CloudEngine S5732-H-V2 Series All-Optical Switches

CloudEngine S5732-H-V2 series switches are next-generation enhanced all-optical GE/10GE hybrid switches that provide 28-port and 48-port models, and provide fixed 6*40GE uplink ports.

Introduction

The CloudEngine S5732-H-V2 series switches are the next-generation enhanced all-optical Ethernet switches developed by Huawei. The CloudEngine S5732-H-V2 boasts various IDN features. For example, the free mobility feature ensures consistent user experience; the VXLAN functionality implements network virtualization; and built-in security probes support abnormal traffic detection, threat analysis even in encrypted traffic, and network-wide threat deception. With these merits, the CloudEngine S5732-H-V2 can function as core switches for small-sized campus networks and aggregation/access switches for medium- and large-sized campus networks, and also work as access switches for Metropolitan Area Network.

Product Overview

Models and Appearances

The following models are available in the CloudEngine S5732-H-V2 series.

Models and Appearances	Description
 CloudEngine S5732-H44S4X6QZ-V2	• 44 x GE SFP ports, 4 x 10GE SFP+ ports, 6 x 40GE QSFP+ ports • 1+1 power backup • Forwarding performance: 486 Mpps • Switching capacity: 648 Gbps/2.4 Tbps
 CloudEngine S5732-H44S4X6QZ-TV2	• 44 x GE SFP ports, 4 x 10GE SFP+ ports, 6 x 40GE QSFP+ ports • 1+1 power backup • Forwarding performance: 486 Mpps • Switching capacity: 648 Gbps/2.4 Tbps
 CloudEngine S5732-H24S4X6QZ-V2	• 24 x GE SFP ports, 4 x 10GE SFP+ ports, 6 x 40GE QSFP+ ports • 1+1 power backup • Forwarding performance: 456 Mpps • Switching capacity: 608 Gbps/2.4 Tbps
 CloudEngine S5732-H24S4X6QZ-TV2	• 24 x GE SFP ports, 4 x 10GE SFP+ ports, 6 x 40GE QSFP+ ports • 1+1 power backup • Forwarding performance: 456 Mpps • Switching capacity: 608 Gbps/2.4 Tbps

Note：The value before the slash (/) refers to the device's switching capability, while the value after the slash (/) means the system's switching capability.

Fan Models

The following table lists the fan module applicable to the CloudEngine S5732-H-V2.

Technical specifications of the fan module applicable to the CloudEngine S5732-H-V2 series

Fan Module	Technical Specifications	Applied Switch Model
 FAN-031A-B	• Dimensions (W x D x H): 40 mm x 100.3 mm x 40 mm • Number of fans: 1 • Weight: 0.1 kg • Maximum power consumption: 21.6 W • Maximum fan speed: 24500±10% revolutions per minute (RPM) • Maximum wind rate: 31 cubic feet per minute (CFM) • Hot swap: Supported	• CloudEngine S5732-H24S4X6QZ-V2 • CloudEngine S5732-H24S4X6QZ-TV2 • CloudEngine S5732-H44S4X6QZ-V2 • CloudEngine S5732-H44S4X6QZ-TV2

Power Supply

The following table lists the power supplies applicable to the CloudEngine S5732-H-V2.

Technical specifications of the power supplies applicable to the CloudEngine S5732-H-V2 series

Power Module	Technical Specifications	Applied Switch Model


PAC600S12-PB
	• Dimensions (H x W x D): 40 mm x 66 mm x 215 mm (1.6 in. x 2.6 in. x 8.5 in.)
	• Weight: 1 kg (2.2 lb)
	• Rated input voltage range:
	  − 100 V AC to 240 V AC, 50/60 Hz
	  − 240 V DC
	• Maximum input voltage range:
	  − 90 V AC to 290 V AC, 45 Hz to 65 Hz
	  − 190 V DC to 290 V DC
	• Maximum input current:
	  − 100 V AC to 240 V AC: 8 A
	  − 240 V DC: 4 A
	• Maximum output current: 50 A
	• Rated output voltage: 12 V
	• Maximum output power: 600 W
	• Hot swap: Supported
		• CloudEngine S5732-H24S4X6QZ-V2
		• CloudEngine S5732-H24S4X6QZ-TV2
		• CloudEngine S5732-H44S4X6QZ-V2
		• CloudEngine S5732-H44S4X6QZ-TV2

 PDC1K2S12-CE	• Dimensions (H x W x D): 40 mm x 66 mm x 215 mm (1.6 in. x 2.6 in. x 8.5 in.) • Weight: 1.5 kg (3.31 lb) • Rated input voltage range: -48 V DC to -60 V DC • Maximum input voltage range: -38.4 V DC to -72 V DC • Maximum input current: 38 A	• CloudEngine S5732-H24S4X6QZ-V2 • CloudEngine S5732-H24S4X6QZ-TV2 • CloudEngine S5732-H44S4X6QZ-V2 • CloudEngine S5732-H44S4X6QZ-TV2

Power Module	Technical Specifications	Applied Switch Model
	• Maximum output current: 83.3 A • Maximum output power: 1200 W • Hot swap: Supported	

Product Features and Highlights

Enabling Networks to Be More Agile for Services

- CloudEngine S5732-H-V2 has a built-in high-speed and flexible processor chip. 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 CloudEngine S5732-H-V2 provides open interfaces and supports user-defined forwarding behavior. 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.
- CloudEngine S5732-H-V2 series switches, on which enterprises can define their own forwarding models, forwarding behavior, 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

- With the unified user management function, the CloudEngine S5732-H-V2 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 experience-centric management.
- The CloudEngine S5732-H-V2 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 CloudEngine S5732-H-V2 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."

