CloudEngine 5800 Series
Data Center Switches

HUAWEI

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5800
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Product Overview

Huawei CloudEngine 5800 series (CE5800 for short) switches are next-generation high-density Gigabit Ethernet switches designed for data centers and high-end campus networks. The CE5800 hardware has an advanced architectural design with the highest density of GE access ports. The CE5800 is also the first gigabit Ethernet access switch to provide 40GE uplink ports. Using the Huawei VRP8 software platform, CE5800 switches support Transparent Interconnection of Lots of Links (TRILL) and have a high stacking capability (up to 16 member switches in a stack system). In addition, the air flow direction in ventilation channels (front-to-rear or rear-to-front) can be changed. CE5800 switches can work with CE12800 switches to build an elastic, virtualized and high-quality fabric, meeting the requirements of cloud-computing data centers.

The CE5800 series switches have three models: CE5850-48T4S2Q-EI , CE5810-48T4S-EI and CE5810-24T4S-EI. The CE5850-48T4S2Q-EI has 48*GE Base-T, 4*10GE SFP+ and 2*40GE QSFP+. The CE5810-48T4S-EI has 48*GE Base-T and 4*10GE SFP+. The CE5810-24T4S-EI has 24*GE Base-T and 4*10GE SFP+.

CE5800 switches provide high-density GE access to help enterprises build a scalable data center network platform in the cloud computing era. They can also be used as aggregation or access switches in enterprise campus networks.

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Product Appearance

CE5850-48T4S2Q-EI

CE5810-48T4S-EI

CE5810-24T4S-EI

Product Characteristics

High-Density GE Access, Leading Performance

- Each CE5800 switch provides 48*GE line-speed ports, which facilitates future data center expansion.

- The CE5850 is the first GE access switch to provide 40GE uplink ports. CE5850 switches can work with CE12800 switches to build a high-performance data center network that provides 40GE access. The two 40GE uplink ports on CE5850 back up each other to improve system reliability.

- CE5810 supports two models of 48*GE and 24*GE ports, flexible deployment in racks with different servers ports density, meets the different data center device room wiring requirements.

Highly Reliable Stacking, Superior Capacity

- The industry's first 16-member stack system

  » CE5800 series switches can provide maximum 16-member stacking, with maximum 768*GE access ports, to support high-density server access in the data center.

  » Multiple switches in a stack system are virtualized into one logical device, making it possible to build a scalable and easy-to-manage data center network platform.

> » A stack system separates the control plane from the data plane. This eliminates the risk of single-point failures and greatly improves system reliability.

- Long-distance flexible stacking

  > » CE5800 switches can use either 10GE or 40GE ports as stack ports. A stack system can be established across switches in the same rack or different racks, and even over long distances.

  > » The 40GE ports of CE5850 can set up large-capacity stack channels so that multiple CE5800 switches can constitute a non-blocking stack system.

Large-Scale Routing Bridge, Flexible Deployment

- CE5850 switch supports the IETF TRILL protocol and can be used in a large Layer 2 TRILL network with GE/10GE servers. The TRILL network can contain more than 500 nodes, allowing flexible service deployments and large-scale VM migrations.

- The TRILL protocol uses a routing mechanism similar to IS-IS and sets a limited Time to Live (TTL) value in packets to prevent Layer 2 loops. This significantly improves network stability and speeds up network convergence.

- On a TRILL network, all data flows are forwarded quickly using shortest path tree (SPF) and equal-cost multipath (ECMP) routing. SPF and ECMP avoid the suboptimal path selection problem in STP and increase link bandwidth efficiency to 100%.

- Each CE5850 switch supports up to 16 TRILL-based Layer 2 equal-cost paths, greatly improving load balancing capabilities of links. The network has fat-tree architecture to support smooth expansion.

Automated Service Deployment, Fast VM Migration

- The next-generation Huawei automated Network Management Center, nCenter, can work with the VM management platform to dynamically deploy network policies for VMs on CE5800 switches. This allows fast in-service migration of VMs.

- nCenter delivers network policies through high-speed RADIUS interfaces so that VMs can migrate at a speed 10 to 20 times the industry average.

- nCenter is based on open APIs and is compatible with all major virtualized platforms.

Changeable Air Flow Direction, Innovative Energy-Saving Technologies

- Flexible front-to-rear/rear-to-front ventilation channel design

  > » The CE5800 uses a straight ventilation channel design that separates cold air flows from hot air flows to improve heat dissipation efficiency. This is the best ventilation channel design for data center equipment rooms.

