Huawei CloudEngine S16700 Series Flagship Core Switches Datasheet

Huawei CloudEngine S16700 series flagship core switches are next-generation flagship modular core switches designed for high-end campus networks. They are designed to improve user experience, reduce the network operational expenditure (OPEX), and build secure and trustworthy campus networks.

Product Overview

Huawei CloudEngine S16700 series switches (S16700 for short) are next-generation modular core switches designed for high-end campus networks in the fully-wireless era. S16700 series switches consist of two models with four Line Processing Unit (LPU) slots and eight LPU slots respectively. They provide ultra-high-density 10GE/40GE/100GE full-rate access ports, meeting customers' requirements for quickly building campus networks with a simplified architecture.

S16700 series switches use Huawei-developed next-generation converged software platform to provide customers with a trusted platform system and secure data access. Key components, such as Main Processing Units (MPUs), power modules, and fan modules, adopt a redundancy design to provide carrier-class reliability. The switches are ideal aggregation and access nodes for building cloud campus networks, helping global customers achieve their digital transformation goals.

Highlights of this series of switches are as follows:

- Ultra-fast forwarding:

Highly reliable backplane-free orthogonal Clos architecture: MPUs are separated from the Switch Fabric Units (SFUs), greatly improving system bandwidth and evolution capabilities. The device capacity can be smoothly expanded to several hundreds of Tbit/s, meeting the requirements for smooth network evolution.

- Ultra-high reliability:

Millisecond-level ultra-low latency, low latency, and low jitter, facilitating production automation

Hot standby of four hardware components — MPUs, SPUs, power modules, and fan modules

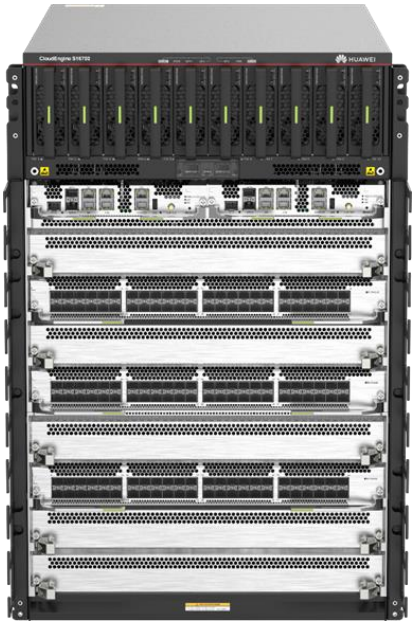
- Flexible expansion:

Smooth evolution to 400GE in future, meeting the requirements for surging digital traffic in the next 10 years and achieving seamless service changes

Fully programmable switching chips, eliminating the need to replace hardware during service upgrade

Abundant open interfaces and ecosystem partners, enabling smooth upgrade of and interconnection with customers' existing networks

Models and Appearances

	
CloudEngine S16700-4	CloudEngine S16700-8

Features and Highlights

Switch Highlights

Leading System Architecture, Meeting Next-Generation Network Requirements

- The switch is equipped with fully programmable chips. When the service forwarding process needs to be changed due to protocol evolution and technology update, the switch supports the change through software update to implement fast and flexible service rollout without the need to replace hardware devices, fully protecting customers' existing investments. In contrast, traditional ASIC chips use a fixed forwarding architecture and follow a fixed forwarding process. For this reason, new services cannot be quickly provisioned until new hardware is developed to support the services one to three years later.
- In addition to capabilities of traditional switches, the switch provides fully programmable open interfaces and supports user-defined forwarding processes to meet users' service customization requirements. Users 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.

Powerful Service Processing Capability and Flexible Network Scalability

- The switch provides high scalability and supports smooth bandwidth expansion, smooth port rate upgrade, and compatibility with cards on the live network to protect investments.
- The switch provides ultra-high-density 10GE, 40GE, and 100GE access ports. When the switch is fully configured with service cards, intra-card and inter-card line-rate forwarding can be implemented, helping to build networks with 100 Gbit/s core devices in enterprise campuses.
- With a multi-service routing and switching platform, the switch meets service bearing requirements at the access, aggregation, and core layers of enterprise networks, and provides wireless access, voice, video, and data services, helping to build a multi-service network with high availability and low latency.
- The switch supports Layer 2 and Layer 3 multicast protocols, including Protocol Independent Multicast Sparse Mode (PIM SM), PIM Dense Mode (DM), PIM Source-Specific Multicast (SSM), and Internet Group Management Protocol (IGMP) snooping. These multicast protocols ensure high-quality HD video security and video conferencing services.

Highly Reliable Industrial-Grade Hardware Architecture

- S16700 provides industrial-grade ultra-high reliability and long-term stable running as a core switch, ensuring service continuity.
- Hot standby of four hardware components: MPUs work in 1+1 hot standby mode. SFUs work in N+M hot standby mode. Power modules support dual inputs, work in N+1 or N+N hot standby mode, and have their own heat dissipation system. Fan modules work in N+1 hot standby mode, ensuring efficient heat dissipation.
- Redundancy of three buses: The monitoring, management, and data buses all work in 1+1 redundancy mode, ensuring reliable transmission of various signals in the system.

