



Huawei CloudEngine 5800 Switch Datasheet

CloudEngine 5800 switches provide high-density GE access to help enterprises build a scalable data center network platform for cloud computing. They can also be used as aggregation or access switches for enterprise campus networks.

Product Overview

Huawei CloudEngine 5800 series switches are next-generation, high-density Gigabit Ethernet switches designed for data centers and high-end campus networks. The CloudEngine 5800 hardware has an advanced architectural design, providing high-density GE access ports and 40GE uplink ports. Using the Huawei VRP8 software platform, CloudEngine 5800 switches support rich features. In addition, the airflow direction (front-to-back or back-to-front) can be changed. CloudEngine 5800 switches can work with CloudEngine 16800 or CloudEngine 12800 switches to build an elastic, virtualized, high-quality fabric that meets the requirements of cloud-computing data centers.

CloudEngine 5800 switches provide high-density GE access to help enterprises build a scalable data center network platform for cloud computing. They can also be used as aggregation or access switches for enterprise campus networks.

Product Appearance

CloudEngine 5855-48T4S2Q-EI provides 48*GE BASE-T ports, 4*10GE SFP+ ports, 2*40GE QSFP+ ports.



Product Characteristics

High-density GE Access

- Each CloudEngine 5800 switch provides 48*GE line-speed ports, which makes future data center expansion easy.
- The CloudEngine 5800 switch provides 40GE uplink ports. The CloudEngine 5800 switches can work with CloudEngine 16800 or CloudEngine 12800 switches to build a high-performance data center network that provides 40GE access. The two 40GE uplink ports on CloudEngine 5800 back up each other to improve system reliability.

Programmable Network Device, Flexible Customization

- The CloudEngine 5800 uses the Open Programmability System (OPS) embedded in the VRP8 software platform to provide programmability at the control plane.
- The OPS provides open APIs. APIs can be integrated with mainstream cloud platforms (including commercial and open cloud platforms) and third-party controllers. The OPS enables services to be flexibly customized and provides automatic management.
- Users or third-party developers can use open APIs to develop and deploy specialized network management policies to implement extension of fast service functions, automatic deployment, and intelligent management. The OPS also implements automatic operation and maintenance, and reduces management costs.
- The OPS provides seamless integration of data center service and network in addition to a service-oriented, software-defined networking (SDN).

Zero Touch Provisioning, Automatic O&M

- The CloudEngine 5800 supports Zero Touch Provisioning (ZTP). ZTP enables the CloudEngine 5800 to automatically obtain and load version files from a USB flash drive or file server, freeing network engineers from onsite configuration or deployment. ZTP reduces labor costs and improves device deployment efficiency.
- ZTP provides built-in scripts for users through open APIs. Data center personnel can use the programming language they are familiar with, such as Python, to provide unified configuration of network devices.
- ZTP decouples configuration time of new devices from device quantity and area distribution, which improves service provisioning efficiency.

Flexible Airflow Design, High Energy Efficiency

- Flexible front-to-back/back-to-front airflow design
 - » The CloudEngine 5800 uses a front-to-back/back-to-front airflow design that isolates cold air channels from hot air channels. This design meets heat dissipation requirements in data center equipment rooms.
 - » Air can flow from front to back, or back to front when different fans and power modules are used.
 - » Redundant power modules and fans can be configured to ensure uninterrupted service transmission.
- Energy-saving technology
 - » The CloudEngine 5800 has energy-saving chips and can measure system power consumption in real time. Fan speeds can be adjusted dynamically based on system consumption. These energy-saving technologies reduce O&M costs and contribute to a greener data center.

Clear Indicators, Simple Maintenance

- Clear indicators
 - » Port indicators clearly show the port status.
 - » State and stack indicators on both the front and rear panels enable operators to maintain the switch from either side.
 - » CloudEngine 5800 switches support remote positioning. Operators can turn on remote positioning indicators on the switches they want to maintain, so that they can find switches easily in an equipment room full of devices.
- Simple maintenance
 - » The management port, fans, and power modules are on the front panel, which facilitates device maintenance.
 - » Data ports are located at the rear, facing servers. This simplifies cabling.

