Huawei S12700 Series Switches
Product Brochure

HUAWEI TECHNOLOGIES CO., LTD.

HUAWEI

S12700 Series Agile Switches

HUAWEI S12700 series agile switches are designed for next-generation campus networks. Using a fully programmable switching architecture, the S12700 series allows fast, flexible function customization and supports a smooth evolution to Software-Defined Networking (SDN). The S12700 series uses a Huawei Ethernet Network Processor (ENP) and provides a native Wireless Access Controller (AC) to help build a wired and wireless converged network. Its Unified User Management capabilities deliver unified user and service management, and Huawei's Packet Conservation Algorithm for Internet (iPCA) supports hop-by-hop monitoring of any service flows, helping manage services in a more refined way. The S12700 series runs the Huawei Versatile Routing Platform (VRP), which provides high-performance L2/L3 switching services and rich network services, such as Multiprotocol Label Switching (MPLS) VPN, hardware IPv6, desktop cloud, and video conferencing. In addition, the S12700 series offers a variety of reliability technologies, including non-stop forwarding, Cluster Switch System Generation2(CSS2), a switch fabric hardware clustering system that allows 1+N backup of Main Processing Units (MPUs), hardware Eth-OAM/BFD, and ring network protection. These technologies help improve productivity and maximize network operation time, reducing Total Cost of Ownership (TCO).

The S12700 series is available in four models: S12704, S12708, S12710 and S12712.

S12712 S12710 S12708 S12704

Product Characteristics

Make Your Network Agile and Service-Oriented

- The high-speed ENP chip used in the S12700 series is tailored for Ethernet. The chip's flexible packet processing and traffic control capabilities can meet current and future service requirements, helping build a highly scalable network.
- In addition to providing all the capabilities of common switches, the S12700 series provides fully programmable open interfaces and supports programmable forwarding behaviors. Enterprises can use the open interfaces to develop new protocols and functions independently, or jointly with other vendors, to build campus networks that meet their needs.
- The ENP chip uses a fully programmable architecture, on which enterprises can define their own forwarding models, forwarding behaviors, and lookup algorithms. This architecture speeds service innovation and enables the provisioning of a customized service within six months, without replacing hardware. In contrast, traditional Application Specific Integrated Circuit (ASIC) chips use a fixed forwarding architecture and follow a fixed forwarding process. For this reason, new services cannot be provisioned until new hardware is developed to support the services, which can take one to three years.

Deliver Abundant Services Agilely

- The S12700 series' native AC capabilities allow enterprises to build a wireless network without additional AC hardware. Each S12700 switch can manage up to 6,144 APs and 65,536 users. It is a core switch that provides up to 4 Tbit/s AC capabilities, avoiding the performance bottleneck on independent AC devices. The native AC capabilities help organizations better cope with challenges in the high-speed wireless era.
- The S12700 series' unified user management function 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. The unified user management function supports various authentication methods, including 802.1x, MAC address, and Portal authentication, and is capable of managing users based on user groups, domains, and time ranges. These functions control user and service management and enable the transformation from device-centered management to user-centered management.
- The S12700 series' Service Chain function can virtualize value-added service capabilities, such as next-generation firewall. Then these capabilities can be used by campus network entities (such as switches, routers, AC, AP, and terminals), regardless of their physical locations. Service Chain provides a more flexible value-added service deployment solution, which reduces equipment investment and maintenance costs.
- The S12700 series supports IEEE 1588v2 and Synchronous Ethernet (SyncE), meeting the high-precision synchronization requirements of network systems.

Provide Agile Fine Granular 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 detect temporary service interruptions within one second and can identify faulty ports accurately. 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 S12700 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", offering the simplest network management solution.
- The S12700 series manages access switches in a similar way an AC manages APs, saving the trouble of laborious configuration on access switches. It manages access switches and APs uniformly through CAPWAP tunnels, allowing access switches and APs to connect to the network with zero configuration.

Industry-leading Line cards

- Using Huawei’ s advanced ENP chips, the S12700 series supports several million hardware entries, leaving traditional switches far behind. The S12700 series provides 1M MAC address entries and 3M Forwarding Information Base (FIB) entries, meeting requirements of route-intensive scenarios, such as the Metropolitan Area Network (MAN) for a television broadcasting or education network. Providing 1M NetStream entries enables fine granular traffic statistics for college campus networks and large-scale enterprise campus networks.
- The S12700 series provides large buffer on line card to prevent packet loss upon traffic bursts, delivering high-quality video services.
- The S12700 series supports high-density cards, such as 48 x 10 GE, 16 x 40GE and 8 x 100GE cards. Each S12700 chassis can provide a maximum of 576 x 10 GE ports, 192 x 40G ports and 96 x 100GE ports. This large port capacity fully meets the requirements of bandwidth-consuming applications, such as multimedia video conferencing, protecting customer investments.

