CloudEngine S12700E Series Switches

Huawei CloudEngine S12700E series switches are new core switches designed for next-generation high-quality campus networks. These purpose-built switches help create a campus network that improves user experiences, reduces operating costs, and delivers unmatched security and trustworthiness.

Product Overview

Huawei CloudEngine S12700E series switches ("CloudEngine S12700E") are flagship core switches in Huawei's CloudCampus Solution. By building an intelligent campus core, these feature-rich switches help customers head towards a service experience-centric campus network that is intelligent and simplified.

CloudEngine S12700E stands out with massive capacity expansion and flexible service upgrade capabilities to protect customer investments and facilitate their long-term network evolution. Built on Huawei's high-performance Solar series chipsets, CloudEngine S12700E delivers up to 4.8 Tbps of single-slot bandwidth. CloudEngine S12700E also offers a broad range of line cards, including 100GE, 40GE, 10GE, and GE line cards, and provides up to 288 x 100GE ports, the unmatched port density in the industry. These give customers flexible choices to meet their capacity expansion and upgrade needs.

By integrating large-capacity WLAN AC capabilities, a single CloudEngine S12700E can manage up to 10,000 WLAN APs. This capability, combined with free mobility functionality, achieves fully converged wired and wireless networks and policies, greatly simplifying network management with users and services at the core.

With a holistic set of reliability, security, and trusted features, CloudEngine S12700E is ideal for building a reliable, secure, and trustworthy campus core. By using a next-generation cell switching architecture, CloudEngine S12700E ensures non-blocking service data forwarding on core nodes and guarantees service quality in high-concurrency, large-capacity, and high-load environments.

Models and Appearances

CloudEngine S12700E is available in three models: S12700E-4, S12700E-8, and S12700E-12.

CloudEngine S12700E-4	CloudEngine S12700E-8	CloudEngine S12700E-12
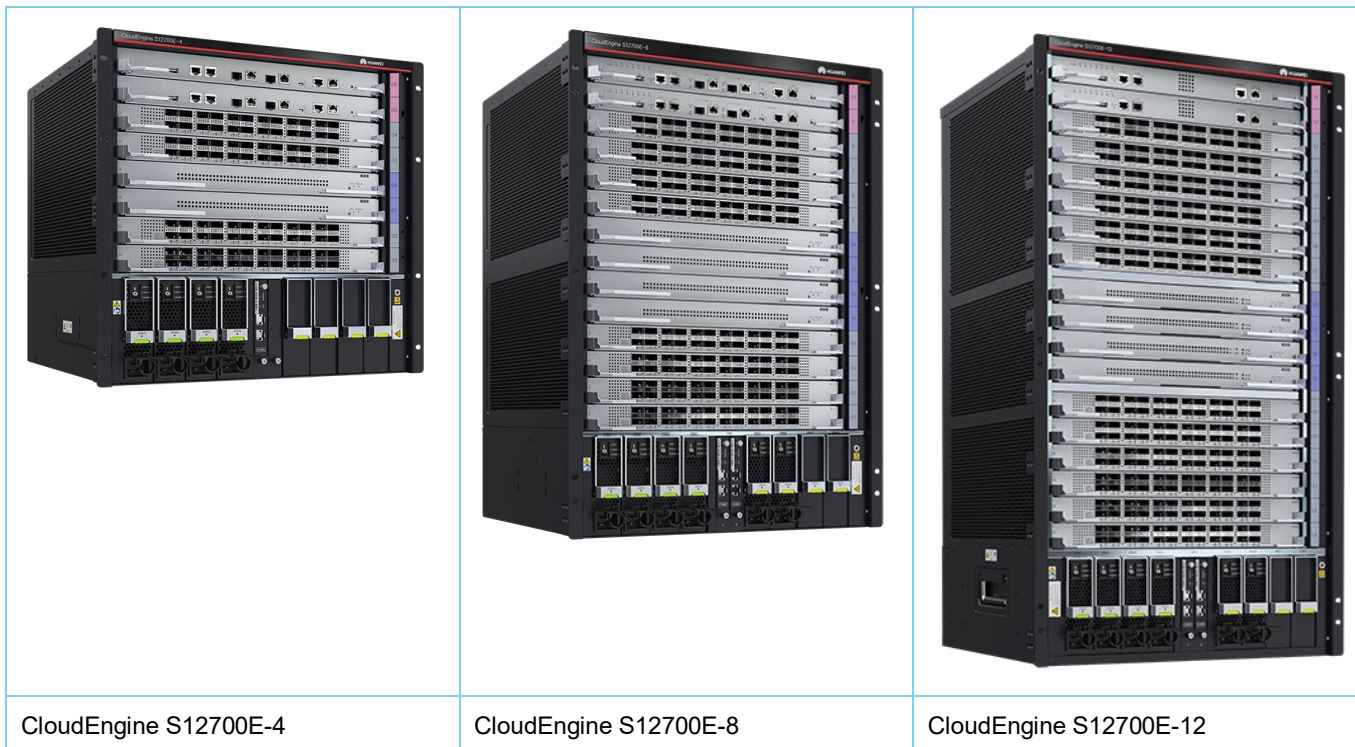
Features and Highlights