Product Specifications

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

Functions and Features

Item	CloudEngine 5855-48T4S2Q-EI
Device virtualization	iStack
	M-LAG
Programmability	Open Programmability System (OPS)
Traffic analysis	NetStream
	sFlow
VLAN	Adding access, trunk, and hybrid interfaces to VLANs
	Default VLAN
	QinQ
	MUX VLAN
	GVRP
MAC address table	Dynamic learning and aging of MAC addresses
	Static, dynamic, and blackhole MAC address entries
	Packet filtering based on source MAC addresses

Item	CloudEngine 5855-48T4S2Q-EI
	MAC address limiting based on ports and VLANs
IP routing	IPv4 routing protocols, such as RIP, OSPF, BGP, and IS-IS
	IPv6 routing protocols, such as RIPng, OSPFv3, IS-ISv6, and BGP4+
IPv6	IPv6 Neighbor Discovery (ND)
	Path MTU Discovery (PMTU)
	TCP6, ping IPv6, tracer IPv6, socket IPv6, UDP6, and Raw IP6
Multicast	IGMP, PIM-SM, PIM-DM, MSDP, and MBGP
	IGMP snooping
	Fast leaving of multicast member interfaces
	Multicast traffic suppression
	Multicast VLAN
Reliability	LACP
	STP, RSTP, VBST, MSTP
	BPDU protection, root protection, and loop prevention
	Smart Link and multi-instance
	DLDP
	ERPS (G.8032)
	VRRP, VRRP load balancing, and BFD for VRRP
	BFD for BGP/IS-IS/OSPF/Static route
QoS	Traffic classification based on Layer 2 headers, Layer 3 protocols, Layer 4 protocols, and 802.1p priority
	Actions of ACL, CAR, re-marking, and scheduling
	Queue scheduling algorithms, including PQ, WRR, DRR, PQ+WRR, and PQ+DRR
	Congestion avoidance mechanisms, including WRED and tail drop
	Traffic shaping
Configuration and maintenance	Console, Telnet, and SSH terminals
	Network management protocols, such as SNMPv1/v2/v3
	File upload and download through FTP and TFTP
	BootROM upgrade and remote upgrade
	802.3az Energy Efficient Ethernet (EEE)
	Hot patches
	User operation logs
Zero Touch Provisioning (ZTP)	
Security and management	Command line authority control based on user levels, preventing unauthorized users from using commands

Item	CloudEngine 5855-48T4S2Q-EI
	DoS, ARP, and ICMP attack defenses
	Port isolation, port security, and sticky MAC
	Binding of the IP address, MAC address, interface number, and VLAN ID
	Authentication methods, including AAA, RADIUS, and HWTACACS
	Remote Network Monitoring (RMON)

Performance and Scalability

Item	CloudEngine 5855-48T4S2Q-EI
Maximum number of MAC address entries	64K
Maximum number of routes (FIB IPv4/ IPv6)	32K/28K
ARP size	54K
Maximum number of VRFs	1024
IPv6 ND table size	16K
Maximum Number of multicast routes (multicast FIB IPv4/IPv6)	8K/NA
Maximum VRRP groups	128
Maximum number of ECMP paths	32
Maximum number of ACLs	Ingress: 9000 Egress: 2000
Maximum number of LAGs	1024/512/256/128/64
Maximum number of links in a LAG	2/4/8/16/32
Maximum number of MSTIs	64
Maximum number of VLANs where VBST can be configured	500

Note: This specification may vary between different scenarios. Contact Huawei for details.

