

H3C S7500X Series Enterprise Core Switch

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New H3C Technologies Co., Limited

Overview

The H3C S7500X series switch is designed for the next-generation enterprise core networks. It adopts modular design, uses H3C's proprietary operating system Comware V7 and provides the following features:

- Triple times of per slot bandwidth and further enhanced chassis performance compared with existing 7500E V7
- Rich Layer 2 & Layer 3 functionalities
- MDC (Multitenant Devices Context), EVI (Ethernet Virtualization Interconnect), VXLAN and MACsec
- IRF2 (Intelligent Resilient Framework version 2)
- Convergence of MPLS, VPN, and multiple services
- MP-BGP based EVPN solution

The S7500X switch series includes S7503X, S7506X-POE, S7506X-S and S7510X-POE, meeting the need of different port density and performance requirements.



H3C S7500X Switch Series

Features

Wire speed 10G/40G/100G line card

- H3C S7500X switch series is the first of its kinds in the industry to support wire speed performance for high density 10G/40G/100G line cards and can meet the existing and future application requirements of enterprise network.
- Supports max. 48 port 10G wire speed interface line card
- Supports max. 12 port 40G wire speed interface line card
- Supports max. 4 port 100G wire speed interface line card

Virtualization technologies - IRF2

- IRF2 can virtualize up to four S7500X switches into one logical IRF fabric. IRF2 delivers the following benefits:

- High Availability (HA) - Patented hot standby technology to provide data backup and non-stop forwarding on the control plane and data plane. This improves availability, performance, eliminates single-point failures and ensures service continuity.
- Distribution - Multi-chassis link aggregation to enable load sharing and backup over multiple uplinks, improving redundancy and link utilization.
- Easy Management - A single IP address to manage the whole IRF fabric, which simplifies device and topology management, improving operating efficiency, and lowering network maintenance cost.

Virtualization technologies – MDC Capability

- MDC virtualizes one S7500X switch into multiple logical switches, enabling multiple services to share one core switch.
- The 1:N virtualization maximizes switch utilization, reduces network TCO, and ensures isolation of services.

DC-oriented features

- EVI is a MAC-in-IP technology that provides Layer 2 connectivity between distant Layer 2 network sites across an IP routed network. It is used for connecting geographically dispersed sites of a virtualized large-scale data center that requires Layer 2 adjacency.
- VXLAN (Virtual Extensible LAN) — VXLAN uses a MAC-in-UDP encapsulation method where the original Layer 2 package is added with a VXLAN header, and is then placed in a UDP-IP packet. With the help of MAC-in-UDP encapsulation, VXLAN tunnels Layer 2 network over Layer 3 network which provides two major benefits: higher scalability of Layer 2 segmentation and better utilization of available network paths.
- 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.

Comprehensive MPLS/VPLS capability

- H3C S7500X switch series supports Multi-VRF function, which can be used as MCE equipment supporting L3 MPLS VPN and L2 MPLS VPN (Martini and Kompella). It also supports MPLS OAM function, which brings easier management and maintenance. Working with H3C intelligent Management Centre (iMC) MPLS VPN Manager allows easy MPLS deployment and maintenance.
- H3C S7500X switch series also supports VPLS, VLL, hierarchical VPLS and QINQ+VPLS access methods, providing end-to-end layer 2 VPN access solution.

High-performance IPv4/IPv6 service capabilities



- H3C S7500X switch series comes with IPv4/IPv6 dual-stack platform that provides sophisticated IPv4/IPv6 solutions by supporting multiple tunnels, IPv4/IPv6 Layer 3 routing protocols, multicasting, and policy-based routing. The S7500X switch series is a mature commercial IPv6 product that has passed the IPv6 network access certification of the Chinese Ministry of Industry and Information Technology and the IPv6 Ready Phase II certification.

