Huawei S6720-LI Series Switches
Product Brochure

HUAWEI TECHNOLOGIES CO., LTD.

HUAWEI

S6720-LI Series Switches

Product Overview

The S6720-LI series switches (S6720-LI) are next-generation simplified 10GE fixed switches and can be used as 10GE access switches on campus networks and data center networks.

The S6720-LI provides line-rate 10GE access ports and 40GE uplink ports. In addition, the S6720-LI delivers a wide variety of services, comprehensive security control policies, and various QoS features to help customers build scalable, reliable, manageable, and secure campus and data center networks.

Product Overview

The S6720-LI series provides the following models.

S6720-16X-LI-16S-AC
S6720S-16X-LI-16S-AC

- 16 x 10GE SFP+ ports
- Built-in AC power supply and redundant power supply (RPS)
- USB
- Packet forwarding rate: 240 Mpps
- Switching capacity: 1.28Tbps

S6720-26Q-LI-24S-AC
S6720S-26Q-LI-24S-AC

- 24 x 10GE SFP+ ports, 2 x 40GE QSFP+ ports
- Built-in AC power supply and RPS
- USB
- Packet forwarding rate: 240 Mpps
- Switching capacity: 1.28Tbps

S6720-32X-LI-32S-AC
S6720S-32X-LI-32S-AC

- 32 x 10GE SFP+ ports
- Built-in AC power supply and RPS
- USB
- Packet forwarding rate: 240 Mpps
- Switching capacity: 1.28Tbps

Product Features and Highlights

High-Density 10GE Access and 40GE Uplink

- To provide sufficient bandwidth for users, more and more servers use 10G network adapters. The S6720-LI has the highest density of 10GE ports and largest switching capacity among counterpart switches. Each S6720-LI provides up to 32 line-rate 10GE ports and two line-rate QSFP+ ports.
- Ports of the S6720-LI support GE access and 10GE access and can identify optical module types, maximizing the return on investment and allowing users to flexibly deploy services.

Comprehensive Security Control Policies

- The S6720-LI provides multiple security measures to defend against Denial of Service (DoS) attacks, as well as attacks against networks or users. DoS attacks include SYN flood, Land, Smurf, 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, and DHCP request flood attacks. DoS attacks that change the CHADDR field in DHCP packets are also attacks against users.
- The S6720-LI supports DHCP snooping, which generates user binding entries. DHCP snooping discards invalid packets that do not match any binding entries, such as ARP spoofing packets and IP spoofing packets. This prevents hackers from using ARP packets to initiate attacks on campus networks. DHCP snooping trusted ports can be specified to ensure that users connect only to the authorized DHCP server.
- The S6720-LI supports strict ARP learning. This feature prevents ARP spoofing attackers from exhausting ARP entries so that users can connect to the Internet normally. The S6720-LI supports IP source check to prevent DoS attacks caused by MAC address spoofing, IP address spoofing, and MAC/IP spoofing.
- The S6720-LI supports centralized MAC address authentication and 802.1X authentication. It authenticates users based on statically or dynamically bound user information such as the user name, IP address, MAC address, VLAN ID, port number, and flag indicating whether antivirus software is installed. VLANs, QoS policies, and ACLs can be applied to users dynamically.
- The S6720-LI can limit the number of MAC addresses learned on a port 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.

Comprehensive Reliability Mechanisms

- The S6720-LI supports MSTP multi-process that enhances the existing STP, RSTP, and MSTP implementation. This function increases the number of MSTIs supported on a network. It also supports enhanced Ethernet reliability technologies such as Smart Link and RRPP, which implement millisecond-level protection switchover and ensure network reliability. Smart Link and RRPP both support multi-instance to implement load balancing among links, improving bandwidth use efficiency.
- The S6720-LI supports enhanced trunk (E-trunk). A CE can be dual-homed to two PEs through Eth-Trunk links. This implements inter-device link aggregation and link load balancing, and greatly improves reliability of access devices.
- The S6720-LI supports the Smart Ethernet Protection (SEP) protocol, a ring network protocol applied to the link layer of an Ethernet network. SEP can be used on open ring networks and provides millisecond-level switchover to ensure nonstop services. SEP features simplicity, high reliability, fast switchover, easy maintenance, and flexible topology, facilitating network planning and management.
- The S6720-LI supports G.8032, also called Ethernet Ring Protection Switching (ERPS). ERPS is based on traditional Ethernet MAC and bridging functions. It uses the mature Ethernet OAM and Ring Automatic Protection Switching (Ring APS or R-APS) technologies to implement millisecond-level protection switchover on Ethernet. ERPS supports multiple services and provides flexible networking, reducing the OPEX and CAPEX.
- The S6720-LI supports VRRP. Two S6720-LIs can form a VRRP group to ensure nonstop and reliable communication. Multiple equal-cost routes to an upstream device can be configured on the S6720-LI to provide route redundancy. When an active route is unreachable, traffic is switched to a backup route.