Innovative Energy-Saving Design for Intelligent Power Consumption Control

Strict front-to-back airflow design

- The patented front-to-back airflow design strictly isolates cold air channels from hot air channels, meeting heat dissipation requirements in data center equipment rooms.
- Fan modules support intelligent area-based speed adjustment and on-demand heat dissipation, saving energy and reducing noise.

Efficient and intelligent power supply system

- The switch uses highly efficient digital power modules with a power efficiency of up to 96%.
- The system measures power consumption in real time and intelligently puts power modules into sleep mode to save power when system power demands are low.
- S16700 adjusts power consumption of major components based on changes in service traffic volume, saving energy dynamically.

Inter-Device Link Aggregation, Ensuring High Efficiency and Reliability

- S16700 supports Multichassis Link Aggregation Group (M-LAG) to implement link aggregation among multiple devices, improving link reliability from the card level to the device level.
- Switches in an M-LAG all work in active state to share traffic and back up each other, enhancing system reliability.
- Switches in an M-LAG system can be upgraded independently. During the upgrade, other switches in the system take over traffic forwarding to ensure uninterrupted services.
- M-LAG supports dual-homing to Ethernet, VXLAN, and IP networks, allowing for flexible networking.

SRv6-Powered Intelligent Connectivity

- SRv6 is a future-oriented, next-generation simplified protocol that inherently supports IPv6, allowing for access of numerous terminals. In addition, SRv6 implements protocol unification and simplifies configurations. Huawei has participated in the formulation of more than 75% of SRv6 standards and led large-scale commercial use of SRv6 in the finance and over-the-top (OTT) industries. Huawei will continue to lead SRv6 evolution and innovation.

Comprehensive Network Slicing Functions

- S16700 provides a comprehensive range of network slicing functions to meet diversified SLA requirements of different services and customers. Service isolation and bandwidth guarantee are implemented based on QoS. Slices can be completely isolated from each other without affecting each other. Traffic is isolated at the physical layer, and network slicing is performed for services on the same physical network. The Network Slicing technology can be used at the access, aggregation, and core layers to meet differentiated SLA requirements of new services on campus networks.

Comprehensive Security Protection Against Internal and External Security Threats

- Comprehensive Network Admission Control (NAC) solutions for enterprise networks: The switch supports MAC address authentication, 802.1X authentication, policy association, and free mobility to ensure the security of various access modes, such as dumb terminal access, mobile access, and centralized IP address allocation.
- Two-level CPU protection mechanism: The switch supports CPU hardware queues and separates the data plane from the control plane, which helps to defend against DoS attacks and unauthorized access while preventing control plane overloading.

Network Virtualization for Multi-Purpose Network

- 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 the 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 for different services or customers, reducing network construction costs, and improving network resource utilization.
- The switch is VXLAN-capable and allows centralized and distributed VXLAN gateway deployment modes. It also supports the BGP EVPN protocol for dynamically establishing VXLAN tunnels, which can be configured using NETCONF/YANG.

High-Performance IPv6 Service Processing, Facilitating Smooth Upgrade from IPv4 to IPv6

- The switch supports the IPv4/IPv6 dual stack, various tunneling technologies, IPv6 static routing, RIPng, OSPFv3, BGP+, and IPv6 IS-IS, allowing for pure IPv6 networking and combined IPv4 and IPv6 networking.

Precise Network Management and Visualized Fault Diagnosis

- In-situ Flow Information Telemetry (IFIT) is an in-band Operations, Administration, and Maintenance (OAM) measurement technology that uses service packets to measure real performance indicators of an IP network, such as the packet loss rate and latency. IFIT can significantly improve the timeliness and effectiveness of network O&M, thereby promoting the development of intelligent O&M.
- IFIT supports application-level quality measurement, tunnel-level quality measurement, and native-IP IFIT measurement. Currently, the switch supports only native-IP IFIT measurement. IFIT provides in-band measurement capabilities to monitor indicators such as the latency and packet loss rate of service flows in real time. IFIT provides visualized O&M capabilities to centrally manage and control networks and graphically display performance data. IFIT has high measurement precision and is easy to deploy. It helps to construct an intelligent O&M system and has future-oriented scalability.

OPS

- The 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.

Service Configuration Rollback for More Stable Network Running

- The switch supports configuration rollback. When a configuration error or configuration fault occurs, the device configuration can be rolled back to a specified rollback point to ensure stable service running.

Solution Benifits

Simplified Management

- Deployment automation: The switch supports features such as VXLAN and BGP EVPN to construct a UVF. As such, multiple service networks or tenant networks can be deployed on the same physical network, and the service and tenant networks are isolated from each other. This capability truly achieves one network for multiple purposes.
- Policy automation: The switch supports SDN-based automated deployment of policies for wired and wireless users on the entire network and refined management and control, implementing free mobility.