Hardware Specifications

Item	CloudEngine 5855-48T4S2Q-EI	
Physical features	Dimensions (W x D x H)	442 mm x 420 mm x 43.6 mm
	Weight (excluding optical transceivers, power modules, and fan assemblies, including AC power modules and fan assemblies, excluding optical transceivers; kg)	5.6/5.3
	Switching capacity (Gbps)	336
	Forwarding performance (Mpps)	252
Number of GE Base-T ports	48	
Number of 10GE SFP+ ports	4	
40GE QSFP+ ports	2	

Item		CloudEngine 5855-48T4S2Q-EI
Card	Number of card slot	0
	Card type	Fixed switch
Management interface	Out-of-band management port	1*GE management interface
	Console port	1*RJ45 interface
	USB port	1
CPU ^e	Main frequency (GHz)	1 GB
	Number of cores	2
Storage	RAM	2 GB
	NOR flash	16 MB
	NAND flash	512 MB
System	System buffer	8 MB
Power supply system	Power modules	150 W AC/350 W -48 V DC
	Rated voltage range (V)	100 V to 240 V AC -48 V to -60 V DC
	Maximum voltage range (V)	90-264 AC -38.4 V to -72 V DC
	Maximum input current	100 V to 240 V 3A -48 V to -60 V DC 11A
	Typical power	76 W (100% traffic load, copper cable, normal temperature, dual power modules) 81 W (100% traffic load, short-distance optical transceivers, normal temperature, dual power modules)
	Maximum power	103 W
	Frequency (AC, Hz)	50/60
Heat dissipation	Heat dissipation mode	Air cooling
	Number of fan trays	2
	Heat dissipation airflow	Front-to-back or back-to-front airflow
	Maximum heat consumption (BTU/hr)	351
Environment specifications	Long-term operating temperature (°C)	0 to 40°C (0-1800m) The temperature decreases by 1°C each time the altitude increases by 220 m.
	Storage temperature (°C)	-40 to +70°C
	Relative humidity	5% to 95%
	Operating altitude (m)	Up to 5000
	Sound power at 27°C (dBA)	Front-to-back airflow: < 65 Back-to-front airflow: < 58

Item		CloudEngine 5855-48T4S2Q-EI
	Sound power at 40°C (dBA)	Front-to-back airflow: < 76 Back-to-front airflow: < 71
	Sound pressure at 27°C (dBA)	Front-to-back airflow: 49 in average (maximum: 55) Back-to-front airflow: 42 in average (maximum: 48)
	Surge protection	AC power supply protection: 6 kV in common mode and 6 kV in differential mode DC power supply protection: 4 kV in common mode and 2 kV in differential mode
Reliability	MTBF (year)	55.08
	MTTR (hour)	1.81
	Availability	0.99999625521

Note: For detailed information of CloudEngine 5800 Platform hardware information, visit <https://support.huawei.com/enterprise/en/doc/EDOC1000019246?idPath=7919710%7C21782165%7C21782239%7C22318540%7C7597815>.

Safety and Regulatory Compliance

The following table lists the safety and regulatory compliance of CloudEngine switches.

Certification Category	Description
Safety	<ul style="list-style-type: none"> • EN 60950-1 • EN 60825-1 • EN 60825-2 • UL 60950-1 • CSA-C22.2 No. 60950-1 • IEC 60950-1 • AS/NZS 60950-1 • GB4943
Electromagnetic Compatibility (EMC)	<ul style="list-style-type: none"> • EN 300386 • EN 55032: CLASS A • EN 55024 • IEC/EN 61000-3-2 • IEC/EN 61000-3-3 • FCC 47CFR Part15 CLASS A • ICES-003: CLASS A • CISPR 32: CLASS A • CISPR 24 • AS/NZS CISPR32 • VCCI- CISPR32: CLASS A • GB9254 CLASS A
Environment	<ul style="list-style-type: none"> • 2011/65/EU EN 50581 • 2012/19/EU EN 50419 • (EC) No.1907/2006

Certification Category	Description
	<ul style="list-style-type: none"> • GB/T 26572 • ETSI EN 300 019-1-1 • ETSI EN 300 019-1-2 • ETSI EN 300 019-1-3 • ETSI EN 300 753 GR63

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

Supported MIBs

For details about the MIB information, visit

<https://support.huawei.com/hedex/hdx.do?docid=EDOC1100136525&lang=en&idPath=24030814%7C21782165%7C21782239%7C22318540%7C7597815>.