Switch Highlights

Fully-programmable Architecture

• Built on Solar series chipsets with a fully-programmable architecture, CloudEngine S12700E adapts to the changing forwarding processes driven by protocol evolution and technology advances. It enables fast and flexible provisioning of new services simply by upgrading software, without having to replace hardware, thereby protecting customers' investment. In contrast, traditional ASIC chips use a fixed forwarding architecture and follow a fixed forwarding process; as a result, new services cannot be provisioned until new hardware is developed to support the services, which may take 1 to 3 years.

Wired and Wireless Convergence

• By integrating WLAN AC capabilities, CloudEngine S12700E eliminates the need to purchase additional WLAN AC hardware. Each CloudEngine S12700E can manage up to 10,000 APs. With up to 4 Tbps WLAN AC forwarding capacity, CloudEngine S12700E avoids the performance bottleneck on independent WLAN AC devices. As such, organizations are well poised to cope with challenges in the high-speed wireless era.

• CloudEngine S12700E supports the unified user management function that 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. CloudEngine S12700E supports various authentication methods, including PPPoE, 802.1X, MAC address, and Portal authentication, and is capable of managing users based on user groups, domains, and time ranges. These functions intuitively control user and service management and enable the transformation from data switching-centered management to service experience-centered management.

Refined Network Management

• Packet Conservation Algorithm for Internet (iPCA) changes the traditional method that uses simulated traffic for fault location. iPCA technology monitors network quality for any service flow at any network node, at any time, and without extra costs. It can quickly detect intermittent service interruptions and accurately identify faulty ports. This cutting-edge fault detection technology turns "extensive management" into "fine granular management."

• Super Virtual Fabric 2.0 (SVF 2.0) technology can not only virtualize fixed-configuration switches into modular switch line cards but also virtualize APs as switch ports. With this virtualization technology, a physical network with core/aggregation switches, access switches, and APs can be virtualized into a "super switch", simplifying network management.

- CloudEngine S12700E series manages access switches in a similar way a WLAN AC manages APs, saving the trouble of laborious configuration on access switches. It manages access switches and APs uniformly, allowing them to connect to the network with zero configuration.

System Openness Capability

- CloudEngine S12700E supports NETCONF/YANG through which users can perform automated configuration.

- CloudEngine S12700E supports the Open Programmability System (OPS), an open programmable system based on the Python language. IT administrators can program the O&M functions of CloudEngine S12700E through Python scripts to quickly innovate functions and implement intelligent O&M.

Secure and Trustworthy System

- Digital signatures of codes are used to identify software sources and the real identities of software developers to ensure that code is not tampered with after being signed. To protect software, CloudEngine S12700E uses two levels of signature mechanisms: inner signature and outer signature.

- CloudEngine S12700E supports secure boot based on the hardware trust root. Starting from the trusted hardware anchor, the software code to be loaded is checked level by level. This approach ensures that the MPUs, line cards, and SFUs are not intruded since the boot phase.

- The chipsets provide a secure Random Number Generator (RNG) module certified by NIST SP 800-90A and NIST SP 800-90B to generate true secure random numbers for system running, thereby ensuring secure and trustworthy encryption.

Network-Level Reliability

- CloudEngine S12700E uses link detection technologies such as hardware Eth-OAM and BFD, and adopts standard/standards-compatible link switching technologies like G.8032 and Smart Ethernet Protection (SEP). These technologies achieve end-to-end 50 ms hardware-level switchover and help build highly responsive campus network that provides highly reliable services.

- CloudEngine S12700E supports High-speed Self Recovery (HSR) technology that implements end-to-end IP MPLS transmission network protection switchover within 50 ms, improving network reliability.

Easy Operation

CloudEngine S12700E supports EasyDeploy that implements plug-and-play for newly deployed devices and centrally manages all devices running on the network. Typical Easy Deploy functions include the following:

- Implementing Zero Touch Provisioning (ZTP) to automatically load the boot files such as version files, configuration files, and patches

- Upgrading network devices and delivering configurations in batches

- Quickly replacing old devices with new ones that are plug-and-play without configuration

Intelligent Diagnosis

- CloudEngine S12700E supports Open Intelligent Diagnosis System (OIDS). By integrating the device health monitoring and fault diagnosis functions – that are typically deployed on a Network Management System (NMS) – into the switch software, OIDS implements intelligent diagnosis on a single switch.

