFP, 8*Combo(10 /100 /1000 BASE-T or 100/ 1000BASE-X),4 × 10 Gig SFP+	48 × 10/ 100 / 1000 Base-T，4 × 10 Gig SFP+	48 × 10 /100/ 1000 Base-T，4 × 10 Gig SFP+	48 × 10/ 100/ 1000 Base-T，4 × 10 Gig SFP+
MAC Address Table	128K MAC	128K MAC	128K MAC	128K MAC
Dimensions mm (W × D × H)	442 × 420 × 44.4	442 × 420 × 44.4	442 × 420 × 44.4	442 × 507 × 44.4
Operating environment	One port extended slot, with optional subcard, 4x10GE SFP+			
Input voltage	AC: Rated AC voltage: 100-240V AC;50/60Hz Max AC voltage: 90-264V AC;47-63Hz; DC: Rated DC power: -48- -60V DC; Max DC voltage: -38.4- -72V DC		AC: Rated AC voltage: 100-240V AC;50/60Hz Max AC voltage: 90-264V AC;47-63Hz;	
Maximum Power consumption	172.7W	183.3W	without PD:188.74； with PD: 1739W （PD：1440W)	without PD:188.74W with PD:1036W(PD:740W)

Item	S5720-32C-HI-24S-AC	S5720-56C-HI-AC	S5720-56C-PWR-HI-AC	S5720-56C-PWR-HI-AC1
Operating temperature	0-1800 m altitude: 0° C to 45° C 1800-5000 m altitude: The operating temperature reduces by 1° C every time the altitude increases by 220 m.			
Relative humidity	5% to 95% (non-condensing)			

Service Features

Item	Description
MAC address table	IEEE 802.1d standards compliance 128K MAC address entries MAC address learning and aging Static, dynamic, and blackhole MAC address entries Packet filtering based on source MAC addresses
VLAN	4K VLANs Guest VLAN and voice VLAN GVRP MUX VLAN VLAN assignment based on MAC addresses, protocols, IP subnets, policies, and ports VLAN mapping
Wireless service	AP access control, AP domain management, and AP configuration template management Radio management, unified static configuration, and dynamic centralized management WLAN basic services, QoS, security, and user management CAPWAP, tag/terminal location, and spectrum analysis
Ethernet loop protection	RRPP ring topology and RRPP multi-instance Smart Link tree topology and Smart Link multi-instance, providing millisecond-level protection switchover SEP ERPS (G.8032) BFD for OSPF, BFD for IS-IS, BFD for VRRP, and BFD for PIM STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s) BPDU protection, root protection, and loop protection
MPLS	MPLS L3VPN MPLS L2VPN (VPWS/VPLS) MPLS-TE MPLS QoS
IP routing	Static routes, RIP v1/2, RIPng, OSPF, OSPFv3, IS-IS, IS-ISv6, BGP, BGP4+, ECMP, routing policy
Interoperability	VLAN-Based Spanning Tree (VBST), working with PVST, PVST+, and RPVST Link-type Negotiation Protocol (LNP), similar to DTP VLAN Central Management Protocol (VCMP), similar to VTP
IPv6 features	Neighbor Discover (ND) PMTU IPv6 Ping, IPv6 Tracert, IPv6 Telnet ACLs based on source IPv6 addresses, destination IPv6 addresses, Layer 4 ports, or protocol types Multicast Listener Discovery snooping (MLDv1/v2) IPv6 addresses configured for sub-interfaces, VRRP6, DHCPv6, and L3VPN

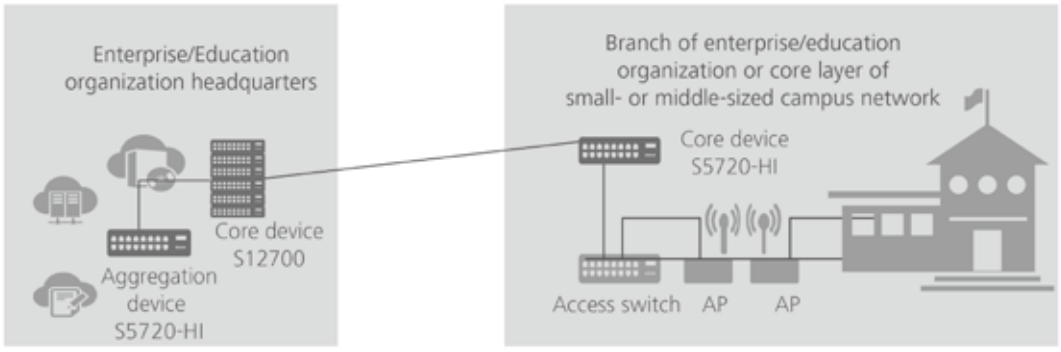
Item	Description
Multicast	IGMP v1/v2/v3 snooping and IGMP fast leave Multicast forwarding in a VLAN and multicast replication between VLANs Multicast load balancing among member ports of a trunk Controllable multicast Port-based multicast traffic statistics IGMP v1/v2/v3, PIM-SM, PIM-DM, and PIM-SSM MSDP MVPN
QoS/ACL	Rate limitation in the inbound and outbound directions of a port Packet redirection Port-based traffic policing and two-rate three-color CAR HQoS Eight queues on each port DRR, SP and DRR+SP queue scheduling algorithms WRED Re-marking of the 802.1p and DSCP fields of packets Packet filtering at Layer 2 to Layer 4, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP port number, protocol type, and VLAN ID Queue-based rate limitation and shaping on ports
Security	Hierarchical user management and password protection DoS attack defense, ARP attack defense, and ICMP attack defense Binding of the IP address, MAC address, port number, and VLAN ID Port isolation, port security, and sticky MAC MAC Forced Forwarding (MFF) Blackhole MAC address entries Limit on the number of learned MAC addresses IEEE 802.1x authentication and limit on the number of users on a port AAA authentication, RADIUS authentication, and HWTACACS authentication NAC SSH V2.0 HTTPS CPU protection Blacklist and whitelist Attack source tracing and punishment for IPv6 packets such as ND, DHCPv6, and MLD packets MACsec IPSec
Reliability	LACP E-trunk Ethernet OAM (IEEE 802.3ah and IEEE 802.1ag) ITU-Y.1731 DLDP LLDP BFD for BGP, BFD for IS-IS, BFD for OSPF, BFD for static route
OpenFlow	Multi-controller Nine-level session table Group table Meter OpenFlow 1.3
VxLAN	Supports the VxLAN function, supports VxLAN L2 and L3 gateways Configured through the NETCONF protocol

