S5700S-LI Series Gigabit Enterprise Switches

HUAWEI TECHNOLOGIES CO., LTD.

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Product Overview

The S5700S-LI series gigabit enterprise switches (S5700S-LI for short) 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 S5700S-LI provides a large switching capacity and high-density GE ports. The S5700S-LI 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 S5700S-LI is easy to install and maintain, reducing workloads for network planning, construction, and maintenance. The S5700S-LI uses advanced reliability, security, and energy conservation technologies, helping enterprise customers build a next generation IT network.

Product Appearance

S5700S-28P-LI-AC

- 24x10/100/1000Base-T Ethernet ports, 4xGE SFP ports
- AC power supply, supporting Redundant Power Supply (RPS)
- Forwarding performance: 42Mpps

S5700S-52P-LI-AC

- 48x10/100/1000Base-T Ethernet ports, 4xGE SFP ports
- AC power supply, supporting RPS
- Forwarding performance: 78Mpps

Product Features and highlights

Innovative Energy Saving Design

- The S5700S-LI offer customers extensive selection of energy-saving with standard mode, basic mode and advanced mode that accommodates most needs. By matching port link down/up, optical-module in-place/out of place, port shut down/undo shutdown, idle/busy period to increase the proportion of the dynamic energy-saving to reduce the power consumption. The S5700S-LI series reduces energy consumption without compromising system performance, ensuring good user experience. The S5700-LI adopts multiple cutting-edge energy-saving designs, including Energy Efficient Ethernet (EEE), port energy detection, dynamic CPU frequency adjustment, and device sleeping.

Comprehensive reliability mechanisms

- Besides STP, RSTP, and MSTP, the S5700S-LI 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 S5700S-LI 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 (within 50 ms), ensuring non-stop transmission of services. SEP features simplicity, high reliability, fast switchover, easy maintenance, and flexible topology, facilitating network planning and management.

- Complying with IEEE 802.3ah and 802.1ag, the S5700S-LI supports point-to-point Ethernet fault management and can detect faults in the last mile of an Ethernet link to users.

Well-designed QoS policies and security mechanisms

- The S5700S-LI 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 S5700S-LI 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 S5700S-LI 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 S5700S-LI 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 S5700S-LI 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 S5700S-LI 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 S5700S-LI also supports NAC. The S5700S-LI 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 S5700S-LI 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.

Easy deployment and maintenance free

- The S5700S-LI supports automatic configuration, plug-and-play, and batch remote upgrade. These capabilities simplify device management and maintenance and reduce maintenance costs. The S5700S-LI supports SNMP v1/v2/v3 and provides flexible methods for managing devices. Users can manage the S5700S-LI using the CLI and web-based NMS. The NQA function helps users with network planning and

upgrading. In addition, the S5700S-LI 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 S5700S-LI supports 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 S5700S-LI also supports VLAN Central Management Protocol (VCMP) and VLAN-Based Spanning Tree (VBST) protocol.

- The S5700S-LI 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.

Fine-grained traffic management

- The S5700S-LI 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.

Product Specifications

Item	S5700S-28P-LI-AC	S5700S-52P-LI-AC
Fixed port	24×10/100/1000Base-T, 4×1000Base-X SFP	48×10/100/1000Base-T, 4×1000Base-X SFP
MAC address table	IEEE 802.1d compliance 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 VLAN assignment based on MAC addresses, protocols, IP subnets, policies, and ports QinQ, Selective QinQ 1:1 and N:1 VLAN Mapping GVRP MUX VLAN	
Reliability	RRPP ring topology and RRPP multi-instance Smart Link tree topology and Smart Link multi-instance, providing the millisecond-level protection switchover Smart Ethernet Protection (SEP) STP(IEEE 802.1d), RSTP(IEEE 802.1w), and MSTP(IEEE 802.1s) BPDU protection, root protection, and loop protection	
IP routing	Static routing	