Intelligent O&M

- The switch supports the telemetry technology to collect device data in real time and send the data to iMaster NCE-CampusInsight, which is the campus network analysis component of Huawei iMaster NCE. iMaster NCE-CampusInsight analyzes network data using the intelligent fault identification algorithm, accurately displays the real-time network status, locates faults in a timely and effective manner, identifies fault causes, and detects network problems that affect user experience, accurately ensuring user experience.
- The switch supports NetStream for real-time collection and analysis of network traffic statistics. It supports multiple NetStream packet formats and reduces loads on the network collector. NetStream supports many functions, such as real-time traffic collection, traffic attribute analysis, and traffic exception alarming. These functions help you monitor network traffic in real time and analyze device throughput on the live network, facilitating decision-making for network structure optimization, as well as scientific and reasonable capacity expansion.

Licensing

CloudEngine S16700 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 on-premises deployment modes for enterprise campus networks, and greatly enhances the customer experiences in purchasing and upgrading software services with simplicity.

The following table describes 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 Functions and Features	√	√	√
Basic network automation based on the iMaster NCE-Campus: • NE management: Device management, topology management and discovery • User access authentication	×	√	√
Advanced network automation and intelligent O&M: VXLAN, Free Mobility, IPCA, CampusInsight basic functions	×	×	√

Product Specifications

Functions and Features

Category	Service Features	CloudEngine S16700-4	CloudEngine S16700-8
User management	Unified user management	Yes	Yes
	802.1X and MAC address authentication	Yes	Yes
	Traffic- and duration-based accounting	Yes	Yes
	User authorization based on user groups, domains, and time ranges	Yes	Yes
MAC address	Number of MAC address entries	384K(MAX)	384K(MAX)
	Automatic MAC address learning and aging	Yes	Yes
	Static, dynamic, and blackhole MAC address entries	Yes	Yes
	Source MAC address filtering	Yes	Yes
	MAC address learning limiting based on ports and VLANs	Yes	Yes
VLAN	4K VLANs	Yes	Yes
	Access, trunk, and hybrid interface types; auto-negotiation of LNP link types	Yes	Yes

Category	Service Features	CloudEngine S16700-4	CloudEngine S16700-8
	Default VLAN	Yes	Yes
	VLAN switching	Yes	Yes
	QinQ and enhanced selective QinQ	Yes	Yes
	VLAN stacking	Yes	Yes
	MAC address–based dynamic VLAN allocation	Yes	Yes
	VLAN mapping	Yes	Yes
ARP	Maximum number of ARP entries	140K(MAX)	140K(MAX)
	ARP Snooping	Yes	Yes
IP routing	IPv4 dynamic routing protocols such as RIP, OSPF, IS-IS, and BGP	Yes	Yes
	IPv6 dynamic routing protocols such as RIPng, OSPF, OSPFv3, IS-ISv6, and BGP4+	Yes	Yes
DHCP	DHCP relay, DHCPv6 relay, DHCP server, DHCP Option 82, and DHCP Option 43	Yes	Yes
Multicast	Maximum number of multicast routing entries(IPv4)	64K-1(MAX)	64K-1(MAX)
	Maximum number of multicast routing entries(IPv6)	4K	4K
	IGMPv1/v2/v3 and IGMPv1/v2/v3 snooping	Yes	Yes
	PIM DM, PIM SM, PIM SSM and PIMv6	Yes	Yes
	IPv4 multicast protocols	Yes	Yes
	Fast leave mechanism for users	Yes	Yes
	Multicast traffic control	Yes	Yes
	Multicast querier	Yes	Yes
	Multicast protocol packet suppression	Yes	Yes
MPLS	MPLS-LDP	Yes	Yes
	MPLS-L3VPN	Yes	Yes
	MPLS Qos	Yes	Yes
Segment Routing	SRv6 BE (L3 EVPN)	Yes	Yes
	BGP EVPN	Yes	Yes
	SRv6 configuration through NETCONF	Yes	Yes
VXLAN	Distributed and centralized VXLAN gateways	Yes	Yes
	BGP EVPN	Yes	Yes
	VXLAN configuration through NETCONF	Yes	Yes
	Layer 2 and Layer 3 VXLAN gateways	Yes	Yes
QoS	Number of ACL rules(IPv4)	6.5K(MAX)	6.5K(MAX)

