Huawei S5700-EI Series Switches
Product Brochure

HUAWEI TECHNOLOGIES CO., LTD.

HUAWEI

S5700-EI Series Gigabit Enterprise Switches

Product Overview

The S5700-EI series gigabit enterprise switches (S5700-EI) are next-generation energy-saving switches developed by Huawei to meet the demand for high-bandwidth access and Ethernet multi-service aggregation. Based on the cutting-edge hardware and Huawei Versatile Routing Platform (VRP) software, the S5700-EI provides a large switching capacity and high-density GE ports to implement 10 Gbit/s upstream transmissions. The S5700-EI is for use in various enterprise network scenarios. For example, it can function as an access or aggregation switch on a campus network, a gigabit access switch in an Internet data center (IDC), or a desktop switch to provide 1000 Mbit/s access for terminals. The S5700-EI is easy to install and maintain, reducing workloads for network planning, construction, and maintenance. The S5700-EI uses advanced reliability, security, and energy conservation technologies, helping enterprise customers build a next generation IT network.

Note: S5700-EI mentioned in this document refers to the whole S5700-EI series including S5710-EI, and descriptions about S5710-EI are unique features of S5710-EI.

Product Appearance

S5710-28C-EI

- 24xEthernet 10/100/1000 ports,4 of which are dual-purpose 10/100/1000 or SFP,4x10 Gig SFP+ ports
- Subcards supported: 2x10GE SFP+ subcard, 8x10/100/1000Base-T subcard, and 8x1000Base-X subcard
- Double hot swappable AC/DC power supplies
- Forwarding performance: 156Mpps
- Switching capacity: 416Gbps

S5710-28C-PWR-EI-AC

- 24xEthernet 10/100/1000 ports,4 of which are dual-purpose 10/100/1000 or SFP,4x10 Gig SFP+ ports
- Subcards supported: 2x10GE SFP+ subcard, 8x10/100/1000Base-T subcard, and 8x1000Base-X subcard
- Double hot swappable AC power supplies, including a 580W AC power
- PoE+
- Forwarding performance: 156Mpps
- Switching capacity: 416Gbps

S5710-52C-EI

- 48xEthernet 10/100/1000 ports, 4x10GE SFP+ ports
- Subcards supported: 2x10GE SFP+ subcard, 8x10/100/1000Base-T subcard, and 8x1000Base-X subcard
- Double hot swappable AC/DC power supplies
- Forwarding performance: 192Mpps
- Switching capacity: 416Gbps

S5710-52C-PWR-EI

- 48xEthernet 10/100/1000 ports, 4x10GE SFP+ ports
- Subcards supported: 2x10GE SFP+ subcard, 8x10/100/1000Base-T subcard, and 8x1000Base-X subcard
- Double hot swappable AC power supplies
- PoE+
- Forwarding performance: 192Mpps
- Switching capacity: 416Gbps

Product Features and highlights

Powerful support for services

- The S5700-EI supports IGMP v1/v2/v3 snooping, IGMP filter, IGMP fast leave, and IGMP proxy. It supports line-speed replication of multicast packets between VLANs, multicast load balancing among member interfaces of a trunk, and controllable multicast, meeting requirements for IPTV services and other multicast services.
- The S5700-EI provides the Multi-VPN-Instance CE (MCE) function to isolate users in different VPNs on a device, ensuring data security and reducing costs.
- The S5710-EI supports multiple MPLS & VPN features, including Label Distribution Protocol (LDP) or Resource Reservation Protocol for Traffic Engineering (RSVP-TE), MPLS TE, VLL, VPLS, and MPLS L3VPN.

Comprehensive reliability mechanisms

- Besides STP, RSTP, and MSTP, the S5700-EI supports enhanced Ethernet reliability technologies such as Smart Link and RRPP (Rapid Ring Protection Protocol), which implement millisecond-level protection switchover and ensure network reliability. It also provides Smart Link multi-instance and RRPP multi-instance to implement load balancing among links, optimizing bandwidth usage.