Flexible Ethernet Networking

- In addition to traditional Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP), the CloudEngine S5732-H-V2 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 CloudEngine S5732-H-V2 supports Smart Link and Virtual Router Redundancy Protocol (VRRP), which implement backup of uplinks. One CloudEngine S5732-H-V2 switch can connect to multiple aggregation switches through multiple links, significantly improving reliability of access devices.

Various Security Control Methods

- The CloudEngine S5732-H-V2 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 CloudEngine S5732-H-V2 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 CloudEngine S5732-H-V2 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 CloudEngine S5732-H-V2 supports strict ARP learning, which prevents ARP spoofing attackers from exhausting ARP entries.
- The CloudEngine S5732-H-V2 supports Media Access Control Security (MACsec) with all downlink ports and 2 uplink ports(slot 4 &slot 5) . It provides identity authentication, data encryption, integrity check, and replay protection to protect Ethernet frames and prevent attack packets.

Mature IPv6 Features

- The CloudEngine S5732-H-V2 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 CloudEngine S5732-H-V2 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 CloudEngine S5732-H-V2 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 CloudEngine S5732-H-V2 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.

Link Layer Security

- CloudEngine S5732-H-V2 models support MACsec. MACsec protects transmitted Ethernet data frames through identity authentication, data encryption, integrity check, and anti-replay protection, reducing the risks of information leakage and malicious network attacks. With MACsec, these switch models are able to address strict information security requirements of customers in industries such as government and finance.

Intelligent O&M

- The CloudEngine S5732-H-V2 provides telemetry technology to collect device data in real time and send the data to Huawei campus network analyzer CampusInsight. The CampusInsight analyzes network data based on the intelligent fault identification algorithm, accurately displays the real-time network status, effectively demarcates and locates faults in a timely manner, and identifies network problems that affect user experience, accurately guaranteeing user experience.

Intelligent Upgrade

- Switches support the intelligent upgrade feature. Specifically, switches obtain the version upgrade path and download the newest version for upgrade from the Huawei Online Upgrade Platform (HOUP). The entire upgrade process is highly automated and achieves one-click upgrade. In addition, preloading the version is supported, which greatly shortens the upgrade time and service interruption time.
- The intelligent upgrade feature greatly simplifies device upgrade operations and makes it possible for the customer to upgrade the version independently. This greatly reduces the customer's maintenance costs. In addition, the upgrade policies on the HOUP platform standardize the upgrade operations, which greatly reduces the risk of upgrade failures.

Big Data Security Collaboration

- The CloudEngine S5732-H-V2 switches use NetStream to collect campus network data and then report such data to the Huawei HiSec Insight. 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 HiSec Insight delivers the security policies to the iMaster NCE-Campus. The iMaster NCE-Campus then delivers such policies to switches that will handle security events accordingly. All these ensure campus network security.

Cloud Management

- The Huawei cloud management platform allows users to configure, monitor, and inspect switches on the cloud, reducing on-site deployment and O&M manpower costs and decreasing network OPEX. Huawei switches support both cloud management and on-premise management modes. These two management modes can be flexibly switched as required to achieve smooth evolution while maximizing return on investment (ROI).

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.

Licensing

CloudEngine S5732-H-V2 supports both the traditional feature-based licensing mode and the latest Huawei IDN One Software (N1 mode for short) licensing mode. The N1 mode is ideal for campus network deployments in enterprise private cloud mode, and greatly enhances the customer experiences in purchasing and upgrading software services with simplicity.

Software Package Features in N1 Mode

Switch Functions	N1 Basic Software	N1 Foundation Software Package	N1 Advanced Software Package
Basic network functions: Layer 2 functions, IPv4, IPv6, and others *Note: For details, see the Service Features.*	√	√	√
Basic network automation based on the iMaster NCE-Campus: • Basic automation: Plug-and-play • Basic monitoring: Application visualization • NE management: Image and topology management and discovery • User access authentication	×	√	√
Advanced network automation and intelligent O&M: VXLAN, free mobility, and CampusInsight basic functions	×	×	√

Product Specifications

Functions and Features

Category	Service Features
User management	Unified user management

Category	Service Features
	802.1X authentication
	MAC authentication
	Traffic- and duration-based accounting
	User authorization based on user groups, domains, and time ranges
MAC	Automatic MAC address learning and aging
	128K MAC entries (MAX)
	Static, dynamic, and blackhole MAC address entries
	Source MAC address filtering
	MAC address learning limiting based on ports and VLANs
VLAN	4K VLANs
	Access mode, Trunk mode and Hybrid mode
	Default VLAN
	QinQ and enhanced selective QinQ
	VLAN Stacking
	Dynamic VLAN assignment based on MAC addresses
ARP	ARP Snooping
IP routing	IPv4 dynamic routing protocols such as RIP, OSPF, IS-IS, and BGP
	IPv6 dynamic routing protocols such as RIPng, OSPFv3, ISISv6, and BGP4+
	Routing Policy, Policy-Based Routing
Segment Routing	SRv6 BE (L3 EVPN)
	BGP EVPN
	SRv6 configuration through NETCONF
Multicast	IGMPv1/v2/v3 and IGMP v1/v2/v3 Snooping
	PIM-DM, PIM-SM, and PIM-SSM
	Fast-leave mechanism
	Multicast traffic control
	Multicast querier
	Multicast protocol packet suppression
VXLAN	Centralized gateway
	Distributed gateway
	BGP-EVPN
	Configures VXLANs through NETCONF
QoS	Traffic classification based on Layer 2 headers, Layer 3 protocols, Layer 4 protocols, and 802.1p priority
	Actions such as ACL, Committed Access Rate (CAR), re-marking, and scheduling

