

# H3C SR8800 SERIES CORE ROUTERS



H3C SR8802, SR8805, SR8808 and SR8812.

## OVERVIEW

H3C® SR8800 Series Core Routers provide wire-speed 10 Gigabit Ethernet forwarding as well as carrier-class service, security and availability to meet the robust demands of service and application providers. These routers are commonly deployed in IP backbone networks, IP metropolitan area networks (MANs), or the core or convergence layers of large IP networks. Offering high forwarding performance and abundant services, SR8800 Series routers can capably fulfill user needs in a range of various networking scenarios.

This core router series features a distributed high-performance network processor (NP) as well as high-capacity crossbar non-blocking switching technology that delivers robust network processing performance and flexibility. A distributed quality of service (QoS) control unit ensures end-to-end service, and core services at a fine granularity. Furthermore, these routers' distributed Operation, Administration and Maintenance (OA&M) detection engine implements fault detection within 30 ms to provide uninterrupted core services. These innovative technologies, paired with the QoS control mechanism, guarantee the smooth operation of multiple users and multiple services.

The following models are available:

- › SR8802: 2 or 3 service slots, 1 or 2 main control unit slots, and a 240 Gbps switching engine.
- › SR8805: 5 service slots, 2 main control unit slots, and a 720 Gbps or 1.44 Tbps switching engine.
- › SR8808: 8 service slots, 2 main control unit slots, and a 720 Gbps or 1.44 Tbps switching engine.
- › SR8812: 12 service slots, 2 main control unit slots, and a 720 Gbps or 1.44 Tbps switching engine.

## KEY BENEFITS

### INNOVATIVE ARCHITECTURE GUARANTEES THE HIGHEST LEVELS OF SERVICE AND PERFORMANCE

SR8800 routers employ an innovative architecture comprised of four separate planes and three forwarding engines; it also integrates the 10 Gbps NP platform with the router's crossbar non-blocking switching technology to meet carrier-class service processing performance and capacity requirements. This minimizes the impact network management and monitoring modules have on the forwarding plane, which enables wire-speed forwarding of 10 Gigabit Ethernet traffic and services.

Additionally, the router's distributed forwarding engine enables hardware-based service processing on interface boards; these boards provide an NP service engine, a QoS control engine and a table retrieval engine. The dedicated forwarding control engine offloads table searching and QoS scheduling from the NP service engine, and directs these functions to the table retrieval engine and the QoS control engine on the service processing boards instead. This greatly accelerates service processing and provides a fine-granularity QoS scheduling mechanism as well as real end-to-end flow control.

## KEY BENEFITS (continued)

### DEDICATED OAM ENGINE GUARANTEES HIGH SERVICE RELIABILITY

Based on the control plane and forwarding plane of a traditional core router, H3C designed an OAM detection plane for SR8800 Series routers to monitor network faults. Using a dedicated OAM engine, this plane detects faults within 30 ms and switches over services within 20 ms without interruption.

Featuring independent detection planes, control planes and forwarding planes, SR8800 routers provide carrier-class reliability. They also offer 1+1 redundancy backup of key components, hot plugging, and hot patching of modules.

### BUILT-IN QoS ENGINE PRECISELY CONTROLS SERVICES

A built-in QoS engine supports hierarchical QoS (H-QoS) and can implement a hierarchical scheduling mechanism based on ports, user groups, users and user services. H-QoS also cooperates with MPLS TE to implement bandwidth reservation and scheduling based on tunnels and services.

This QoS engine provides advanced queue scheduling (PQ, LLQ, CQ, WFQ and CBWFQ), congestion avoidance, traffic policing, traffic shaping and priority marking functions to meet the bandwidth, delay and jitter requirements of various services, and implement differentiated services for different users and different classes of services.

The QoS engine provides powerful packet caching capability up to 200 ms, which can resolve packet loss issues in the event of network traffic bursts.

SR8800 router crossbar switching fabric supports VOQ and E2E flow control technologies, which effectively eliminates Head Of Line (HOL) blocking and implements differentiated services for packets on the crossbar.

## COMPREHENSIVE IPV6 SOLUTION

IPv6 is widely recognized as the base protocol for the Next Generation Network (NGN) and for its particular technical advantages. SR8800 routers completely support the IPv6 protocol stack, including IPv6 routing protocols such as IPv6 static routing, RIPng, Open Shortest Path First (OSPF)v3, Intermediate System to Intermediate System (IS-IS)v6, and Border Gateway Protocol (BGP)4+.

SR8800 routers also support technologies that enable IPv4 to transition to IPv6, including IPv6 manual tunnel, 6to4 tunnel, ISATAP tunnel, GRE tunnel and auto IPv4-compatible IPv6 tunnel. Combined, these guarantee a smooth transition from IPv4 to IPv6.

## MATURE MPLS VPN SOLUTION

SR8800 routers support completely distributed Level 3 MPLS VPN, VLL and VPLS/H-VPLS services, making them ideally suited for high-performance P/PE application scenarios and providing high-quality, multi-layer MPLS VPN solutions. These routers also support distributed multicast VPNs, enabling users to readily deploy high-performance multicast services in MPLS VPN networks and provide multicast services such as video conferencing and remote learning.