- After OIDS is deployed on a switch, the switch periodically collects and records the running information and automatically determines whether a fault occurs. If a fault occurs, the switch automatically locates the fault or helps locate the fault. All these merits increase fault locating efficiency of O&M staff while improving device maintainability.

Solution Benifits

Simplified Management

- Deployment automation: CloudEngine S12700E supports VXLAN and BGP-EVPN, and builds a Unified Virtual Fabric (UVF) to automate deployment of up to 512 Virtual Networks (VNs). In this way, multiple service networks or tenant networks can be deployed and isolated from each other on the same physical network, truly achieving one network for multiple purposes.

- Policy automation: CloudEngine S12700E automates deployment of wired and wireless user policies on the entire network and implements refined management and control based on SDN to achieve free mobility.

Intelligent O&M

- CloudEngine S12700E provides telemetry technology to collect device data in real time and send the data to the CampusInsight (a campus network analysis component of Huawei iMaster NCE). The CampusInsight then 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 experiences.

- CloudEngine S12700E supports a variety of intelligent O&M features for audio and video services, including the enhanced Media Delivery Index (eMDI). With the eMDI function, the switch can function as a monitored node to periodically conduct statistics and report audio and video service indicators to the CampusInsight. In this way, the CampusInsight can quickly demarcate audio and video service quality faults based on the results of multiple monitored nodes.

Big Data Security Collaboration

- CloudEngine S12700E uses NetStream to collect campus network data and then reports such data to the Analysis system. 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 system then delivers the security policies to the Agile Controller which, subsequently, delivers such policies to the switch that will handle security events accordingly. All these ensure campus network security.

Licensing

CloudEngine S12700E 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
Basic network functions: Layer 2 functions, IPv4, IPv6, MPLS, SVF, and others	√	√	√
Basic network automation based on the Agile Controller: • Basic automation: Plug-and-play, SSID, and AP group management • Basic monitoring: Application visualization • NE management: Image and topology management and discovery • WLAN enhancement: Roaming and optimization for up to 128 APs	×	√	√
Advanced network automation and intelligent O&M: VXLAN, user access authentication, free mobility, and CampusInsight basic functions	×	×	√

Product Specifications

Functions and Features

Category	Service Features	CloudEngine S12700E-4	CloudEngine S12700E-8	CloudEngine S12700E-12

Category	Service Features	CloudEngine S12700E-4	CloudEngine S12700E-8	CloudEngine S12700E-12
User management	Unified user management	√	√	√
	PPPoE, 802.1X, MAC, and Portal authentication	√	√	√
	Traffic- and duration-based accounting	√	√	√
	User authorization based on user groups, domains, and time ranges	√	√	√
MAC address	Number of MAC address entries	512K(MAX)	512K(MAX)	512K(MAX)
	Automatic MAC address learning and aging	√	√	√
	Static, dynamic, and blackhole MAC address entries	√	√	√
	Source MAC address filtering	√	√	√
	MAC address learning limiting based on ports and VLANs	√	√	√
VLAN	4K VLANs	√	√	√
	Access, trunk, and hybrid interface types; auto-negotiation of LNP link types	√	√	√
	Default VLAN	√	√	√
	VLAN switching	√	√	√
	QinQ and enhanced selective QinQ	√	√	√
	Dynamic VLAN assignment based on MAC addresses	√	√	√
ARP	Maximum number of ARP entries	256K(MAX)	256K(MAX)	256K(MAX)
	ARP Snooping	√	√	√
IP routing	Maximum number of IPv4 routing entries	512K(MAX)	512K(MAX)	512K(MAX)
	IPv4 dynamic routing protocols such as RIP, OSPF, IS-IS, and BGP	√	√	√
	IPv6 dynamic routing protocols such as RIPng, OSPFv3, ISISv6, and BGP4+	√	√	√
Multicast	Maximum number of multicast routing entries	64K(MAX)	64K(MAX)	64K(MAX)
	IGMPv1/v2/v3 and IGMP v1/v2/v3 Snooping	√	√	√
	PIM-DM, PIM-SM, and PIM-SSM	√	√	√
	MSDP and MBGP	√	√	√
	Fast-leave mechanism	√	√	√
	Multicast traffic control	√	√	√
	Multicast querier	√	√	√
	Multicast protocol packet suppression	√	√	√
	Multicast Call Admission Control (CAC)	√	√	√