Category	Service Features
	Queuing algorithms, such as PQ, DRR, and PQ+DRR
	Congestion avoidance mechanisms such as WRED and tail drop
	Traffic shaping
	Eight queues on each interface
	Network Slicing
Native-IP IFIT	Marks the real service packets to obtain real-time count of dropped packets and packet loss ratio
	The statistical period can be modified
	Two-way frame delay measurement
Ethernet loop protection	STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s).
	BPDU protection, root protection, and loop protection
	G.8032 Ethernet Ring Protection Switching (ERPS)
Reliability	M-LAG
	Service interface-based stacking
	Maximum number of stacked devices
	Stack bandwidth (Bidirectional)
	Link Aggregation Control Protocol (LACP)
	Virtual Router Redundancy Protocol (VRRP) and Bidirectional Forwarding Detection (BFD) for VRRP
	BFD for BGP/IS-IS/OSPF/static routes
	Eth-OAM 802.1ag(CFM)
	Smartlink
	LLDP
System management	Console terminal service
	Telnet/IPv6 Telnet terminal service
	SSH v1.5
	SSH v2.0
	SNMP v1/v2c/v3
	FTP、TFTP、SFTP
	BootROM upgrade and remote in-service upgrade
	Hot patch
	User operation logs
	Open Programmability System (OPS)
	Streaming Telemetry
Security and management	NAC

Category	Service Features
	Macsec(IEEE 802.1ae)
	RADIUS and HWTACACS authentication for login users
	Command line authority control based on user levels, preventing unauthorized users from using command configurations
	Defense against DoS attacks, Transmission Control Protocol (TCP) SYN Flood attacks, User Datagram Protocol (UDP) Flood attacks, broadcast storms, and heavy traffic attacks
	IPv6 RA Guard
	CPU hardware queues to implement hierarchical scheduling and protection for protocol packets on the control plane
	Remote Network Monitoring (RMON)
	Secure boot
	Port mirroring

Hardware Specifications

The following table lists the hardware specifications of the CloudEngine S5732-H-V2.

Hardware specifications of CloudEngine S5732-H-V2 models

Item		CloudEngine S5732-H44S4X6QZ-V2 CloudEngine S5732-H44S4X6QZ-TV2	CloudEngine S5732-H24S4X6QZ-V2 CloudEngine S5732-H24S4X6QZ-TV2
Physical specifications	Dimensions (H x W x D, mm)	43.6 x 442 x 420	43.6 x 442 x 420
	Chassis height	1 U	1 U
	Chassis weight (including packaging)	7.48 Kg	7.06 Kg
Fixed port	GE SFP port	44	24
	10GE SFP+ port	4	4
	40GE QSFP+ port	6	6
Management port	ETH port	Supported	Supported
	Console port (RJ45)	Supported	Supported
	USB port	USB 2.0	USB 2.0
CPU	Frequency	1.4 GHz	1.4 GHz
	Cores	4	4
Storage	Memory (RAM)	4 GB	4 GB
	Flash memory	2 GB	2 GB
Power supply system	Power supply type	• 600 W AC (pluggable) • 1200 W DC (pluggable)	• 600 W AC (pluggable) • 1200 W DC (pluggable)
	Rated voltage range	• AC input (600 W AC): 100 V AC to 240 V AC, 50/60 Hz	• AC input (600 W AC): 100 V AC to 240 V AC, 50/60 Hz

Item		CloudEngine S5732-H44S4X6QZ-V2 CloudEngine S5732-H44S4X6QZ-TV2	CloudEngine S5732-H24S4X6QZ-V2 CloudEngine S5732-H24S4X6QZ-TV2
		• DC input (1200 W DC): -48 VDC to -60 V DC	• DC input (1200 W DC): -48 VDC to -60 V DC
	Maximum voltage range	• AC input (600 W AC): 90 V AC to 290 V AC, 45 Hz to 65 Hz • High-voltage DC input (600 W AC): 190 V DC to 290 V DC (meeting 240 V high-voltage DC certification) • DC input (1200 W DC): -38.4 V DC to -72V DC	• AC input (600 W AC): 90 V AC to 290 V AC, 45 Hz to 65 Hz • High-voltage DC input (600 W AC): 190 V DC to 290 V DC (meeting 240 V high-voltage DC certification) • DC input (1200 W DC): -38.4 V DC to -72V DC
	Maximum power consumption	253 W	224 W
	Power consumption in the case of 30% traffic load[1]	200 W	174 W
	Power consumption in the case of 100% traffic load[1]	212 W	188 W
	Minimum power consumption	151 W	133 W
Heat dissipation system	Heat dissipation mode	Air-cooled heat dissipation and intelligent fan speed adjustment	Air-cooled heat dissipation and intelligent fan speed adjustment
	Number of fan modules	3	3
	Airflow	Air flows in from the front side and exhausts from the rear panel.	Air flows in from the front side and exhausts from the rear panel.
Environment parameters	Long-term operating temperature	• 0-1800 m: -5°C to 45°C • 1800-5000 m: The operating temperature decreases 1°C every time the altitude increases 220 m.	• 0-1800 m: -5°C to 45°C • 1800-5000 m: The operating temperature decreases 1°C every time the altitude increases 220 m.
	Storage temperature	-40°C to +70°C	-40°C to +70°C
	Relative humidity	5%–95% (non-condensing)	5%–95% (non-condensing)
	Operating altitude	5000 m	5000 m
	Noise under normal temperature (sound power)	53.4 dB (A)	53.4 dB (A)
	Noise under high temperature (sound power)	69 dB (A)	69 dB (A)
	Noise under normal temperature (sound pressure)	39.72 dB (A)	39.72 dB (A)
	Surge protection specification (power	• AC power port: ±6 kV in differential mode, ±6 kV in common mode	• AC power port: ±6 kV in differential mode, ±6 kV in common mode

