

# CloudEngine S5736-S Series All-Optical Switches

CloudEngine S5736-S series switches are next-generation standard all-optical GE access switches that provide 48-port models, and provide four 10GE ports.



## Introduction

CloudEngine S5736-S series all-optical GE access switches are developed based on next-generation high-performing hardware and the Huawei Versatile Routing Platform (VRP), support enhanced Layer 3 features simplified operations and maintenance (O&M), flexible Ethernet networking and mature IPv6 features. CloudEngine S5736-S switches can be used in various scenarios. For example, it can be used as an access or aggregation switch on a campus network or as an access switch for Metropolitan Area Network.

## Product Overview

The following models are available in the CloudEngine S5736-S series.

Models and appearances of the CloudEngine S5736-S series

Models and Appearances	Description
 CloudEngine S5736-S48S4X-A	<ul style="list-style-type: none"> <li>• 48 x GE SFP ports, 4 x 10 GE SFP+ ports</li> <li>• Built-in AC power</li> <li>• Forwarding performance: 480 Mpps</li> <li>• Switching capacity: 1.04 Tbps/2.72 Tbps</li> </ul> <p><i>Note: All ports support GE by default. You can purchase right-to-use (RTU) licenses to upgrade the port rate from GE to 10GE.</i></p>
 CloudEngine S5736-S48S4X-D	<ul style="list-style-type: none"> <li>• 48 x GE SFP ports, 4 x 10 GE SFP+ ports</li> <li>• Built-in DC power</li> <li>• Forwarding performance: 480 Mpps</li> <li>• Switching capacity: 1.04 Tbps/2.72 Tbps</li> </ul> <p><i>Note: All ports support GE by default. You can purchase right-to-use (RTU) licenses to upgrade the port rate from GE to 10GE.</i></p>

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.

# Product Features and Highlights

## Flexible Port Access On-demand

- CloudEngine S5736-S series switches provide 48 downlink optical ports and four 10GE uplink optical ports. Based on the innovative RTU mode, the downlink port rate can be increased on demand. With the rapid growth of services, the rate can be smoothly upgraded from 1 Gbit/s to 10 Gbit/s, maximizing the investment on the existing network.

## Powerful Service Processing Capability

- CloudEngine S5736-S supports a broad set of Layer 2/Layer 3 multicast protocols, such as PIM SM, PIM DM, PIM SSM, MLD, and IGMP snooping. This capability is ideal for high-definition video surveillance and video conferencing access.
- CloudEngine S5736-S provides multiple Layer 3 features including OSPF, IS-IS, BGP, and VRRP, meeting enterprises' access and aggregation service needs and enabling a variety of voice, video, and data applications.

## Flexible Ethernet Networking

- In addition to traditional Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP), the CloudEngine S5736-S 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 S5736-S supports Smart Link and Virtual Router Redundancy Protocol (VRRP), which implement backup of uplinks. One CloudEngine S5736-S switch can connect to multiple aggregation switches through multiple links, significantly improving reliability of access devices.

## Various Security Control Methods

- The CloudEngine S5736-S supports 802.1x authentication, MAC address authentication, Portal authentication, and hybrid authentication, and can dynamically deliver user policies such as VLANs, QoS policies, and access control lists (ACL). It also supports user management based on user groups.
- The CloudEngine S5736-S 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 S5736-S 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 S5736-S supports strict ARP learning, which prevents ARP spoofing attackers from exhausting ARP entries.
- The CloudEngine S5736-S supports Media Access Control Security (MACsec) with the port of subcard (8\*10GE SFP+ subcard) . It provides identity authentication, data encryption, integrity check, and replay protection to protect Ethernet frames and prevent attack packets.

## Easy Network deployment

- CloudEngine S5736-S supports Super Virtual Fabric (SVF), which innovatively virtualizes the "core/aggregation switch + access switch + AP" into one logical device. This simplifies device management and achieves plug-and-play for access switches and APs. In addition, CloudEngine S5736-S supports service configuration templates. The templates are configured on core devices and automatically delivered to access devices, enabling centralized control, simplified service configuration, and flexible configuration adjustment. CloudEngine S5736-S functions as a client in an SVF system.
- CloudEngine S5736-S supports Huawei Easy Operation, a solution that provides zero-touch deployment, replacement of faulty devices without additional configuration, USB-based deployment, batch device configuration, and batch remote upgrade. The capabilities facilitate device deployment, upgrade, service provisioning, and other management and maintenance operations, and also greatly reduce O&M costs. CloudEngine S5736-S can be managed using SNMP v1/v2c/v3, CLI, web-based network management system, or SSH v2.0. Additionally, it supports RMON, multiple log hosts, port traffic statistics collection, and network quality analysis, which facilitate network optimization and reconstruction.

## Mature IPv6 Features

- The CloudEngine S5736-S 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 S5736-S 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 S5736-S 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.

Note: CloudEngine S5736-S series all-optical switches can stack with CloudEngine S5736-S series Multi-GE switches.

## Intelligent O&M

- The CloudEngine S5736-S 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.
- The CloudEngine S5736-S supports a variety of intelligent O&M features for audio and video services, including the enhanced Media Delivery Index (eMDI). With this eMDI function, the switch can function as a monitored node to periodically conduct statistics and report audio and video service indicators to the CampusInsight platform. In this way, the CampusInsight platform can quickly demarcate audio and video service quality faults based on the results of multiple monitored nodes.

## 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 S5736-S series switches are hardware ready to support VXLAN 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.

## 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.

## 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

## IDN One Software

CloudEngine S5736-S 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 deploying Huawei CloudCampus Solution in the on-premises scenario, as it 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
<b>Basic network functions:</b> Layer 2 functions, IPv4, IPv6, SVF, and others Note: For details, see the Service Features	√	√	√
<b>Basic network automation based on the iMaster NCE-Campus:</b> <ul style="list-style-type: none"> <li>Basic automation: Plug-and-play</li> <li>Basic monitoring: Application visualization</li> <li>NE management: Image and topology management and discovery</li> </ul>	x	√	√
<b>Advanced network automation and intelligent O&amp;M:</b> User access authentication and CampusInsight basic functions	x	x	√

## RTU license

CloudEngine S5736-S series all-optical switches use the innovative RTU license design. The RTU license is used to flexibly manage and control downlink GE ports. The switches can be configured and upgraded on demand, when working with Wi-Fi 6 APs, aggregation switches, and core switches, they can quickly build a flexible campus network to meet actual service requirements, enable customers' networks and services to grow together, and avoid excessive investment

### RTU license

RTU license description	CloudEngine S5736-S48S4X-A/D
SPF 1G to 10G Electronic RTU License	√

Note: Only V200R020C30 and later versions can support N1 mode and RTU

# Product Specifications

## Functions and Features

Except for special instructions, the following features are supported by CloudEngine S5736-S with N1 basic software.