End-to-End Reliability Design

Device-Level Reliability: CSS2 Switch Fabric Hardware Clustering Technology

- Based on back-to-back clustering technology, widely used on high-end core routers, the S12700 series employs second-generation switching fabric hardware clustering technology, CSS2, an enhancement to CSS switching fabric clustering technology.
- CSS2 technology connects cluster member switches through switch fabric unit hardware channels; therefore, cluster control and data packets need only be forwarded once by the switch fabric units and do not go through service cards. Compared with traditional service port clustering technologies, CSS2 minimizes the impact of software failures, reduces service interruption risks caused by service cards, and also significantly shortens transmission latency.
- CSS2 supports 1+N backup of MPUs. This means a cluster can run stably as long as one MPU of any chassis in the cluster is working normally. In a cluster connected by service ports, each chassis must have at least one MPU working normally; therefore, CSS2 is more reliable than traditional service port clustering technologies.

Network-Level Reliability: End-to-End Hardware Protection Switching

- The S12700 uses a series of link detection and protection switching technologies, such as hardware Eth-OAM, BFD, G.8032, and Smart Ethernet Protection (SEP), to realize end-to-end protection switching. These technologies help build a campus network that responds quickly to topology changes and provides the most reliable services.

- The S12700 supports High-speed Self Recovery (HSR) technology. Using Huawei's ENP cards, the S12700 implements end-to-end IP MPLS bearer network protection switchover within 50 ms, improving network reliability.

Comprehensive Security Measures

- The S12700 supports MAC security (MACSec) that enables hop-by-hop secure data transmission. Therefore, the S12700 can be applied to scenarios that pose high requirements on data confidentiality, such as government and finance sectors.
- NGFW is a next-generation firewall card that can be installed on an S12700. In addition to the traditional defense functions such as firewall, identity authentication, and Anti-DDoS, the NGFW supports IPS, anti-spam, web security, and application control functions.
- The S12700 provides innovative next-generation environment awareness and access control. It identifies the application-layer attacks and protects network-layer applications based on application type, content, time, user, threaten, and location.
- The dedicated software and hardware platforms provide an Intelligent Aware Engine (IAE) to perceive application information when all security functions are enabled. The built-in hardware accelerator for content detection improves application-layer protection efficiency and ensures the 10G+ performance when all security functions are enabled.

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 S12700 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.

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.

Big Data Security Collaboration

- Agile switches use NetStream to collect campus network data and then report such data to the Huawei Cybersecurity Intelligence System (CIS). 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 CIS delivers the security policies to the Agile Controller. The Agile Controller then delivers such policies to agile switches that will handle security events accordingly. All these ensure campus network security.

Intelligent Diagnosis

- Open Intelligent Diagnosis System (OIDS) integrates the device health monitoring and fault diagnosis functions – that are typically deployed on a Network Management System (NMS) – into the switch software to implement 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.

Product Specifications

Item	S12704	S12708	S12710	S12712
Switching capacity	4.88Tbps/ 16.08Tbps	12.32Tbps/ 44.96Tbps	13.12Tbps/ 38.56Tbps	17.44Tbps/ 44.96Tbps
Packet forwarding rate	3,120Mpps/ 4,560Mpps	6,240Mpps/ 30,240Mpps	7,440Mpps/ 11,040Mpps	9,120Mpps/ 30,240Mpps
MPU slots	2	2	2	2
SFU slots	2	4	4 (integrated and independent)	4
Service card slots	4	8	10	12
Redundancy design	MPUs, SFUs, power supplies, and fan modules			
CSS2	1+N backup of MPUs in a cluster			
	Up to 1.92 Tbit/s cluster bandwidth, 4 μs inter-chassis transmission latency			
Wireless network management	Native AC			
	AP access control, AP region management, and AP profile management			
	Radio profile management, uniform static configuration, and centralized dynamic management			
	Basic WLAN services, QoS, security, and user management			
User management	Unified user management			
	802.1X, MAC, and Portal authentication			
	Traffic- and time-based accounting			
	User authorization based on user groups, domains, and time ranges			
iPCA quality awareness	Marking real service packets to obtain real-time count of dropped packets and packet loss ratio			
	Counting number of dropped packets and packet loss ratio on devices and L2/L3 networks			