Item		CloudEngine S5732-H44S4X6QZ-V2 CloudEngine S5732-H44S4X6QZ-TV2	CloudEngine S5732-H24S4X6QZ-V2 CloudEngine S5732-H24S4X6QZ-TV2
	port)	• DC power port: ±2 kV in differential mode, ±4 kV in common mode	• DC power port: ±2 kV in differential mode, ±4 kV in common mode
Reliability	MTBF (year)[2]	48.99	52.24
	MTTR (hour)	2	2
	Availability	> 0.99999	> 0.99999
Certification		• EMC certification • Safety certification • Manufacturing certification	• EMC certification • Safety certification • Manufacturing certification

NOTE

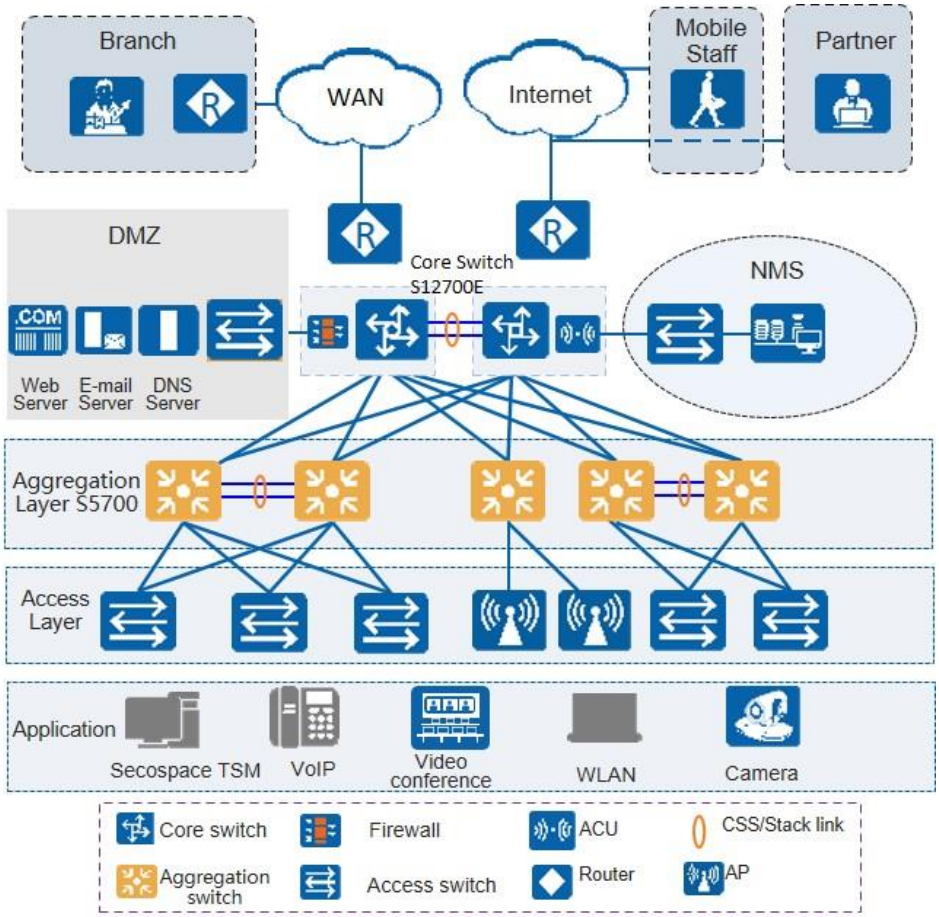
1: The power consumption under different load conditions is calculated according to the ATIS standard. Additionally, the EEE function is enabled and there is no PoE power output.

2: The reliability parameter values are calculated based on the typical configuration of the device. The parameter values vary according to the modules configured by the customer.