Optical Transceivers and Cable

For details about the optical transceivers and cables information, visit

<https://e.huawei.com/en/material/networking/dcs/switch/f6d91cf16df0474998087676a33fd41e>.

Ordering Information

Mainframe		
CE5855-48T4S2Q-EI	CE5855-48T4S2Q-EI Switch (48-Port GE RJ45,4-Port 10GE SFP+,2-Port 40G QSFP+, Without Fan and Power Module)	
Fan box		
Part Number	Product Description	Support Product
FAN-040A-F	Fan box(F,FAN panel side exhaust)	CE5855-48T4S2Q-EI
FAN-040A-B	Fan box(B,FAN panel side exhaust)	CE5855-48T4S2Q-EI
Power		
Part Number	Product Description	Support Product
ES0W2PSA0150	150W AC Power Module(Black)	CE5855-48T4S2Q-EI

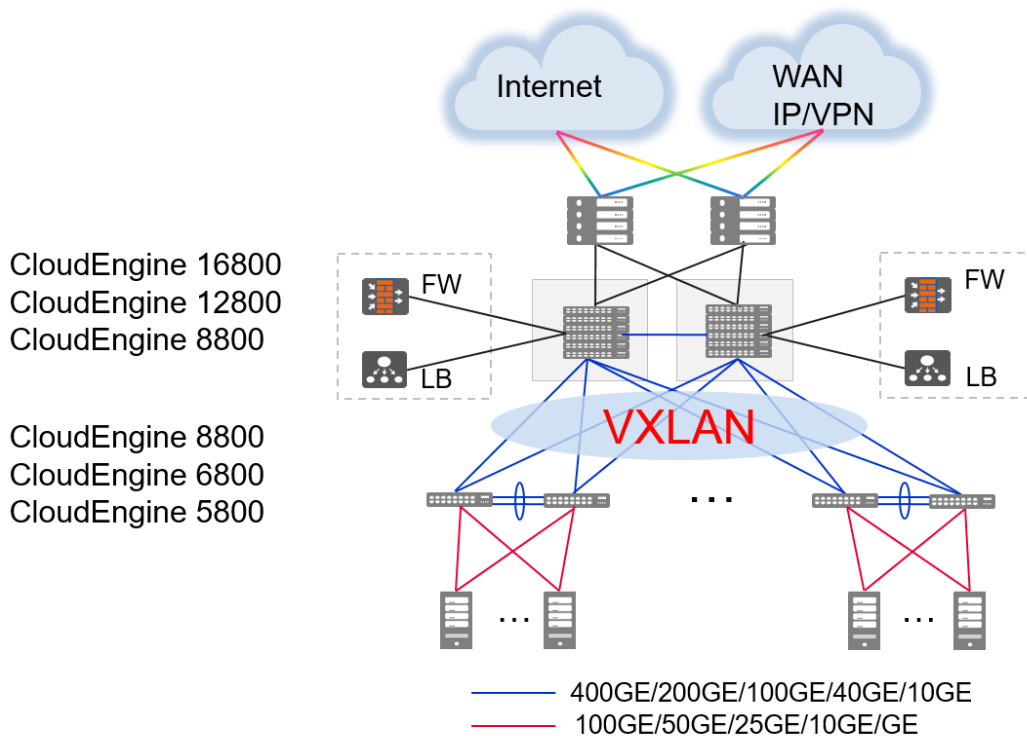
Mainframe		
PDC-350WA-F	350W DC Power Module (Front to Back, Power panel side intake)	CE5855-48T4S2Q-EI
PDC-350WA-B	350W DC Power Module (Back to Front, Power panel side exhaust)	CE5855-48T4S2Q-EI

Networking and Application

Data Center Applications

On a typical data center network, CloudEngine 16800/CloudEngine 12800/ CloudEngine 8800 switches work as core switches, whereas CloudEngine 8800/CloudEngine 6800/CloudEngine 5800 switches work as ToR switches and connect to the core switches using 100GE/40GE/10GE ports. These switches use a fabric protocol, such as CSS or M-LAG, to establish a non-blocking large Layer 2 network, which allows large-scale VM migrations and flexible service deployments.

