

H3C S7500X Series Enterprise Core Switch

Overview

The H3C S7500X switch series is designed for the next-generation enterprise core networks. It 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

MDC (Multitenant Devices Context), EVI (Ethernet Virtualization Interconnect), VXLAN and MACsec

IRF2 (Intelligent Resilient Framework version 2) & IRF3.1 (Intelligent Resilient Framework version 3.1)

Convergence of MPLS, VPN, and multiple services

MP-BGP based EVPN solution

The S7500X switch series includes S7503X, S7506X-POE 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 48 port 10G wire speed interface line card
- Supports 12 port 40G wire speed interface line card
- Supports 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 - IRF3.1

IRF3.1 technology is based on industry standard IEEE 802.1BR standard. IRF3.1 includes core switch-CB (Controlling Bridge) and access switch-PE (Port extender), IRF3.1 can virtualize core and access switches into one logical device.

IRF3.1 delivers the following benefits:

- Plug and play working mechanism
- Increased I/O ports and centralized maintenance and management
- Can work with IRF2.0 to further enhance the reliability of CB and PE
- Can work with MDC technology to create multiple logical IRF3.1 domain
- Reduced network management nodes
- Simplified cable deployment
- Data plane virtualization

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	S7510X-POE
Switching capacity*	2.88Tbps	5.76Tbps	9.6Tbps
Forwarding capacity*	2160Mpps	4320Mpps	7200Mpps
MPU slots	2	2	2
LPU slots	3	6	10
MPU Name	LSQM2SUPA0	LSQM1MPUSA0 LSQM1MPUSC0	LSQM1MPUS10B0 LSQM1MPUS10C0
MPU Processor	1GHz 2 cores	1GHz 2 cores	1GHz 2 cores
MPU Flash /SDRAM	Flash 2GB SDRAM 2GB	Flash 2GB 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

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

Features	S7503X	S7506X-POE	S7510X-POE
MPU MGMT Ports	1x 10/100/1000M RJ-45 1x 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
Switching fabric module slots	Included in CPU engine		
Redundancy	Redundant MPUs, power modules, and fan trays		
Ethernet	<p>IEEE 802.1P(CoS priority)</p> <p>IEEE 802.1Q</p> <p>IEEE 802.1ad (QinQ), selective QinQ and Vlan mapping</p> <p>GVRP</p> <p>DLDP</p> <p>LLDP</p> <p>Static MAC configuration</p> <p>Limited MAC learning</p> <p>Port mirroring and traffic mirroring</p> <p>Port aggregation, port isolation, and port mirroring</p> <p>IEEE 802.1D (STP)/802.1w (RSTP)/802.1s (MSTP)</p> <p>IEEE 802.3ad (dynamic link aggregation), static port aggregation, and multi-chassis link aggregation</p> <p>RRPP (Rapid Ring Protection Protocol)</p> <p>Jumbo frame</p> <p>SuperVLAN</p> <p>PVLAN</p> <p>Multicast VLAN+</p> <p>Broadcast/multicast/unknown unicast storm constrain</p> <p>Port based, Protocol based, Subnet-based and MAC based VLAN</p>		
Routing	<p>Static routing, RIP, 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>		

Features	S7503X	S7506X-POE	S7510X-POE
	Pingv6, Tenetv6, FTPv6, TFTPv6, DNSv6, and ICMPv6 IPv4-to-IPv6 transition technologies, such as IPv6 manual tunnel, 6to4 tunnel, ISATAP tunnel, GRE tunnel, and auto IPv4-compatible IPv6 tunnel		
Multicast	PIM-DM, PIM-SM, PIM-SSM, MSDP, MBGP, and Any-RP IGMP V1/V2/V3 and IGMP V1/V2/V3 snooping IGMP Filter and IGMP Fast leave PIM6-DM, PIM6-SM, and PIM6-SSM MLD V1/V2 and MLD V1/V2 snooping Multicast policies and Multicast QoS		
ACL/QoS	Standard and extended ACLs Ingress and egress ACLs VLAN ACLs Global ACLs Ingress/Egress CAR with 8K granularity Diff-Serv QoS Hierarchical QoS (H-QoS), three level queue scheduling 802.1P/DSCP Priority marking and remarking 802.1p, TOS, DSCP, and EXP priority mapping Flexible queue scheduling algorithms including SP, WRR, SP+WRR, CBWFQ 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		
MPLS/VPLS	L3 MPLS VPN L2 VPN: VLL (Martini, Kompella)		

Features	S7503X	S7506X-POE	S7510X-POE
	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 management	Loading and upgrading through XModem/FTP/TFTP SNMP v1/v2/v3 sFlow, NetStream 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		
HA	1+1 redundancy for key components such as MPUs and M+N redundancy for power modules Passive backplane Hot swapping for all components Real-time data backup on active/standby MPUs CPU protection VRRP		

Features	S7503X	S7506X-POE	S7510X-POE
	<p>Hot patching</p> <p>NSR/GR 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</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>		
Operating environment	<p>Temperature: 0°C to 45°C (32°F to 113°F)</p> <p>Humidity: 10% to 95% (non-condensing)</p>		

Features	S7503X	S7506X-POE	S7510X-POE
Input voltage	100 ~ 240V AC; 50/60Hz; 16A		
Maximum power consumption	503W	1291W	1933W
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

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-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
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)

Product ID	Product Description
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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