- The S5700-EI supports enhanced trunk (E-Trunk) that enables a CE to be dual-homed to two PEs (S5700s). E-Trunk greatly enhances link reliability between devices and implements link aggregation between devices. This improves reliability of access devices.
- The S5700-EI supports the Smart Ethernet Protection (SEP) protocol, a ring network protocol applied to the link layer on an Ethernet network. SEP can be used on open ring networks and can be deployed on upper-layer aggregation devices to provide fast switchover, ensuring non-stop transmission of services. SEP features simplicity, high reliability, fast switchover, easy maintenance, and flexible topology, facilitating network planning and management.
- The S5700-EI supports Ethernet Ring Protection Switching (ERPS), also referred to as G.8032. As the latest ring network protocol, ERPS was developed based on traditional Ethernet MAC and bridging functions and uses mature Ethernet OAM function and a Ring Automatic Protection Switching (R-APS) mechanism to implement millisecond-level protection switching. ERPS supports various services and allows flexible networking, helping customers build a network with lower OPEX and CAPEX.
- The S5700-EI supports redundant power supplies, and can use an AC power supply and a DC power simultaneously. Users can choose a single power supply or use two power supplies to ensure device reliability.
- The S5700-EI supports VRRP, and can set up VRRP groups with other Layer 3 switches. VRRP provides redundant routes to ensure stable and reliable communication. Multiple equal-cost routes to an uplink device can be configured on the S5700-EI to provide route redundancy. When an active route is unreachable, traffic is switched to a backup route.
- The S5700-EI supports Bidirectional Forwarding Detection (BFD) and provides millisecond-level detection for protocols such as OSPF, IS-IS, VRRP, and PIM to improve network reliability. The S5700-EI complies with IEEE 802.3ah and 802.1ag. IEEE 802.3ah defines the mechanism for detecting faults on direct links over the Ethernet in the first mile, and 802.1ag defines the mechanism for end-to-end service fault detection. The S5700-EI supports Y.1731. Besides fast end-to-end service fault detection, the S5700-EI can use the performance measurement tools defined in Y.1731 to monitor network performance, providing accurate data about network quality.

Well-designed QoS policies and security mechanisms

- The S5700-EI implements complex traffic classification based on packet information such as the 5-tuple, IP precedence, ToS, DSCP, IP protocol type, ICMP type, TCP/UDP port number, VLAN ID, Ethernet protocol type. ACLs can be applied to inbound or outbound direction on an interface. The S5700-EI supports a flow-based two-rate three-color CAR. Each port supports eight priority queues and multiple queue scheduling algorithms such as WRR, DRR, SP, WRR+SP, and DRR+SP. All of these ensure the quality of voice, video, and data services.

- The S5700-EI provides multiple security measures to defend against Denial of Service (DoS) attacks, and attacks against networks or users. DoS attack types include SYN Flood attacks, Land attacks, Smurf attacks, and ICMP Flood attacks. Attacks to networks refer to STP BPDU/root attacks. Attacks to users include bogus DHCP server attacks, man-in-the-middle attacks, IP/MAC spoofing attacks, DHCP request flood attacks. DoS attacks that change the CHADDR field in DHCP packets are also attacks against users.
- The S5700-EI supports DHCP snooping, which discards invalid packets that do not match any binding entries, such as ARP spoofing packets and IP spoofing packets. This prevents man-in-the-middle attacks to campus networks that hackers initiate by using ARP packets. The interface connected to a DHCP server can be configured as a trusted interface to protect the system against bogus DHCP server attacks.
- The S5700-EI supports strict ARP learning, which prevents ARP spoofing attacks that will exhaust ARP entries. It also provides IP source check to prevent DoS attacks caused by MAC address spoofing, IP address spoofing, and MAC/IP spoofing.
- The S5700-EI supports 802.1x authentication, MAC address authentication, and combined authentication on a per port basis, as well as Portal authentication on a per VLANIF interface basis. The S5700-EI also supports NAC. The S5700-EI authenticates users based on statically or dynamically bound user information such as the user name, IP address, MAC address, VLAN ID, access interface, and flag indicating whether antivirus software is installed. VLANs, QoS policies, and ACLs can be applied to users dynamically.
- The S5700-EI can limit the number of MAC addresses learned on an interface to prevent attackers from exhausting MAC address entries by using bogus source MAC addresses. This function minimizes packet flooding that occurs when MAC addresses of users cannot be found in the MAC address table.

Fine-grained traffic management

- The S5710-EI supports NetStream. The NetStream module supports V5, V8, and V9 packet formats and provides various traffic analysis functions, such as real-time traffic sampling, dynamic report generation, traffic attribute analysis, and traffic exception report. The Netstream module enables administrators to monitor network status in real time and provides applications and analysis functions including potential fault detection, effective fault rectification, fast problem handling, and security monitoring, to help customers optimize network structure and adjust resource deployment.
- The S5700-EI supports the Sampled Flow (sFlow) function, which uses a sampling mechanism to obtain statistics about traffic forwarded on a network and sends the statistics to the Collector in real time. The Collector analyzes traffic statistics to help customers manage network traffic efficiently. The S5700-EI integrates the sFlow Agent module and uses hardware for traffic monitoring. Unlike traffic monitoring through port mirroring, sFlow does not degrade network performance during traffic monitoring.

