HAN Networks

S9140 Series

Data Center TOR Switch

Product Description

HAN S9140, a new generation high-performance data center TOR switch oriented for cloud computing, data centers and high-end campus networks. S9140 adopts an advanced hardware architecture design, providing the industry's highest switching performance and rich data center service features.

In order to meet the needs of cloud computing data center network resource pooling, S9140 offers rich VSS virtualization features, and cooperates with the data center core switch to achieve access of 15,000+ 10Gigabit servers, providing a complete network solution for ultra-large data centers.

S9140 is equipped with the new generation operating system. On the basis of providing high-performance L2/L3/L4 wire-speed switching services, S9140 further integrates various network services such as IPv6, network security, traffic analysis, and virtualization. Combining uninterrupted upgrade, uninterrupted forwarding, graceful restart, redundant protection and other high-reliability data center technologies, S9140 ensures the longest uninterrupted network communication.

Datasheet

HAN S9140 Series

Product Characteristics

Advanced Hardware Architecture Design & Leading Processing Capacity

- Equipped with high-performance ASIC switching chips and multi-core processors, S9140 supports up to 2.56Tbps switching capacity, meeting the high-performance, high-capacity, high-density and expandable requirements of data centers.

Rich Data Center Business Features

- S9140 supports Virtual Switch System, which can virtualize multiple physical devices into one in logic. The virtualized system is superior to the independent physical device in performance, reliability, flexibility and management.
- Doubled Performance: The virtualized system makes the best use of each link in the device and avoids the blocking of STP to the link.
- High-reliability: Based on the advanced distributed processing technique and the efficient function of cross-physical device link aggregation, S9140 provides with non-stop layer-3 routing forwarding and avoids business interruption caused by single points of failure, greatly improving the reliability of the virtual system.
- Flexibility: With the virtual cluster service, the distance of virtual cluster system can expand to 80KM, breaking the geographic restriction of traditional cluster technique.
- Easy Management: The whole virtual system realizes single IP unified management and simplifies the management of network device and network topology.

Data Center High Reliability

- Based on the HPS (Hitless Protection System), the key power supply system adopts a redundant design, modularized and hot-swappable, and supports seamless switching in case of failure without interrupting business.
- S9140 supports redundancy protection mechanism such as STP/RSTP/MSTP protocol, VRRP protocol, ring network protection, dual uplink active/standby link protection and LACP link aggregation.
- S9140 supports ISSU (In-Service Software Upgrade) and GR (Graceful Restart), guaranteeing the user data non-stop forwarding when the system is upgrading.
- S9140 supports BFD and realizes fault detection and service recovery in seconds through linking with layer-2 or layer-3 protocol.
- S9140 has perfect Ethernet OAM, 802.3ah, 802.1ag and ITU-Y.1731, which can real-time monitor the network operating state and rapidly locate the malfunction.
- High Reliability (99.999%): MTTR of S9140 is 50ms, meeting the requirement of the carrier-level service.

Comprehensive Service

- Supports complete layer-2 and layer-3 multicast routing protocol and meets the access requirement of IPTV, multi-terminal HD video monitoring and HD video meeting.
- Supports complete layer-3 routing protocol and a super-large routing table capacity, which make super-large data center network, campus network, enterprise network and industry private networks available.

Comprehensive IPv6 Solutions

- Supports IPv6 protocol family, IPv6 Neighbor Discovery, ICMPv6, Path MTU Discovery and DHCPv6.

- Supports IPv6-based Ping, Traceroute, Telnet, SSH, ACL, meeting the need of IPv6 network equipment management and service control.
- Supports IPv6 multicast characteristics including MLD, MLD Snooping and IPv6 layer-3 routing protocols including IPv6 static routing, RIPng, OSPFv3 and BGP4+.
- Supports IPv4-to-IPv6 technologies including IPv6 manual tunnel, auto tunnel, IPv6-to-IPv4 tunnel, and ISATAP tunnel.

Comprehensive Security Mechanisms

- Device-level security protection: adopts advanced hardware architecture design, realizing the hierarchical scheduling and protection of the packet; provides multiple security measures to defend against DoS, TCP SYN Flood, UDP Flood, broadcast storm, large traffic and other attacks; supports command line authority control based on user levels.
- Comprehensive Security Authentication Mechanism: complies with IEEE 802.1x, Radius, BDTacacs+.
- Enhanced Service Security Mechanism: supports the plain text or MD5 authentication of relevant routing protocol; uRRF to effectively control illegal business; DPI (Deep Packet Inspection) and (Deep Packet Filtration) to effectively isolate illegal data packets and improve the security of the network system.

Innovative Green Environmental Design

- Intelligent Power Management System: S9140 adopts advanced power system architecture design which can realize the function of efficient power switching, private power monitoring, soft start, real-time monitoring, intelligent adjustment and energy-saving.
- Intelligent Fan Management System: S9140 is designed with the intelligent fan and supports switching between front-back and back-front mode and fan automatic speed regulation.
- S9140 supports Efficient Ethernet and complies with International standard IEEE 802.3az.