Category	Service Features	CloudEngine S12700E-4	CloudEngine S12700E-8	CloudEngine S12700E-12
	Multicast ACL	√	√	√
MPLS	Basic MPLS functions	√	√	√
	MPLS OAM	√	√	√
	MPLS TE	√	√	√
	MPLS VPN/VLL/VPLS	√	√	√
VXLAN	VXLAN distributed gateway and centralized gateway	√	√	√
	BGP-EVPN	√	√	√
	Configures VXLANs through NETCONF	√	√	√
QoS	Number of ACL rules	6K(MAX)	6K(MAX)	6K(MAX)
	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	√	√	√
	Queuing algorithms, such as PQ, WRR, DRR, PQ+WRR, and PQ+DRR	√	√	√
	Congestion avoidance mechanisms such as WRED and tail drop	√	√	√
	HQoS	√	√	√
	Traffic shaping	√	√	√
iPCA	Marks the real service packets to obtain real-time count of dropped packets and packet loss ratio	√	√	√
	Counts the number of dropped packets and packet loss ratio on devices and L2/L3 networks	√	√	√
SVF 2.0	Up to 4K clients (access switches and APs) virtualized into a single device	√	√	√
	Two layers of ASs allowed in an SVF system	√	√	√
	Third-party devices allowed between SVF parent and clients	√	√	√
Ring network protection	STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s).	√	√	√
	SEP	√	√	√
	BPDU protection, root protection, and loop protection	√	√	√
	BPDU tunnel	√	√	√
	G.8032 Ethernet Ring Protection Switching (ERPS)	√	√	√

Category	Service Features	CloudEngine S12700E-4	CloudEngine S12700E-8	CloudEngine S12700E-12
Reliability	Link Aggregation Control Protocol (LACP) and E-Trunk	√	√	√
	Virtual Router Redundancy Protocol (VRRP) and Bidirectional Forwarding Detection (BFD) for VRRP	√	√	√
	BFD for BGP/IS-IS/OSPF/static routes	√	√	√
	Non-Stop Forwarding (NSF) and Graceful Restart (GR) for BGP/IS-IS/OSPF/LDP	√	√	√
	TE Fast ReRoute (FRR) and IP FRR	√	√	√
	Eth-OAM 802.3ah and 802.1ag (hardware-based)	√	√	√
	High-speed Self Recovery (HSR)	√	√	√
	ITU-Y.1731	√	√	√
	Device Link Detection Protocol (DLDP)	√	√	√
	Smart Link	√	√	√
	Monitor Link	√	√	√
Configuration and maintenance	Easy Operation	√	√	√
	Terminal access services such as console port login, Telnet, and SSH	√	√	√
	Network management protocols, such as SNMPv1/v2/v3	√	√	√
	File uploading and downloading through FTP and TFTP	√	√	√
	BootROM upgrade and remote in-service upgrade	√	√	√
	Hot patches	√	√	√
	User operation logs	√	√	√
	Open Programmability System (OPS)	√	√	√
	Streaming Telemetry	√	√	√
	eMDI	√	√	√
Security and management	MAC address, Portal, 802.1X, and DHCP snooping-triggered authentication	√	√	√
	MACsec	√	√	√
	NAC	√	√	√
	RADIUS and HWTACACS authentication for login users	√	√	√
	Command line authority control based on user levels, preventing unauthorized users from using command configurations	√	√	√

Category	Service Features	CloudEngine S12700E-4	CloudEngine S12700E-8	CloudEngine S12700E-12
	Defense against DoS attacks, Transmission Control Protocol (TCP) SYN Flood attacks, User Datagram Protocol (UDP) Flood attacks, broadcast storms, and heavy traffic attacks	√	√	√
	1K CPU hardware queues to implement hierarchical scheduling and protection for protocol packets on the control plane	√	√	√
	Remote Network Monitoring (RMON)	√	√	√
	Secure boot (need to use MPU that supports secure boot)	√	√	√
	Big data security collaboration	√	√	√
Wireless management (integrated WLAN AC): Basic WLAN services	Mesh networking	√	√	√
	N+N cold backup for devices with integrated WLAN AC functionality	√	√	√
	Hot backup for devices with integrated WLAN AC functionality in cluster mode	√	√	√
	WLAN terminal location	√	√	√
	Locating of interference sources	√	√	√
	Spectrum analysis function	√	√	√
	2.4G & 5G load balancing	√	√	√
	5G-prior access	√	√	√
Wireless management (integrated WLAN AC): AP management	Total number of managed APs	10K	10K	10K
	An IPv4 network between an AP and a WLAN AC	√	√	√
	AP blacklist	√	√	√
	AP whitelist	√	√	√
	Sets the AP access control mode	√	√	√
	AP configuration and management	√	√	√
	AP energy saving	√	√	√
	AP LLDP topology awareness	√	√	√
	Adjustable priority of traffic on wired interfaces of APs	√	√	√
	Rate limiting on wired interfaces of APs	√	√	√
Wireless management (integrated WLAN AC): Wireless user management	User roaming within a WLAN AC	√	√	√
	AP-based user location	√	√	√
	User roaming between WLAN ACs	√	√	√
	802.1X authentication	√	√	√
	Portal authentication	√	√	√

