

# CloudEngine S6330-H Series Switches



Huawei CloudEngine S6330-H series full-featured 10GE routing switches are Huawei's first IDN-ready fixed switches that provide 10GE downlink ports 100GE uplink ports.

## Product Overview

CloudEngine S6330-H series all-featured 10GE switches are next-generation agile fixed switches with 10GE downlink and 100GE uplink interfaces. They are ideal for metro aggregation of carries, as well as enterprise campus, university/college, and government networks.

CloudEngine S6330-H series switches provide abundant agile features, including the free mobility feature that ensures consistent permissions for users at any access locations and the super virtual switch fabric (SVF) function that virtualizes the entire network into one logical NE for management. In addition, they support a wide variety of service features, comprehensive security control policies, and various QoS features to help customers build scalable, reliable, manageable, and secure networks in various scenarios.

## Models and Appearance

Appearance	Description
 <p>CloudEngine S6330-H48X6C</p>	<ul style="list-style-type: none"> <li>• 48 x GE ports (SFP+), 6 x 100GE ports (QSFP28)</li> <li>• Dual pluggable 600 W AC power modules (not equipped by default)</li> <li>• Four independent pluggable fans, with front-to-back airflow</li> <li>• Switching capacity: 1.2 Tbit/s</li> </ul>
 <p>CloudEngine S6330-H24X6C</p>	<ul style="list-style-type: none"> <li>• 24 x GE ports (SFP+), 6 x 100GE ports (QSFP28)</li> <li>• Dual pluggable 600 W AC power modules (not equipped by default)</li> <li>• Four independent pluggable fans, with front-to-back airflow</li> <li>• Switching capacity: 1.2 Tbit/s</li> </ul>

## Features and Highlights

### Abundant Convergence

- The CloudEngine S6330-H supports SVF and functions as a parent switch. With this virtualization technology, a physical network with the "Small-sized core and aggregation switches + Access switches + APs" structure can be virtualized into a "super switch", offering the industry's simplest network management solution.
- The CloudEngine S6330-H provides excellent QoS capabilities and supports queue scheduling and congestion control algorithms. Additionally, it adopts innovative priority queuing and multi-level scheduling mechanisms to implement fine-grained scheduling of data flows, meeting service quality requirements of different user terminals and services.

## Providing Granular Network Management

- The CloudEngine S6330-H uses the Packet Conservation Algorithm for Internet (iPCA) technology that alters the traditional method of using simulated traffic for fault location. iPCA technology can monitor network quality for any service flow anywhere, anytime, without extra costs. It can detect temporary service interruptions in a very short time and can identify faulty ports accurately. This cutting-edge fault detection technology turns "extensive management" to "granular management."
- The CloudEngine S6330-H supports Two-Way Active Measurement Protocol (TWAMP) to accurately check any IP link and obtain the entire network's IP performance. This protocol eliminates the need of using a dedicated probe or a proprietary protocol.

## Flexible Ethernet Networking

- In addition to traditional Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP), the CloudEngine S6330-H supports Huawei-developed Smart Ethernet Protection (SEP) technology and the latest Ethernet Ring Protection Switching (ERPS) standard. SEP is a ring protection protocol specific to the Ethernet link layer, and applies to various ring network topologies, such as open ring topology, closed ring topology, and cascading ring topology. This protocol is reliable, easy to maintain, and implements fast service switching within 50 milliseconds. ERPS is defined in ITU-T G.8032. It implements millisecond-level protection switching based on traditional Ethernet MAC and bridging functions.
- The CloudEngine S6330-H supports Smart Link and Virtual Router Redundancy Protocol (VRRP), which implement backup of uplinks. One CloudEngine S6330-H switch can connect to multiple aggregation switches through multiple links, significantly improving reliability of access devices.

## Intelligent Stack (iStack)

- The CloudEngine S6330-H supports the iStack function that combines multiple switches into a logical switch. Member switches in a stack implement redundancy backup to improve device reliability and use inter-device link aggregation to improve link reliability. iStack provides high network scalability. You can increase a stack's ports, bandwidth, and processing capability by simply adding member switches. iStack also simplifies device configuration and management. After a stack is set up, multiple physical switches can be virtualized into one logical device. You can log in to any member switch in the stack to manage all the member switches in it.

