

Twoja Infrastruktura IT

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**Bezpieczeństwo,
Efektywność,
Optymalizacja**





H3C S10500X Series Multiservice Core Switch

Release Date: May, 2023



New H3C Technologies Co., Limited

Overview

H3C S10500X series switch is designed for the core layer of data centers and next-generation campus networks as well as the distribution layer of MANs. It provides the following features:

- Advanced CLOS multistage and multi-plane switching architecture, delivering great bandwidth scalability.
- A wide range of data center features, including TRansparent Interconnection of Lots of Links (TRILL), Ethernet Virtual Interconnect (EVI), Multitenant Device Context (MDC), Edge Virtual Bridging (EVB), and Fibre Channel over Ethernet (FCoE).
- Fully compliant with 40GE and 100GE Ethernet standards.
- H3C's state-of-the-art Comware V7 operating system.
- Virtualization software system based on the Intelligent Resilient Framework 2 (IRF2).
- Comprehensive network services, including MPLS VPN, IPv6, application security, application optimization, and BRAS services.
- A variety of HA features, such as Non-Stop Forwarding (NSF), In-Service Software Upgrade (ISSU), Graceful Restart (GR), and ring protection. These features improve operation efficiency, maximize service time, and reduce TCO.
- Compliant with RoHS and environment-friendly.

The S10500X series switch includes the S10506X, S10508X and S10510X models, with port density and performance to fit different deployment scales. It is your best choice to build a robust core network.



H3C S10500X Series Switch

Features

Advanced System Architecture

The system architecture incorporates the following advanced designs:

- Clos multistage and multi-plane switching architecture: delivers great bandwidth scalability.
- Orthogonal interconnection of switching fabric modules and service modules: Traffic between service modules is sent directly to the switching fabric modules through the orthogonal interconnectors, without cabling on the backplane, which significantly reduces signal loss and improves bandwidth efficiency. This design offers great bandwidth and capacity scalability, allowing the system capacity to be expanded to 100Tbps.
- Compliant with 40GE and 100GE Ethernet standards: Enables the system to satisfy the growing demands of non-blocking campus networks.
- Switching fabric module independency and redundancy: Independence between switching fabric modules and control engines maximizes the system availability and ensures bandwidth expansion.
- Fan tray and power module redundancy: Guards the switch against unexpected fan tray and power module failures and significantly enhances system availability.

Distributed Multi-Engines

The switch innovatively uses distributed control engines, detection engines, and maintenance engines to deliver powerful control capability and millisecond-level HA.

- Distributed control engines: Each service module is integrated with a strong control and processing system. It can efficiently process varieties of protocol packets and control packets, and provide refined control for protocol packets to safeguard against protocol packet attacks.
- Distributed detection engines: Each service module can use BFD and OAM to detect faults in milliseconds and interact with control plane protocols for fast failover and convergence to ensure service continuity.
- Distributed maintenance engines: The intelligent CPU system supports intelligent power management and online status monitoring of key components. It can power on and off modules in sequence, which reduces power impulse, electromagnetic radiation, and power consumption, and prolongs the device lifespan.

H3C Intelligent Resilient Framework 2 (IRF 2) Technology

H3C Intelligent Resilient Framework 2 (IRF 2) virtualizes multiple S10500X switches into one logical switch called an IRF fabric. IRF improves system performance and delivers the following benefits:

- High availability: The H3C proprietary routing hot backup technology ensures redundancy and backup of all information on the control and data planes and non-stop Layer 3 data forwarding in an IRF 2 fabric. It also eliminates single point of failure and ensures service continuity.
- Redundancy and load balancing: The distributed link aggregation technology supports load sharing and mutual backup among multiple uplinks, which enhances the network redundancy and improves link resources usage.
- Simplified topology and easy management: An IRF fabric appears as one node and is accessible at a single IP address on the network. This simplifies network device and topology managements, improves operating efficiency, and reduces maintenance cost.

Abundant Data Center Solutions

The switch offers a wide range of solutions for data center virtualization and network convergence, including:

- TRansparent Interconnection of Lots of Links (TRILL): Combine the simplicity and flexibility of Layer 2 switching with the stability, scalability, and rapid convergence capability of Layer 3 routing, to provide highest port density and flat network topology for addressing massive server accesses at data centers.
- Virtual eXtensible LAN (VXLAN): A MAC-in-UDP technology that provides Layer 2 connectivity between distant network sites across an IP network. It also enables service isolation between different tenants.
- Edge Virtual Bridging (EVB): Uses the Virtual Ethernet Port Aggregator (VEPA) mode to switch traffic of VMs to a physical switch connected to the server for processing. This not only ensures traffic forwarding between VMs, but also enables VM traffic policing and access control policy deployment.