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SVF 2.0 virtualization	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			
VXLAN	VXLAN centralized gateway and distributed gateway			
	BGP EVPN			
	Configured through NETCONF protocol			
VLAN	4K VLANs			
	Access, trunk, and hybrid interface types, auto-negotiation of LNP links			
	Default VLAN			
	VLAN switching			
	QinQ and selective QinQ			
	MAC address-based VLAN assignment			
ARP	256K ARP entries			
MAC address	1M MAC address entries			
	Dynamic MAC address learning and aging			
	Static, dynamic, and blackhole MAC address entries			
	Source MAC address filtering			
	MAC address limiting based on ports and VLANs			
Ring network protection	Spanning Tree Protocol (STP) (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s)			
	SEP			
	Bridge Protocol Data Unit (BPDU), root protection, and loop protection			
	BPDU tunnel			
	G.8032 Ethernet Ring Protection Switching (ERPS)			
IP routing	3M IPv4 routing entries			
	IPv4 dynamic routing protocols, such as RIP, OSPF, IS-IS, and BGP			
	IPv6 routing protocols, such as RIPng, OSPFv3, IS-ISv6, and BGP4+			

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Multicast	128,000 multicast routing entries			
	IGMPv1/v2/v3 and IGMP v1/v2/v3 snooping			
	PIM-DM, PIM-SM, and PIM-SSM			
	Multicast Source Discovery Protocol (MSDP) and Multiprotocol Extensions for BGP (MBGP)			
	Fast leave			
	Multicast traffic control			
	Multicast querier			
	Multicast protocol packet suppression			
	Multicast Call Admission Control (CAC)			
	Multicast ACL			
MPLS	Basic MPLS functions			
	MPLS Operations, Administration, and Maintenance (OAM)			
	MPLS Traffic Engineering (TE)			
	MPLS VPN/VLL/VPLS			
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 route			
	Non-Stop Routing (NSR), 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)			
	HSR			
	ITU-Y.1731			
	Device Link Detection Protocol (DLDP)			
QoS	256K ACLs			
	Traffic classification based on Layer 2 headers, Layer 3 protocols, Layer 4 protocols, and 802.1p priority			
	ACLs and actions such as Committed Access Rate (CAR), re-marking, and scheduling			
	Queuing algorithms, such as SP, WRR, DRR, SP + WRR, and SP + DRR			
	Congestion avoidance mechanisms, including (WRED) and tail drop			
	H-QoS			
	Traffic shaping			

Item	S12704	S12708	S12710	S12712
Network synchronization	Ethernet synchronization			
	1588v2			
Configuration and maintenance	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)			
Security and management	MAC address, Portal, 802.1x, and Dynamic Host Configuration Protocol (DHCP) snooping triggered authentication			
	MACsec			
	RADIUS and HWTACACS authentication for login users			
	Command line authority control based on user levels, preventing unauthorized users from using command configurations			
	Defense against DoS attacks, Transmission Control Protocol (TCP) SYN Flood attacks, User Datagram Protocol (UDP) Flood attacks, broadcast storms, and heavy traffic attacks			
	Remote Network Monitoring (RMON)			
	Secure Boot(need to use MPU that supports Secure Boot)			
Security protection*	Firewall			
	Network Address Translation (NAT)			
	IPSec, SSL VPN			
	Intrusion Protection System (IPS)			
	Load balancing Analog Digital Conversion (ADC)			
Interoperability	Interoperable with VBST (compatible with PVST/PVST+/RPVST)			
	Interoperable with LNP (similar to DTP)			
	Interoperable with VCMP (similar to VTP)			
Energy saving	Energy Efficient Ethernet (802.3az)			
Dimensions (H x W x D in mm)	441.7 x 442 x 489, 10U	663.95 x 442 x 489, 15U	663.95 x 442 x 489, 15U	841.75*442*489, 19U
Weight (empty chassis)	29kg	42kg	37kg	63kg
Operating voltage	DC: –40V ~ –72V AC: 90V ~ 290V			
Maximum power consumption of the entire equipment	≤2200W	≤4400W	≤4400W	≤6600W

*: The S12700 supports the NGFW, which is the next-generation firewall card, and the IPS card. For more specification information, see the brochures of the cards.