  > » Air can flow from front to rear or rear to front in ventilation channels when different fans and power modules are used.

  > » Power modules and fans can be configured in redundancy mode to ensure uninterrupted service transmission.

- Innovative energy-saving technologies

  > » The CE5800 has innovative energy-saving chips and can measure system power consumption in real time. The fan speed can be adjusted dynamically based on system consumption. These energy-saving technologies reduce operations and maintenance costs and contribute toward a greener data center.

Clear Indicators, Simple Maintenance

- Clear indicators

  » Port indicators clearly show port status and port speeds.

  » State and stack indicators on both the front and rear panels enable operators to maintain the switch from either side.

  » CE5800 switches support remote positioning. Operators can turn on the remote positioning indicators on the switches they want to maintain, so that they can find these devices 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

Item	CE5850-48T4S2Q-EI	CE5810-48T4S-EI	CE5810-24T4S-EI
Ports	48*10/100/1000BASE-T, 4*10GE SFP+ and 2*40GE QSFP+	48*10/100/1000BASE-T and 4*10GE SFP+	24*10/100/1000BASE-T and 4*10GE SFP+
Total switching capacity	336 Gbps	176 Gbps	128 Gbps
Total forwarding performance	252 Mpps	132 Mpps	96 Mpps
Air ventilation channel	Strict front-to-rear or rear-to-front		
Equipment virtualization	iStack		
Network virtualization	TRILL	NA	
VM-awareness	nCenter		
Traffic analysis	Netstream		
	sFlow		
VLAN	Adding access, trunk and hybrid interfaces to VLANs		
	Default VLAN		
	802.1ad QinQ		
	MUX VLAN		
MAC address table	Dynamic learning and aging of MAC addresses		
	Static, dynamic and blackhole MAC address entries		
	Packet filtering based on source MAC addresses		
	MAC address limiting based on ports and VLANs		

Item	CE5850-48T4S2Q-EI	CE5810-48T4S-EI	CE5810-24T4S-EI
IP routing	IPv4 routing protocols, such as RIP, OSPF, BGP and IS-IS		
	IPv6 routing protocols, such as RIPng,OSPFv3,ISISv6,BGP4+		
IPV6	IPv6 Neighbor Discovery (ND)		
	Path MTU Discovery (PMTU)		
	TCP6, ping IPv6, tracert IPv6, socket IPv6, UDP6, and Raw IP6		
Multicast	IGMP,PIM-SM,MSDP,MBGP		
	IGMP Snooping		
	IGMP Proxy		
	Fast Leave of Multicast Member Interfaces		
	Multicast Traffic Suppression		
	Multicast VLAN		
Reliability	LACP		
	STP, RSTP, and MSTP		
	BPDU protection, root protection, and loop protection		
	SmartLink and Multi-Instance		
	DLDP		
	VRRP , VRRP load balance, 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		
	Actions of ACL, CAR, re-mark and schedule		
	Queue scheduling algorithms, such as PQ, WRR, DRR, PQ+WRR and PQ+DRR		
	Congestion avoidance mechanisms, such as WRED and tail drop		
	Traffic shaping		
Configuration and maintenance	Console, Telnet and SSH terminals		
	Network management protocols, such as SNMPv1/v2/v2c/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		

| Item	CE5850-48T4S2Q-EI	CE5810-48T4S-EI	CE5810-24T4S-EI
Security and management	Command line authority control based on user levels, preventing unauthorized users from using commands		
	DoS attack defense, ARP attack defense and ICMP attack defense		
	Port isolation, port security and sticky MAC		
	Binding of the IP address, MAC address, interface and VLAN		
	Authentication methods, including AAA, RADIUS and HWTACACS		
	Remote network monitoring (RMON)		
Dimensions (W x D x H)	442 mm x 420 mm x 43.6 mm	442 mm x 420 mm x 43.6 mm	442 mm x 420 mm x 43.6 mm
Weight (fully loaded)	8 kg	8 kg	7 kg
Environment parameters	Operating temperature: 0°C to 40°C (0 m to 1800 m) Storage temperature: -40°C to +70°C Relative humidity:5% RH to 95% RH, noncondensing		
Operating voltage	AC: 90–290 V DC: -38.4V～-72V		
Max. power consumption	≤ 133 W	≤92W	≤68W