Hardware level encryption technology MACsec

- H3C S7500X switch series 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	S7503X	S7506X-POE		S7506X-S	S7510X-POE
Switching capacity*	2.88Tbps	5.76Tbps		1.28Tbps	9.6Tbps
Forwarding capacity*	2160Mpps	4320Mpps		960Mpps	7200Mpps
MPU* slots	2	2			2
LPU slots	3	6			10
MPU Name	LSQM2SUPA0	LSQM1MPUSA0 LSQM1MPUSC0	LSQM1MPUS06S0	LSQM1MPUS06S0	LSQM1MPUS10B0 LSQM1MPUS10C0
MPU Processor	1GHz 2 cores	1GHz 2 cores	1.2GHz 4 cores	1.2GHz 4 cores	1GHz 2 cores
MPU Flash /SDRAM	Flash 2GB SDRAM 2GB	Flash 2GB SDRAM 4GB	Flash 4GB SDRAM 4GB	Flash 4GB SDRAM 4GB	Flash 2GB SDRAM 4GB
MPU Console Ports	1x RJ-45 1x USB console	1x RJ-45 1x USB console			1x RJ-45 1x USB console
MPU MGMT Ports	1x 10/100/1000M RJ-45 1x 1000M SFP	2x 10/100/1000M RJ-45 2x 1000M SFP	1x 10/100/1000M RJ-45 1x 1000M SFP	1x 10/100/1000M RJ-45 1x 1000M SFP	2x 10/100/1000M RJ-45 2x 1000M SFP
Operating environment	Temperature: 0°C to 45°C (32°F to 113°F) Humidity: 5% to 95% (non-condensing)				
Input	100 ~ 240V AC; 50/60Hz; 16A				



Features	S7503X	S7506X-POE	S7506X-S	S7510X-POE
voltage				
Maximum power consumption	800W	1870W	1640W	2850W
Dimension (H x W x D)	216mm×436mm×420mm (5U) 8.5 x 17.2 x 16.5 in	575mm × 436mm × 420mm (13U) 22.6 x 17.2 x 16.5 in		708mm × 436mm × 420mm (16U) 27.9 x 17.2 x 16.5 in
Fully loaded weight (kg)	< 35 kg < 77.2 lb	< 75 kg < 165.3 lb		< 95 kg < 209.4 lb
Availability	99.999%	99.999%		99.999%
MTBF(yrs)	42.9	27.9		25.5
MTTR(hrs)	1	1		1

*The Switching and Forwarding capacity parameters are applicable for regions outside Greater China.

* MPU: Main Processing Unit integrating switching fabric

Software Specifications

Features	S7503X	S7506X-POE	S7506X-S	S7510X-POE
Ethernet	IEEE 802.1P(CoS priority) IEEE 802.1Q VLAN (up to 4094 VLANs) IEEE 802.1ad (QinQ), selective QinQ and Vlan mapping GVRP 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 IEEE 802.1D (STP)/802.1w (RSTP)/802.1s (MSTP) IEEE 802.3ad (dynamic link aggregation), static port aggregation, and multi-chassis link aggregation RRPP (Rapid Ring Protection Protocol) Jumbo frame			

	<p>SuperVLAN</p> <p>PVLAN</p> <p>Multicast VLAN</p> <p>DHCP snooping</p> <p>Broadcast/multicast/unknown unicast storm suppression</p> <p>Port based, Protocol based, Subnet-based and MAC based VLAN</p>
Routing	<p>Max. 256K IPV4 routing entries</p> <p>Static routing, RIP v1/v2, OSPF, IS-IS, and BGP4</p> <p>IPv4/IPv6 ECMP</p> <p>VRRP</p> <p>IPv4/IPv6 Policy-based routing</p> <p>IPv4/IPv6 Routing policy</p> <p>IPv4/IPv6 dual stack</p> <p>IPv6 static routing, RIPng, OSPFv3, IS-ISv6, and BGP4+</p> <p>VRRPv3</p> <p>Pingv6, Tenetv6, FTPv6, TFTPv6, DNSv6, and ICMPv6</p> <p>IPv4-to-IPv6 transition technologies, such as IPv6 manual tunnel, 6to4 tunnel, ISATAP tunnel, GRE tunnel, and auto IPv4-compatible IPv6 tunnel</p>
Multicast	<p>PIM-DM, PIM-SM, PIM-SSM, MSDP, MBGP, and Any-RP</p> <p>IGMP V1/V2/V3 and IGMP V1/V2/V3 snooping</p> <p>IGMP Filter and IGMP Fast leave</p> <p>PIM6-DM, PIM6-SM, and PIM6-SSM</p> <p>MLD V1/V2 and MLD V1/V2 snooping</p> <p>Multicast policies and Multicast QoS</p>
ACL/QoS	<p>Standard and extended ACLs</p> <p>Ingress and egress ACLs</p> <p>VLAN ACLs</p> <p>Global ACLs</p> <p>Ingress/Egress CAR with 8K granularity</p> <p>Diff-Serv QoS</p> <p>802.1P/DSCP Priority marking and remarking</p> <p>802.1p, TOS, DSCP, and EXP priority mapping</p> <p>Flexible queue scheduling algorithms including SP (Strict priority), WRR (Weighted Round Robin), SP+WRR, WFQ (Weighted Fair Queueing)</p> <p>Traffic shaping</p>