### Function and feature metrics for the CloudEngine S5736-S series

Function and Feature		Description	CloudEngine S5736-S Series
Ethernet features	Ethernet basics	Full-duplex, half-duplex, and auto-negotiation	Yes
		Rate auto-negotiation on an interface	Yes

Function and Feature	Description	CloudEngine S5736-S Series	
	Flow control on an interface	Yes	
	Jumbo frames	Yes	
	Link aggregation	Yes	
	Load balancing among links of a trunk	Yes	
	Transparent transmission of Layer 2 protocol packets	Yes	
	Device Link Detection Protocol (DLDP)	Yes	
	Link Layer Discovery Protocol (LLDP)	Yes	
	Link Layer Discovery Protocol-Media Endpoint Discovery (LLDP-MED)	Yes	
	Interface isolation	Yes	
	Broadcast traffic suppression on an interface	Yes	
	Multicast traffic suppression on an interface	Yes	
	Unknown unicast traffic suppression on an interface	Yes	
	VLAN broadcast traffic suppression	Yes	
	VLAN multicast traffic suppression	Yes	
	VLAN unknown unicast traffic suppression	Yes	
	VLAN	VLAN specification	4094
		VLANIF interface specification	1024
		Access mode	Yes
		Trunk mode	Yes
		Hybrid mode	Yes
		QinQ mode	Yes
		Default VLAN	Yes
		VLAN assignment based on interfaces	Yes
		VLAN assignment based on protocols	Yes
		VLAN assignment based on IP subnets	Yes
		VLAN assignment based on MAC addresses	Yes
		VLAN assignment based on MAC address + IP address	Yes
		VLAN assignment based on MAC address + IP address + interface number	Yes
	Adding double VLAN tags to packets based on interfaces	Yes	
	Super-VLAN	Yes	

Function and Feature	Description	CloudEngine S5736-S Series	
	Super-VLAN specification	256	
	Sub-VLAN	Yes	
	Sub-VLAN specification	1K	
	VLAN mapping	Yes	
	Selective QinQ	Yes	
	MUX VLAN	Yes	
	Voice VLAN	Yes	
	Guest VLAN	Yes	
	GVRP	GARP	Yes
		GVRP	Yes
	VCMP	VCMP	Yes
	MAC	MAC address	32K
		Automatic learning of MAC addresses	Yes
		Automatic aging of MAC addresses	Yes
		Static, dynamic, and blackhole MAC address entries	Yes
		Interface-based MAC address learning limiting	Yes
		Sticky MAC	Yes
		MAC address flapping detection	Yes
		Configuring MAC address learning priorities for interfaces	Yes
		MAC address spoofing defense	Yes
		Port bridge	Yes
	ARP	Static ARP	Yes
		Dynamic ARP	Yes
		ARP entry	20K
		ARP aging detection	Yes
		Intra-VLAN proxy ARP	Yes
		Inter-VLAN proxy ARP	Yes
		Routed proxy ARP	Yes
Multi-egress-interface ARP		Yes	
Ethernet loop protection	MSTP	STP	Yes
		RSTP	Yes
		MSTP	Yes
		VBST	Yes

Function and Feature	Description	CloudEngine S5736-S Series		
		BPDU protection	Yes	
		Root protection	Yes	
		Loop protection	Yes	
		Defense against TC BPDU attacks	Yes	
	Loopback detection	Loop detection on an interface	Yes	
	SEP	SEP	Yes	
	Smart Link	Smart Link	Yes	
		Smart Link multi-instance	Yes	
		Monitor Link	Yes	
	RRPP	RRPP	Yes	
		Single RRPP ring	Yes	
		Tangent RRPP ring	Yes	
		Intersecting RRPP ring	Yes	
		Hybrid networking of RRPP rings and other ring networks	Yes	
	ERPS	G.8032 v1	Yes	
		G.8032 v2	Yes	
		ERPS semi-ring topology	Yes	
		ERPS closed-ring topology	Yes	
	IPv4/IPv6 forwarding	IPv4 and unicast routing	IPv4 static routing	Yes
			VRF	Yes
DHCP client			Yes	
DHCP server			Yes	
DHCP relay			Yes	
DHCP policy VLAN			Yes	
URPF check			Yes	
Routing policies			Yes	
IPv4 routes			8K	
RIPv1			Yes	
RIPv2			Yes	
OSPF			Yes	
BGP			Yes	
MBGP			Yes	
IS-IS			Yes	

Function and Feature	Description	CloudEngine S5736-S Series	
		Policy-based routing (PBR)	Yes
	Multicast routing features	IGMPv1/v2/v3	Yes
		PIM-DM	Yes
		PIM-SM	Yes
		MSDP	Yes
		IPv4 multicast routes	1.5K
		IPv6 multicast routes	500
		Multicast routing policies	Yes
		RPF	Yes
	IPv6 features	IPv6 protocol stack	Yes
		ND	Yes
		ND entry	10K
		ND snooping	Yes
		DHCPv6 snooping	Yes
		RIPng	Yes
		DHCPv6 server	Yes
		DHCPv6 relay	Yes
		OSPFv3	Yes
		BGP4+	Yes
		IS-IS for IPv6	Yes
		IPv6 routes	4K
		VRRP6	Yes
		MLDv1/v2	Yes
		PIM-DM for IPv6	Yes
		PIM-SM for IPv6	Yes
	IPv6 transition technology	IPv6 manual tunneling	Yes
	Layer 2 multicast features	-	IGMPv1/v2/v3 snooping
IGMP snooping proxy			Yes
MLD snooping			Yes
Multicast traffic suppression			Yes
Inter-VLAN multicast replication			Yes
VPN	VPN	MCE	Yes
		Ping based-on VPN	Yes
		Telnet based-on VPN	Yes