Networking and Applications

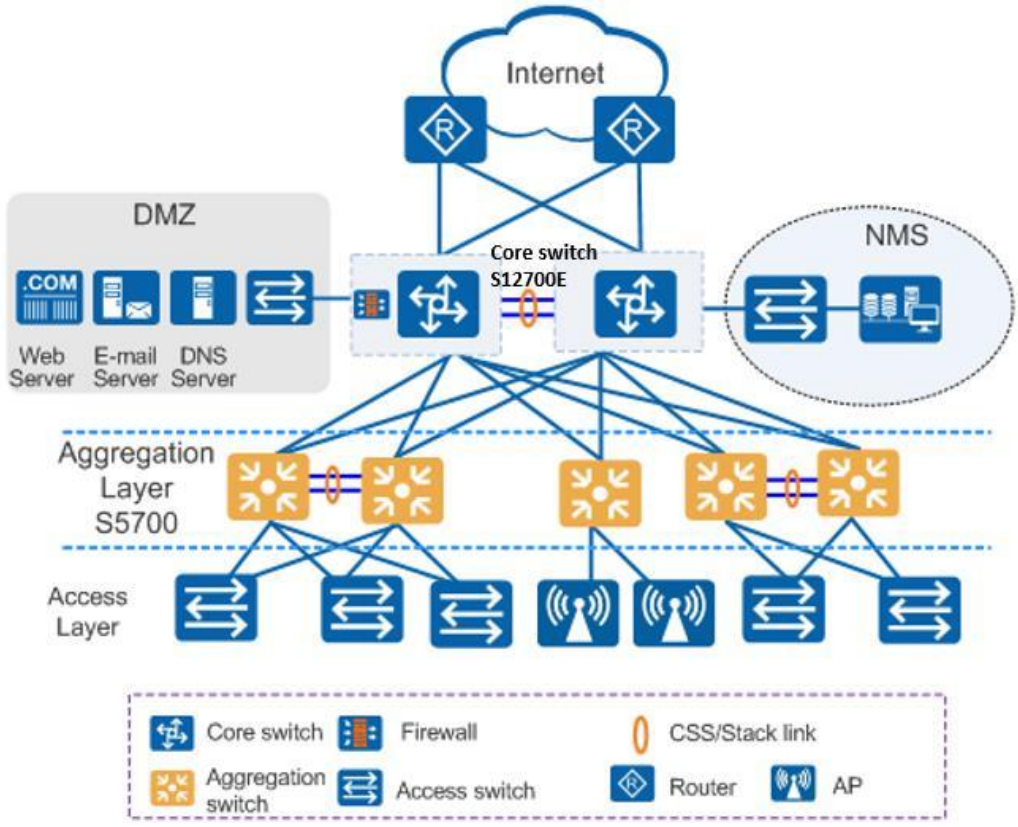
Large-Scale Enterprise Campus Network

CloudEngine S5732-H-V2 series switches can be deployed at the access layer of a campus network to build a high-performance and highly reliable enterprise network.



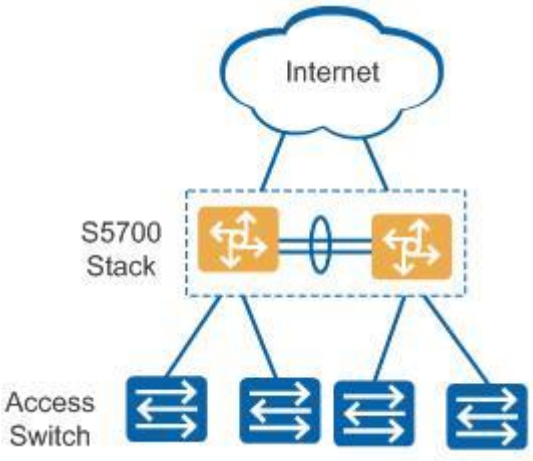
Small- or Medium-scale Enterprise Campus Network

CloudEngine S5732-H-V2 series switches can be deployed at the aggregation layer of a campus network to build a high-performance, multi-service, and highly reliable enterprise network.



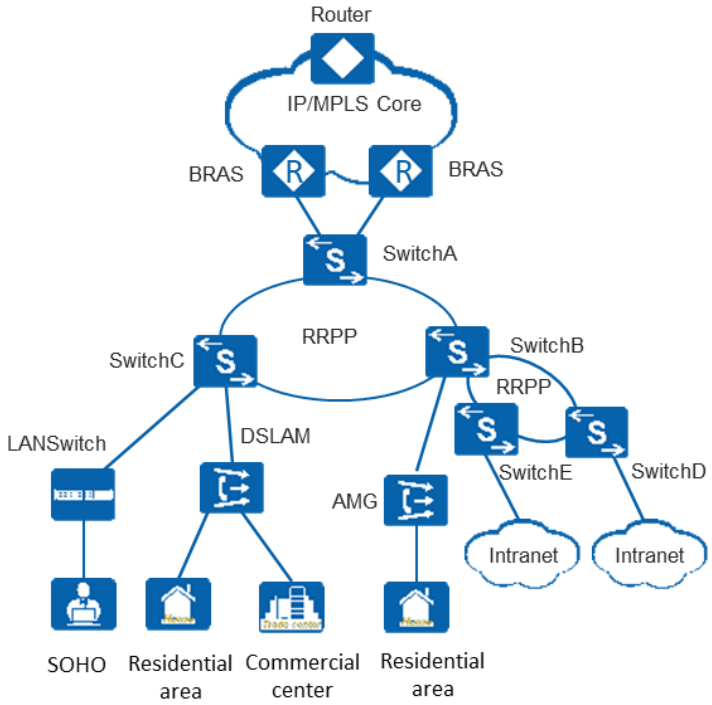
Small-scale Enterprise Campus Network

With powerful aggregation and routing capabilities of CloudEngine S5732-H-V2 series switches make them suitable for use as core switches in a small-scale enterprise network. Two or more S5732-H-V2 switches use iStack technology to ensure high reliability. They provide a variety of access control policies to achieve centralized management and simplify configuration.