Category	Service Features	CloudEngine S16700-4	CloudEngine S16700-8
	Number of ACL rules(IPv6)	6.5K(MAX)	6.5K(MAX)
	Traffic classification based on Layer 2 headers, Layer 3 protocols, Layer 4 protocols, and 802.1p priority	Yes	Yes
	ACLs based on the data link layer, network layer, and transport layer, standard and extended ACLs, and global ACL	Yes	Yes
	Actions such as Committed Access Rate (CAR), re-marking, and scheduling	Yes	Yes
	Queue scheduling modes such as PQ, WRR, DRR, PQ+WRR, and PQ+DRR	Yes	Yes
	Congestion avoidance mechanisms such as WRED and tail drop	Yes	Yes
	Traffic shaping	Yes	Yes
	Network Slicing(Vxlan/SRv6/VXLAN)	Yes	Yes
Native-IP IFIT	Direct marking of service packets to obtain real-time statistics about dropped packets and packet loss rate	Yes	Yes
	Two-way delay measurement for packets	Yes	Yes
	Statistical interval modification	Yes	Yes
Ring network protection	STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s)	Yes	Yes
	BPDU protection, root protection, and loop prevention	Yes	Yes
	G.8032 Ethernet Ring Protection Switching (ERPS)	Yes	Yes
	Smart Ethernet Protection(SEP)	Yes	Yes
Reliability	M-LAG	Yes	Yes
	Link Aggregation Control Protocol (LACP)	Yes	Yes
	Virtual Router Redundancy Protocol (VRRP) and Bidirectional Forwarding Detection (BFD) for VRRP	Yes	Yes
	BFD for BGP, IS-IS, OSPF, and static routes	Yes	Yes
	Eth-OAM 802.3ah and 802.1ag	Yes	Yes
	Smart Link	Yes	Yes
	LLDP	Yes	Yes
	LBDT	Yes	Yes
	Y.1731	Yes	Yes
System Management	Terminal access services such as console port login, Telnet, and SSH	Yes	Yes

Category	Service Features	CloudEngine S16700-4	CloudEngine S16700-8
	Network management protocols, such as SNMPv1/v2/v3	Yes	Yes
	File upload and download through FTP, TFTP, and SFTP	Yes	Yes
	Boot Read-Only Memory (BootROM) upgrade and remote online upgrade	Yes	Yes
	Hot patches for online patch upgrade	Yes	Yes
	Passive design of the backplane: hot swapping of multiple components, such as cards, power modules, and fan modules	Yes	Yes
	User operation logs	Yes	Yes
	Open Programmability System (OPS)	Yes	Yes
	iPCA、NetStream、NQA、Telemetry	Yes	Yes
	NTP	Yes	Yes
	GVRP	Yes	Yes
	1588v2	Yes	Yes
Security and management	NAC	Yes	Yes
	Hierarchical user management and password protection	Yes	Yes
	RADIUS and HWTACACS authentication for login users	Yes	Yes
	Command line authority control based on user levels, preventing unauthorized users from using command configurations	Yes	Yes
	IP Source Guard (IPSG) for defense against DoS attacks, ARP attacks, TCP SYN Flood attacks, UDP Flood attacks, broadcast storm attacks, and volumetric attacks	Yes	Yes
	IPv6 RA Guard	Yes	Yes
	CPU hardware queues to implement hierarchical scheduling and protection for protocol packets on the control plane	Yes	Yes
	Remote Network Monitoring (RMON)	Yes	Yes
	Secure boot (need to use MPU that supports secure boot)	Yes	Yes
	ND snooping	Yes	Yes

Hardware Specifications

Item	CloudEngine S16700-4	CloudEngine S16700-8
Dimensions without packaging (H x W x D)	438 mm x 483 mm x 985 mm (17.24 in. x 19.02 in. x 38.78 in.), including	703 mm x 483 mm x 985 mm (27.68 in. x 19.02 in. x 38.78 in.), including mounting

Item	CloudEngine S16700-4	CloudEngine S16700-8
	mounting ears and cable management frames	ears and cable management frames
Chassis height [U]	9.8 U	15.8 U
Weight without packaging [kg(lb)]	94.1 kg (AC input) 98.1 kg (DC input)	129.8 kg (AC input) 135.8 kg (DC input)
Weight without packaging (full configuration) [kg(lb)]	162 kg (AC input) 163.6 kg (DC input)	253.1 kg (AC input) 255.1 kg (DC input)
Switching capacity	28.8 Tbit/s	57.6 Tbit/s
Packet forwarding rate	17760Mpps	35520Mpps
MPU slot	2	2
LPU slot	4	8
SFU slot	6 (can be expanded to 9 in the future)	6 (can be expanded to 9 in the future)
Fan module	3	3
System Power Supplies	6, dual inputs supported	10, dual inputs supported
Redundant power supply	• Dual-input power supply system: N+1 backup is recommended. • Single-input power supply system: N+1 backup Dual-input power supply is recommended to ensure reliability.	• Dual-input power supply system: N+1 backup is recommended. • Single-input power supply system: N+1 backup Dual-input power supply is recommended to ensure reliability.
Redundant fans	Fan modules work in hot standby mode. At the normal temperature range, the system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.	Fan modules work in hot standby mode. At the normal temperature range, the system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Rated input voltage	• AC input: 220 V; 50 Hz/60 Hz • High-voltage DC (HVDC) input: 240 V/380 V • DC input: –48 V/–60 V	• AC input: 220 V; 50 Hz/60 Hz • HVDC input: 240 V/380 V • DC input: –48 V/–60 V
Input voltage range	• AC: 176 V to 290 V, 45 Hz to 65 Hz • HVDC: 188 V to 288 V/260 V to 400 V • DC input: –40 V to –72 V	• AC: 176 V to 290 V, 45 Hz to 65 Hz • HVDC: 188 V to 288 V/260 V to 400 V • DC input: –40 V to –72 V
Maximum power consumption	4664 W	8260W
Maximum power output capability (including the system power output and PoE power output) [W]	AC input： • 5+1 backup: 3000 W x 5 = 15000 W • 6+0 backup: 3000 W x 6 = 18000 W DC input：	AC input： • 9+1 backup: 3000 W x 9 = 27000 W • 10+0 backup: 3000 W x 10 = 30000 W DC input： • 9+1 backup: 2200 W x 9 = 19800 W