## VXLAN

- VXLAN is used to construct a Unified Virtual Fabric (UVF). As such, multiple service networks or tenant networks can be deployed on the same physical network, and service and tenant networks are isolated from each other. This capability truly achieves 'one network for multiple purposes'. The resulting benefits include enabling data transmission of different services or customers, reducing the network construction costs, and improving network resource utilization.
- The CloudEngine S6330-H series switches are VXLAN-capable and allow centralized and distributed VXLAN gateway deployment modes. These switches also support the BGP EVPN protocol for dynamically establishing VXLAN tunnels and can be configured using NETCONF/YANG.

## Clock Synchronization

- The CloudEngine S6330-H supports the IEEE 1588v2 protocol, which implements low-cost, high-precision, and high-reliability time and clock synchronization. This feature can meet strict requirements of power and transportation industry customers on time and clock synchronization.

## OPS

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

## Intelligent O&M

- The CloudEngine S6330-H provides telemetry technology to collect device data in real time and send the data to Huawei campus network analyzer CampusInsight. The CampusInsight analyzes network data based on the intelligent fault identification algorithm, accurately displays the real-time network status, effectively demarcates and locates faults in a timely manner, and identifies network problems that affect user experience, accurately guaranteeing user experience.
- The CloudEngine S6330-H supports a variety of intelligent O&M features for audio and video services, including the enhanced Media Delivery Index (eMDI). With this eMDI function, the CloudEngine S6330-H can function as a monitored node to periodically conduct statistics and report audio and video service indicators to the CampusInsight platform. In this way, the

CampusInsight platform can quickly demarcate audio and video service quality faults based on the results of multiple monitored nodes.

## Intelligent Upgrade

- Switches support the intelligent upgrade feature. Specifically, switches obtain the version upgrade path and download the newest version for upgrade from the Huawei Online Upgrade Platform (HOUP). The entire upgrade process is highly automated and achieves one-click upgrade. In addition, preloading the version is supported, which greatly shortens the upgrade time and service interruption time.
- The intelligent upgrade feature greatly simplifies device upgrade operations and makes it possible for the customer to upgrade the version independently. This greatly reduces the customer's maintenance costs. In addition, the upgrade policies on the HOUP platform standardize the upgrade operations, which greatly reduces the risk of upgrade failures.

## Product Specifications

Item	CloudEngine S6330-H48X6C	CloudEngine S6330-H24X6C
Fixed ports	48 x 10 Gig SFP+, 6 x 100 Gig QSFP28	24 x 10 Gig SFP+, 6 x 100 Gig QSFP28
MAC	IEEE 802.1d standards compliance MAC address learning and aging Static, dynamic, and blackhole MAC address entries Packet filtering based on source MAC addresses	
VLAN	4K VLANs Guest VLANs and voice VLANs GVRP MUX VLAN VLAN assignment based on MAC addresses, protocols, IP subnets, policies, and ports VLAN mapping	
IP routing	Static routes, RIP v1/2, RIPng, OSPF, OSPFv3, IS-IS, IS-ISv6, BGP, BGP4+, ECMP, routing policy	
Interoperability	VLAN-Based Spanning Tree (VBST), working with PVST, PVST+, and RPVST Link-type Negotiation Protocol (LNP), similar to DTP VLAN Central Management Protocol (VCMP), similar to VTP	
Ethernet loop protection	RRPP ring topology and RRPP multi-instance Smart Link tree topology and Smart Link multi-instance, providing millisecond-level protection switchover SEP ERPS (G.8032) BFD for OSPF, BFD for IS-IS, BFD for VRRP, and BFD for PIM STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s) BPDU protection, root protection, and loop protection	
MPLS	MPLS L3VPN MPLS L2VPN (VPWS/VPLS) MPLS-TE MPLS QoS	
IPv6 features	Neighbor Discover (ND) PMTU IPv6 Ping, IPv6 Tracert, IPv6 Telnet	