Easy deployment and maintenance free

- The S5700-EI supports automatic configuration, plug-and-play, and batch remote upgrade. These capabilities simplify device management and maintenance and reduce maintenance costs. The S5700-EI supports SNMP v1/v2c/v3 and provides flexible methods for managing devices. Users can manage

the S5700-EI using the CLI and Web NMS. The NQA function helps users with network planning and upgrading. In addition, the S5700-EI supports NTP, SSH v2, HWTACACS+, RMON, log hosts, and port-based traffic statistics.

- EasyDeploy: The Commander collects information about the topology of the client connecting to the Commander and saves client startup information based on the topology. The client can be replaced without configuration. Configuration and scripts can be delivered to the client in batches. In addition, the configuration delivery result can be queried. The Commander can collect and display power consumption on the entire network.
- The S5700-EI supports the GARP VLAN Registration Protocol (GVRP), which dynamically distributes, registers, and propagates VLAN attributes to reduce manual configuration workloads of network administrators and to ensure correct VLAN configuration. In a complex network topology, GVRP simplifies VLAN configuration and reduces network communication faults caused by incorrect VLAN configuration.
- The S5700-EI supports MUX VLAN. MUX VLAN isolates Layer 2 traffic between interfaces in a VLAN. Interfaces in a subordinate separate VLAN can communicate with ports in the principal VLAN but cannot communicate with each other. MUX VLAN is usually used on an enterprise intranet to isolate user interfaces from each other but allow them to communicate with server interfaces. This function prevents communication between network devices connected to certain interfaces or interface groups but allows the devices to communicate with the default gateway.

PoE function

- The S5700-EI PWR can use PoE power supplies with different power levels to provide -48V DC power for Powered Devices (PDs) such as IP phones, WLAN APs, and Bluetooth APs. In its role as Power Sourcing Equipment (PSE), the S5700-EI PWR complies with IEEE 802.3af and 802.3at (PoE+) and can work with PDs that are incompatible with 802.3af or 802.3at. Each port provides a maximum of 30 W power, complying with IEEE 802.3at. The PoE+ function increases the maximum power of each port and implements intelligent power management for high-power consumption applications. This facilitates the use of PDs. PoE ports can work in power-saving mode. The S5700-EI PWR provides improved PoE solutions. Users can configure whether and when a PoE port supplies power.

High scalability

- The S5700-EI supports intelligent stacking (iStack). Multiple S5700-EI switches can be connected with stack cables to set up a stack, which functions as a virtual switch. A stack consists of a master switch, a backup switch, and several slave switches. The backup switch takes over services when the master switch fails, reducing service interruption time. Stacks support intelligent upgrade so that users do not need to change the software version of a switch when adding it to a stack. The iStack function allows users to connect multiple switches with stack cables to expand system capacity. These switches can be managed using a single IP address, which greatly reduces the costs of system expansion, operation, and maintenance. Compared with traditional networking technologies, iStack has advantages in scalability, reliability, and system architecture.

Various IPv6 features

- The S5700-EI supports IPv4/IPv6 dual stack and can migrate from an IPv4 network to an IPv6 network. S5700-EI hardware supports IPv4/IPv6 dual stack, IPv6 over IPv4 tunnels (including manual tunnels, 6to4 tunnels, and ISATAP tunnels), and Layer 3 line-speed forwarding. The S5700-EI can be deployed on IPv4 networks, IPv6 networks, or networks that run both IPv4 and IPv6. This makes networking flexible and enables easy migration from IPv4 to IPv6.

Product Specifications

Item	S5710-28C-EI S5710-28C-PWR-EI-AC	S5710-52C-EI S5710-52C-PWR-EI
Fixed port	24x10/100/ 1000Base-T, 4 of which are dual-purpose 10/100/ 1000 or SFP, 4x10GE SFP+	48x10/100/ 1000Base-T, 4x10GE SFP+
Extended slot	S5700C Provide two extended slots, one for an uplink subcard and the other for a stack card. S5710C Provide two extended slots for uplink subcards.	
MAC address table	IEEE 802.1d compliance 32K MAC 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 1:1 and N:1 VLAN Mapping	
Reliability	RRPP ring topology and RRPP multi-instance Smart Link tree topology and Smart Link multi-instance, providing the 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 E-Trunk	
IP routing	Static routing, RIPv1/v2, RIGng, OSPF, OSPFv3, IS-IS, IS-ISv6, BGP, BGP4+, and ECMP	