Various QoS Control Mechanisms

- The S6720-LI implements complex traffic classification based on packet information such as the 5-tuple, IP preference, ToS, DSCP, IP protocol type, ICMP type, TCP source port, VLAN ID, Ethernet protocol type, and CoS. ACLs can be applied to inbound or outbound direction to filter packets. The S6720-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, PQ, WRR+PQ, and DRR+PQ. All of these ensure the quality of voice, video, and data services.

High Scalability

- The S6720-LI supports intelligent stack (iStack) and virtualizes multiple switches into one logical switch. A port of the S6720-LI can be configured as a stack port using a command for flexible stack deployment. The distance between stacked switches is further increased when the switches are connected with optical fibers. Compared with a single device, iStack has advantages on scalability, reliability, performance, and overall architecture. A new switch can join a stack to increase the system capacity or replace a faulty member switch without interrupting services. Compared with stacking of modular switches, the iStack function can increase system capacity and port density with no restriction of the hardware architecture. Multiple devices in a stack can be considered as one logical device. These switches can be managed using a single IP address, which greatly reduces system expansion and O&M costs.

Convenient Management

- The S6720-LI supports automatic configuration, plug-and-play, deployment using a USB flash drive, and batch remote upgrade. These capabilities simplify device management and maintenance, and greatly reduce maintenance costs.
- The S6720-LI supports SNMPv1/v2/v3 and provides flexible methods for managing and maintaining devices, such as CLI and Web NMS. The NQA function helps users with network planning and upgrades. In addition, the S6720-LI supports NTP, SSH v2, HWTACACS, RMON, log hosts, and port-based traffic statistics.
- The S6720-LI supports GVRP, which dynamically distributes, registers, and propagates VLAN attributes to reduce the manual configuration workloads of network administrators and ensure correct VLAN configuration.
- The S6720-LI supports MUX VLAN that isolates Layer 2 traffic between ports in a VLAN. MUX VLAN defines principal VLANs and subordinate VLANs. Subordinate VLANs can communicate with the MUX VLAN but cannot communicate with each other. This function prevents communication between network devices connected to certain ports or port groups but allows the devices to communicate with the default gateway. MUX VLAN is usually used on an enterprise intranet to isolate user ports from each other but allow them to communicate with server ports.
- Complying with IEEE 802.3ah and 802.1ag, the S6720-LI supports point-to-point Ethernet fault management and can detect faults in the last mile of an Ethernet link to users. Ethernet OAM improves the Ethernet network management and maintenance capabilities and ensures a stable network.

Various IPv6 Features

- The S6720-LI supports various IPv6 routing protocols including RIPng and OSPFv3. It uses the IPv6 Neighbor Discovery Protocol (NDP) to manage packets exchanged between neighbors. It also provides the Path MTU Discovery (PMTU) mechanism to select a proper MTU on the path from the source to the destination, optimizing network resources and obtaining the maximum throughput.