- Fibre Channel over Ethernet (FCoE): Integrates heterogeneous LANs and storage networks in data centers. In conjunction with Converged Enhanced Ethernet (CEE), FCoE combines the frontend network with the backend networking architecture, and integrates data, computing, and storage networks in data centers, to significantly reduce the costs for building and expanding data centers.
- MP-BGP EVPN (Multiprotocol Border Gateway Protocol Ethernet Virtual Private Network) uses standard-based BGP protocol as the control plane for VXLAN overlay networks, providing BGP based VTEP auto peer discovery and end-host reachability information distribution. MP-BGP EVPN delivers many benefits, such as eliminating traffic flooding, reducing full mesh requirements between VTEPs via the introduction of BGP RR, achieving optimal flow-based end to end load sharing and more.

Multichassis Link Aggregation Group (M-LAG) (Original DRNI)

The S10500X series switch supports M-LAG, which enables links of multiple switches to aggregate into one to implement device-level link backup. M-LAG is applicable to servers dual-homed to a pair of access devices for node redundancy.

- Streamlined topology: M-LAG simplifies the network topology and spanning tree configuration by virtualizing two physical devices into one logical device.
- Independent upgrading: The DR member devices can be upgraded independently one by one to minimize the impact on traffic forwarding.
- High availability: The DR system uses a keepalive link to detect multi-active collision to ensure that only one member device forwards traffic after a DR system splits.

All-Round IPv6 Solutions

The switch offers comprehensive IPv6 features, including:

- IPv6 routing: IPv6 static routing, RIPng, OSPFv3, IS-ISv6, and BGP4+.
- IPv4-to-IPv6 transition: IPv6 manual tunnel, 6to4 tunnel, ISATAP tunnel, GRE tunnel, and IPv4-compatible automatic tunnel configuration.

Media Access Control Security (MACsec)

The switch supports hardware-level encryption technology MACsec (802.1AE), which is an industry-standard security technology that provides secure communication for all traffic on Ethernet links. Compared with traditional application-based software encryption technology, MACsec provides point-to-point security on Ethernet links between directly connected nodes and is capable of identifying and preventing most security threats.

Hardware Specifications

| Features | S10506X | S10508X | S10510X |
|-------------------------------|--|---------------------------------------|---------------------------------------|
| Switching capacity | 60Tbps | 80Tbps | 100Tbps |
| Forwarding capacity | 18000Mpps | 24000Mpps | 30000Mpps |
| MPU slots | 2 | 2 | 2 |
| MPU Name | LSUM1MPUS06XEC0 | LSUM1SUPXD0 | LSUM1MPUS10XE0 |
| MPU Processor | 1.8GHz 4 cores | 1.2GHz 4 cores | 1.8GHz 4 cores |
| MPU Flash /SDRAM | Flash 2GB SDRAM 8GB | Flash 2GB SDRAM 8GB | Flash 2GB SDRAM 8GB |
| MPU Console Ports | 1x RJ-45 1x USB console | 1x RJ-45 1x USB console | 1x RJ-45 1x USB console |
| MPU MGMT Ports | 2x 10/100/1000M RJ-45 2x 1000M SFP | 2x 10/100/1000M RJ-45 2x 1000M SFP | 2x 10/100/1000M RJ-45 2x 1000M SFP |
| MPU USB Port | 1 | 1 | 1 |
| LPU slots | 6 | 8 | 10 |
| Switching Fabric Module Slots | 5(2 integrated in MPU) | 5 | 5(2 integrated in MPU) |
| Hardware Architecture | Orthogonal CLOS | | |
| Redundancy | Redundant MPUs, switching fabric modules, power modules, and fan trays | | |
| Operating Environment | Temperature: 0°C to 45°C (32°F to 113°F) Humidity: 5% to 95% (non-condensing) | | |
| Input voltage | AC: 100V ~ 240V DC: -48V ~ -60V | | |
| Maximum Power Consumption | 4580W | 6270W | 7670W |
| MTBF(Year) | 24.83 | 27.05 | 24.58 |
| MTTR(Hour) | 0.5 | 0.5 | 0.5 |
| Dimension (H x W x D)/mm | 397×440×660 9RU | 620×440×660 14RU | 664×440×660 15RU |
| Fully Loaded weight | < 85 kg < 187.4 lb | < 120 kg < 264.6 lb | < 130 kg < 286.6 lb |