Ordering Information

S12700 basic configuration	
LE2BN66ED000	N66E DC assembly rack (eight 60A outputs, maximum 2,200W per output, 600 x 600 x 2,200 mm)
LE2BN66EA000	N66E AC assembly rack (four 16A outputs, maximum 2,500W per output, 600 x 600 x 2,200 mm)
ET1BS12704S0	S12704 Assembly Chassis
ET1BS12708S0	S12708 assembly chassis
ET1BS12710S0	S12710 assembly chassis
ET1BS12712S0	S12712 assembly chassis
ET1MFBX00000	Wide Voltage 129 Fan Box
EH1M00FBX000	Wide Voltage 74 Fan Box
Monitoring unit	
EH1D200CMU00	Centralized monitoring unit
Main processing unit	
ET1D2MPUA000	S12700 main control unit A, optional clock
ET1D2MPUBC00	S12710 main control unit B, optional clock
ET1D2MPUBC01	S12710,Main Processing Unit B(Support Secure Boot)
Switch fabric unit	
ET1D2SFUA000	S12700 switch fabric unit A
ET1D2SFUB000	S12700 switch fabric unit B
ET1D2SFUC000	S12700 switch fabric unit C
ET1D2SFUD000	S12700 switch fabric unit D
100M/1000M Ethernet electrical interface cards	
ET1D2G48TEA0	48-port 10/100/1000 BASE-T interface card (EA, RJ45)
ET1D2G48TEC0	48-port 10/100/1000 BASE-T interface card (EC, RJ45)
ET1D2G48TX1E	48-port 10/100/1000 BASE-T interface card (X1E, RJ45)
100M/1000M Ethernet optical interface cards	
ET1D2G24SEC0	24-port 100/1000 BASE-X interface card (EC, SFP)
ET1D2G48SEA0	48-port 100/1000 BASE-X interface card (EA, SFP)
ET1D2G48SEC0	48-port 100/1000 BASE-X interface card (EC, SFP)
ET1D2G48SX1E	48-port 100/1000 BASE-X interface card (X1E, SFP)
100M/1000M Ethernet electrical and optical interface cards	

S12700 basic configuration	
ET1D2T36SEA0	36-port 10/100/1000 BASE-T and 12-port 100/1000 BASE-X interface card (EA, RJ45/SFP)
10 GE optical interface cards	
ET1D2X04XEA0	4-port 10G BASE-X interface card (EA, XFP)
ET1D2X04XEC1	4-port 10G BASE-X interface card (EC, XFP)
ET1D2S04SX1E	4-port 10G BASE-X and 24-port 100/1000 BASE-X and 8-port 10/100/1000 BASE-T combo interface card (X1E, RJ45/SFP/SFP+)
ET1D2S08SX1E	8-port 10G BASE-X and 8-port 100/1000 BASE-X and 8-port 10/100/1000 BASE-T combo interface card (X1E, RJ45/SFP/SFP+)
ET1D2X12SSA0	12-port 10G BASE-X interface card (SA, SFP+)
ET1D2X16SSC2	16-Port 10GBASE-X Interface Card(SC,SFP+)
ET1D2X32SSC0	32-Port 10GBASE-X Interface Card(SC,SFP+)
ET1D2X48SEC0	48-port 10G BASE-X interface card (EC, SFP+)
ET1D2X32SX2H	32-Port 10GE SFP+ Interface Card(X2H,SFP+)
ET1D2X32SX2S	32-Port 10GE SFP+ Interface Card(X2S,SFP+)
ET1D2X32SX2E	32-Port 10GE SFP+ Interface Card(X2E,SFP+)
ET1D2S24SX2S	24-Port 10GE SFP+ Interface and 8-Port GE SFP Interface Card(X2S,SFP+)
ET1D2S24SX2E	24-Port 10GE SFP+ Interface and 8-Port GE SFP Interface Card(X2E,SFP+)
ET1D2S16SX2S	16-Port 10GE SFP+ Interface and 16-Port GE SFP Interface Card(X2S,SFP+)
ET1D2S16SX2E	16-Port 10GE SFP+ Interface and 16-Port GE SFP Interface Card(X2E,SFP+)
ET1D2X48SX2S	48-Port 10GE SFP+ Interface Card(X2S,SFP+)
40 GE optical interface cards	
ET1D2L02QSC0	2-port 40G BASE-X interface card (SC, QSFP+)
ET1D2L08QSC0	8-port 40G BASE-X interface card (SC, QSFP+)
EH1D2L08QX2E	8-Port 40GE QSFP+ Interface Card(X2E,QSFP+)
ET1D2L16QX2H	16-Port 40GE QSFP+ Interface Card(X2H,QSFP+)
100GE optical interface cards	
ET1D2C02FEE0	2-Port 100GBASE-X Interface Card(EE,CFP)
ET1D2C04HX2H	4-Port 100GE QSFP28 Interface Card(X2H,QSFP28)
ET1D2C04HX2S	4-Port 100GE QSFP28 Interface Card(X2S,QSFP28)
ET1D2C04HX2E	4-Port 100GE QSFP28 Interface Card(X2E,QSFP28)
ET1D2C08HX2H	8-Port 100GE QSFP28 Interface Card(X2H,QSFP28)
ET1D2H02QX2S	2-Port 100GE QSFP28 Interface and 2-Port 40GE QSFP+ Interface Card(X2S,QSFP28)