Application on a MAN

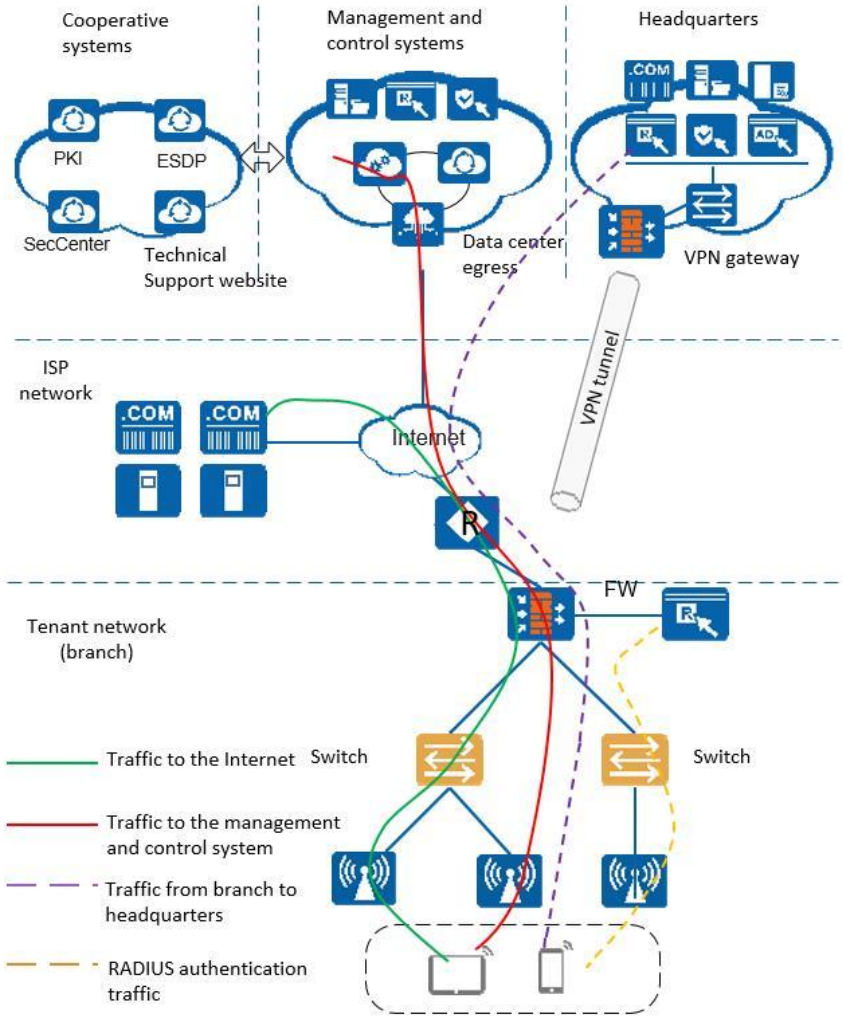
CloudEngine S5732-H-V2 series switches can be deployed at the access layer of a MAN(Metropolitan Area Network) to build a high-performance, multi-service, and highly reliable ISP MAN network.



Application in Public Cloud

CloudCampus Solution is a network solution suite based on Huawei public cloud. CloudEngine S5732-H-V2 series switches can be located at the access layer.

The switches are plug-and-play. They go online automatically after being powered on and connected with network cables, without the need for complex configurations, and use bidirectional certificate authentication to ensure management channel security. The switches provide the NETCONF and YANG interfaces, through which the management and control system delivers configurations to them. In addition, remote maintenance and fault diagnosis can be performed on the management and control system.



Safety and Regulatory Compliance

The following table lists the safety and regulatory compliance of the CloudEngine S5732-H-V2.

Safety and regulatory compliance of the CloudEngine S5732-H-V2 series

Certification Category	Description
Safety	• IEC 60950-1 • EN 60950-1/A11/A12 • UL 60950-1 • CSA C22.2 No 60950-1 • AS/NZS 60950.1 • CNS 14336-1 • IEC60825-1 • IEC60825-2 • EN60825-1 • EN60825-2
Electromagnetic Compatibility (EMC)	• CISPR22 Class A • CISPR24 • EN55022 Class A • EN55024

Certification Category	Description
	• ETSI EN 300 386 Class A • CFR 47 FCC Part 15 Class A • ICES 003 Class A • AS/NZS CISPR22 Class A • VCCI Class A • IEC61000-4-2 • ITU-T K 20 • ITU-T K 21 • ITU-T K 44 • CNS13438
Environment	• RoHS • REACH • WEEE

NOTE

- EMC: electromagnetic compatibility
- CISPR: International Special Committee on Radio Interference
- EN: European Standard
- ETSI: European Telecommunications Standards Institute
- CFR: Code of Federal Regulations
- FCC: Federal Communication Commission
- IEC: International Electrotechnical Commission
- AS/NZS: Australian/New Zealand Standard
- VCCI: Voluntary Control Council for Interference
- UL: Underwriters Laboratories
- CSA: Canadian Standards Association
- IEEE: Institute of Electrical and Electronics Engineers
- RoHS: restriction of the use of certain hazardous substances
- REACH: Registration Evaluation Authorization and Restriction of Chemicals
- WEEE: Waste Electrical and Electronic Equipment

MIB and Standards Compliance

Supported MIBs

The following table lists the MIBs supported by the CloudEngine S5732-H-V2.

MIBs supported by the CloudEngine S5732-H-V2 series

Category	MIB
Public MIB	• BRIDGE-MIB • DISMAN-NSLOOKUP-MIB • DISMAN-PING-MIB • DISMAN-TRACEROUTE-MIB • ENTITY-MIB • EtherLike-MIB • IF-MIB