Function and Feature		Description	CloudEngine S5736-S Series
		Trace based-on VPN	Yes
		VPN-Instance(IPV4)	64
		VPN-Instance(IPV6)	64
		Interface per VPN	64
Device reliability	BFD	Single-hop BFD	Yes
		BFD for static routes	Yes
		BFD for OSPF	Yes
		BFD for IS-IS	Yes
		BFD for BGP	Yes
		BFD for PIM	Yes
		BFD for VRRP	Yes
	Stacking	Service interface-based stacking	Yes
		Maximum number of stacked devices	9
		Stack bandwidth (Bidirectional)	320Gbps(MAX)
VRRP	VRRP standard protocol	Yes	
Ethernet OAM	EFM (802.3ah)	Automatic discovery of links	Yes
		Link fault detection	Yes
		Link troubleshooting	Yes
		Remote loopback	Yes
	CFM (802.1ag)	Software-level CCM	Yes
		802.1ag MAC ping	Yes
		802.1ag MAC trace	Yes
	OAM association	Association between 802.1ag and 802.3ah	Yes
	Y.1731	Unidirectional delay and jitter measurement	Yes
		Bidirectional delay and jitter measurement	Yes
QoS features	Traffic classification	Traffic classification based on ACLs	Yes
		Matching the simple domains of packets	Yes
	Traffic behavior	Traffic filtering	Yes
		Traffic policing (CAR)	Yes
		Modifying the packet priorities	Yes
		Modifying the simple domains of packets	Yes
		Modifying the packet VLANs	Yes
	Traffic shaping	Traffic shaping on an egress interface	Yes
		Traffic shaping on queues on an interface	Yes

Function and Feature		Description	CloudEngine S5736-S Series
	Congestion avoidance	Weighted Random Early Detection (WRED) on queues	Yes
		Tail drop	Yes
	Congestion management	Priority Queuing (PQ)	Yes
		Weighted Deficit Round Robin (WDRR)	Yes
		PQ+WDRR	Yes
		Weighted Round Robin (WRR)	Yes
PQ+WRR	Yes		
ACL	Packet filtering at Layer 2 to Layer 4	Basic IPv4 ACL	Yes
		Advanced IPv4 ACL	Yes
		Basic IPv6 ACL	Yes
		Advanced IPv6 ACL	Yes
		Layer 2 ACL	Yes
		User group ACL	Yes
		User-defined ACL	Yes
Configuration and maintenance	Login and configuration management	Command line interface (CLI)-based configuration	Yes
		Console terminal service	Yes
		Telnet terminal service	Yes
		SSH v1.5	Yes
		SSH v2.0	Yes
		SNMP-based NMS for unified configuration	Yes
		Web page-based configuration and management	Yes
		EasyDeploy (client)	Yes
		EasyDeploy (commander)	Yes
		SVF	Yes
		Cloud management	Yes
		OPS	Yes
		File system	Directory and file management
	File upload and download		Yes
	Monitoring and maintenance	eMDI	Yes
		Hardware monitoring	Yes
		Log information output	Yes
		Alarm information output	Yes
		Debugging information output	Yes

Function and Feature		Description	CloudEngine S5736-S Series
		Port mirroring	Yes
		Flow mirroring	Yes
		Remote mirroring	Yes
		Energy saving	Yes
	Version upgrade	Version upgrade	Yes
		Version rollback	Yes
Security	ARP security	ARP packet rate limiting	Yes
		ARP anti-spoofing	Yes
		Association between ARP and STP	Yes
		ARP gateway anti-collision	Yes
		Dynamic ARP Inspection (DAI)	Yes
		Static ARP Inspection (SAI)	Yes
		Egress ARP Inspection (EAI)	Yes
	IP security	ICMP attack defense	Yes
		IPSG for IPv4	Yes
		IPSG user capacity	1000
		IPSG for IPv6	Yes
		IPSGv6 user capacity	512
	Local attack defense	CPU attack defense	Yes
	MFF	MFF	Yes
	DHCP snooping	DHCP snooping	Yes
		Option 82 function	Yes
		Dynamic rate limiting for DHCP packets	Yes
	Attack defense	Defense against malformed packet attacks	Yes
		Defense against UDP flood attacks	Yes
		Defense against TCP SYN flood attacks	Yes
		Defense against ICMP flood attacks	Yes
		Defense against packet fragment attacks	Yes
		Local URPF	Yes
User access and authentication	AAA	Local authentication	Yes
		Local authorization	Yes
		RADIUS authentication	Yes
		RADIUS authorization	Yes
		RADIUS accounting	Yes

Function and Feature		Description	CloudEngine S5736-S Series
		HWTACACS authentication	Yes
		HWTACACS authorization	Yes
		HWTACACS accounting	Yes
	NAC	802.1X authentication	Yes
		MAC address authentication	Yes
		Portal authentication	Yes
		Hybrid authentication	Yes
	Policy association	Functioning as the control device	Yes
	Network management	-	Ping
Tracert			Yes
NQA			Yes
NTP			Yes
iPCA			Yes
Smart Application Control (SAC)			Yes
NetStream			Yes
SNMP v1			Yes
SNMP v2c			Yes
SNMP v3			Yes
HTTP			Yes
HTTPS			Yes
RMON			Yes
RMON2			Yes
NETCONF/YANG			Yes
VXLAN*	-	VXLAN Layer 2 gateway	Yes
		VXLAN Layer 3 gateway	Yes
		Centralized gateway	Yes
		Distributed gateway	Yes
		BGP-EVPN	Yes
		BGP-EVPN neighbor capacity	Yes
Interoperability	-	VLAN-based Spanning Tree (VBST)	Yes
		Link-type Negotiation Protocol (LNP)	Yes
		VLAN Central Management Protocol (VCMP)	Yes

\*Hardware ready

## NOTE

This content is applicable only to regions outside mainland China. Huawei reserves the right to interpret this content.

## Hardware Specifications

The following table lists the hardware specifications of the CloudEngine S5736-S.

### Hardware specifications of CloudEngine S5736-S models

Item		CloudEngine S5736-S48S4X-A	CloudEngine S5736-S48S4X-D
Physical specifications	Dimensions (H x W x D, mm)	43.6 x 442 x 220	43.6 x 442 x 220
	Chassis height	1 U	1 U
	Chassis weight (including packaging)	4.7kg	4.3kg
Fixed port	Multi-GE port	48	48
	10GE SFP+ port	4	4
Management port	ETH port	Supported	Supported
	Console port (RJ45)	Supported	Supported
CPU	Frequency	1.2 GHz	1.2 GHz
	Cores	4	4
Storage	Memory (RAM)	2 GB	2 GB
	Flash memory	1 GB	1 GB
Power supply system	Power supply type	Built-in AC	Built-in DC
	Rated voltage range	<ul style="list-style-type: none"><li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li><li>High-voltage DC input : 240 V DC</li></ul>	<ul style="list-style-type: none"><li>DC input: -48 V DC to -60 V DC</li></ul>
	Maximum voltage range	<ul style="list-style-type: none"><li>AC input: 90 V AC to 290 V AC, 45 Hz to 65 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC (meeting 240 V high-voltage DC certification)</li></ul>	<ul style="list-style-type: none"><li>DC input: -36 V DC to -72 V DC</li></ul>
	Maximum power consumption	111 W	108 W
	Power consumption in the case of 30% traffic load <sup>1</sup>	87 W	87 W
	Power consumption in the case of 100% traffic load <sup>1</sup>	92 W	92 W
	Minimum power consumption	39 W	39 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 left side and front panel, and exhausts from the	Air flows in from the left side and front panel, and exhausts from