S12700 basic configuration	
ET1D2H02QX2E	2-Port 100GE QSFP28 Interface and 2-Port 40GE QSFP+ Interface Card(X2E,QSFP28)
Service subcards	
EH1D2VS08000	8-port 10G cluster switching system service unit (SFP+)
ET1D2VQ06000	6-Port 40GE Cluster Switching System Service Unit (QSFP+)
LE0D00CKMA00	Clock Pinch Board-1588
Service processing cards	
ET1D2FW00S00	NGFW Module A, with HW General Security Platform Software
ET1D2FW00S01	NGFW Module B, with HW General Security Platform Software
ET1D2FW00S02	NGFW Module C, with HW General Security Platform Software
ET1D2IPS0S00	IPS Module A, with HW General Security Platform Software
ACU2	WLAN ACU2 Access Controller Unit(128 AP Control Resource Included)
Optical transceivers	
FE-SFP optical transceiver	
SFP-FE-SX-MM1310	Optical transceiver, SFP, 100M/155M, Multi-mode Module(1310nm,2km,LC)
eSFP-FE-LX-SM1310	Optical transceiver, eSFP, 100M/155M, Single-mode Module(1310nm,15km,LC)
S-SFP-FE-LH40-SM1310	Optical transceiver, eSFP, FE, single-mode module (1,310 nm, 40 km, LC)
S-SFP-FE-LH80-SM1550	Optical transceiver, eSFP, FE, single-mode module (1,550 nm, 80 km, LC)
GE-SFP optical transceiver	
SFP-1000BaseT	Copper transceiver, SFP, GE, electrical interface module (100m, RJ45)
eSFP-GE-SX-MM850	Optical transceiver, eSFP, GE, multimode module (850 nm, 0.5 km, LC)
SFP-GE-LX-SM1310	Optical transceiver, SFP, GE, single-mode module (1,310 nm, 10 km, LC)
S-SFP-GE-LH40-SM1310	Optical transceiver, eSFP, GE, single-mode module (1,310 nm, 40 km, LC)
S-SFP-GE-LH40-SM1550	Optical transceiver, eSFP, GE, single-mode module (1,550 nm, 40 km, LC)
S-SFP-GE-LH80-SM1550	Optical transceiver, eSFP, GE, single-mode module (1,550 nm, 80 km, LC)
eSFP-GE-ZX100-SM1550	Optical transceiver, eSFP, GE, single-mode module (1,550 nm, 100 km, LC)