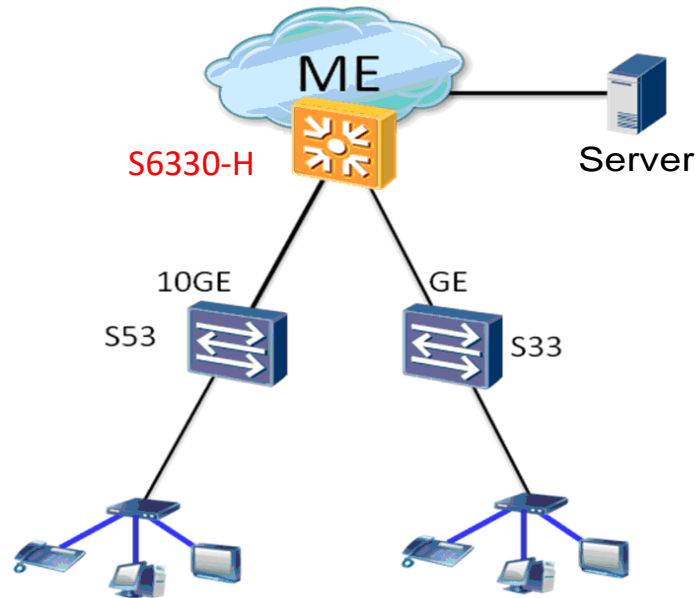
Item	CloudEngine S6330-H48X6C	CloudEngine S6330-H24X6C
	ACLs based on source IPv6 addresses, destination IPv6 addresses, Layer 4 ports, or protocol types Multicast Listener Discovery snooping (MLDv1/v2) IPv6 addresses configured for sub-interfaces, VRRP6, DHCPv6, and L3VPN	
Multicast	IGMP v1/v2/v3 snooping and IGMP fast leave Multicast forwarding in a VLAN and multicast replication between VLANs Multicast load balancing among member ports of a trunk Controllable multicast Port-based multicast traffic statistics IGMP v1/v2/v3, PIM-SM, PIM-DM, and PIM-SSM MSDP Multicast VPN	
QoS/ACL	Rate limiting in the inbound and outbound directions of a port Packet redirection Port-based traffic policing and two-rate three-color CAR HQoS Eight queues on each port DRR, SP, and DRR+SP queue scheduling algorithms WRED Re-marking of the 802.1p and DSCP fields of packets Packet filtering at Layer 2 to Layer 4, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP source/destination port number, protocol type, and VLAN ID Queue-based rate limiting and shaping on ports	
Security	DoS attack defense, ARP attack defense, and ICMP attack defense Binding of the IP address, MAC address, port number, and VLAN ID Port isolation, port security, and sticky MAC MAC Forced Forwarding (MFF) Blackhole MAC address entries Limit on the number of learned MAC addresses IEEE 802.1X authentication and limit on the number of users on a port AAA authentication, RADIUS authentication, and HWTACACS authentication NAC SSH V2.0 HTTPS CPU protection Blacklist and whitelist Attack source tracing and punishment for IPv6 packets such as ND, DHCPv6, and MLD packets	
Reliability	LACP E-Trunk Ethernet OAM (IEEE 802.3ah and IEEE 802.1ag) ITU-Y.1731 DLDP LLDP	

Item	CloudEngine S6330-H48X6C	CloudEngine S6330-H24X6C
	BFD for BGP, BFD for IS-IS, BFD for OSPF, BFD for static routes	
VXLAN	VXLAN functions, VXLAN L2 and L3 gateways, BGP EVPN VXLAN configuration using NETCONF/YANG	
SVF	Acting as the parent node to vertically virtualize downlink switches and APs as one device for management Two-layer client architecture ASs can be independently configured. Services not supported by templates can be configured on the parent node. Third-party devices allowed between SVF parent and clients	
iPCA	Marking service packets to obtain the packet loss ratio and number of lost packets in real time Measurement of the number of lost packets and packet loss ratio on networks and devices	
Management and maintenance	Cloud-based management Virtual cable test SNMP v1/v2c/v3 RMON Web-based NMS System logs and alarms of different severities GVRP MUX VLAN 802.3az Energy Efficient Ethernet (EEE) NetStream Dying gasp upon power-off	
Dimensions (W x D x H)	442 mm x 420 mm x 43.6 mm	442 mm x 420 mm x 43.6 mm
Input voltage	AC: <ul style="list-style-type: none"> <li>Rated AC voltage: 100V to 240V AC; 50/60 Hz</li> <li>Max. AC voltage: 90V to 264V AC; 47–63 Hz</li> </ul>	
Operating temperature	<ul style="list-style-type: none"> <li>0–1800 m altitude: 0°C to 45°C</li> <li>1800–5000 m altitude: The operating temperature reduces by 1°C every time the altitude increases by 220 m.</li> </ul>	
Relative humidity	5% to 95% (non-condensing)	
Heat dissipation	Heat dissipation with fan, intelligent fan speed adjustment	