Product Specifications

Item	S6720-16X-LI-16S-AC S6720S-16X-LI-16S-AC	S6720-26Q-LI-24S-AC S6720S-26Q-LI-24S-AC	S6720-32X-LI-32S-AC S6720S-32X-LI-32S-AC
Fixed ports	16 x 10GE SFP+ ports	24 x 10GE SFP+ ports, 2 x 40GE QSFP+ ports	32 x 10GE SFP+ ports
Extended slots	Not supported	Not supported	Not supported
MAC address table	32K MAC address learning and aging Static, dynamic, and blackhole MAC address entries Packet filtering based on source MAC addresses		
VLAN features	4K VLANs Guest VLAN and voice VLAN VLAN assignment based on MAC addresses, protocols, IP subnets, policies, and ports VLAN mapping Basic QinQ and selective QinQ		

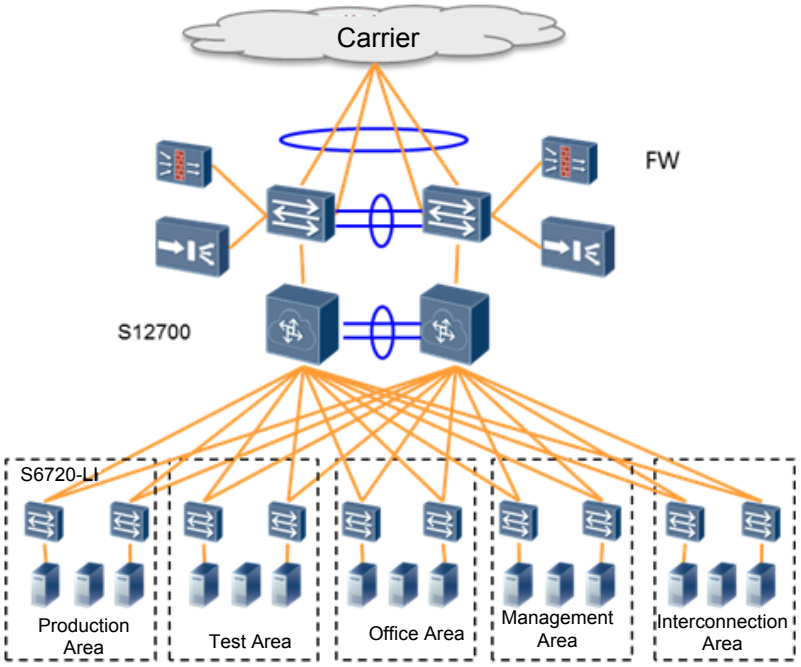
Item	S6720-16X-LI-16S-AC S6720S-16X-LI-16S-AC	S6720-26Q-LI-24S-AC S6720S-26Q-LI-24S-AC	S6720-32X-LI-32S-AC S6720S-32X-LI-32S-AC
IPv4 routing	Static routing, RIP, and OSPF VRRP Policy-based routing Routing policies		
IPv6 routing	Static routing RIPng OSPFv3		
IPv6 features	Neighbor Discovery (ND) and ND snooping IPv6 Ping VRRP6 DHCPv6 snooping, DHCPv6 server, and DHCPv6 relay		
Multicast	IGMPv1/v2/v3 snooping Fast leave IGMP snooping proxy Multicast Listener Discovery (MLD) snooping Port-based multicast traffic suppression Inter-VLAN multicast replication Controllable multicast		
QoS/ACL	Traffic classification based on ACLs Traffic classification based on outer 802.1p fields, outer VLAN IDs, source MAC addresses, and Ethernet types Access control after traffic classification Traffic policing based on traffic classifiers Re-marking based on traffic classifiers Class-based packet queuing Associating traffic classifiers with traffic behaviors Rate limiting on inbound and outbound ports Traffic shaping based on ports and queues Tail drop Priority Queuing (PQ) Deficit Round Robin (DRR) PQ + DRR scheduling Weighted Round Robin (WRR) PQ + WRR scheduling		
Reliability	STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s) BPDU protection, root protection, and loop protection RRPP ring topology and RRPP multi-instance Smart Link tree topology and Smart Link multi-instance, providing millisecond-level protection switchover Smart Ethernet Protection (SEP) G.8032 Ethernet Ring Protection Switching (ERPS) Enhanced trunk (E-trunk)		