Item	CloudEngine S16700-4	CloudEngine S16700-8
	• 5+1 backup: 2200 W x 5 = 11000 W • 6+0 backup: 2200 W x 6 = 13200 W	• 10+0 backup: 2200 W x 10 = 22000 W
Long-term operating temperature [°C(°F)]	0°C to 40°C (32°F to 140°F)	0°C to 40°C (32°F to 140°F)
Storage temperature [°C(°F)]	–40°C to +70°C (–40°F to +158°F)	–40°C to +70°C (–40°F to +158°F)
Relative humidity	5% RH to 85% RH (non-condensing)	
Heat dissipation mode	Drawing air for heat dissipation	
Airflow direction	Front-to-rear airflow	

Hardware Introduction

MPU

Main Processing Unit (MPU), Responsible for system control, management, and monitoring

Models and Appearance	Description	Supported Version
 LSH7MPUAX1T0	S16700 Main Processing Unit A (HTM)	V600R22C10 and later versions

The following table lists the functions of MPU.

Parameter	LSH7MPUAX1T0
Device management and maintenance	The MPU provides management ports for managing and maintaining the system.
Device monitoring	The MPU integrates a monitoring module. The monitoring module provides the monitoring plane, which allows administrators to remotely power on, power off, and reset the card, upgrade firmware, monitor card temperature, voltage, and power, manage asset information, and diagnose system faults.
Out-of-band communication between cards	The MPU integrates a LAN switch module that provides out-of-band communication between cards. The LAN switch module completes control, monitoring, maintenance, and message exchange between SFUs and LPUs.
Route calculation	The MPU processes all routing protocol packets, which are sent from the forwarding engine. The MPU broadcasts and filters routing protocol packets, and downloads routing policies from the policy server.
Data configuration	The MPU stores system configuration data, startup files, upgrade software, and system logs.
Data saving	The MPU uses SATA to save data files.
Restrictions and remarks	In the same chassis, the MPU cannot be installed together with an MPU of a different model.

Parameter	LSH7MPUAX1T0
Dimensions without packaging (H x W x D) [mm(in.)]	45.7 mm x 215 mm x 522.5 mm (1.8 in. x 8.46 in. x 20.57 in.)
Weight without packaging [kg(lb)]	4.3 kg (9.48 lb)
Typical power consumption [W]	108W
Maximum power consumption [W]	150W
Memory	16 GB (standard configuration)
Storage	32 GB SSD

Interface Card

An interface card, or called LPU, processes all traffic on the network data plane of a switch.

100GE Interface Card

Parameter	LSH7C18HX1E0	LSH7C36HX1E0
Appearance		
Description	18-Port 100GE Optical Interface Card (X1E, QSFP28)	36-Port 100GE Optical Interface Card (X1E, QSFP28)
Dimensions without packaging (H x W x D) [mm(in.)]	55.4 mm x 433.0 mm x 523.2 mm (2.18 in. x 17.05 in. x 20.6 in.)	55.4 mm x 433.0 mm x 523.2 mm (2.18 in. x 17.05 in. x 20.6 in.)
Weight without packaging [kg(lb)]	7.6 kg (16.76 lb)	8.4 kg (18.52 lb)
Typical power consumption [W]	251 W	525 W
Maximum power consumption [W]	388 W	764 W

40GE Interface Card

Parameter	LSH7L24QX1E0	LSH7L36QX1E0
Appearance		
Description	24-Port 40GE Optical Interface Card (X1E, QSFP+)	36-Port 40GE Optical Interface Card/18-Port 100GE Optical Interface Card (X1E, QSFP+)
Dimensions without packaging (H x W x D) [mm(in.)]	55.4 mm x 433.0 mm x 523.2 mm (2.18 in. x 17.05 in. x 20.6 in.)	55.4 mm x 433.0 mm x 523.2 mm (2.18 in. x 17.05 in. x 20.6 in.)
Weight without packaging [kg(lb)]	7.3 kg (16.09 lb)	8.0 kg (17.64 lb)
Typical power consumption [W]	163 W	256 W
Maximum power consumption [W]	307 W	443 W

Parameter	LSH7L36QX1E1	
Appearance		
Description	36-Port 40GE Optical Interface Card (X1E, QSFP+)	
Dimensions without packaging (H x W x D) [mm(in.)]	55.4 mm x 433.0 mm x 523.2 mm (2.18 in. x 17.05 in. x 20.6 in.)	
Weight without packaging [kg(lb)]	8.0 kg (17.64 lb)	
Typical power consumption [W]	256 W	
Maximum power consumption [W]	443 W	