Category	Service Features	CloudEngine S12700E-4	CloudEngine S12700E-8	CloudEngine S12700E-12
	MAC address authentication	√	√	√
Wireless management (integrated WLAN AC): CAPWAP	Direct data forwarding on L2/L3 networks	√	√	√
	Tunnel-based data forwarding on L2/L3 networks	√	√	√
	Dual-link load balancing for CAPWAP tunnels	√	√	√
	CAPWAP tunnel encryption	√	√	√
Wireless management (integrated WLAN AC): RF management	802.11a/b/g/n	√	√	√
	802.11ac	√	√	√
	Sets RF interference monitoring and avoidance	√	√	√
	Detects co-channel interference, adjacent interference, and interference from other devices and STAs	√	√	√
	Automatically selects channels and power when APs go online	√	√	√
	Dynamic power and channel optimization	√	√	√
Wireless management (integrated WLAN AC): WLAN QoS	Mapping from wireless-side priority to wired-side priority	√	√	√
	Mapping from wireless-side priority to CAPWAP channel priority	√	√	√
	Rate limiting of upstream and downstream traffic on the air interface based on the VAP	√	√	√
	Rate limiting of upstream and downstream traffic on the air interface based on users	√	√	√
	SSID-based CAR	√	√	√
	CAR for WLAN users	√	√	√
Interoperability	Interoperable with VBST (compatible with PVST/PVST+/RPVST)	√	√	√
	Interoperable with LNP (similar to DTP)	√	√	√
	Interoperable with VCMP (similar to VTP)	√	√	√

Hardware Specifications

Item	CloudEngine S12700E-4	CloudEngine S12700E-8	CloudEngine S12700E-12
Switching capacity	19.2 Tbps	38.4 Tbps	57.6Tbps
Forwarding performance	14,400 Mpps	28,800 Mpps	43,200 Mpps
MPU slots	2	2	2
SFU slots	2	4	4
LPU slots	4	8	12

Item	CloudEngine S12700E-4	CloudEngine S12700E-8	CloudEngine S12700E-12
Fan trays	2	4	5
Power	4	6	6
Buffering capacity	Up to 200 ms data buffering per port	Up to 200 ms data buffering per port	Up to 200 ms data buffering per port
Redundancy design	MPU, SFU, power module, and fan module	MPU, SFU, power module, and fan module	MPU, SFU, power module, and fan module
Virtualization	CSS service port clustering	CSS service port clustering	CSS service port clustering
Dimensions (W x D x H)	442*517.4*441.7，10U	442*517.4*663.95，15U	442*517.4*841.75，19U
Weight (empty/fully configured)	24.5kg/66kg Note • Empty configuration indicates that the switch has no line card, MPU, or power supply installed. Filler panels are used, instead. • Full configuration indicates that the switch is fully configured with MPUs, SFUs, line cards, and power supplies. Their maximum weights are used during calculation.	42.5kg/114kg Note • Empty configuration indicates that the switch has no line card, MPU, or power supply installed. Filler panels are used, instead. • Full configuration indicates that the switch is fully configured with MPUs, SFUs, line cards, and power supplies. Their maximum weights are used during calculation.	71.8kg/184kg Note • Empty configuration indicates that the switch has no line card, MPU, or power supply installed. Filler panels are used, instead. • Full configuration indicates that the switch is fully configured with MPUs, SFUs, line cards, and power supplies. Their maximum weights are used during calculation.
Operating voltage	DC：–48V～–60V AC：90V～290V		
Maximum power consumption	3344W	6950W	8981W
Operating temperature	• –60 m to +1800 m: 0°C to 45°C • 1800 m to 4000 m: The maximum operating temperature decreases by 1°C each time the altitude increases by 220 m. • 4000 m: 0°C to 35°C		
Relative humidity	5% to 95% (non-condensing)		
Heat dissipation mode	Left-to-rear airflow, air-cooled heat dissipation, and intelligent fan speed adjustment		

Hardware Introduction

MPU

The Main Processing Unit (MPU) provides the control and management planes for the entire system. The control plane is mainly responsible for protocol processing, service processing, route calculation, forwarding control, service scheduling, traffic statistics, and system security. The management plane provides functions like monitoring the system running status, monitoring the environment, processing logs and alarms, loading the system, and upgrading the system.

The following table lists the MPU supported by Huawei CloudEngine S12700E series switches.

Card Name	Description	Supported Version
LST7MPUE0000	S12700E main processing unit E	V200R019C00 and later versions

Interface Card

An interface card, or called LPU, processes all traffic on the network data plane of a switch. The CloudEngine S12700E supports a broad set of interface cards that offer varying numbers of 100GE, 40GE, 10GE, and GE ports. Customers can flexibly select them as required.