S12700 basic configuration	
10 GE-XFP Optical transceiver	
XFP-SX-MM850	Optical transceiver, XFP, 10G, multimode module (850 nm, 0.3 km, LC)
XFP-STM64-LX-SM1310	Optical transceiver, XFP, 10G, single-mode module (1,310 nm, 10 km, LC)
XFP-STM64-LH40-SM1550	Optical transceiver, XFP, 10G, single-mode module (1,550 nm, 40 km, LC)
XFP-STM64-SM1550-80 km	Optical transceiver, XFP, 10G, single-mode module (1,550 nm, 80 km, LC)
10 GE-SFP+ Optical transceiver	
OMXD30000	Optical transceiver, SFP+, 10G, multimode module (850 nm, 0.3 km, LC)
OSX010000	Optical transceiver, SFP+, 10G, single-mode module (1,310 nm, 10 km, LC)
OSX040N01	Optical transceiver, SFP+, 10G, single-mode module (1,550 nm, 40 km, LC)
OSXD22N00	Optical transceiver, SFP+, 10G, single-mode module (1,310 nm, 0.22km, LC, LRM)
SFP-10G-USR	Optical transceiver, SFP+, 10G, multimode module (850 nm, 0.1 km, LC)
SFP-10G-ZR	Optical transceiver, SFP+, 10G, single-mode module (1,550 nm, 80 km, LC)
SFP-10G-ZCW1571	Optical transceiver, SFP+, 10G, single-mode module (CWDM, 1,571 nm, 70 km, LC)
SFP-10G-ZCW1591	Optical transceiver, SFP+, 10G, single-mode module (CWDM, 1,591 nm, 70 km, LC)
SFP-10G-ZCW1611	Optical transceiver, SFP+, 10G, single-mode module (CWDM, 1,611 nm, 70 km, LC)
SFP-10G-iLR	Optical Transceiver,SFP+, 9.8G, Single-mode Module (1310nm,1.4km,LC)
40 GE optical transceivers	
QSFP-40G-iSR4	40GBase-iSR4 Optical transceiver, QSFP, 40G, multimode module (850 nm, 0.15 km, MPO) (connecting to four SFP+ optical transceivers)
QSFP-40G-LX4	40GBase-LX4 Optical Transceiver,QSFP+,40GE,Single-mode(1310nm,2km,LC),Multi-mode(1310nm,0.15km,LC)
QSFP-40G-iSM4	40GBase-iSM4 Optical Transceiver, QSFP+, 40G, Single-mode Module (1310nm,1.4km,MPO)(Connect to four SFP+ Optical Transceiver)
QSFP-40G-eSM4	40GBase-eSM4 Optical Transceiver, QSFP+, 40G, Single-mode Module (1310nm,10km,MPO)(Connect to four SFP+ Optical Transceiver)
QSFP-40G-LR4	40G Base-LR4 optical transceiver, QSFP+, 40G, single-mode module (1,310 nm, 10 km, LC)
QSFP-40G-eSR4	40G Base-eSR4 Optical transceiver, QSFP+, 40G, multimode module (850 nm, 0.3 km, MPO) (connecting to four SFP+ optical transceivers)

S12700 basic configuration	
CFP-40G-SR4	High Speed Transceiver, CFP, 40G, Multimode Module (850nm,4*10G,0.1km,MPO)
CFP-40G-LR4	High Speed Transceiver, CFP, 40G, Single-mode Module (1310nm band,41.25G,10km,stright LC)
CFP-40G-ER4	High Speed Transceiver, CFP, 40G, Single-mode Module (1310nm band,41.25G,40km,stright LC)
CFP-40G-ZR4	High Speed Transceiver,CFP,40G,Single-mode Module(1550nm band,41.25G,80km,stright LC)
QSFP-40G-ER4	40G Base-ER4 Optical Transceiver, QSFP+, 40G, Single-mode Module (1310nm,40km,LC)
100GE optical transceivers	
CFP-100G-SR10	High Speed Transceiver, CFP, 100G, Multimode Module (850nm,10*10G,0.1km,MPO) (Can connect to 10 SFP+ ports or 2 QSFP+ ports)
CFP-100G-LR4	High Speed Transceiver, CFP, 100G, Single-mode Module (1310nm band,4*25G,10km,stright LC)
CFP-100G-ER4	High Speed Transceiver, CFP, 100G, Single-mode Module (1310nm band,4*25G,40km,stright LC)
CFP-100GE-ZR4	100GBase,CFP Module,100G,Single-mode Module(1310nm band,4*25G,80km,stright LC)
QSFP-100G-CLR4	High Speed Transceiver,QSFP28,1310nm,4*25GBase,-6.5dBm,2.5dBm,-10.7dBm,LC/PC,2km
QSFP-100G-CWDM4	High Speed Transceiver,QSFP28,1310nm,4*25GBase,-6.5dBm,2.5dBm,-9.8dBm,LC/PC,2km
QSFP-100G-ER4-Lite	100GBase-ER4-Lite Optical Transceiver,QSFP28,100G,Single-mode module (1310nm,30km(FEC OFF),40km(FEC ON),LC)
QSFP-100G-LR4	100GBase-LR4 Optical Transceiver,QSFP28,100G,Single-mode module (1310nm,10km,LC)
QSFP-100G-SR4	100GBase-SR4 Optical Transceiver,QSFP28,100G,Multi-mode (850nm,0.1km,MPO)
QSFP-100G-PSM4	100GBase-PSM4 Optical Transceiver,QSFP28,100G,Single-mode module (1310nm,0.5km,MPO)
BIDI-SFP optical transceivers	
SFP-FE-LX-SM1310-BIDI	Optical transceiver, eSFP, FE, BIDI single-mode module (TX1310/RX1550, 15 km, LC)
SFP-FE-LX-SM1550-BIDI	Optical transceiver, eSFP, FE, BIDI single-mode module (TX1550/RX1310, 15 km, LC)
SFP-GE-LX-SM1310-BIDI	Optical transceiver, eSFP, GE, BIDI single-mode module (TX1310/RX1490,10 km, LC)