10GE Interface Card

Parameter	LSH7X48SX1E0
Appearance	
Description	48-Port 10GE Optical Interface Card (X1E, SFP+)
Dimensions without packaging (H x W x D) [mm(in.)]	55.4 mm x 433.0 mm x 523.2 mm (2.18 in. x 17.05 in. x 20.6 in.)
Weight without packaging [kg(lb)]	6.7 kg (14.77 lb)
Typical power consumption [W]	103 W
Maximum power consumption [W]	193 W

SFU Card

S16700-4 Switch Fabric Unit

Parameter	LSH7SFUAX100	LSH7SFUBX100
Appearance		
Description	S16700-4 Switch Fabric Unit A (X1)	S16700-4 Switch Fabric Unit B (X1)
Dimensions without packaging (H x W x D) [mm(in.)]	42.4 mm x 316.5 mm x 233.6 mm (1.67 in. x 12.46 in. x 9.2 in.)	42.4 mm x 316.5 mm x 233.6 mm (1.67 in. x 12.46 in. x 9.2 in.)
Weight without packaging [kg(lb)]	3.2 kg(lb)	3.2 kg(lb)
Typical power consumption [W]	72 W	87 W
Maximum power consumption [W]	99 W	128 W

S16700-8 Switch Fabric Unit

Parameter	LSH7SFUGX100	LSH7SFUHX100

Parameter	LSH7SFUGX100	LSH7SFUHX100
Appearance		
Description	S16700-8 Switch Fabric Unit G (X1)	S16700-8 Switch Fabric Unit H (X1)
Dimensions without packaging (H x W x D) [mm(in.)]	42.4 mm x 559.9 mm x 233.6 m (1.67 in. x 22.04 in. x 9.2 in.)	42.4 mm x 559.9 mm x 233.6 m (1.67 in. x 22.04 in. x 9.2 in.)
Weight without packaging [kg(lb)]	5.1 kg (11.24 lb)	5.7 kg(lb)
Typical power consumption [W]	105 W	181 W
Maximum power consumption [W]	142 W	261 W

Power Module

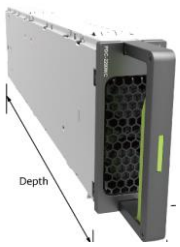
Power Module Backup Modes

The S16700 supports DC, AC, and high-voltage DC power supply modes. The device can be connected to up to two power sources through power entry modules (PEMs). Each power module (PM) has two power inputs, and they convert the power supplied to the PEM to power the entire device.

The PEM is integrated into the chassis and does not need to be configured onsite. Do not attempt to remove or install the PEM onsite. PMs can be configured based on the chassis's overall power consumption, providing flexible power supply.

DC PMs and AC & high-voltage DC PMs of the S16700 can work in N+1 redundancy mode, in which *N* indicates the number of PMs configured based on the chassis's actual power consumption. The maximum power supply capability of one chassis is equal to the sum of the maximum output power of *N* PMs installed in the chassis. In N+1 redundancy mode, *N* PMs supply power to the chassis, and one PM works as a backup.

Power Module Specifications

Parameter	PAH-3000WA	PDC-2200WC
Appearance		
Description	3000W Dual Inputs AC&HVDC Power Module	PM2200W DC Power Supply
Dimensions without packaging (H x W x D) [mm(in.)]	41 mm x 106.5 mm x 485 mm (1.61 in. x 4.33 in. x 19.09 in.)	41 mm x 106.5 mm x 485 mm (1.61 in. x 4.19 in. x 19.09 in.)
Weight without packaging [kg(lb)]	2.8 kg (6.17 lb)	2.4 kg (5.29 lb)
Rated input voltage [V]	240 V DC/380 V DC	-48 V to -60 V
Input voltage range [V]	• AC: 176–290 V AC; 45–65 Hz • High-voltage DC: 188–288 V DC/260–400 V DC	-40 V to -72 V
Maximum input current [A]	16 A	58.5 A

Parameter	PAH-3000WA	PDC-2200WC
Rated output voltage [V]	53.5 V	53.5 V
Rated output power [W]	3000 W (Note: The AC power supply system supports 200 V AC to 240 V AC power and the input voltage range of 176 V to 290 V. If the input voltage is lower than or equal to 175 V AC, for example, the input voltage is 110 V AC, the rated output power reduces to 1500 W.)	2200 W
Hot swapping	Supported	Supported

Fan Module

The heat dissipation system of S16700 series consists of fan modules and a chassis door.

- Fan modules installed at the rear of the device cool the MPUs, LPUs, and SFUs in the chassis through front-to-back airflow (from the perspective of the cabinet), ensuring a normal operating temperature range for the chassis.

  Power modules have their own fans, which take the heat generated by power modules out of the chassis through front-to-back airflow. These fans ensure that the power modules work in a normal temperature range.

- The chassis door is optional and installed at the front of the chassis to shield electromagnetic noise. The door also can prevent dust from entering the chassis with airflows so that the chassis can work properly.