	<p>Rate limiting</p> <p>Congestion avoidance, Tail-Drop and WRED</p>
SDN/ OpenFlow	<p>OpenFlow 1.3</p> <p>Multiple controllers (EQUAL, master/slave)</p> <p>Multiple tables flow</p> <p>Group table</p> <p>Meter</p>
VXLAN	<p>VXLAN L2 switching</p> <p>VXLAN L3 routing</p> <p>VXLAN VTEP</p> <p>IS-IS+ENDP distributed control plane</p> <p>MP-BGP+EVPN distributed control plane</p> <p>OpenFlow+Netconf centralized control plane</p>
MPLS/VPLS	<p>L3 MPLS VPN</p> <p>L2 VPN: VLL (Martini, Kompella)</p> <p>MCE</p> <p>MPLS OAM</p> <p>VPLS, VLL</p> <p>Hierarchy VPLS, QinQ+VPLS</p> <p>P/PE function</p> <p>LDP</p>
Security	<p>Hierarchical user management and password protection</p> <p>EAD</p> <p>Portal authentication</p> <p>MAC authentication</p> <p>IEEE 802.1x and IEEE 802.1x SERVER</p> <p>AAA/Radius</p> <p>HWTACACS</p> <p>SSHv1.5/SSHv2</p> <p>Basic and advanced Access Control Lists for packet filtering</p> <p>OSPF, RIPv2, BGPv4 plain text and MD5 authentication</p> <p>IP address, VLAN ID, MAC address multiple binding combination</p> <p>uRPF</p> <p>Active/standby data backup</p>



	<p>CPU DoS Protection</p> <p>ARP Attack Protection</p>
System management	<p>IMC network management system</p> <p>Loading and upgrading through XModem/FTP/TFTP</p> <p>SNMP v1/v2/v3</p> <p>sFlow, NetStream</p> <p>NQA (Network Quality Analysis)</p> <p>RMON and groups 1, 2, 3 and 9</p> <p>NTP clocks</p> <p>Fault alarm and automatic fault recovery</p> <p>System logs</p> <p>Device status monitoring mechanism, including the CPU engine, backplane, chips and other key components</p>
HA	<p>1+1 redundancy for key components such as MPUs (MPU includes CPU + Switching Fabric)</p> <p>1+1 redundancy for power modules</p> <p>Passive backplane</p> <p>Hot swapping for all components</p> <p>Real-time data backup on active/standby MPUs</p> <p>CPU protection</p> <p>VRRP</p> <p>Hot patching</p> <p>NSR (Nonstop Routing)/GR (Graceful Restart) for OSFP/BGP/IS-IS/RSVP</p> <p>Port aggregation and multi-card link aggregation</p> <p>BFD for VRRP/BGP/IS-IS/OSPF/RSVP/static routing, with a failover detection time less than 50 milliseconds</p> <p>Ethernet OAM (802.1ag and 802.3ah)</p> <p>RRPP/ERPS</p> <p>DLDP</p> <p>VCT</p> <p>Smart-Link</p> <p>ISSU (In-service Software Upgrade)</p>
EMC	<p>FCC Part 15 Subpart B CLASS A</p> <p>ICES-003 CLASS A</p> <p>VCCI CLASS A</p> <p>CISPR 32 CLASS A</p>

	<p>EN 55032 CLASS A</p> <p>AS/NZS CISPR32 CLASS A</p> <p>CISPR 24</p> <p>EN 55024</p> <p>EN 61000-3-2</p> <p>EN 61000-3-3</p> <p>ETSI EN 300 386</p>
Environmental standards compliance	<p>RoHS</p> <p>REACH</p> <p>WEEE</p>
Safety	<p>UL 60950-1</p> <p>CAN/CSA C22.2 No 60950-1</p> <p>IEC 60950-1</p> <p>EN 60950-1</p> <p>AS/NZS 60950-1</p> <p>FDA 21 CFR Subchapter J</p> <p>GB 4943.1</p>