Item	S5710-28C-EI S5710-28C-PWR-EI-AC	S5710-52C-EI S5710-52C-PWR-EI
IPv6 features	Neighbor Discovery (ND) Path MTU (PMTU) IPv6 ping, IPv6 tracert, and IPv6 Telnet ACLs based on the source IPv6 address, destination IPv6 address, Layer 4 ports, or protocol type MLD v1/v2 snooping IPv4 and IPv6 dual stack 6to4 tunnel, ISATAP tunnel, and manually configured tunnel	
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	
QoS/ACL	Rate limiting on packets sent and received by an interface Packet redirection Port-based traffic policing and two-rate three-color CAR Eight queues on each port WRR, DRR, SP, WRR+SP, and DRR+SP queue scheduling algorithms WRED (supported by the S5710-EI) Re-marking of the 802.1p priority and DSCP priority 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 Rate limiting in each queue and traffic shaping on ports	
Security	User privilege management and password protection DoS attack defense, ARP attack defense, and ICMP attack defense Binding of the IP address, MAC address, interface, and VLAN Port isolation, port security, and sticky MAC Blackhole MAC address entries Limit on the number of learned MAC addresses 802.1x authentication and limit on the number of users on an interface AAA authentication, RADIUS authentication, HWTACACS+ authentication, and NAC SSH v2.0 Hypertext Transfer Protocol Secure (HTTPS) CPU defense Blacklist and whitelist	

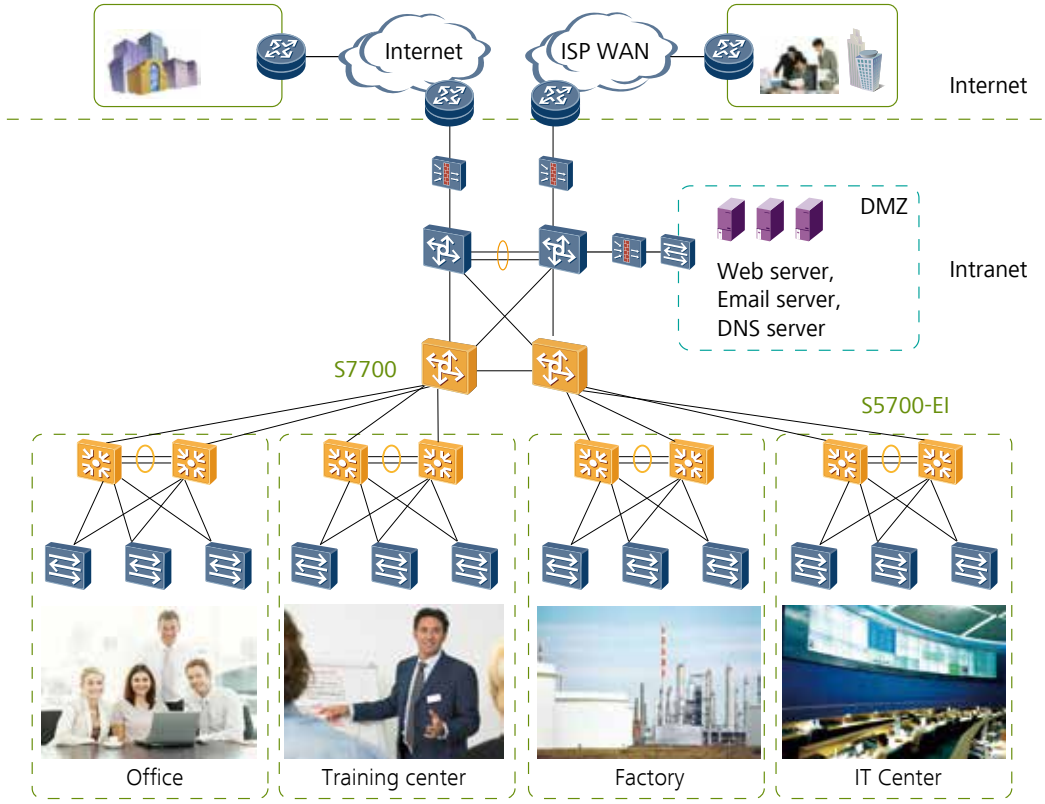
Item	S5710-28C-EI S5710-28C-PWR-EI-AC	S5710-52C-EI S5710-52C-PWR-EI
Management and maintenance	iStack MAC Forced Forwarding (MFF) Virtual cable test SNMP v1/v2c/v3 RMON Web NMS System logs and alarms of different levels NetStream (supported by S5710-EI) sFlow	
Interoperability	Supports VBST (Compatible with PVST/PVST+/RPVST)	
	Supports LNP (Similar to DTP)	
	Supports VCMP (Similar to VTP)	
Operating environment	Operating temperature: 0°C–50°C Relative humidity: 5%–95% (non-condensing)	
Input voltage	AC: Rated voltage range: 100 V to 240 V AC, 50/60 Hz Maximum voltage range: 90 V to 264 V AC, 50/60 Hz DC: Rated voltage range: –48 V to –60 V, DC Maximum voltage range: –36 V to –72 V, DC Note: PoE-support switches do not use DC power supplies.	
Dimensions (W x D x H)	442 mm x 420 mm x 43.6 mm	
Power consumption	Non-PoE model: <100W PoE model: <942W (PoE: 740W)	Non-PoE model:<165W PoE model: <1043W with two 580W AC supplies (PoE: 740W), or <1625W with two 1150W AC supplies (PoE: 1440W)