Card Name	Description	Supported Version
LST7G48TX5E1	48-port 10/100/1000BASE-T interface card (X5E, RJ45)	V200R019C00 and later versions
LST7G48TX5S1	48-port 10/100/1000BASE-T interface card (X5S, RJ45)	V200R019C00 and later versions
LST7G48SX6E0	48-port 1000M Ethernet optical interface card (X6E, SFP)	V200R019C00 and later versions
LST7G48SX6S0	48-port 1000M Ethernet optical interface card (X6S, SFP)	V200R019C00 and later versions
LST7X24BX6E0	24-port 10GBASE-X and 24-port 1000BASE-X interface card (X6E, SFP+)	V200R019C00 and later versions
LST7X24BX6S0	24-port 10GBASE-X and 24-port 1000BASE-X interface card (X6S, SFP+)	V200R019C00 and later versions
LST7X48SX6E0	48-port 10GBASE-X interface card (X6E, SFP+)	V200R019C00 and later versions
LST7X48SX6S0	48-port 10GBASE-X interface card (X6S, SFP+)	V200R019C00 and later versions
LST7C06HX6E0	6-port 100GE Ethernet optical interface card (X6E, QSFP28)	V200R019C00 and later versions
LST7C06HX6S0	6-port 100GE Ethernet optical interface card (X6S, QSFP28)	V200R019C00 and later versions
LST7C24HX6E0	24-port 100GE Ethernet optical interface card (X6E, QSFP28)	V200R019C00 and later versions

Power Module

Power Module Backup Modes

CloudEngine S12700E power modules support two backup modes: N+M backup and N+1 backup (recommended). The value of N is determined by the maximum power required by the system. N multiplied by the maximum output power of each power module must be larger than the maximum power required by the system. The system can automatically identify the backup mode, without the need of manual configuration through CLIs.

CloudEngine S12700E supports 2200 W DC and 3000 W AC power modules. The following table lists the maximum output power of the entire system in different backup modes.

Types of Power Module	Backup Mode	Maximum Output Power of CloudEngine S12700E-4	Maximum Output Power of CloudEngine S12700E-8	Maximum Output Power of CloudEngine S12700E-12
2200 W DC power module	1+1 backup	Rated voltage: -48 V Output power: 2200 W	Rated voltage: -48 V Output power: 2200 W	Rated voltage: -48 V Output power: 2200 W
	2+1 backup	Rated voltage: -48 V Output power: 4400 W	Rated voltage: -48 V Output power: 4400 W	Rated voltage: -48 V Output power: 4400 W
	3+1 backup	Rated voltage: -48 V Output power: 6600 W	Rated voltage: -48 V Output power: 6600 W	Rated voltage: -48 V Output power: 6600 W
	4+1 backup	-	Rated voltage: -48 V Output power: 8800 W	Rated voltage: -48 V Output power: 8800 W

Types of Power Module	Backup Mode	Maximum Output Power of CloudEngine S12700E-4	Maximum Output Power of CloudEngine S12700E-8	Maximum Output Power of CloudEngine S12700E-12
	5+1 backup	-	Rated voltage: -48 V Output power: 11000 W	Rated voltage: -48 V Output power: 11000 W
	2+2 backup	Rated voltage: -48 V Output power: 4400 W	Rated voltage: -48 V Output power: 4400 W	Rated voltage: -48 V Output power: 4400 W
	3+3 backup	-	Rated voltage: -48 V Output power: 6600 W	Rated voltage: -48 V Output power: 6600 W
3000 W AC power module	1+1 backup	Rated voltage: 220 V Output power: 3000 W	Rated voltage: 220 V Output power: 3000 W	Rated voltage: 220 V Output power: 3000 W
	2+1 backup	Rated voltage: 220 V Output power: 6000 W	Rated voltage: 220 V Output power: 6000 W	Rated voltage: 220 V Output power: 6000 W
	3+1 backup	Rated voltage: 220 V Output power: 9000 W	Rated voltage: 220 V Output power: 9000 W	Rated voltage: 220 V Output power: 9000 W
	4+1 backup	-	Rated voltage: 220 V Output power: 12000 W	Rated voltage: 220 V Output power: 12000 W
	5+1 backup	-	Rated voltage: 220 V Output power: 14000 W	Rated voltage: 220 V Output power: 14000 W
	2+2 backup	Rated voltage: 220 V Output power: 6000 W	Rated voltage: 220 V Output power: 6000 W	Rated voltage: 220 V Output power: 6000 W
	3+3 backup	-	Rated voltage: 220 V Output power: 9000 W	Rated voltage: 220 V Output power: 9000 W

Power Module Specifications

The following table lists the specifications of each power module.