Category	MIB
	• IP-FORWARD-MIB • IPv6-MIB • LAG-MIB • LLDP-EXT-DOT1-MIB • LLDP-EXT-DOT3-MIB • LLDP-MIB • MPLS-FTN-STD-MIB • MPLS-L3VPN-STD-MIB • MPLS-LDP-GENERIC-STD-MIB • MPLS-LDP-STD-MIB • MPLS-LSR-STD-MIB • MPLS-TE-STD-MIB • NOTIFICATION-LOG-MIB • NQA-MIB • OSPF-TRAP-MIB • P-BRIDGE-MIB • Q-BRIDGE-MIB • RFC1213-MIB • RIPv2-MIB • RMON2-MIB • RMON-MIB • SAVI-MIB • SNMP-FRAMEWORK-MIB • SNMP-MPD-MIB • SNMP-NOTIFICATION-MIB • SNMP-TARGET-MIB • SNMP-USER-BASED-SM-MIB • SNMPv2-MIB • TCP-MIB • UDP-MIB
Huawei-proprietary MIB	• HUAWEI-AAA-MIB • HUAWEI-ACL-MIB • HUAWEI-ALARM-MIB • HUAWEI-ALARM-RELIABILITY-MIB • HUAWEI-BASE-TRAP-MIB • HUAWEI-BRAS-RADIUS-MIB • HUAWEI-BRAS-SRVCFG-EAP-MIB • HUAWEI-BRAS-SRVCFG-STATICUSER-MIB • HUAWEI-CBQOS-MIB • HUAWEI-CDP-COMPLIANCE-MIB • HUAWEI-CONFIG-MAN-MIB • HUAWEI-CPU-MIB • HUAWEI-DAD-TRAP-MIB • HUAWEI-DC-MIB

Category	MIB
	• HUAWEI-DATASYNC-MIB • HUAWEI-DEVICE-MIB • HUAWEI-DHCPR-MIB • HUAWEI-DHCPS-MIB • HUAWEI-DHCP-SNOOPING-MIB • HUAWEI-DIE-MIB • HUAWEI-DNS-MIB • HUAWEI-DLDP-MIB • HUAWEI-ELMI-MIB • HUAWEI-ERPS-MIB • HUAWEI-ERRORDOWN-MIB • HUAWEI-ENERGYMNGT-MIB • HUAWEI-EASY-OPERATION-MIB • HUAWEI-ENTITY-EXTENT-MIB • HUAWEI-ENTITY-TRAP-MIB • HUAWEI-ETHARP-MIB • HUAWEI-ETHOAM-MIB • HUAWEI-FLASH-MAN-MIB • HUAWEI-FWD-RES-TRAP-MIB • HUAWEI-GARP-APP-MIB • HUAWEI-GTSM-MIB • HUAWEI-HGMP-MIB • HUAWEI-HWTACACS-MIB • HUAWEI-IF-EXT-MIB • HUAWEI-INFOCENTER-MIB • HUAWEI-IPPOOL-MIB • HUAWEI-IPV6-MIB • HUAWEI-ISOLATE-MIB • HUAWEI-L2IF-MIB • HUAWEI-L2MAM-MIB • HUAWEI-L2VLAN-MIB • HUAWEI_LDT-MIB • HUAWEI-LLDP-MIB • HUAWEI-MAC-AUTHEN-MIB • HUAWEI-MEMORY-MIB • HUAWEI-MFF-MIB • HUAWEI-MFLP-MIB • HUAWEI-MSTP-MIB • HUAWEI-BGP-VPN-MIB • HUAWEI-CCC-MIB • HUAWEI-MULTICAST-MIB • HUAWEI-NAP-MIB • HUAWEI-NTPV3-MIB • HUAWEI-PERFORMANCE-MIB • HUAWEI-PORT-MIB

Category	MIB
	• HUAWEI-PORTAL-MIB • HUAWEI-QINQ-MIB • HUAWEI-RIPv2-EXT-MIB • HUAWEI-RM-EXT-MIB • HUAWEI-RRPP-MIB • HUAWEI-SECURITY-MIB • HUAWEI-SEP-MIB • HUAWEI-SNMP-EXT-MIB • HUAWEI-SSH-MIB • HUAWEI-STACK-MIB • HUAWEI-SWITCH-L2MAM-EXT-MIB • HUAWEI-SWITCH-SRV-TRAP-MIB • HUAWEI-SYS-MAN-MIB • HUAWEI-TCP-MIB • HUAWEI-TFTPC-MIB • HUAWEI-TRNG-MIB • HUAWEI-XQOS-MIB

Standard Compliance

The following table lists the standards that the CloudEngine S5732-H-V2 complies with.

Standard compliance list of the CloudEngine S5732-H-V2 series

Standard Organization	Standard or Protocol
IETF	• RFC 768 User Datagram Protocol (UDP) • RFC 792 Internet Control Message Protocol (ICMP) • RFC 793 Transmission Control Protocol (TCP) • RFC 826 Ethernet Address Resolution Protocol (ARP) • RFC 854 Telnet Protocol Specification • RFC 951 Bootstrap Protocol (BOOTP) • RFC 959 File Transfer Protocol (FTP) • RFC 1058 Routing Information Protocol (RIP) • RFC 1112 Host extensions for IP multicasting • RFC 1157 A Simple Network Management Protocol (SNMP) • RFC 1256 ICMP Router Discovery • RFC 1305 Network Time Protocol Version 3 (NTP) • RFC 1349 Internet Protocol (IP) • RFC 1493 Definitions of Managed Objects for Bridges • RFC 1542 Clarifications and Extensions for the Bootstrap Protocol • RFC 1643 Ethernet Interface MIB • RFC 1757 Remote Network Monitoring (RMON) • RFC 1901 Introduction to Community-based SNMPv2 • RFC 1902-1907 SNMP v2 • RFC 1981 Path MTU Discovery for IP version 6 • RFC 2131 Dynamic Host Configuration Protocol (DHCP)