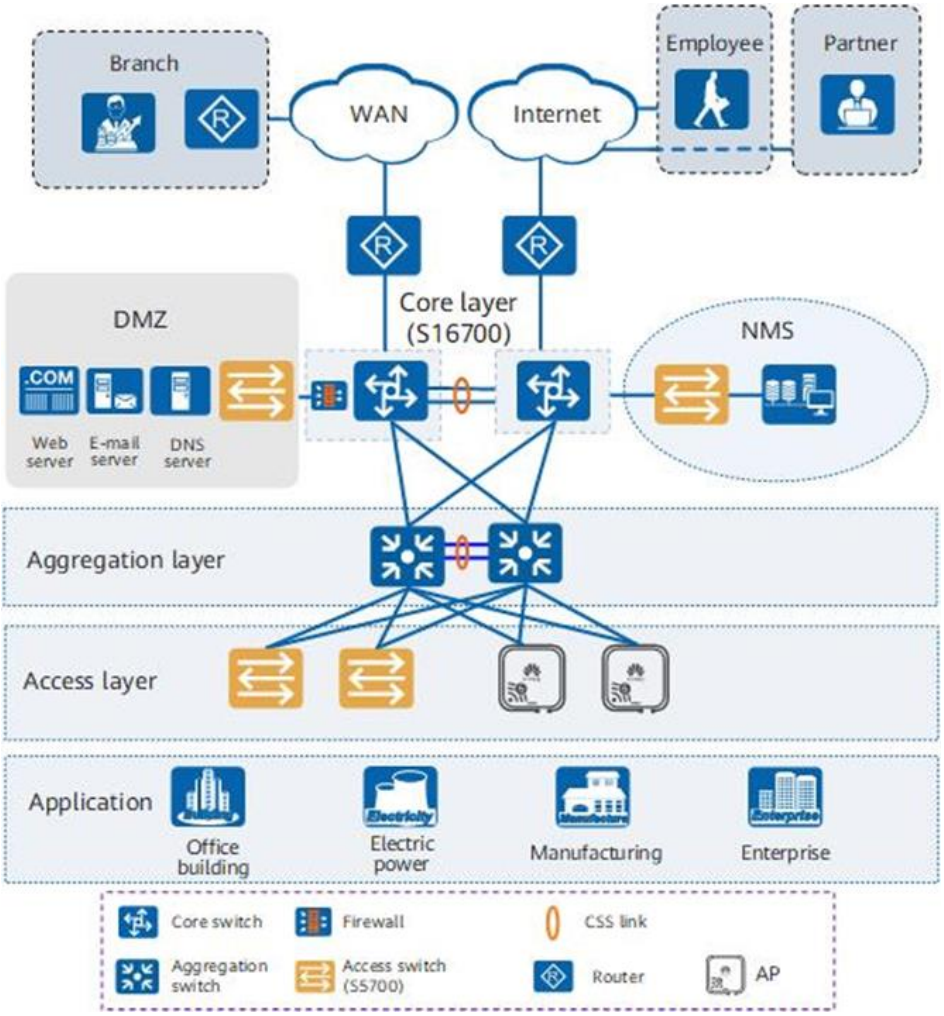
Fan Module Specifications

Parameter	FAN-240SA-B	FAN-240SM-B
Appearance		
Description	• FAN-240SA-B Fan Module • Applicable to S16700-4	• FAN-480SA-B Fan Module • Applicable to S16700-8
Dimensions without packaging (H x W x D) [mm(in.)]	361 mm x 129 mm x 143 mm (14.21 in. x 5.08 in. x 5.63 in.)	605 mm x 129 mm x 143 mm (23.82 in. x 5.08 in. x 5.63 in.)
Weight without packaging [kg(lb)]	3.3 kg (7.28 lb)	5.5 kg (12.13 lb)
Number of fans	2	4
Maximum power consumption [W]	180W	360 W

Networking and Applications

Large Enterprise Campus Networks

- On a large enterprise campus network using a three-layer architecture, the Huawei CloudEngine S16700 switch can be used as the core switch. The switch provides various 10GE, 40GE, and 100GE cards, helping the enterprise build a highly reliable, high-density access, and energy-saving campus network.



Ordering Information

Hardware ordering

CloudEngine S16700 Basic Configuration	
EX1BS16704SA0	S16700-4 AC/HVDC assembly chassis
EX1BS16704SD0	S16700-4 DC assembly chassis
EX1BS16708SA0	S16700-8 AC/HVDC assembly chassis
EX1BS16708SD0	S16700-8 DC assembly chassis

Main Processing Unit	
LSH7MPUAX1T0	S16700 Main Processing Unit A（HTM）

Switch Fabric Unit	
LSH7SFUAX100	S16700-4 Switch Fabric Unit A (X1)
LSH7SFUBX100	S16700-4 Switch Fabric Unit B (X1)
LSH7SFUGX100	S16700-8 Switch Fabric Unit G (X1)
LSH7SFUHX100	S16700-8 Switch Fabric Unit H (X1)

Power Module	
PAH-3000WA	3000W Dual Inputs AC&HVDC Power Module
PDC-2200WC	PM2200W DC Power Supply

Fans Module	
FAN-240SA-B	FAN-240SA-B Fan Module for S16700-4
FAN-480SA-B	FAN-480SA-B Fan Module for S16700-8

10GE Ethernet Optical Interface Card		Version
LSH7X48SX1E0	48-Port 10G Optical Interface Card (X1E, SFP+)	V600R22C10 and later versions