Ordering Information

Mainframe

CE5850-48T4S2Q-EI	CE5850-48T4S2Q-EI Switch(48-Port GE RJ45,4-Port 10GE SFP+,2-Port 40G QSFP+, Without Fan and Power Module)
CE5810-48T4S-EI	CE5810-48T4S-EI Switch(48-Port GE RJ45, 4-Port 10GE SFP+, Without Fan and Power Module)
CE5810-24T4S-EI	CE5810-24T4S-EI Switch(24-Port GE RJ45,4-Port 10GE SFP+, Without Fan and Power Module)

Fan box

FAN-40EA-F	Fan box(EA, Front to Back)
FAN-40EA-B	Fan box(EA, Back to Front)
FAN-40SB-F	Fan box(SB, Front to Back)
FAN-40SB-B	Fan box(SB, Back to Front)

Power

PAC-150WA	150W AC Power Module(No Fan)
PDC-350WA-F	350W DC Power Module(Front to Back)
PDC-350WA-B	350W DC Power Module(Back to Front)

Networking and Application

Application in a Data Center

On a typical data center network, CE12800 switches work as core switches and CE6800/CE5800 switches work as TOR switches. CE6800/CE5800 switches connect to CE12800 switches through 40GE/10GE ports. The CE12800 and CE6800/CE5800 switches use the TRILL protocol to build a non-blocking Layer 2 network, which allows large-scale VM migrations and flexible service deployments.

Note: The TRILL protocol can also be used on campus networks to support flexible service deployments in different service areas.
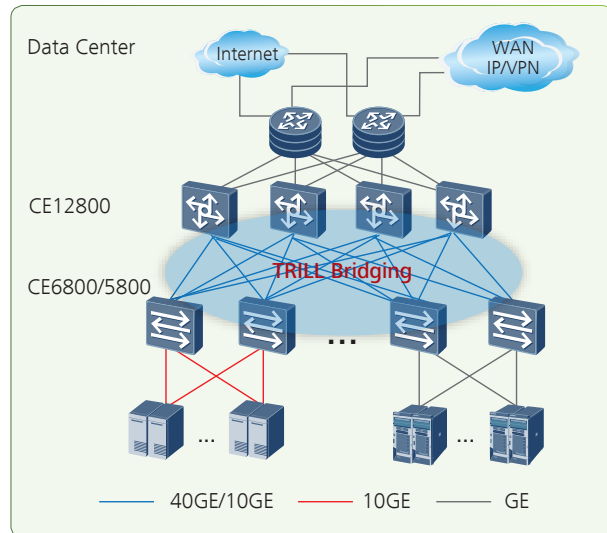
Application on a Campus Network

CE5800 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. CE6800 switches are cost-effective campus networks switches, thanks to their abundant service features and innovative energy-saving technologies.
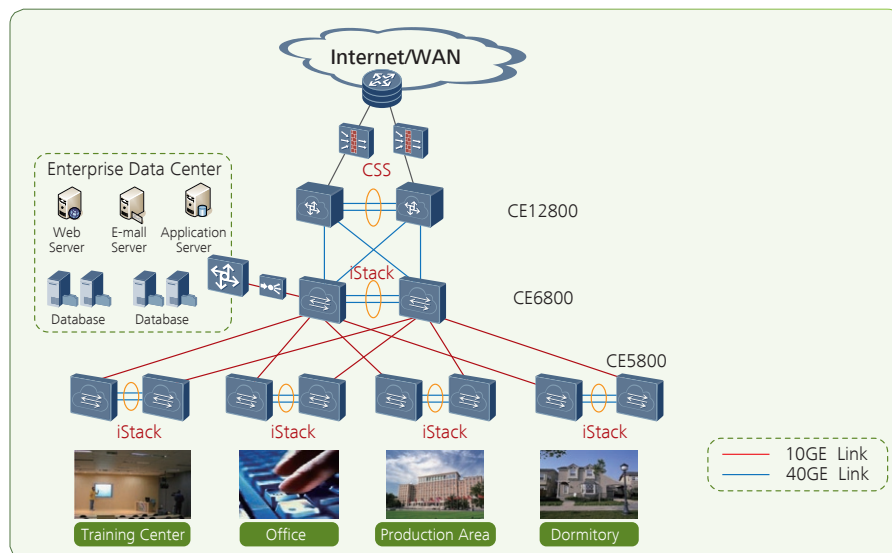
On a typical campus network, two CE12800 switches are virtualized into a logical core switch using the CSS technology. Multiple CE6800 switches at the aggregation layer form a logical switch using the iStack technology. The CSS and iStack technologies improve network reliability and simplify network management. At the access layer, CE5800 switches are stacked using iStack technology to provide high-densities of line-speed ports.

Note: The iStack technology is also widely used in data centers to facilitate network management.