Product Specifications

Models	S9140-24X2C
Backplane	2.56Tbps
Forwarding	660Mpps
Power slots	2
Fan	4
Ports	24 10GE/GE SFP+ ports 2 100GE/40GE QSFP28ports
Dimensions mm (W*D*H)	442.5*300*44.5
Power Supply	AC: 100V-240V, 50Hz/60Hz DC: 36V~72V
Environment	Operating: Temperature/Humidity: -10℃-50℃; 10%-90% non-condensing Storage: Temperature/Humidity: -20℃-70℃; 5%-95% non-condensing
Standards	IEEE 802.1 Working Group IEEE 802.3 Working Group IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3z Gigabit 1000BASE-SX/LX IEEE 802.3ab Gigabit 1000BASE-T IEEE 802.3ae 10Gb/s Ethernet IEEE 802.3x flow control and back pressure IEEE 802.3ad port trunk with LACP IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1p Class of Service IEEE 802.1Q VLAN tagging IEEE 802.1ad Q-in-Q IEEE 802.1X port authentication network control IEEE 802.1ab LLDP and LLDP-MED IEEE 802.3ah OAM IEEE 802.3az EEE(Energy Efficient Ethernet) RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2

Models	S9140-24X2C
	RFC 3376 IGMP v3 RFC 2710 MLD v1 RFC 2328 OSPF v2 RFC 1058 RIP v1 RFC 2453 RIP v2
MAC switching	Static configuration and dynamic MAC learning(32K) MAC browsing and removal Configurable aging time of the MAC address Limited number of learnable MAC addresses MAC filtration Black-hole MAC list
Jumbo frame	16K
VLAN	4K VLAN IDs, 4094 active VLAN, 1K SVI GVRP 1:1 and N:1 VLAN Mapping QinQ and selective QinQ Private VLAN Voice-VLAN
STP	802.1d STP, 802.1w RSTP, 802.1s MSTP BPDU protection, root protection and ring protection L2PT for BPDU
Multicast	IGMP v1/v2c/v3(1024 groups) IGMP Snooping IGMP Fast Leave Multicast group policy and multicast number limit Multicast filtering MVR Support for transparent passing of multicast traffic without IGMP snooping in certain port and VLAN PIM-DM/SM/SSM
IPv4	Static routing, RIP v1/v2, OSPF, BGP Policy Based Routing(PBR) ECMP BFD for static routing, RIP, OSPF, BGP
IPv6	IPv4/v6 dual stack ICMPv6, DHCPv6, ACLv6 and IPv6 Telnet IPv6 neighbor discovery Path MTU discovery MLD V1 MLD snooping IPv6 Static Routing, RIPng, OSPFv3, BGP4+

Models	S9140-24X2C
	Manual tunnel, ISATAP tunnel, 6-to-4 tunnel
DHCP	DHCP Server DHCP Client DHCP Relay DHCP Snooping
MPLS VPN	MCE
QoS	Traffic classification of port/L2~4 protocol headers/VLAN/CoS/DSCP CAR traffic control 802.1P/DSCP priority mapping and remark Multiple queuing algorithms such as SP, WRR or SP+WRR Tail-Drop, WRED Traffic supervision and traffic shaping 8 queues per port
Security features	DDoS attack prevention, TCP-SYN/UDP/ARP Flood attack prevention IEEE 802.1x authentication, multiple-user authentication, guest vlan URPF L2~L4 ACL(2300 IPv4 FP, 1100 IPv6 FP) Anti-DOS/IP spoofing/TCP/ping/SYN/ICMP flood attacks Broadcast/multicast/unknown-unicast storm-control Port isolation Port Security, IP+MAC+port binding DHCP Snooping, DHCP Option 82 DAI(Dynamic ARP Inspection) IPSG(IP Source Guard) IEEE 802.1x certification AAA Radius, TACACS+ Multiple user privileges
Reliability	Power 1+1 backup 802.3ad Static/LACP link aggregation, 128 groups, ups to 8 ports in one group EAPS G.8032 ERPS VRRP GR for OSPF and BGP BFD for OSPF and BGP ISSU virtual stacking system
Management	CLI: Console, Telnet, SSHv1/2 Web-GUI: HTTP, HTTPS SNMP v1/v2/v3, RMON, SNMP alarm/inform/traps Upload and download of FTP/TFTP/SFTP files

Models	S9140-24X2C
	Debugging Syslog for alarm/notification/command/debug NTP SPAN, RSPAN (1:1 and N:1 mirror) LLDP, LLDP-MED sFLOW ZTP（Zero Touch Provisioning） Optical DDM Ethernet cable diagnosis 802.3ah, 802.1ag
Energy saving	IEEE 802.3az

Commercial references

Model	Description
S91400-24X2C	24-Port 10G SFP+ 2-Port 40/100G QSFP28 L3 Stackable Managed Switch (2 power slots, dual AC-220 power supplies; 4 fans; 1U, 19-inch rack-mounted installation)
QSFP+40G-SR4-100m	40G QSFP+ optical module (100m, 850nm, MPO, DDM, supports 1 to 4)
QSFP-MPO-LC-4-1m	40G one-to-four connector, 1m, one end is MPO interface and the other end is dual LC interface
QSFP-MPO-LC-4-3m	40G one-to-four connector, 3m, one end is MPO interface and the other end is dual LC interface
QSFP-MPO-LC-4-5m	40G one-to-four connector, 5m, one end is MPO interface and the other end is dual LC interface

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