Software Specifications

| Feature | S10500X switch series |
|----------|--|
| Ethernet | <ul style="list-style-type: none"> IEEE 802.1Q VLAN (up to 4094 VLANs) DLDP LLDP Static MAC configuration Limited MAC learning Max. 288K MAC address entries Port mirroring and traffic mirroring Port aggregation, port isolation, and port mirroring 802.1d(STP)/802.1w(RSTP)/802.1s(MSTP) IEEE 802.3ad (dynamic link aggregation), static port aggregation, and multi-chassis link aggregation IEEE 802.1P (CoS priority) IEEE 802.1ad (QinQ), selective QinQ and Vlan mapping GVRP RRPP (Rapid Ring Protection Protocol) Jumbo frame SuperVLAN PVLAN Multicast VLAN+ Broadcast/multicast/unknown unicast storm constrain Port based, Protocol based, Subnet-based and MAC based VLAN |
| Routing | <ul style="list-style-type: none"> Max. 360K IPV4 routing entries Static routing, RIP, OSPF, IS-IS, and BGP4 IPv4/IPv6 ECMP VRRP IPv4/IPv6 Policy-based routing IPv4/IPv6 Routing policy IPv4/IPv6 dual stack IPv6 static routing, RIPng, OSPFv3, IS-ISv6, and BGP4+ VRRPv3 Pingv6, Telnetv6, FTPv6, TFTPv6, DNSv6, ICMPv6 IPv4-to-IPv6 transition technologies, such as IPv6 manual tunnel, 6to4 tunnel, ISATAP |



| Feature | S10500X switch series |
|--------------------------------|--|
| | tunnel, GRE tunnel, IPv4-compatible IPv6 tunnel |
| Multicast | PIM-DM, PIM-SM, PIM-SSM, MSDP, MBGP, and Any-RP IGMP V1/V2/V3, IGMP V1/V2/V3 Snooping IGMP Filter and IGMP Fast leave PIM6-DM, PIM6-SM, PIM6-SSM MLD V1/V2, MLD V1/V2 Snooping Multicast policy and Multicast QoS |
| ACL/QoS | Standard and extended ACLs Ingress and Egress ACL VLAN ACL Global ACL Ingress/Egress CAR with 8K granularity Diff-Serv QoS 802.1P/DSCP Priority marking and remarking 802.1p, TOS, DSCP, and EXP priority mapping Flexible queue scheduling algorithms including SP, WRR, SP+WRR, WFQ Traffic shaping Congestion avoidance, Tail-Drop and WRED |
| SDN/OPENFLOW | OpenFlow 1.3 Multiple controllers (EQUAL, master/slave) Multiple tables flow Group table Meter |
| VXLAN | VXLAN L2 switching VXLAN L3 routing VXLAN VTEP IS-IS+ENDP distributed control plane MP-BGP+EVPN distributed control plane OpenFlow+Netconf centralized control plane |
| Programmability and Automation | Ansible Auto DevOps by using Python, NETCONF, TCL, and Restful APIs for automated network programming |
| MPLS/VPLS | L3 MPLS VPN |



| Feature | S10500X switch series |
|-------------------|--|
| | L2 VPN: VLL (Martini, Kompella) MCE MPLS OAM VPLS, VLL Hierarchy VPLS, QinQ+VPLS P/PE function LDP |
| Security | Hierarchical user management and password protection EAD Portal authentication MAC authentication IEEE 802.1x and IEEE 802.1x SERVER AAA/Radius HWTACACS SSHv1.5/SSHv2 Basic and advanced ACLs for packet filtering OSPF, RIPv2, BGPv4 plain text and MD5 authentication IP address, VLAN ID, MAC address multiple binding combination uRPF Active/standby data backup |
| System Anagement | IMC network management system Loading and upgrading through XModem/FTP/TFTP SNMP v1/v2/v3 sFlow RMON and groups 1,2,3 and 9 NTP clocks Fault alarm and automatic fault recovery System logs Device status monitoring mechanism, including the CPU engine, backplane, chips and other key components |
| High Availability | Independent switching fabric modules 1+1 redundancy for key components such as MPUS and M+N redundancy for power modules N+1 redundancy for switching fabric modules |