40GE Ethernet Optical Interface Card*		Version
LSH7L24QX1E0	24-Port 40G Optical Interface Card (X1E, QSFP+)	V600R22C10 and later versions
LSH7L36QX1E0	36-Port 40G Optical Interface Card/18-Port 100GE Optical Interface Card (X1E, QSFP+)	V600R22C10 and later versions
LSH7L36QX1E1	36-Port 40G Optical Interface Card (X1E, QSFP+)	V600R23C10 and later versions

*Note: LSH7L24QX1E0 supports 12*100G or 6*100G+12*40G, LSH7L36QX1E0 supports 18*100G or 9*100G+18*40G

100GE Ethernet Optical Interface Card		Version
LSH7C18HX1E0	18-Port 100G Optical Interface Card (X1E, QSFP28)	V600R22C10 and later versions
LSH7C36HX1E0	36-Port 100G Optical Interface Card (X1E, QSFP28)	V600R22C10 and later versions

Software ordering

Software	
L-MLIC-S167	S167 Series Basic SW,Per Device
N1-S167-M-Lic	S167 Series Basic SW,Per Device
N1-S167-M-SnS-1Y	S167 Series Basic SW,SnS,Per Device,1 Year
N1-S167-M-SnS-3Y	S167 Series Basic SW,SnS,Per Device,3 Year
N1-S167-M-SnS-5Y	S167 Series Basic SW,SnS,Per Device,5 Year

Software	
N1-S167-M-SnS-10Y	S167 Series Basic SW,SnS,Per Device,10 Year

N1 License	
N1-S167-F-Lic	N1-CloudCampus,Foundation,S167 Series,Per Device
N1-S167-F-SnS-1Y	N1-CloudCampus,Foundation,S167 Series,SnS,Per Device,1 Year
N1-S167-F-SnS-3Y	N1-CloudCampus,Foundation,S167 Series,SnS,Per Device,3 Year
N1-S167-F-SnS-5Y	N1-CloudCampus,Foundation,S167 Series,SnS,Per Device,5 Year
N1-S167-F-SnS-10Y	N1-CloudCampus,Foundation,S167 Series,SnS,Per Device,10 Year
N1-S167-A-Lic	N1-CloudCampus,Advanced,S167 Series,Per Device
N1-S167-A-SnS-1Y	N1-CloudCampus,Advanced,S167 Series,SnS,Per Device,1 Year
N1-S167-A-SnS-3Y	N1-CloudCampus,Advanced,S167 Series,SnS,Per Device,3 Year
N1-S167-A-SnS-5Y	N1-CloudCampus,Advanced,S167 Series,SnS,Per Device,5 Year
N1-S167-A-SnS-10Y	N1-CloudCampus,Advanced,S167 Series,SnS,Per Device,10 Year
N1-S167-FToA-Lic	N1-Upgrade-Foundation to Advanced,S167 Series,Per Device
N1-S167-FToA-SnS-1Y	N1-Upgrade-Foundation to Advanced,S167 Series,SnS,Per Device,1 Year
N1-S167-FToA-SnS-3Y	N1-Upgrade-Foundation to Advanced,S167 Series,SnS,Per Device,3 Year
N1-S167-FToA-SnS-5Y	N1-Upgrade-Foundation to Advanced,S167 Series,SnS,Per Device,5 Year
N1-S167-FToA-SnS-10Y	N1-Upgrade-Foundation to Advanced,S167 Series,SnS,Per Device,10 Year
N1-S167-SRv6-Lic	N1-CloudCampus,Add-On Package,SRv6,S167 Series,Per Device
N1-S167-SRv6-SnS-1Y	N1-CloudCampus,Add-On Package,SRv6,S167 Series,SnS,Per Device,1 Year
N1-S167-SRv6-SnS-3Y	N1-CloudCampus,Add-On Package,SRv6,S167 Series,SnS,Per Device,3 Year
N1-S167-SRv6-SnS-5Y	N1-CloudCampus,Add-On Package,SRv6,S167 Series,SnS,Per Device,5 Year
N1-S167-SRv6-SnS-10Y	N1-CloudCampus,Add-On Package,SRv6,S167 Series,SnS,Per Device,10 Year
N1-S167-MToF-Lic	N1-Upgrade-Basic Software to Foundation,S167 Series,Per Device
N1-S167-MToF-SnS-1Y	N1-Upgrade-Basic Software to Foundation,S167 Series,SnS,Per Device,1 Year
N1-S167-MToF-SnS-3Y	N1-Upgrade-Basic Software to Foundation,S167 Series,SnS,Per Device,3 Year
N1-S167-MToF-SnS-5Y	N1-Upgrade-Basic Software to Foundation,S167 Series,SnS,Per Device,5 Year
N1-S167-MToF-SnS-10Y	N1-Upgrade-Basic Software to Foundation,S167 Series,SnS,Per Device,10 Year

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

Copyright © Huawei Technologies Co., Ltd. 2024. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions

HUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Technologies Co., Ltd.

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

Website:e.huawei.com