Parameter		2,000 W DC Power Module	3,000 W AC Power Module
Dimensions (H x W x D)		130 mm x 41 mm × 393 mm	130 mm x 41 mm x 417.4 mm
Weight		< 2.5 kg	< 3.0 kg
Input	Rated input voltage	-48 V DC/-60 V DC	90V~ 290V
	Input voltage range	-36V DC～-75V DC	200V AC to 240V AC (rated input voltage: 220 V AC)/100 V AC to 130 V AC (rated input voltage: 110 V AC);
	Maximum input current	60 A	18.5A
High-voltage DC input	Rated input voltage	-	240 V DC
	Input voltage range	-	190 V DC to 290 V DC
	Maximum input current	-	18.5A

Parameter		2,000 W DC Power Module	3,000 W AC Power Module
Output	Maximum output current	42 A	56.1 A (rated input voltage: 220 V AC)/28.1 A (rated input voltage: 110 V AC)
	Maximum output power	2,200 W	3,000 W (rated input voltage: 220 V AC or 240 V DC)/1,500 W (rated input voltage: 110 V AC)
Hot swap		Supported	Supported
Environment parameters		• Operating temperature: 0°C to 45°C • Operating relative humidity: 5%RH to 95%RH, non-condensing • Storage temperature: -40°C to +70°C • Storage relative humidity: 5%RH to 95%RH, non-condensing	• Operating temperature: 0°C to 45°C • Operating relative humidity: 5%RH to 95%RH, non-condensing • Storage temperature: -40°C to +70°C • Storage relative humidity: 5%RH to 95%RH, non-condensing
Surge protection specifications of the power port		• Common mode: ±4kV • Differential mode: ±2kV	• Common mode: ±6kV • Differential mode: ±6kV
Power module code		W2PSD2200	PAC3KS54-CE

Networking and Applications

In an Enterprise Campus Network

CloudEngine S12700E can be deployed at the core layer of an enterprise campus network. With the integrated WLAN AC functionality, CloudEngine S12700E enables customers to build wireless networks at lowered costs without additional WLAN AC hardware. By providing up to 4 Tbps WLAN AC forwarding capacity, CloudEngine S12700E eliminates the performance bottleneck on independent WLAN ACs and gets customers ready for the Wi-Fi 6 era. CloudEngine S12700E truly achieves wired and wireless convergence and delivers consistent user experiences through unified device, user, and service management.

In a School Campus Network

CloudEngine S12700E can be deployed at the core layer of a school campus network. With unified user management functionality, CloudEngine S12700E reduces network construction costs by removing the need to purchase new BRAS hardware. Its compelling HQoS feature delivers granular user and service management. CloudEngine S12700E stands out with wired and wireless convergence and delivers consistent user experiences through unified device, user, and service management.

In a Bearer Network for Video Conferencing, Desktop Cloud, and Video Surveillance Applications

CloudEngine S12700E can be deployed on a bearer network for video conferencing, desktop cloud, and video surveillance applications. Designed with a large buffering capacity, CloudEngine S12700E prevents packet loss upon traffic bursts, delivering high-quality, smooth video streams. Million-level table entries provided by CloudEngine S12700E allow access from a large number of terminals and deliver unmatched resilience needed for IPv6 and IoT evolution. Employing end-to-end hardware reliability and iPCA technologies, CloudEngine S12700E offers a highly reliable, high-quality, scalable video conferencing and surveillance solution.

On a MAN

CloudEngine S12700E can be deployed at the core or aggregation layer of the broadcasting and education MAN. CloudEngine S12700E supports comprehensive L2/L3 MPLS VPN functions and provides a highly reliable, secure, and scalable MAN bearer solution.

In an Enterprise Data Center

CloudEngine S12700E can be deployed at the core or aggregation layer of an enterprise data center. Coming with high-bandwidth high-density cards, CloudEngine S12700E delivers massive data throughput needed for core and aggregation nodes in the data center. As such, customers can leverage CloudEngine S12700E to build a data center network with high performance, high reliability, and low latency.

Ordering Information

CloudEngine S12700E Basic Configuration	
LE2BN66ED000	N66E DC assembly cabinet (eight 60A outputs, maximum 2200W, 600 × 600 × 2200 mm)
LE2BN66EA000	N66E AC assembly cabinet (four 16 A outputs, a maximum of 2500W, 600 × 600 × 2200 mm)
ET1BS12704E0	S12700E-4 assembly chassis
ET1BS12708E0	S12700E-8 assembly chassis
ET1BS12712E1	S12700E-12 assembly chassis
FAN-770A-B	Fan box (-5degC–55degC, 48V, 400W, 2, indoors, VA)

Main control unit	
LST7MPUE0000	S12700E main control unit E

Monitoring Board	
EH1D200CMU00	Centralized Monitoring unit

Switch fabric unit	
LST7SFUEX100	S12700E switch fabric unit E(X1)
LST7SFUHX100	S12700E switch fabric unit H(X1)
LST7SFUMX100	S12700E switch fabric unit M(X1)