Note: CSS and M-LAG can be also used on campus networks to support flexible service deployments in different service areas.

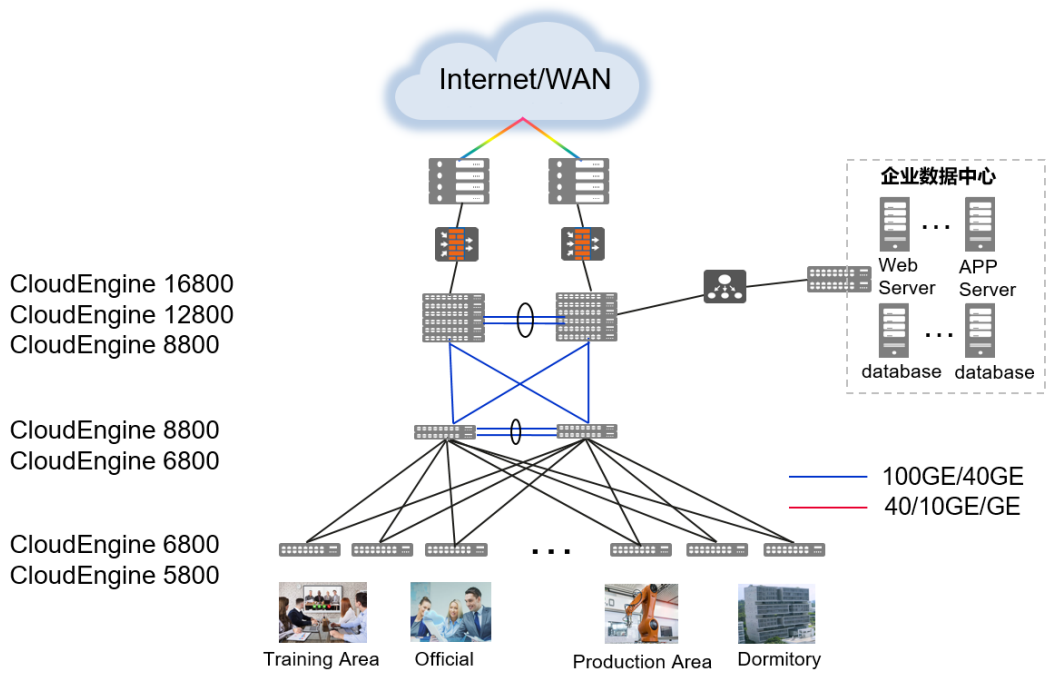


Campus Network Applications

CloudEngine 5800 switches can be used as aggregation or access switches on a campus network. Their high-density, line-speed GE ports, unique 40GE uplink ports, and high stacking capabilities can meet the ever-increasing demand for network bandwidth. CloudEngine 5800 switches are cost-effective campus network switches, thanks to their extensive service features and innovative energy-saving technologies.

On a typical campus network, multiple CloudEngine 16800/CloudEngine 12800/CloudEngine 8800 switches are virtualized into a logical core switch using CSS or iStack technology. Multiple CloudEngine 8800/CloudEngine 6800 switches at the aggregation layer form a logical switch using iStack technology. CSS and iStack improve network reliability and simplify network management. At the access layer, CloudEngine 6800/CloudEngine 5800 switches are virtualized with CloudFabric technology, such as M-LAG, to provide high-density line-rate ports.

Note: CSS, iStack and M-LAG are also widely used in data centers to facilitate network management.



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