Item	S5700S-28P-LI-AC	S5700S-52P-LI-AC
IPv6 features	IPv6 host Static IPv6 routes Path MTU (PMTU) IPv6 ping, IPv6 tracert IPv4 and IPv6 dual stack ACLs based on the source IPv6 address, destination IPv6 address, Layer 4 ports, or protocol type	
Multicast	IGMP v1/v2/v3 snooping and IGMP fast leave MLD v1/v2 snooping Multicast VLAN Multicast load balancing among member ports of a trunk Controllable multicast Port-based multicast traffic statistics	
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, DRR+SP queue scheduling algorithms 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 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	
Access Security	DHCP relay, DHCP server, DHCP snooping, and DHCP security	
Lightning protection	Service interface: 6 kV	
Management and maintenance	MAC Forced Forwarding (MFF) Virtual cable test Ethernet OAM (IEEE 802.3ah and 802.1ag) SNMP v1/v2/v3 RMON Web-based NMS NTP System logs and alarms of different levels DLDP 802.3az EEE(Energy Efficient Ethernet) sFlow	

Item	S5700S-28P-LI-AC	S5700S-52P-LI-AC
Operating environment	Operating temperature: 0°C to 50°C Relative humidity: 5% to 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	
Dimensions (W x D x H)	442 x 220 x 43.6 mm	442 x 310 x 43.6 mm
Power consumption	< 25 W	< 52 W

Applications

1000 Mbit/s Access Rate for Terminals
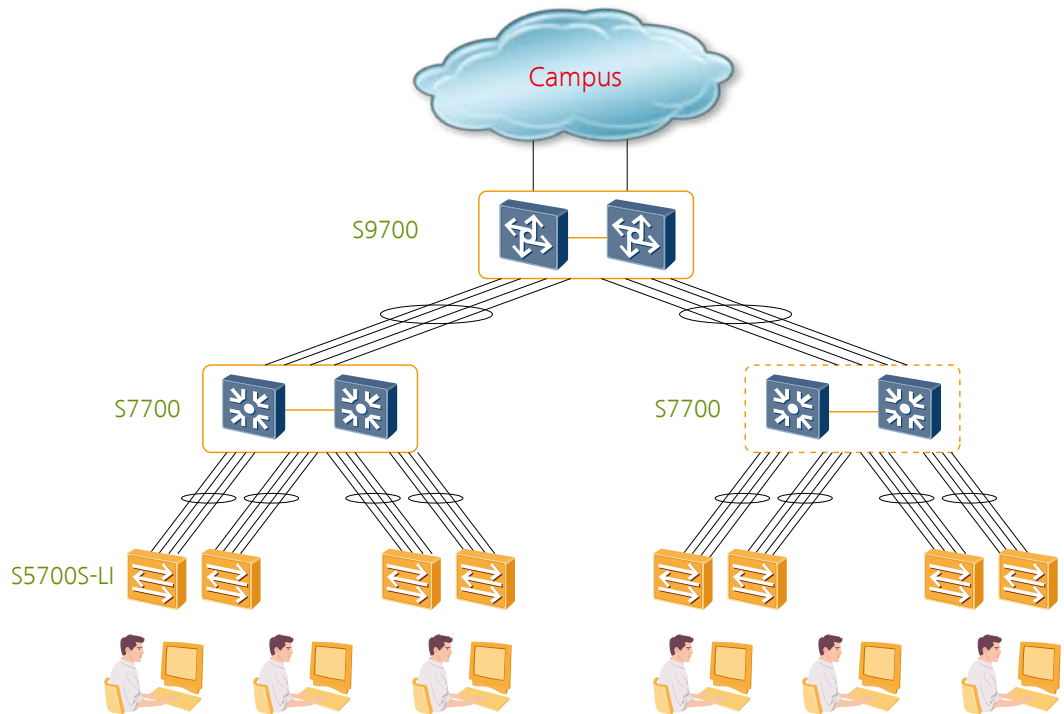
Product List

Product Description
S5700S-28P-LI-AC (24xEthernet 10/100/1000 ports, 4xGig SFP, AC 110/220V)
S5700S-52P-LI-AC (48xEthernet 10/100/1000 ports, 4xGig SFP, AC 110/220V)
RPS1800 Redundant Power System

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