S12700 basic configuration	
SFP-GE-LX-SM1490-BIDI	Optical transceiver, eSFP, GE, BIDI single-mode module (TX1490/RX1310,10 km, LC)
LE2MGSC40ED0	Optical transceiver, SFP, GE, BIDI single-mode module (TX1490/RX1310, 40 km, LC)
LE2MGSC40DE0	Optical transceiver, SFP, GE, BIDI single-mode module (TX1310/RX1490, 40 km, LC)
SFP-GE-ZBXD1	Optical Transceiver, eSFP,GE,BIDI Single-mode Module (1570nm(Tx)/1490nm(Rx),80km,LC)
SFP-GE-ZBXU1	Optical Transceiver,eSFP,GE,BIDI Single-mode Module (1490nm(Tx)/1570nm(Rx),80km,LC)
BIDI-SFP+ optical transceivers	
SFP-10G-ER-SM1330-BIDI	Optical Transceiver,SFP+,10G,BIDI Single-mode Module(TX 1330nm/RX 1270nm,40km,LC)
SFP-10G-ER-SM1270-BIDI	Optical Transceiver,SFP+,10G,BIDI Single-mode Module(TX 1270nm/RX 1330nm,40km,LC)
SFP-10G-BXU1	10G Base, Bi-Directional (BIDI) optical transceiver, SFP, 10G, single-mode module (TX1270 nm/RX1330 nm, 10 km, LC)
SFP-10G-BXD1	10G Base, BIDI optical transceiver, SFP, 10G, single-mode module (TX1330 nm/ RX1270 nm, 10 km, LC)
High-Speed Cable	
SFP-10G-CU1M	SFP+,10G,High Speed Direct-attach Cables,1m,SFP+20M,CC2P0.254B(S),SFP+20M, Used indoor
SFP-10G-CU3M	SFP+,10G,High Speed Direct-attach Cables,3m,SFP+20M,CC2P0.254B(S),SFP+20M, Used indoor
SFP-10G-CU5M	SFP,10G,High Speed Cable,5m,SFP+20M,CC2P0.254B(S),SFP+20M,LSFRZH For Indoor
SFP-10G-AC10M	SFP+,10G,Active High Speed Cables,10m,SFP+20M,CC2P0.32B(S),SFP+20M,Used indoor
QSFP-4SFP10G-CU1M	QSFP+,4SFP+10G,High Speed Direct-attach Cables,1m,QSFP+38M,CC8P0.254B(S), 4*SFP+20M,Used indoor
QSFP-4SFP10G-CU3M	QSFP+,4SFP+10G,High Speed Direct-attach Cables,3m,QSFP+38M,CC8P0.32B(S),4* SFP+20M,Used indoor
QSFP-4SFP10G-CU5M	QSFP+,4SFP+10G,High Speed Direct-attach Cables,5m,QSFP+38M,CC8P0.4B(S),4*S FP+20M,Used indoor
QSFP-40G-CU1M	QSFP+,40G,High Speed Direct-attach Cables,1m,QSFP+38M,CC8P0.254B(S),QSFP+ 38M,Used indoor
QSFP-40G-CU3M	QSFP+,40G,High Speed Direct-attach Cables,3m,QSFP+38M,CC8P0.32B(S),QSFP+3 8M,Used indoor

S12700 basic configuration	
QSFP-40G-CU5M	QSFP+,40G,High Speed Direct-attach Cables,5m,QSFP+38M,CC8P0.40B(S),QSFP+38M,Used indoor
QSFP-100G-CU1M	High Speed Cable,100G QSFP28 Passive High Speed Cable,1m,QSFP28,CC8P0.254B(S),QSFP28,ETH 100GbE
QSFP-100G-CU3M	High Speed Cable,100G QSFP28 Passive High Speed Cable,3m,QSFP28,CC8P0.254B(S),QSFP28,ETH 100GbE
QSFP-100G-CU5M	High Speed Cable,100G QSFP28 Passive High Speed Cable,5m,QSFP28,CC8P0.4B(S),QSFP28,ETH 100GbE
Optical Fiber	
SFP-10G-AOC3M	AOC Optical Transceiver,SFP+,850nm,1G~10G,0.003km
SFP-10G-AOC10M	AOC Optical Transceiver,SFP+,850nm,1G~10G,10m
QSFP-H40G-AOC10M	Optical transceiver,QSFP+,40G,(850nm,10m,AOC)
QSFP-4SFP10-AOC10M	Optical transceiver,QSFP+,40G,(850nm,10m,AOC)(Connect to four SFP+ Optical Transceiver)
QSFP-100G-AOC10M	High Speed Transceiver,QSFP28 to QSFP28 AOC,850nm,100G,0.01km
Power modules	
PAC-2200WF	2,200W AC power module
PDC-2200WF	2,200W DC power module
W2PSA0800	800W AC Power Module(black)
Software	
ET1SBSM28000	S12700 V200R008C00 software
ET1SBSM2A000	S12700 V200R010C00 software
ET1SBSM2B010	S12700 V200R011C10 software
ET1SBSM2C000	S12700 V200R012C00 software
License	
ET1SMPLS0000	MPLS Function License
ET1SNQA00000	NQA Function License
ET1SIPV60000	IPV6 Function License
ET1SSVFF0000	SVF Function License (applicable only to the S12700 series)
ET1SVXLAN000	VXLAN enhanced function license(used in S12700 series)
ET1SFIB128K0	X-series LPU FIB Resource License-128K