## Networking and Applications

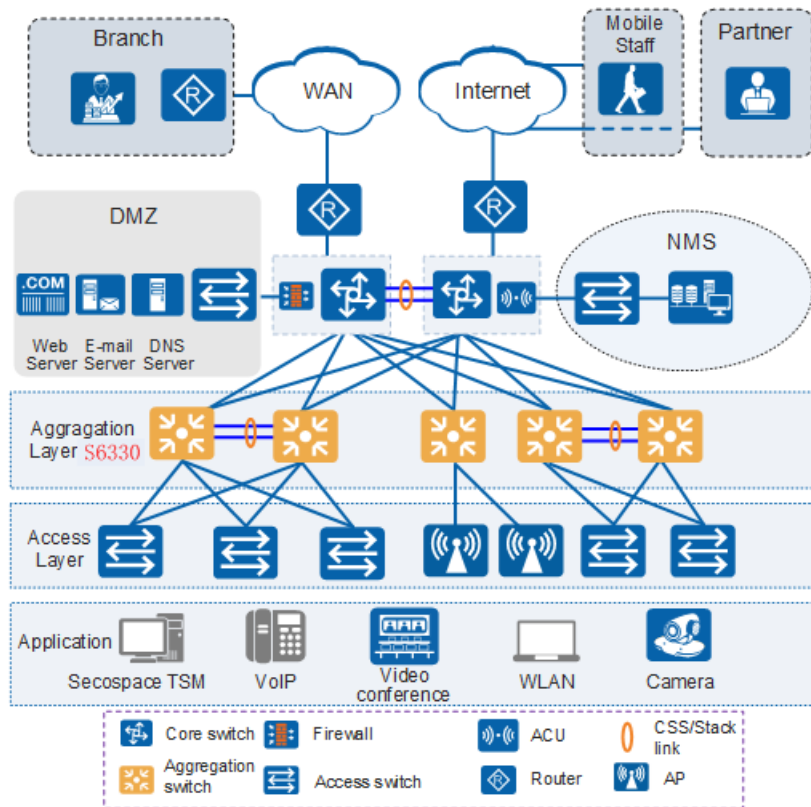
- **Application in MAN**

The CloudEngine S6330-H is applicable to MAN convergence. It provides industry-leading high-density 10-gigabit ports to meet the increasing bandwidth demand. Abundant features and perfect security control mechanisms enable the CloudEngine S6330-H to be the most cost-effective choice for MAN convergence.



- **Application in the campus network**

Huawei CloudEngine S6330-H is a fixed agile switch with 10GE downlink and 100GE uplink ports. The CloudEngine S6330-H can be used as the core device in an enterprise branch network or a small- or middle-sized campus network, or as the aggregation device in a large-sized campus network. The switch helps achieve a manageable and highly reliable enterprise campus network with scalable services.



## Ordering Information

The following table lists ordering information of the CloudEngine S6330-H series switches.

Model	Product Description
CloudEngine S6330-H48X6C	CloudEngine S6330-H48X6C (48*10GE SFP+ ports, 6*100GE QSFP28 ports, without

Model	Product Description
	power module)
CloudEngine S6330-H24X6C	CloudEngine S6330-H24X6C (24*10GE SFP+ ports, 6*100GE QSFP28 ports, without power module)
PAC-600S12-CB	600W AC

## More Information


For more information, visit <http://www.huawei.com/> or contact your local Huawei sales office.

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