Huawei S3700 Series Switches

The S3700 is available in a standard version (SI), an enhanced version (EI). The SI version provides Layer 2 functions and basic Layer 3 functions. The EI version supports complex routing protocols and provides more functions than the SI version offers.

Product Overview

The S3700 series enterprise switches (S3700s) are next-generation energy-saving Layer 3 switches. The S3700 utilizes cutting-edge hardware and Huawei Versatile Routing Platform (VRP) software to provide high-performance access and aggregation to an enterprise campus network. The S3700 is easy to install and maintain. With its flexible VLAN deployment, PoE capabilities, comprehensive routing functions, and capability to migrate to an IPv6 network, the S3700 helps enterprise customers build next-generation IT networks. In addition, the S3700 uses advanced reliability technologies such as stacking, VRRP, and RRPP, enhancing network reliability and diversity.

Models and Appearances

Models and Appearances	Description
 S3700-28TP-SI-AC  S3700-28TP-EI-AC	• Twenty-four 10/100Base-TX ports, two 1000Base-X SFP ports, and two gigabit combo ports (10/100/1000Base-T or 100/1000Base-X) • AC and DC power supply for the EI version; AC power supply for the SI version • Forwarding performance: 9.6 Mpps • Switching Capacity: 64Gbps
 S3700-28TP-PWR-EI	• Twenty-four 10/100Base-TX ports, two 1000Base-X SFP ports, and two gigabit combo ports (10/100/1000Base-T or 100/1000Base-X) • AC power supply • PoE+ • Forwarding performance: 9.6 Mpps • Switching Capacity: 64Gbps
 S3700-28TP-EI-24S-AC	• Twenty-four 100Base-FX SFP ports, two 1000Base-X SFP ports, and two gigabit combo ports (10/100/1000Base-T or 100/1000Base-X) • AC power supply • Forwarding performance: 9.6 Mpps • Switching Capacity: 64Gbps

Models and Appearances	Description
 S3700-52P-SI-AC  S3700-52P-EI-AC	• Forty-eight 10/100Base-TX ports, two 100/1000Base-X SFP ports, and two 1000Base-X SFP ports • AC power supply • Forwarding performance: 13.2 Mpps • Switching Capacity: 64Gbps
 S3700-52P-PWR-EI	• Forty-eight 10/100Base-TX ports, two 100/1000Base-X SFP ports, and two 1000Base-X SFP ports • AC power supply • PoE+ • Forwarding performance: 13.2 Mpps • Switching Capacity: 64Gbps

Features and Highlights

Reliable Service Support

- The S3700 provides the Multi-VPN-Instance CE (MCE) function to isolate users in different VLANs, ensuring data security and reducing costs.
- The S3700 supports multicast functions such as IGMP snooping, IGMP filter, 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 and other multicast services.

PoE Function

- The S3700 PWR offers an improved Power over Ethernet (PoE) function. Users can determine when or whether a PoE port provides power.
- The S3700 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. As a power sourcing equipment (PSE), the S3700 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 30W of power, complying with IEEE 802.3at. The PoE+ function increases the maximum power available to each port and implements intelligent power management for high power consumption applications. This facilitates the ease of PD use. PoE ports continue to work while in power-saving mode.

Comprehensive QoS Policies and Security Mechanisms

- The S3700 classifies complex traffic 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. The S3700 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. Together, these features ensure high-quality voice, video, and data services.
- The S3700 provides multiple security measures to defend against Denial of Service (DoS) attacks, as well as attacks against networks or individual users. DoS attack types include SYN Flood attacks, Land attacks, Smurf attacks, and ICMP Flood attacks. Attacks on networks refer to STP BPDU/root attacks. Attacks on 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 another type of attack aimed at users.
- The S3700 supports DHCP snooping, which generates user binding entries based on users' access interfaces, MAC addresses, IP addresses, IP address leases, and VLAN IDs. 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 man-in-the-middle attacks on campus networks. The interface connected to a DHCP server can be configured as a trusted interface to protect the system against bogus DHCP server attacks.
- The S3700 supports strict ARP learning, which prevents ARP spoofing attacks that exhaust ARP entries. The S3700 also provides IP source guard to prevent DoS attacks caused by MAC address spoofing, IP address spoofing, and MAC/IP spoofing.

- The S3700 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, access interface, and flag indicating whether antivirus software is installed. VLANs, QoS policies, and ACLs can be dynamically applied to users.
- The S3700 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 the packet flooding that occurs when users' MAC addresses cannot be found in the MAC address table.

Various Routing and IPv6 Features

- The S3700 supports various routing protocols, including static routing, RIPv1, RIPv2, OSPF, IS-IS and BGP.
- S3700 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 S3700 can be deployed on IPv4 networks, IPv6 networks, or networks that run both IPv4 and IPv6. This makes networking flexible and enables a network to migrate from IPv4 to IPv6.
- The S3700 supports various IPv6 routing protocols including RIPng and OSPFv3. It uses the IPv6 Neighbor Discovery Protocol (NDP) to manage the packets exchanged between neighbors. The S3700 also provides a path MTU (PMTU) discovery mechanism to select an appropriate MTU on the path from the source to the destination, optimizing network resource utilization and obtaining maximum throughput.