Item		CloudEngine S5736-S48S4X-A	CloudEngine S5736-S48S4X-D
		right side	the right side
	Maximum heat dissipation of the device (BTU/hour)	378.74	368.51
Environment parameters	Long-term operating temperature	<ul style="list-style-type: none"> <li>0-1800 m: -5°C to 45°C</li> <li>1800-5000 m: The operating temperature decreases 1°C every time the altitude increases 220 m.</li> </ul>	<ul style="list-style-type: none"> <li>0-1800 m: -5°C to 45°C</li> <li>1800-5000 m: The operating temperature decreases 1°C every time the altitude increases 220 m.</li> </ul>
	Short-term operating temperature	-5°C ~50°C	-5°C ~50°C
	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)	56.8 dB (A)	56.8 dB (A)
	Noise under high temperature (sound power)	73.9 dB (A)	73.9 dB (A)
	Noise under normal temperature (sound pressure)	44.8 dB (A)	44.8 dB (A)
	Surge protection specification (power port)	<ul style="list-style-type: none"> <li>±6 kV in differential mode</li> <li>±6 kV in common mode</li> </ul>	<ul style="list-style-type: none"> <li>±2 kV in differential mode</li> <li>±4 kV in common mode</li> </ul>
Reliability	MTBF (year) <sup>2</sup>	41.97	41.97
	MTTR (hour)	2	2
	Availability	> 0.99999	> 0.99999
Certification		<ul style="list-style-type: none"> <li>EMC certification</li> <li>Safety certification</li> <li>Manufacturing certification</li> </ul> <p>For details about certifications, see the section <a href="#">Safety and Regulatory Compliance</a>.</p>	<ul style="list-style-type: none"> <li>EMC certification</li> <li>Safety certification</li> <li>Manufacturing certification</li> </ul> <p>For details about certifications, see the section <a href="#">Safety and Regulatory Compliance</a>.</p>

#### NOTE

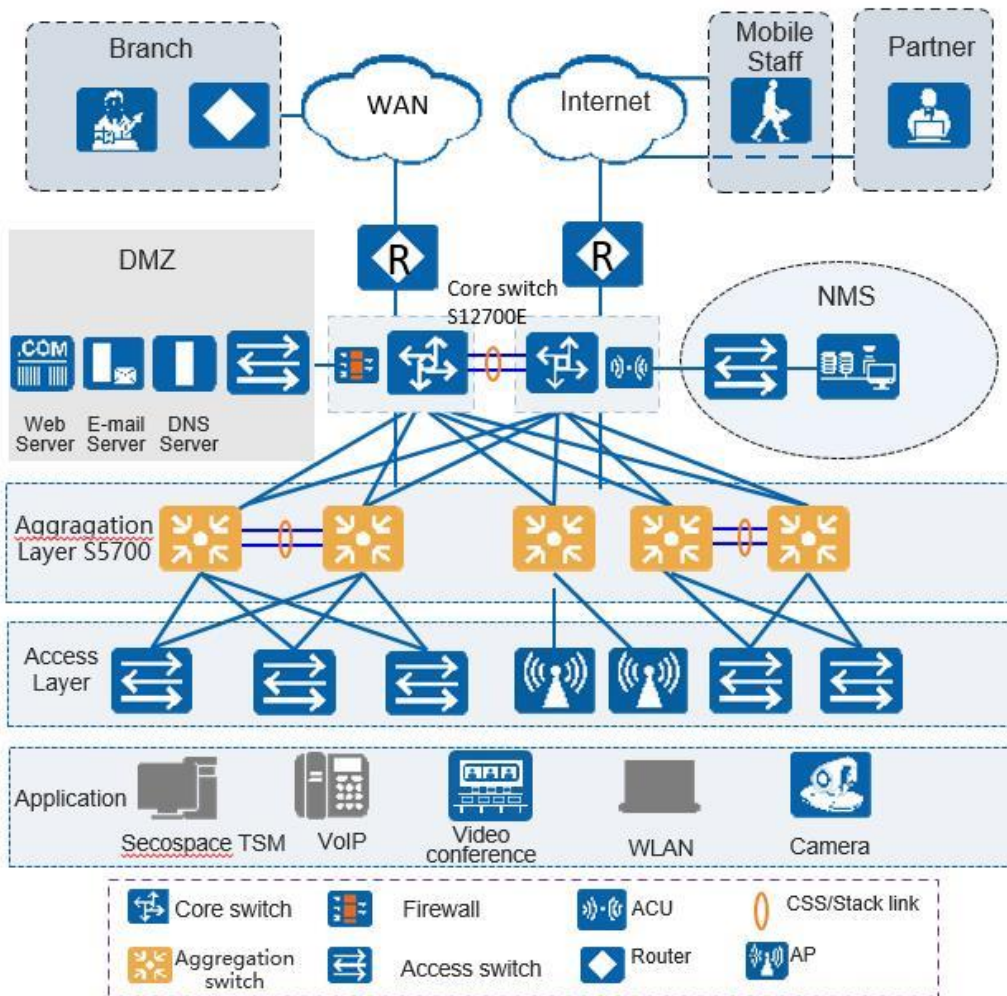
1: The power consumption under different load conditions is calculated according to the ATIS standard. Additionally, the EEE function is enabled and there is no PoE power output.