Item	Description
Super Virtual Fabric (SVF)	The S5720-HI can work as the parent node to vertically virtualize downlink switches and APs as one device for management. A two-layer client architecture is supported. IGMP snooping can be enabled on access switches (ASs) and the maximum number of access users on a port can be configured. ASs can be independently configured. Services that are not supported by templates can be configured on the parent. Third-party devices are allowed between SVF parent and clients.
iPCA	Directly coloring service packets to collect real-time statistics on the number of lost packets and packet loss ratio Collection of statistics on the number of lost packets and packet loss ratio at network and device levels
TWAMP	Two-way IP link performance measurement Measurement on two-way packet delay, one-way packet loss rate, and one-way packet jitter
Management and maintenance	iStack Virtual cable test SNMP v1/v2c/v3 RMON Web-based NMS System logs and alarms of different levels GVRP MUX VLAN 802.3az Energy Efficient Ethernet (EEE) NetStream Dying gasp upon power-off

Applications

Enterprise campus networks

Huawei S5720-HI is the industry's first fixed agile switch. The S5720-HI has large table sizes and buffers, avoiding packet loss in burst traffic. It supports wired and wireless convergence and unified management on devices, users, and services. The S5720-HI can be used as the core device on an enterprise branch network or a small- or middle-sized campus network or as the aggregation device on a large-sized campus network, to achieve a manageable and reliable enterprise campus network with scalable services.



Ordering Information

The following table lists ordering information of the S5720-HI series switches.

Models	Product Description
S5720-32C-HI-24S-AC	S5720-32C-HI-24S-AC(24 Gig SFP, 8 of which are dual-purpose 10/100/1000Base-T,4 10 Gig SFP+,with 2 interface slots,with 600W AC power supply)
S5720-56C-HI-AC	S5720-56C-HI-AC(48 Ethernet 10/100/1000 ports,4 10 Gig SFP+,with 2 interface slots,with 600W AC power supply)
S5720-56C-PWR-HI-AC	S5720-56C-PWR-HI-AC(48 Ethernet 10/100/1000 POE+ ports,4 10 Gig SFP+,with 2 interface slots,with 1150W AC power supply)
S5720-56C-PWR-HI-AC1	S5720-56C-PWR-HI-AC1(48 Ethernet 10/100/1000 POE+ ports,4 10 Gig SFP+,with 2 interface slots,with 580W AC power supply)
ES5D21X04S01	4 10 Gig SFP+ Interface Card (used in S5720-HI series)
PDC-350WA-B	350W DC Power Module
W2PSA0580	580W AC Power Module
PAC-600WA-B	600W AC Power Module
W2PSA1150	1150W AC POE Power Module
ES5SWL512AP0	Resource-ES1SWL512AP0-WLAN Access Controller AP Resource License-512AP (used in S5720HI series)
ES5SWL128AP0	Resource-ES1SWL128AP0-WLAN Access Controller AP Resource License-128AP (used in S5720HI series)
ES5SWL64AP00	Resource-ES1SWL64AP00-WLAN Access Controller AP Resource License-64AP (used in S5720HI series)
ES5SWL16AP00	Resource-ES1SWL16AP00-WLAN Access Controller AP Resource License-16AP (used in S5720HI series)
ES5SF4512K00	Resource-ES5SF4512K00-FIBv4 Resource License-128K (used in S5720HI series)
ES5SF4128K00	Resource-ES5SF4128K00-FIBv4 Resource License-512K (used in S5720HI series)
ES5SSVFF0000	Function-S5700-ES5FEA1-ES5SSVFF0000-SVF Function License (used in S5720HI series)

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