Standard Organization	Standard or Protocol
	• RFC 2328 OSPF Version 2 • RFC 2453 RIP Version 2 • RFC 2460 Internet Protocol, Version 6 Specification (IPv6) • RFC 2461 Neighbor Discovery for IP Version 6 (IPv6) • RFC 2462 IPv6 Stateless Address Auto configuration • RFC 2463 Internet Control Message Protocol for IPv6 (ICMPv6) • RFC 2474 Differentiated Services Field (DS Field) • RFC 2740 OSPF for IPv6 (OSPFv3) • RFC 2863 The Interfaces Group MIB • RFC 2597 Assured Forwarding PHB Group • RFC 2598 An Expedited Forwarding PHB • RFC 2571 SNMP Management Frameworks • RFC 2865 Remote Authentication Dial In User Service (RADIUS) • RFC 3046 DHCP Option82/Relay • RFC 3376 Internet Group Management Protocol, Version 3 (IGMPv3) • RFC 3513 IP Version 6 Addressing Architecture • RFC 3579 RADIUS Support For EAP • RFC 4271 A Border Gateway Protocol 4 (BGP-4) • RFC 4760 Multiprotocol Extensions for BGP-4 • draft-grant-tacacs-02 TACACS+ • RFC 6241 Network Configuration Protocol (NETCONF) • RFC 6020 YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)
IEEE	• IEEE 802.1D Media Access Control (MAC) Bridges • IEEE 802.1p Traffic Class Expediting and Dynamic Multicast Filtering • IEEE 802.1Q Virtual Bridged Local Area Networks • IEEE 802.1ad Provider Bridges • IEEE 802.2 Logical Link Control • IEEE Std 802.3 CSMA/CD • IEEE Std 802.3ab 1000BASE-T specification • IEEE Std 802.3ad Aggregation of Multiple Link Segments • IEEE Std 802.3ae 10GE WEN/LAN Standard • IEEE Std 802.3x Full Duplex and flow control • IEEE Std 802.3z Gigabit Ethernet Standard • IEEE802.1ax/IEEE802.3ad Link Aggregation • IEEE 802.1ag Connectivity Fault Management • IEEE 802.1ab Link Layer Discovery Protocol • IEEE 802.1D Spanning Tree Protocol • IEEE 802.1w Rapid Spanning Tree Protocol • IEEE 802.1s Multiple Spanning Tree Protocol • IEEE 802.1x Port based network access control protocol • IEEE 802.3az Automatic power adjustment on Ethernet interfaces
ITU	• ITU SG13 Y.17ethoam • ITU SG13 QoS control Ethernet-Based IP Access

Standard Organization	Standard or Protocol
	• ITU-T Y.1731 ETH OAM performance monitor
ISO	• ISO 10589 IS-IS Routing Protocol
MEF	• MEF 2 Requirements and Framework for Ethernet Service Protection • MEF 9 Abstract Test Suite for Ethernet Services at the UNI • MEF 10.2 Ethernet Services Attributes Phase 2 • MEF 11 UNI Requirements and Framework • MEF 13 UNI Type 1 Implementation Agreement • MEF 15 Requirements for Management of Metro Ethernet Phase 1 Network Elements • MEF 17 Service OAM Framework and Requirements • MEF 20 UNI Type 2 Implementation Agreement • MEF 23 Class of Service Phase 1 Implementation Agreement • Xmodem XMODEM/YMODEM Protocol Reference

Ordering Information

The following table lists ordering information of the CloudEngine S5732-H-V2 series switches.

Model	Product Description
CloudEngine S5732-H44S4X6QZ-V2	CloudEngine S5732-H44S4X4QZ-V2 (44*GE SFP ports, 4*10GE SFP+ ports, 6*40GE QSFP ports, 1*expansion slot, without power module)
CloudEngine S5732-H44S4X6QZ-TV2	CloudEngine S5732-H44S4X4QZ-TV2 (44*GE SFP ports, 4*10GE SFP+ ports, 6*40GE QSFP ports, 1*expansion slot, HTM, without power module)
CloudEngine S5732-H24S4X6QZ-V2	CloudEngine S5732-H24S4X6QZ-V2 (24*GE SFP ports, 4*10GE SFP+ ports, 6*40GE QSFP ports, 1*expansion slot, without power module)
CloudEngine S5732-H24S4X6QZ-TV2	CloudEngine S5732-H24S4X6QZ-TV2 (24*GE SFP ports, 4*10GE SFP+ ports, 6*40GE QSFP ports, 1*expansion slot, HTM, without power module)
PAC600S12-PB	600W AC power module
PDC1K2S12-CE	1200W DC power module
FAN-031A-B	Fan module
L-MLIC-S57H	S57XX-H Series Basic SW,Per Device
N1-S57H-M-Lic	S57XX-H Series Basic SW,Per Device
N1-S57H-M-SnS1Y	S57XX-H Series Basic SW,SnS,Per Device,1Year
N1-S57H-F-Lic	N1-CloudCampus,Foundation,S57XX-H Series,Per Device
N1-S57H-F-SnS1Y	N1-CloudCampus,Foundation,S57XX-H Series,SnS,Per Device,1Year
N1-S57H-A-Lic	N1-CloudCampus,Advanced,S57XX-H Series,Per Device
N1-S57H-A-SnS1Y	N1-CloudCampus,Advanced,S57XX-H Series,SnS,Per Device,1Year
N1-S57H-FToA-Lic	N1-Upgrade-Foundation to Advanced,S57XX-H,Per Device
N1-S57H-FToA-SnS1Y	N1-Upgrade-Foundation to Advanced,S57XX-H,SnS,Per Device,1Year

More Information

For more information about Huawei Campus Switches, visit http://e.huawei.com or contact us in the following ways:

- Global service hotline: http://e.huawei.com/en/service-hotline
- Logging in to the Huawei Enterprise technical support website: http://support.huawei.com/enterprise/
- Sending an email to the customer service mailbox: support_e@huawei.com

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