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

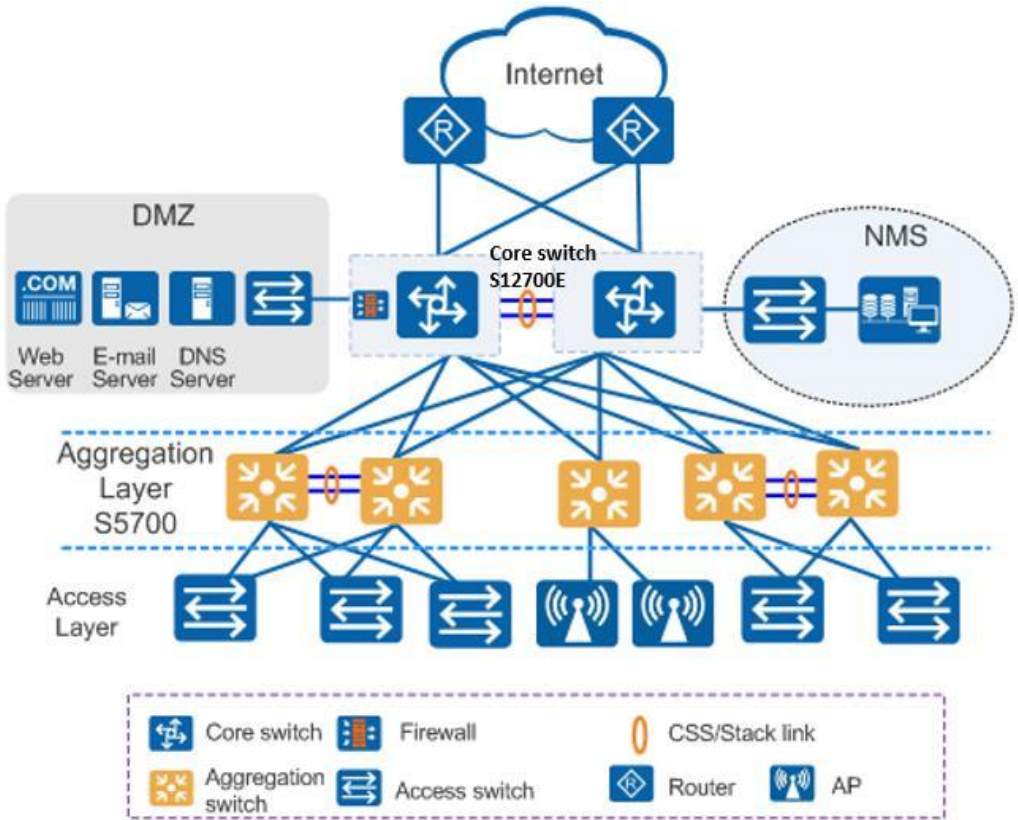
CloudEngine S5736-S series switches can be deployed at the access layer of a campus network to build a high-performance and highly reliable enterprise network.



## Small- or Medium-scale Enterprise Campus Network

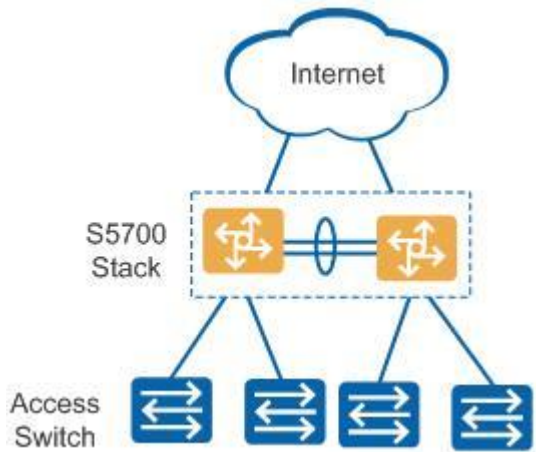
CloudEngine S5736-S series switches can be deployed at the aggregation layer of a campus network to build a high-performance, multi-service, and highly reliable enterprise network.





### Small-scale Enterprise Campus Network

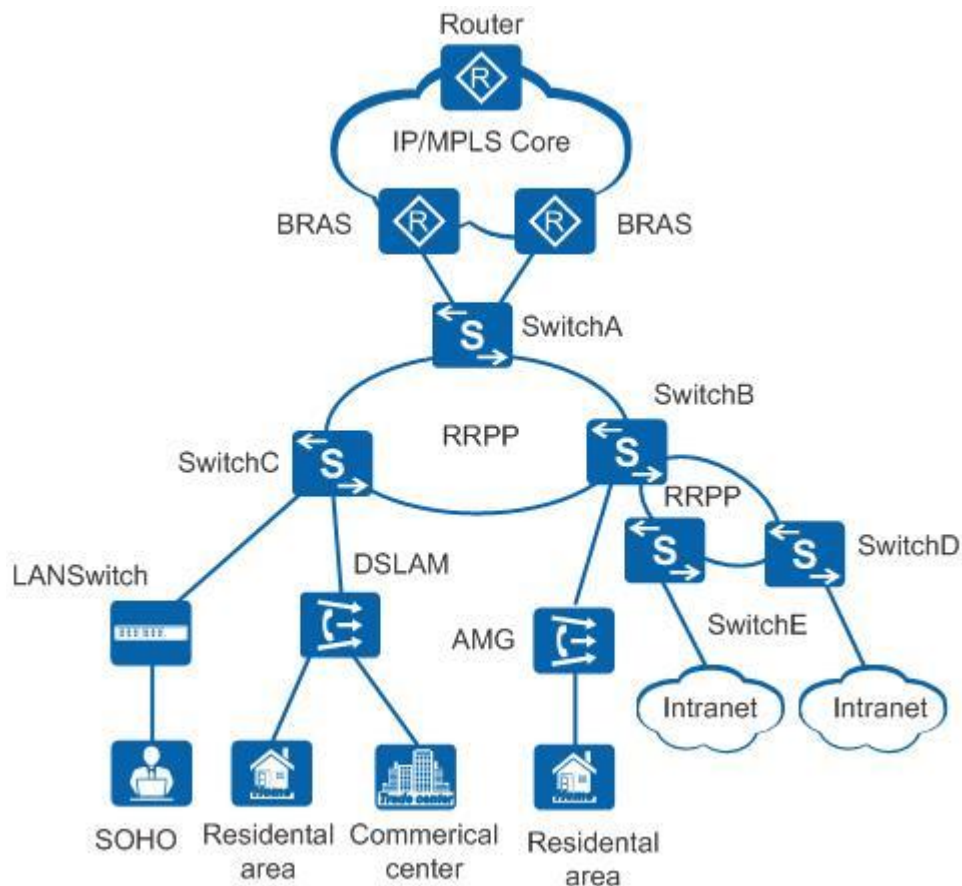
With powerful aggregation and routing capabilities of CloudEngine S5736-S series switches make them suitable for use as core switches in a small-scale enterprise network. Two or more S5736-S switches use iStack technology to ensure high reliability. They provide a variety of access control policies to achieve centralized management and simplify configuration.



### Application on a MAN

CloudEngine S5736-S 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.