*:The S5700 switches of the EI series are collectively called S5700-EI. S5710-EI is a sub-series switches of S5700-EI .

Applications

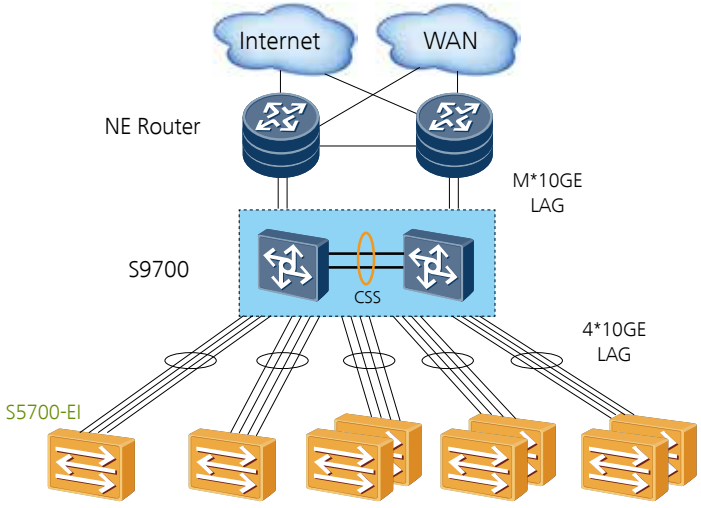
On Large-sized Enterprise Networks

The S5700-EI can function as an access device on a large-sized enterprise network or an aggregation device on a small-sized or medium-sized campus network. It supports link aggregation and dual-homing to improve network reliability.



In Data Centers

The S5700-EI can be used in a data center. It connects to gigabit servers and aggregates traffic from the servers to uplink devices through trunk links. If multiple servers are available, an S5700-EI stack can be used to facilitate network maintenance and improve network reliability.



Product List

Product Description
S5710-28C-EI(24xEthernet 10/100/1000 ports,4 of which are dual-purpose 10/100/1000 or SFP,4x10 Gig SFP+, without power module)
S5710-28C-PWR-EI-AC(24xEthernet 10/100/1000 PoE+ ports,4 of which are dual-purpose 10/100/1000 or SFP,4x10 Gig SFP+, with 580W AC power)
S5710-52C-EI(48xEthernet 10/100/1000 ports,4x10 Gig SFP+, with 2 interface slots, without power module)
S5710-52C-PWR-EI(48xEthernet 10/100/1000 PoE+ ports, 4x10 Gig SFP+, with 2 interface slots, without power module)
8xGig SFP interface card(used in S5710-EI series)
8xEthernet 10/100/1000 ports interface card(used in S5710-EI series)
4xGig SFP interface card(including 4xGig SFP optical interface, extend channel card)(used in S5700-EI series)
2x10GE SFP+ interface card(used in S5710-EI series)
2x10GE SFP+ interface card(used in S5700-SI and S5700-EI series)
4x10GE SFP+ optical interface card(including 4x10GE SFP+ interface, extend channel card)(used in S5700-SI and S5700-EI series)
Ethernet Stack Interface Card(Including stack card,100cm stack cable)
Ethernet Stack Interface Card(Including stack card,300cm stack cable)
150W AC Power Module
150W DC Power Module
500W AC PoE Power Module
580W AC PoE Power Module
1150W AC PoE Power Module

For more information, visit http://enterprise.huawei.com or contact your local Huawei sales office.

HUAWEI TECHNOLOGIES CO.,LTD.
Huawei Industrial Base
Bantian Longgang
Shenzhen 518129,P.R.China
Tel: +86 755 28780808

www.huawei.com