Item	S6720-16X-LI-16S-AC S6720S-16X-LI-16S-AC	S6720-26Q-LI-24S-AC S6720S-26Q-LI-24S-AC	S6720-32X-LI-32S-AC S6720S-32X-LI-32S-AC
Security features	Defense against DoS, ARP, and ICMP attacks Binding of the IP address, MAC address, port number, and VLAN ID of a user Port isolation, port security, and sticky MAC MAC-Forced Forwarding (MACFF) Limit on the number of learned MAC addresses IEEE 802.1X authentication and the limit on the number of users on a port AAA authentication, RADIUS authentication, HWTACACS authentication, and NAC CPU defense		
Super Virtual Fabric (SVF)	SVF Client		
Management and maintenance	iStack (using service ports as stack ports) Virtual Cable Test (VCT) Ethernet OAM (IEEE 802.3ah and IEEE 802.1ag) SNMPv1/v2/v3 RMON Web-based network management system and relevant features System logs and multi-level alarms GVRP MUX VLAN sFlow SSH2 HTTPS		
Operating environment	Working temperature: 0 m–1800 m, 0° C–45° C; 1800 m–5000 m, the highest operating temperature reduces by 1° C every time the altitude increases by 220 m. Relative humidity: 5% to 95% (noncondensing)		
Input voltage	AC: Rated voltage range: 100 V to 240 V AC, 50/60 Hz Maximum voltage range: 90 V to 264 V AC, 47/63 Hz		
Dimensions (width x depth x height)	420 x 220 x 43.6	420 x 220 x 43.6	420 x 220 x 43.6
Typical power consumption	45.2W	67.1W	71.8W

Networking and Applications

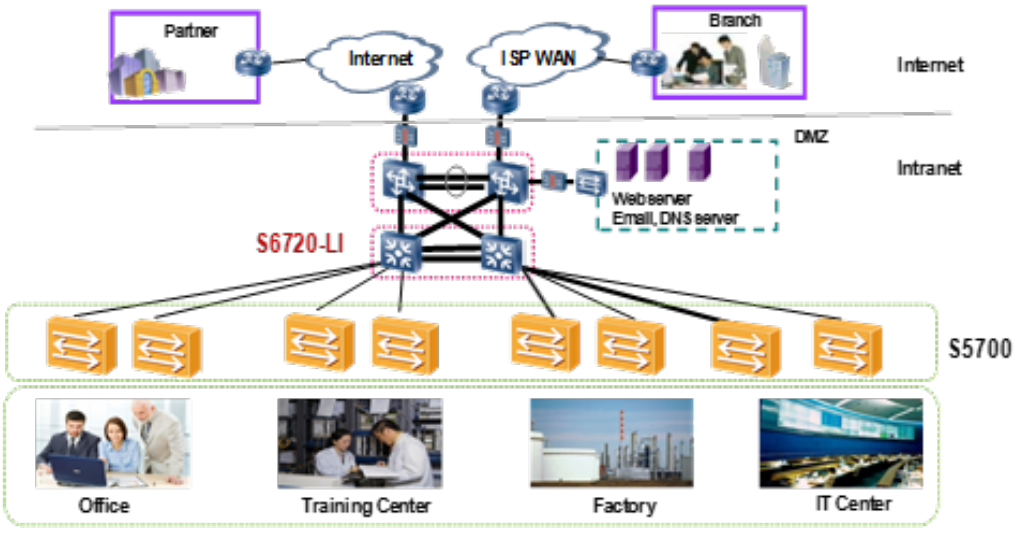
Data Center Networks

As shown in the following figure, the S12700 agile switches function as core switches in a data center and use firewall and load balancer cards to ensure security and perform load balancing. The S6720-LIs function as access switches and provide high-density 10GE ports to connect to 10G servers.



Campus Networks

The S6720-LI series switches can be used as access or aggregation switches on small- and medium-sized campus networks and provide high-density line-rate 10GE ports, rich service features, and comprehensive security mechanism. All of those make the S6720-LI cost effective on campus networks.



Ordering Information

Product Description
S6720-16X-LI-16S-AC (16 10GE SFP+, AC power supply)
S6720S-16X-LI-16S-AC (16 10GE SFP+, AC power supply)
S6720-26Q-LI-24S-AC (24 10GE SFP+, 2 40GE QSFP+, A C power supply)
S6720S-26Q-LI-24S-AC (24 10GE SFP+, 2 40GE QSFP+, A C power supply)
S6720-32X-LI-32S-AC (32 10GE SFP+, AC power supply)
S6720S-32X-LI-32S-AC (32 10GE SFP+, AC power supply)

For more information, visit http://e.huawei.com/en 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