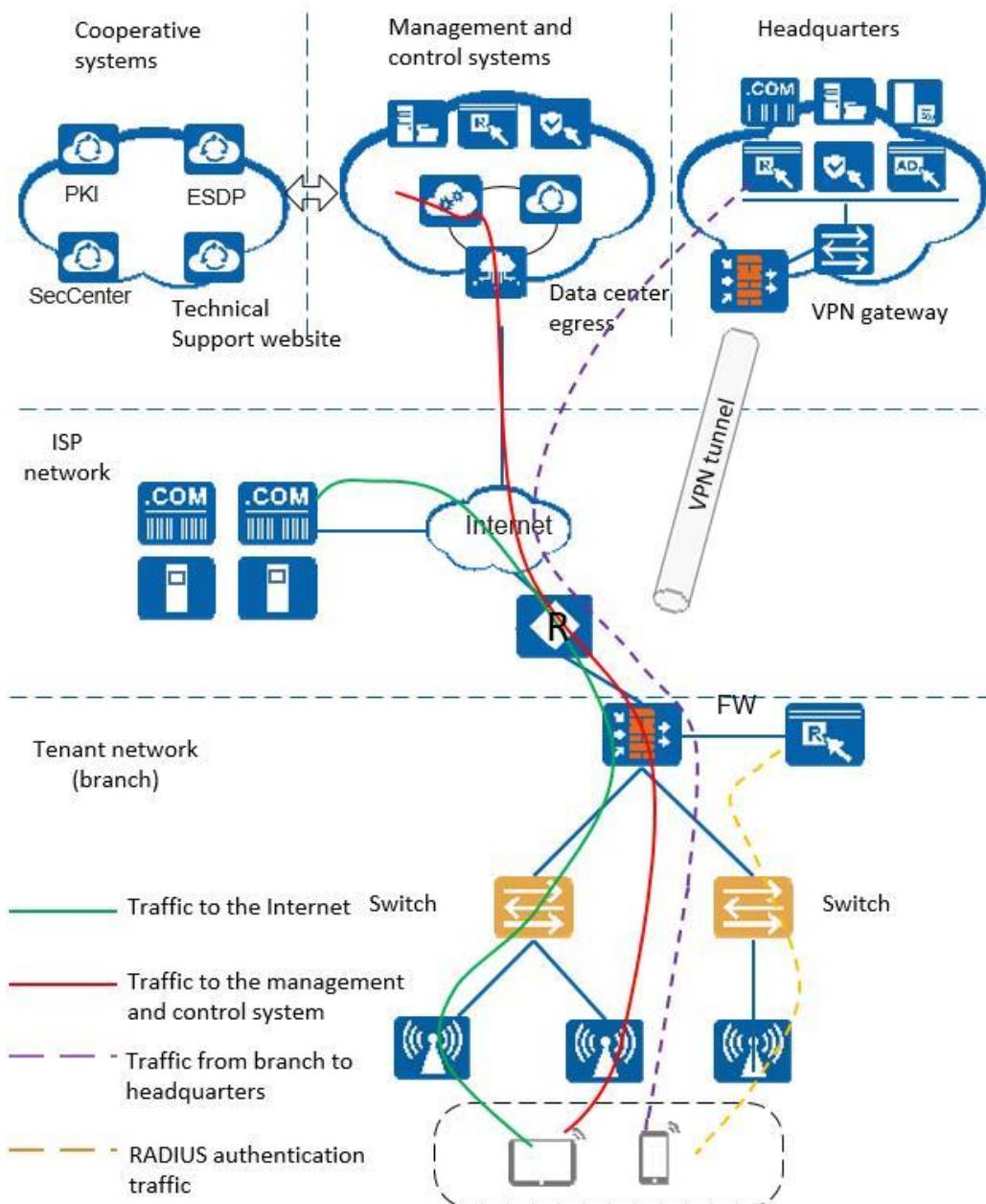




## Application in Public Cloud

CloudCampus Solution is a network solution suite based on Huawei public cloud. CloudEngine S5736-S 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. The switches can connect to the management and control system (iMaster NCE-Campus for switches running V200R019C10 and later versions), 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 S5736-S.

Safety and regulatory compliance of the CloudEngine S5736-S series

Certification Category	Description
Safety	<ul style="list-style-type: none"> <li>• IEC 60950-1</li> <li>• EN 60950-1/A11/A12</li> <li>• UL 60950-1</li> <li>• CSA C22.2 No 60950-1</li> <li>• AS/NZS 60950.1</li> <li>• CNS 14336-1</li> <li>• IEC60825-1</li> <li>• IEC60825-2</li> </ul>

Certification Category	Description
	<ul style="list-style-type: none"> <li>• EN60825-1</li> <li>• EN60825-2</li> </ul>
Electromagnetic Compatibility (EMC)	<ul style="list-style-type: none"> <li>• CISPR22 Class A</li> <li>• CISPR24</li> <li>• EN55022 Class A</li> <li>• EN55024</li> <li>• ETSI EN 300 386 Class A</li> <li>• CFR 47 FCC Part 15 Class A</li> <li>• ICES 003 Class A</li> <li>• AS/NZS CISPR22 Class A</li> <li>• VCCI Class A</li> <li>• IEC61000-4-2</li> <li>• ITU-T K 20</li> <li>• ITU-T K 21</li> <li>• ITU-T K 44</li> <li>• CNS13438</li> </ul>
Environment	<ul style="list-style-type: none"> <li>• RoHS</li> <li>• REACH</li> <li>• WEEE</li> </ul>

#### 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 S5736-S.

MIBs supported by the CloudEngine S5736-S series

Category	MIB
Public MIB	<ul style="list-style-type: none"> <li>• BRIDGE-MIB</li> </ul>