S12700 basic configuration	
ET1SFIB512K0	X-series LPU FIB Resource License-512K
ET1SWL512AP0	WLAN Access Controller AP Resource License-512AP (with the X-series LPU used)
ET1SWL128AP0	WLAN Access Controller AP Resource License-128AP (with the X-series LPU used)
ET1SWL64AP00	WLAN Access Controller AP Resource License-64AP (with the X-series LPU used)
ET1SWL16AP00	WLAN Access Controller AP Resource License-16AP (with the X-series LPU used)
L-ACU2-128AP	ACU2 Wireless Access Controller AP Resource License (128 AP)
L-ACU2-256AP	ACU2 Wireless Access Controller AP Resource License (256 AP)
L-ACU2-384AP	ACU2 Wireless Access Controller AP Resource License (384 AP)
L-ACU2-512AP	ACU2 Wireless Access Controller AP Resource License (512 AP)
Documentation	
ET1IV2RCC0E0	S12700 Series Agile Switches Product Documentation

Application

In an enterprise campus network

S12700 series switches are deployed on the core layer of an enterprise campus network. Native ACs provided by the S12700 enable customers to build wireless networks without additional AC hardware, reducing network construction costs. It is a core switch that provides 4 Tbit/s AC capabilities, avoiding the performance bottleneck on independent ACs. The native AC capabilities help customers migrate their wireless networks to 802.11ac and 802.11ax. The S12700 series realizes wired and wireless convergence and delivers consistent experience to wired and wireless users through uniform device, user, and service management.

In a college campus network

S12700 series switches are deployed on the core layer of a college campus network. The unified user management function on the S12700 reduces network construction costs by removing the need to purchase new BRAS hardware. Each S12700 switch supports up to 65,536 users, allowing a large number of concurrent access users. Its H-QoS feature implements fine granular user and service management. The S12700 series realizes wired and wireless convergence and delivers consistent experience to wired and wireless users through uniform device, user, and service management.

In a bearer network for video conferencing, desktop cloud, and video surveillance applications

The Large buffer prevents packet loss upon traffic bursts, delivering high-quality video streams. The S12700 series supports up to 1M MAC address entries and 3M FIB entries, which allow access from a large number of terminals and help evolution to IPv6 and the Internet of Things (IoT). Employing end-to-end hardware reliability technologies and iPCA technology, the S12700 series offers a highly reliable, high-quality, scalable video conferencing and surveillance solution.

On the core/aggregation layer of a MAN

S12700 series switches are used as core or aggregation switches on the Metropolitan Area Network (MAN) of a television broadcasting or education network. The 3M FIB entries provided are sufficient for large-scale routing on the MAN. CSS2 switch fabric hardware clustering technology, originating from clustering technology for high-end core routers, delivers carrier-class reliability on the MAN. Additionally, the S12700 series supports comprehensive L2/L3 MPLS VPN features, providing a highly reliable, secure, and scalable metropolitan bearer network solution.

In an enterprise data center

S12700 series switches are deployed on the core or aggregation layer of an enterprise data center network. The S12700 series has high-density line cards, such as 48 x 10 GE, 16 x 40GE and 8 x 100GE cards, meeting the requirements for large data throughput on data center core/aggregation nodes. Using CSS2 switch fabric hardware clustering technology, the S12700 series provides up to 1.92 Tbit/s cluster bandwidth and shortens the inter-chassis forwarding latency to 4 μs. This technology helps customers build a high performance, high reliability, and low latency data center network.

For more information, visit http://e.huawei.com/en or contact your local Huawei sales office.

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