High Scalability and Reliability

- The S3700 supports intelligent stacking (iStack). Multiple S3700s can be connected with stack cables to set up a stack, which functions as a virtual switch. The backup switch takes over services when the master switch fails, reducing service interruption time. Stacks support intelligent upgrades 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 the 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 distinct advantages regarding scalability, reliability, and system architecture.
- Besides STP, RSTP, and MSTP, the S3700 supports enhanced Ethernet reliability technologies, such as Smart Link and RRPP, which implement millisecond-level protection switchovers and ensure network reliability. The S3700 also provides RRPP multi-instance for load balancing among links, optimizing bandwidth usage.
- The S3700 supports BFD, which provides millisecond-level fault detection for protocols, such as OSPF, IS-IS, VRRP, and PIM to improve network reliability. Complying with IEEE 802.3ah and 802.1ag, the S3700 supports point-to-point Ethernet fault management and can detect faults within the last mile of an Ethernet link to users.
- The reliable design of the S3700 is highly expansible and compatible. The S3700 can work with devices on existing networks, which protects customer investments and enables customers to deploy new services.

Maintenance-free Design and Manageability

- The S3700 offers a maintenance-free design which supports batch remote upgrades. The S3700 provides multiple maintenance and management modes to help users monitor various data. In addition, it supports SNMP, NTP, SSH v2, HWTACACS, RMON, port-based traffic statistics, and NQA.
- The S3700 supports GARP VLAN Registration Protocol (GVRP), which dynamically distributes, registers, and propagates VLAN attributes to reduce network administrator workloads and ensure the correct configuration of VLANs. In a complex network topology, GVRP simplifies VLAN configuration and reduces network communication faults caused by incorrect VLAN configuration.
- The S3700 supports MUX VLAN. MUX VLAN isolates the 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 typically used on an enterprise intranet to isolate user interfaces from each other while still allowing them to communicate with server interfaces. This function prevents communication between network devices connected to certain interfaces or interface groups, but allows these devices to communicate with the default gateway.

Unique Fan-free and Energy-saving Design

- S3700s that are equipped with 24 electrical ports offer a fan-free design, which dramatically reduces power consumption and eliminates noise. This design reduces mechanical faults and protects the device against damage caused by condensed water and dust.
- The S3700 incorporates an energy-saving integrated circuit design to ensure even heat dissipation. Idle ports can enter a sleep mode to further reduce power consumption.

- Radiation produced by the S3700 is within the standard range for electric appliances and causes no harm to the human body.

Product Specifications

Item	S3700-SI	S3700-EI
Ports description	• S3700-28TP-SI: 24x10/100Base-TX • S3700-52P-SI: 48x10/100Base-T	• S3700-28TP-EI/S3700-28TP-PWR-EI: 24x10/100Base-TX • S3700-52P-EI/S3700-52P-PWR-EI: 48x10/100Base-T • S3700-28TP-EI-24S: 24x100Base-FX
	• S3700-28TP-SI: 2x1000Base-X, 2xGE Combo • S3700-52P-SI: 2x100/1000Base-X, 2x1000Base-X	• S3700-28TP-EI/S3700-28TP-PWR-EI/S3700-28TP-EI-24S: 2x1000Base-X, 2xGE Combo • S3700-52P-EI/S3700-52P-PWR-EI: 2x100/1000Base-X, 2x1000Base-X
MAC address table	IEEE 802.1d compliance 16K 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 VLANs, voice VLAN, and super VLAN VLAN assignment based on MAC addresses, protocols, and IP subnets QinQ Selective QinQ 1:1 VLAN mapping N:1 VLAN mapping	
Reliability	RRPP (ring topology, intersecting rings, and multi-instance), implementing protection switchover within 50 ms Smart Link tree topology and Smart Link multi-instance, providing the millisecond-level protection switchover STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s) BPDU protection, root protection, and loop protection Smart Ethernet Protection (SEP)	
	N/A	BFD for OSPF, BFD for IS-IS, BFD for VRRP, and BFD for PIM
IP routing	Static routing, RIPv1, RIPv2, and ECMP	
	N/A	OSPF, IS-IS, and BGP
IPv6 features	Neighbor Discovery (ND) Path MTU (PMTU) IPv6 ping, IPv6 tracert, and IPv6 Telnet Manually configured tunnel 6to4 tunnel ISATAP tunnel	

Item	S3700-SI	S3700-EI
	ACLs based on the source IPv6 address, destination IPv6 address, Layer 4 ports, or protocol type MLD v1/v2 snooping	
Multicast	1 K multicast groups IGMP v1/v2/v3 snooping and IGMP fast leave Multicast VLAN and multicast replication between VLANs Multicast load balancing among member ports of a trunk Controllable multicast Port-based multicast traffic statistics	
	N/A	IGMP v1/v2/v3, PIM-SM and PIM-SSM
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 Re-marking of the 802.1p priority and DSCP priority Packet filtering on Layers 2 through 4, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, port number, protocol type, and VLAN ID Rate limiting in each queue and traffic shaping on ports	
Security & access	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 CPU defense Blacklist and whitelist DHCP Server，DHCP Relay，DHCP Snooping，DHCP Security	
Surge protection	7kV surge protection capability on service ports	
Management and maintenance	iStack MAC Forced Forwarding (MFF) Remote configuration and maintenance using Telnet Auto-Config Virtual cable test Ethernet OAM (IEEE 802.3ah and 802.1ag) SNMPv1/v2c/v3 and RMON MUX VLAN and GVRP Web NMS	
Interoperability	Supports LNP (Similar to DTP) Supports VCMP (Similar to VTP)	