Category	MIB
	<ul style="list-style-type: none"> <li>• DISMAN-NSLOOKUP-MIB</li> <li>• DISMAN-PING-MIB</li> <li>• DISMAN-TRACEROUTE-MIB</li> <li>• ENTITY-MIB</li> <li>• EtherLike-MIB</li> <li>• IF-MIB</li> <li>• IP-FORWARD-MIB</li> <li>• IPv6-MIB</li> <li>• LAG-MIB</li> <li>• LLDP-EXT-DOT1-MIB</li> <li>• LLDP-EXT-DOT3-MIB</li> <li>• LLDP-MIB</li> <li>• MPLS-FTN-STD-MIB</li> <li>• MPLS-L3VPN-STD-MIB</li> <li>• MPLS-LDP-GENERIC-STD-MIB</li> <li>• MPLS-LDP-STD-MIB</li> <li>• MPLS-LSR-STD-MIB</li> <li>• MPLS-TE-STD-MIB</li> <li>• NOTIFICATION-LOG-MIB</li> <li>• NQA-MIB</li> <li>• OSPF-TRAP-MIB</li> <li>• P-BRIDGE-MIB</li> <li>• Q-BRIDGE-MIB</li> <li>• RFC1213-MIB</li> <li>• RIPv2-MIB</li> <li>• RMON2-MIB</li> <li>• RMON-MIB</li> <li>• SAVI-MIB</li> <li>• SNMP-FRAMEWORK-MIB</li> <li>• SNMP-MPD-MIB</li> <li>• SNMP-NOTIFICATION-MIB</li> <li>• SNMP-TARGET-MIB</li> <li>• SNMP-USER-BASED-SM-MIB</li> <li>• SNMPv2-MIB</li> <li>• TCP-MIB</li> <li>• UDP-MIB</li> </ul>
Huawei-proprietary MIB	<ul style="list-style-type: none"> <li>• HUAWEI-AAA-MIB</li> <li>• HUAWEI-ACL-MIB</li> <li>• HUAWEI-ALARM-MIB</li> <li>• HUAWEI-ALARM-RELIABILITY-MIB</li> <li>• HUAWEI-BASE-TRAP-MIB</li> <li>• HUAWEI-BRAS-RADIUS-MIB</li> <li>• HUAWEI-BRAS-SRVCFG-EAP-MIB</li> <li>• HUAWEI-BRAS-SRVCFG-STATICUSER-MIB</li> </ul>

Category	MIB
	<ul style="list-style-type: none"> <li>• HUAWEI-CBQOS-MIB</li> <li>• HUAWEI-CDP-COMPLIANCE-MIB</li> <li>• HUAWEI-CONFIG-MAN-MIB</li> <li>• HUAWEI-CPU-MIB</li> <li>• HUAWEI-DAD-TRAP-MIB</li> <li>• HUAWEI-DC-MIB</li> <li>• HUAWEI-DATASYNC-MIB</li> <li>• HUAWEI-DEVICE-MIB</li> <li>• HUAWEI-DHCPR-MIB</li> <li>• HUAWEI-DHCPS-MIB</li> <li>• HUAWEI-DHCP-SNOOPING-MIB</li> <li>• HUAWEI-DIE-MIB</li> <li>• HUAWEI-DNS-MIB</li> <li>• HUAWEI-DLDP-MIB</li> <li>• HUAWEI-ELMI-MIB</li> <li>• HUAWEI-ERPS-MIB</li> <li>• HUAWEI-ERRORDOWN-MIB</li> <li>• HUAWEI-ENERGYMNGT-MIB</li> <li>• HUAWEI-EASY-OPERATION-MIB</li> <li>• HUAWEI-ENTITY-EXTENT-MIB</li> <li>• HUAWEI-ENTITY-TRAP-MIB</li> <li>• HUAWEI-ETHARP-MIB</li> <li>• HUAWEI-ETHOAM-MIB</li> <li>• HUAWEI-FLASH-MAN-MIB</li> <li>• HUAWEI-FWD-RES-TRAP-MIB</li> <li>• HUAWEI-GARP-APP-MIB</li> <li>• HUAWEI-GTSM-MIB</li> <li>• HUAWEI-HGMP-MIB</li> <li>• HUAWEI-HWTACACS-MIB</li> <li>• HUAWEI-IF-EXT-MIB</li> <li>• HUAWEI-INFOCENTER-MIB</li> <li>• HUAWEI-IPPOOL-MIB</li> <li>• HUAWEI-IPV6-MIB</li> <li>• HUAWEI-ISOLATE-MIB</li> <li>• HUAWEI-L2IF-MIB</li> <li>• HUAWEI-L2MAM-MIB</li> <li>• HUAWEI-L2VLAN-MIB</li> <li>• HUAWEI_LDT-MIB</li> <li>• HUAWEI-LLDP-MIB</li> <li>• HUAWEI-MAC-AUTHEN-MIB</li> <li>• HUAWEI-MEMORY-MIB</li> <li>• HUAWEI-MFF-MIB</li> <li>• HUAWEI-MFLP-MIB</li> <li>• HUAWEI-MSTP-MIB</li> <li>• HUAWEI-BGP-VPN-MIB</li> </ul>

Category	MIB
	<ul style="list-style-type: none"> <li>• HUAWEI-CCC-MIB</li> <li>• HUAWEI-MULTICAST-MIB</li> <li>• HUAWEI-NAP-MIB</li> <li>• HUAWEI-NTPV3-MIB</li> <li>• HUAWEI-PERFORMANCE-MIB</li> <li>• HUAWEI-PORT-MIB</li> <li>• HUAWEI-PORTAL-MIB</li> <li>• HUAWEI-QINQ-MIB</li> <li>• HUAWEI-RIPv2-EXT-MIB</li> <li>• HUAWEI-RM-EXT-MIB</li> <li>• HUAWEI-RRPP-MIB</li> <li>• HUAWEI-SECURITY-MIB</li> <li>• HUAWEI-SEP-MIB</li> <li>• HUAWEI-SNMP-EXT-MIB</li> <li>• HUAWEI-SSH-MIB</li> <li>• HUAWEI-STACK-MIB</li> <li>• HUAWEI-SWITCH-L2MAM-EXT-MIB</li> <li>• HUAWEI-SWITCH-SRV-TRAP-MIB</li> <li>• HUAWEI-SYS-MAN-MIB</li> <li>• HUAWEI-TCP-MIB</li> <li>• HUAWEI-TFTPC-MIB</li> <li>• HUAWEI-TRNG-MIB</li> <li>• HUAWEI-XQOS-MIB</li> </ul>

## Standard Compliance

The following table lists the standards that the CloudEngine S5736-S complies with.

[Standard compliance list of the CloudEngine S5736-S series](#)

Standard Organization	Standard or Protocol
IETF	<ul style="list-style-type: none"> <li>• RFC 768 User Datagram Protocol (UDP)</li> <li>• RFC 792 Internet Control Message Protocol (ICMP)</li> <li>• RFC 793 Transmission Control Protocol (TCP)</li> <li>• RFC 826 Ethernet Address Resolution Protocol (ARP)</li> <li>• RFC 854 Telnet Protocol Specification</li> <li>• RFC 951 Bootstrap Protocol (BOOTP)</li> <li>• RFC 959 File Transfer Protocol (FTP)</li> <li>• RFC 1058 Routing Information Protocol (RIP)</li> <li>• RFC 1112 Host extensions for IP multicasting</li> <li>• RFC 1157 A Simple Network Management Protocol (SNMP)</li> <li>• RFC 1256 ICMP Router Discovery</li> <li>• RFC 1305 Network Time Protocol Version 3 (NTP)</li> <li>• RFC 1349 Internet Protocol (IP)</li> <li>• RFC 1493 Definitions of Managed Objects for Bridges</li> <li>• RFC 1542 Clarifications and Extensions for the Bootstrap Protocol</li> </ul>