| Feature | S10500X switch series |
|---------|--|
| | Passive backplane Hot swapping for all components Real-time data backup on active/standby MPUs CPU protection VRRP Hot patching NSR/GR for OSPF/BGP/IS-IS/RSVP Port aggregation and multi-card link aggregation BFD for VRRP/BGP/IS-IS/OSPF/RSVP/static routing, with a failover detection time less than 50 milliseconds Ethernet OAM (802.1ag and 802.3ah) RRPP/ERPS VCT Smart-Link ISSU Segment Routing |
| O&M | Telemetry IEEE 1588V2 |
| Green | IEEE (802.3az) |
| EMC | FCC Part 15 Subpart B CLASS A ICES-003 CLASS A VCCI CLASS A CISPR 32 CLASS A EN 55032 CLASS A AS/NZS CISPR32 CLASS A CISPR 24 EN 55024 EN 61000-3-2 EN 61000-3-3 ETSI EN 300 386 |
| Safety | UL 60950-1 CAN/CSA C22.2 No 60950-1 IEC 60950-1 |

| Feature | S10500X switch series |
|---------|--|
| | EN 60950-1 AS/NZS 60950-1 FDA 21 CFR Subchapter J GB 4943.1 |

Ordering Information

| Product ID | Product Description |
|-----------------|---|
| LS-10508X | H3C S10508X Ethernet Switch Chassis |
| LS-10506X | H3C S10506X Ethernet Switch Chassis |
| LS-10510X | H3C S10510X Ethernet Switch Chassis |
| LSUM1FAB08XE0 | H3C S10508X&S10508X-V Fabric Module, Type E |
| LSUM1FAB06XEC0 | H3C S10506X Fabric Module, Type EC |
| LSUM1FAB10XE0 | H3C S10510X Fabric Module, Type E |
| LSUM1SUPXD0 | H3C S10500X Supervisor Engine Unit, Type D |
| LSUM1MPUS06XEC0 | H3C S10506X Main Processing Unit with Switching, Type EC |
| LSUM1MPUS10XE0 | H3C S10510X Main Processing Unit with Switching, Type E |
| LSUM1AC2500 | AC Power Supply Module,2500W |
| LSUM1DC2400 | DC Power Supply Module,2400W |
| LSUM2TGS48SH0 | H3C S10500 48-Port 10G Ethernet Optical Interface Module (SFP+,LC)(SH) |
| LSUM1CGS8SH0 | H3C S10500 8-Port 100G Ethernet Optical Interface Module(QSFP28)(SH) |
| LSUM1CGS8QSSH0 | H3C S10500 8-Port 100G Ethernet Optical Interface(QSFP28) +8-Port 40G/4-Port 100G Ethernet Optical Interface Module(QSFP28)(SH) |
| LSUM1YGS24CSSH0 | H3C S10500 24-Port 25G Ethernet Optical Interface(SFP28,LC)+4-Port 100G Ethernet Optical Interface Module(QSFP28)(SH) |

| Product ID | Product Description |
|-----------------|--|
| LSUM2GT24PTSSE0 | 24-Port 10/100/1000BASE-T Interface(RJ45)+20-Port GE Optical Interface(SFP,LC)+4-Port 10GE Optical Interface Module(SFP+,LC) |
| LSUM2TGS32QSSG0 | H3C S10500,32-Port 10Gb Ethernet Optical Interface(SFP+,LC)+4-Port 40Gb Ethernet Optical Interface Module(QSFP+)(SG) |
| LSUM2QGS12SG0 | H3C S10500,12-Port 40GBASE Ethernet Optical Interface Module(QSFP+)(SG) |
| LSUM2QGS24RSG0 | H3C S10500 24-Port 40G Ethernet Optical Interface Module(QSFP+)(SG) |
| LSUM2CQGS12SG0 | H3C S10500 12-Port 40G/4-Port 100G Ethernet Optical Interface Module(QSFP28)(SG) |
| LSUM1GP48FD0 | H3C S10500 48-Port 1000BASE Ethernet Optical Interface Module(SFP,LC)(FD) |
| LSUM1GT48FD0 | H3C S10500 48-Port 1000BASE-T Ethernet Copper Interface Module(RJ45)(FD) |
| LSUM1TGS24FD0 | H3C S10500 24-Port 10G Ethernet Optical Interface Module(SFP+,LC)(FD) |
| LSUM1TGS16FD0 | H3C S10500 16-Port 10G Ethernet Optical Interface Module(SFP+,LC)(FD) |
| LSUM1CGS2FE0 | H3C S10500 2-Port 100G Ethernet Optical Interface Module(QSFP28)(FE) |
| LSUM1TGT24FD0 | H3C S10500 24-Port 10GBASE-T Ethernet Copper Interface Module(RJ45)(FD) |



Datasheet history

| Description | Location | Date |
|---|----------------------|-------------------|
| Following EOS products removed from 'Ordering Information': LSUM1TGS48SH0, LSUM1GP40TS8FD0 | Ordering Information | February 24, 2024 |



The Leader in Digital Solutions

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