100G Ethernet optical interface board	
LST7C06HX6E0	6-port 100GE QSFP28 interface card (X6E,QSFP28)
LST7C06HX6S0	6-port 100GE QSFP28 interface card (X6S,QSFP28)
LST7C24HX6E0	24-port 100GE QSFP28 interface card (X6E,QSFP28)

10GE optical interface card	
LST7X48SX6E0	48-port 10GE SFP+ interface card (X6E,SFP+)
LST7X48SX6S0	48-port 10GE SFP+ interface card (X6S,SFP+)

10GE/1000M Ethernet optical interface　card	
LST7X24BX6E0	24-port 10GE SFP+ interface and 24-port GE SFP interface card (X6E,SFP+)
LST7X24BX6S0	24-port 10GE SFP+ interface and 24-port GE SFP interface card (X6S,SFP+)

Gigabit Ethernet optical interface　board	
LST7G48SX6E0	48-port GE SFP interface card (X6E,SFP)
LST7G48SX6S0	48-port GE SFP interface card (X6S,SFP)

Gigabit Ethernet electrical interface　board	
LST7G48TX5E1	48-port 10/100/1000BASE-T interface card (X5E,RJ45)
LST7G48TX5S1	48-port 10/100/1000BASE-T Interface Card (X5S,RJ45)

Power supply	
W2PSD2200	2200W DC power module
PAC3KS54-CE	3000W AC power module (black)

Software	
LST7SBSM2J00	S12700E V200R019C00 MPUE Mainframe Software

License	
N1-S127E-F-Lic	N1-CloudCampus, Foundation, S127E Series, Per Device, Electronic
N1-S127E-F-SnS1Y	N1-CloudCampus, Foundation, S127E Series, SnS, Per Device, 1 Year, Electronic
N1-S127E-A-Lic	N1-CloudCampus, Advanced, S127E Series, Per Device, Electronic
N1-S127E-A-SnS1Y	N1-CloudCampus, Advanced, S127E Series, SnS, Per Device, 1 Year, Electronic
N1-S127E-FToA-Lic	N1-Upgrade-Foundation to Advanced, S127E, Per Device, Electronic
N1-S127E-FToA-SnS1Y	N1-Upgrade-Foundation to Advanced, S127E, SnS, Per Device, 1 Year, Electronic
N1-S127E-F-SaaS-1Y	N1-CloudCampus, Foundation, Huawei Cloud Management Subscription License, S127E Series, Per Device, 1 Year, Electronic
N1-S127E-F-SaaS-3Y	N1-CloudCampus, Foundation, Huawei Cloud Management Subscription License, S127E Series, Per Device, 3 Year, Electronic
N1-S127E-F-SaaS-5Y	N1-CloudCampus, Foundation, Huawei Cloud Management Subscription License, S127E Series, Per Device, 5 Year, Electronic
N1-S127E-F-TBL-1Y	N1-CloudCampus, Foundation, MSP Cloud Management Subscription License, S127E Series, Per

License

License	
	Device, 1 Year, Electronic
N1-S127E-F-TBL-3Y	N1-CloudCampus, Foundation, MSP Cloud Management Subscription License, S127E Series, Per Device, 3 Year, Electronic
N1-S127E-F-TBL-5Y	N1-CloudCampus, Foundation, MSP Cloud Management Subscription License, S127E Series, Per Device, 5 Year, Electronic
RTU-800G-S127E	S127E Series, 800G Capacity Right to Use License, Per Device, Electronic
L-1024AP-S127E	S127E Series, Wireless Access Controller AP Resource License-1024AP, Electronic
L-512AP-S127E	S127E Series, Wireless Access Controller AP Resource License-512AP, Electronic
L-64AP-S127E	S127E Series, Wireless Access Controller AP Resource License-64AP, Electronic
L-32AP-S127E	S127E Series, Wireless Access Controller AP Resource License-32AP, Electronic
L-1AP-S127E	S127E Series, Wireless Access Controller AP Resource License-1AP, Electronic
L-VxLAN-S127E	S127E Series, VxLAN License, Per Device, Electronic
N1-S127E-M-Lic	S127E Series Basic SW, Per Device, Electronic
N1-S127E-M-SnS1Y	S127E Series Basic SW, SnS, Per Device, 1 Year, Electronic
N1-S127E-MToF-Lic	N1-Upgrade-Basic Software to Foundation, S127E, Per Device, Electronic
N1-S127E-MToF-SnS1Y	N1-Upgrade-Basic Software to Foundation, S127E, SnS, Per Device, 1Year, Electronic

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

Huawei Technologies Co., Ltd.

Address:Huawei Industrial Base Bantian, Longgang Shenzhen 518129 People's Republic of China

Website:e.huawei.com