Standard Organization	Standard or Protocol
	<ul style="list-style-type: none"> <li>• RFC 1643 Ethernet Interface MIB</li> <li>• RFC 1757 Remote Network Monitoring (RMON)</li> <li>• RFC 1901 Introduction to Community-based SNMPv2</li> <li>• RFC 1902-1907 SNMP v2</li> <li>• RFC 1981 Path MTU Discovery for IP version 6</li> <li>• RFC 2131 Dynamic Host Configuration Protocol (DHCP)</li> <li>• RFC 2328 OSPF Version 2</li> <li>• RFC 2453 RIP Version 2</li> <li>• RFC 2460 Internet Protocol, Version 6 Specification (IPv6)</li> <li>• RFC 2461 Neighbor Discovery for IP Version 6 (IPv6)</li> <li>• RFC 2462 IPv6 Stateless Address Auto configuration</li> <li>• RFC 2463 Internet Control Message Protocol for IPv6 (ICMPv6)</li> <li>• RFC 2474 Differentiated Services Field (DS Field)</li> <li>• RFC 2740 OSPF for IPv6 (OSPFv3)</li> <li>• RFC 2863 The Interfaces Group MIB</li> <li>• RFC 2597 Assured Forwarding PHB Group</li> <li>• RFC 2598 An Expedited Forwarding PHB</li> <li>• RFC 2571 SNMP Management Frameworks</li> <li>• RFC 2865 Remote Authentication Dial In User Service (RADIUS)</li> <li>• RFC 3046 DHCP Option82</li> <li>• RFC 3376 Internet Group Management Protocol, Version 3 (IGMPv3)</li> <li>• RFC 3513 IP Version 6 Addressing Architecture</li> <li>• RFC 3579 RADIUS Support For EAP</li> <li>• RFC 4271 A Border Gateway Protocol 4 (BGP-4)</li> <li>• RFC 4760 Multiprotocol Extensions for BGP-4</li> <li>• draft-grant-tacacs-02 TACACS+</li> <li>• RFC 6241 Network Configuration Protocol (NETCONF)</li> <li>• RFC 6020 YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)</li> </ul>
IEEE	<ul style="list-style-type: none"> <li>• IEEE 802.1D Media Access Control (MAC) Bridges</li> <li>• IEEE 802.1p Traffic Class Expediting and Dynamic Multicast Filtering</li> <li>• IEEE 802.1Q Virtual Bridged Local Area Networks</li> <li>• IEEE 802.1ad Provider Bridges</li> <li>• IEEE 802.2 Logical Link Control</li> <li>• IEEE Std 802.3 CSMA/CD</li> <li>• IEEE Std 802.3ab 1000BASE-T specification</li> <li>• IEEE Std 802.3ad Aggregation of Multiple Link Segments</li> <li>• IEEE Std 802.3ae 10GE WEN/LAN Standard</li> <li>• IEEE Std 802.3x Full Duplex and flow control</li> <li>• IEEE Std 802.3z Gigabit Ethernet Standard</li> <li>• IEEE802.1ax/IEEE802.3ad Link Aggregation</li> <li>• IEEE 802.3ah Ethernet in the First Mile.</li> <li>• IEEE 802.1ag Connectivity Fault Management</li> <li>• IEEE 802.1ab Link Layer Discovery Protocol</li> </ul>

Standard Organization	Standard or Protocol
	<ul style="list-style-type: none"> <li>IEEE 802.1D Spanning Tree Protocol</li> <li>IEEE 802.1w Rapid Spanning Tree Protocol</li> <li>IEEE 802.1s Multiple Spanning Tree Protocol</li> <li>IEEE 802.1x Port based network access control protocol</li> </ul>
ITU	<ul style="list-style-type: none"> <li>ITU SG13 Y.17ethoam</li> <li>ITU SG13 QoS control Ethernet-Based IP Access</li> <li>ITU-T Y.1731 ETH OAM performance monitor</li> </ul>
ISO	<ul style="list-style-type: none"> <li>ISO 10589 IS-IS Routing Protocol</li> </ul>
MEF	<ul style="list-style-type: none"> <li>MEF 2 Requirements and Framework for Ethernet Service Protection</li> <li>MEF 9 Abstract Test Suite for Ethernet Services at the UNI</li> <li>MEF 10.2 Ethernet Services Attributes Phase 2</li> <li>MEF 11 UNI Requirements and Framework</li> <li>MEF 13 UNI Type 1 Implementation Agreement</li> <li>MEF 15 Requirements for Management of Metro Ethernet Phase 1 Network Elements</li> <li>MEF 17 Service OAM Framework and Requirements</li> <li>MEF 20 UNI Type 2 Implementation Agreement</li> <li>MEF 23 Class of Service Phase 1 Implementation Agreement</li> <li>Xmodem XMODEM/YMODEM Protocol Reference</li> </ul>

## Ordering Information

The following table lists ordering information of the CloudEngine S5736-S series switches.

Model	Product Description
CloudEngine S5736-S48S4X-A	CloudEngine S5736-S48S4X-A base (48*GE SFP ports, optional RTU upgrade to 10G, 4*10GE SFP+ ports, AC power supply, front access)
CloudEngine S5736-S48S4X-D	CloudEngine S5736-S48S4X-D base (48*GE SFP ports, optional RTU upgrade to 10G, 4*10GE SFP+ ports, DC power supply, front access)
L-P1GUPG10G-S57S	S57-S Series, SPF 1G to 10G Electronic RTU License, Per Device
N1-S57S-M-Lic	S57XX-S Series Basic SW, Per Device
N1-S57S-M-SnS1Y	S57XX-S Series Basic SW, SnS, Per Device, 1Year
N1-S57S-F-Lic	N1-CloudCampus, Foundation, S57XX-S Series, Per Device
N1-S57S-F-SnS1Y	N1-CloudCampus, Foundation, S57XX-S Series, SnS, Per Device, 1Year
N1-S57S-A-Lic	N1-CloudCampus, Advanced, S57XX-S Series, Per Device
N1-S57S-A-SnS1Y	N1-CloudCampus, Advanced, S57XX-S Series, SnS, Per Device, 1Year
N1-S57S-FToA-Lic	N1-Upgrade-Foundation to Advanced, S57XX-S, Per Device
N1-S57S-FToA-SnS1Y	N1-Upgrade-Foundation to Advanced, S57XX-S, 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](mailto:support_e@huawei.com)

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