Ordering information

Product ID	Product Description
LS-7503X-GL	H3C S7503X Ethernet Switch Chassis
LS-7506X-PoE-GL	H3C S7506X Ethernet Switch Chassis,PoE
LS-7506X-S	H3C S7506X Ethernet Switch Chassis,S Version
LS-7510X-PoE-GL	H3C S7510X Ethernet Switch Chassis,PoE
LSQM2SUPA0	H3C S7503X Supervisor Engine Unit,Type A
LSQM1MPUSA0	H3C S7506X Main Processing Unit with Switching,Type A
LSQM1MPUS06S0	H3C S7506X Main Processing Unit with Switching,Type S
LSQM1MPUS10C0	H3C S7510X Main Processing Unit with Switching,Type C
LSQM1MPUSC0	H3C S7506X Main Processing Unit with Switching,Type C
LSQM1MPUS10B0	H3C S7510X Main Processing Unit with Switching,Type B
PSR650C-12A-GL	Ethernet Switch AC Power Supply Module,650W
PSR650C-12D-GL	Ethernet Switch DC Power Supply Module,650W
PSR2500-12D-GL	2500W DC Power Supply Module
PSR2500-12AHD-GL	2500W AC Power Supply Module,Supply HVDC
LSQM2AC300-GL	H3C PSR320A,AC Power Supply Module,300W

LSQM2AC650-GL	H3C PSR650A,AC Power Supply Module,650W
LSQM1DC650-GL	H3C PSR650D,DC Power Supply Module,650W
LSQM2AC1400-GL	H3C S7500E AC Power Supply Module,1400W
LSQM1AC2800-GL	H3C 2800W AC PoE Power Supply Module
LSQM2GP48SA0	48-Port GE Optical Interface Module(SFP,LC)(SA)
LSQM2GP24TSSA0	24-Port GE Optical Interface(SFP,LC)+4-Port 10GE Optical Interface Module(SFP+,LC)(SA)
LSQM2GT48SA0	48-Port 10/100/1000BASE-T Interface Module(RJ45)(SA)
LSQM4GV48SA0	48-Port 10/100/1000BASE-T Interface Module(RJ45)(SA),PoE Plus
LSQM2GP44TSSC0	44-Port GE Optical Interface(SFP,LC)+4-Port 10GE Optical Interface Module(SFP+,LC)
LSQM2GP24TSSC0	24-Port GE Optical Interface(SFP,LC)+4-Port 10GE Optical Interface Module(SFP+,LC)
LSQM2GT24PTSSC0	24-Port 10/100/1000BASE-T Interface(RJ45)+20-Port GE Optical Interface(SFP,LC)+4-Port 10GE Optical Interface Module(SFP+,LC)
LSQM2GT24TSSC0	24-Port 10/100/1000BASE-T Interface(RJ45)+4-Port 10GE Optical Interface Module(SFP+,LC)
LSQM2GT48SC0	48-Port 10/100/1000BASE-T Interface Module(RJ45)
LSQM1TGS16FD0	H3C S7500E 16-Port 10G Ethernet Optical Interface Module(SFP+,LC)(FD)
LSQM1TGS24FD0	H3C S7500E 24-Port 10G Ethernet Optical Interface Module(SFP+,LC)(FD)
LSQM1GP48FD0	H3C S7500E 48-Port 1000BASE Ethernet Optical Interface Module(SFP,LC)(FD)
LSQM1GP40TS8FD0	H3C S7500E 40-Port 1000BASE Ethernet Optical Interface (SFP,LC)+8-Port 10G Ethernet Optical Interface Module(SFP+,LC)(FD)
LSQM1GT48FD0	H3C S7500E 48-Port 1000BASE-T Ethernet Copper Interface Module(RJ45)(FD)
LSQM1TGS24QSFD0	H3C S7500E,24-Port 10G Ethernet Optical Interfaces(SFP+,LC)+ 2-Port 40G/1-Port 100G Ethernet Optical Interface Module(QSFP28)(FD)
LSQM1TGT24FD0	H3C S7500E 24-Port 10GBASE-T Ethernet Copper Interface Module(RJ45)(FD)
LSQM1CQGS12SG0	H3C S7500E 12-Port 40G/4-Port 100G Ethernet Optical Interface Module(QSFP28)(SG)
LSQM2TGS48SG0	H3C S7500E 48-Port 10G Ethernet Optical Interface Module(SFP+,LC)(SG)
LSQM1QGS24RSG0	H3C S7500E 24-Port 40G Ethernet Optical Interface Module(QSFP+)(SG)



LSQM1TGS48RFE0	H3C S7500E 48-Port 10G Ethernet Optical Interface Module(SFP+,LC)(FE)
LSQM1CGS2FE0	H3C S7500E 2-Port 100G Ethernet Optical Interface Module(QSFP28)(FE)

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