## KEY BENEFITS (continued)

### ADVANCED SECURITY MECHANISM

These core routers support a firewall module that extends firewall protection to each port of the router, IPSec that enables secure VPN access service, and virtual firewall functions that enable network firewall rental service for VPN users.

SR8800 Series routers support the following:

- › Hierarchical user management and password protection—Users are authenticated and different rights are granted to different levels of users; available authentication modes include AAA and RADIUS
- › SSHv2.0 provides security encryption channels for user login
- › Standard access control lists (ACLs) and extended ACLs filter packets and prevent network attacks
- › Host firewall function prevents Denial of Service (DoS) and DDoS attacks
- › Unicast Reverse Path Forwarding (uRPF) technology prevents network attacks based on source address spoofing
- › High-performance NAT

SR8800 routers employ 10 Gigabit Ethernet NP hardware technology to implement high-performance network address translation (NAT) services and support load sharing between multiple NAT service boards to improve overall NAT performance. These NAT service boards provide abundant features including NAT, NAT, internal server, ALG, blacklist, and NAT multi-instance, and support numerous policies such as multi-ISP exits and load sharing between internal servers, as well as bidirectional NAT and twice NAT to address a wide spectrum of user requirements in various NAT networking scenarios.

### NETWORK TRAFFIC ANALYSIS

These routers utilize dedicated, high-performance modules for network service analysis—they support sampling and traffic statistics, as well as multiple log formats such as V5, V8 and V9. They also comply with the XLOG log audit system to provide a complete network traffic analysis solution.

Modules can also send logs to both an active server and a standby server to prevent statistical information loss. Through network service analysis, previously invisible network service traffic becomes visible, enabling network administrators to best optimize network resource allocation. A number of network traffic analysis reports are available to provide detailed, up-to-the-minute information that helps enterprises reap the greatest possible ROI from their networks.

## SPECIFICATIONS (Specifications apply to all models, unless otherwise noted)

Features	SR8802	SR8805	SR8808	SR8812
Structure	Integrated chassis, which can be installed in a 19-inch rack			
Number of main control board slots	1/2	2	2	2
Number of service board slots	3/2	5	8	12
Dimensions (W × D × H)	442 mm × 470 mm × 265 mm (17.4in×18.5in×10.4in) (6U)	442 mm × 450 mm × 486 mm (17.4in×18.5in×19.1in) (11U)	442 mm × 450 mm × 886 mm (17.4in×18.5in×34.9in) (21U)	442 mm × 450 mm × 753 mm (17.4in×18.5in×29.7in) (17U)
Weight (full configuration)	≤ 40 kG (88.2lb)	≤ 85 kG (187.4lb)	≤ 110 kG (242.5lb)	≤ 120 kG (264.5lb)
Switching engine capacity	240 Gbps	720 Gbps/1.44 Tbps		
Packet forwarding rate (40-byte packets)	146 Mpps	586 Mpps		
IPv4 Support	Static routing protocols, RIP, OSPF, IS-IS, BGP-4, etc. Parallel routes Policy routing Routing policies GRE tunnel, Ipv4 in Ipv4 tunnel, etc.			
IPv6 Support	Both the IPv4 protocol stack and the IPv6 protocol stack IPv6 static routing protocol, RIPng, OSPFv3, IS-ISv6 and BGP4+ IPv6 policy routing and VRRPv3 Neighbor Discovery Protocol and Path MTU Discovery Ping v6, Telnet v6, FTPv6, TFTPv6, DNSv6 and ICMPv6 IPv4-to-IPv6 transition technologies, including IPv6 manual tunnel, 6to4 tunnel, ISATAP tunnel, GRE tunnel and auto IPv4-compatible IPv6 tunnel Parallel routes Policy routing Routing policies			
Multicast Support	Routing protocols, including PIM-DM, PIM-SM, PIM-SSM, MSDP, MBGP and Any-RP IGMP V1/V2/V3 and IGMP Snooping v1/2/3 PIM6-DM, PIM6-SM and PIM6-SSM Multicast Listener Discovery (MLD) V1/V2 and MLD Snooping v1 Multicast policy and multicast QoS Two levels of multicast duplication (switching fabric and service board) to attain the optimal multicast performance			
MPLS VPN Support	P/PE function and conforms to the RFC2547bis protocol Three inter-AS MPLS VPN modes: Option 1, Option 2 and Option 3 Hierarchy of PE (HoPE) Multi-role host Martini/Kompella VLL to implement point-to-point L2 MPLS VPN Martini/Kompella VPLS/H-VPLS to implement point-to-multipoint L2 MPLS VPN MPLS TE/FRR with the FRR switching time less than 50 ms Distributed multicast VPN			

## SPECIFICATIONS (Continued)

Features	SR8802	SR8805	SR8808	SR8812
PPP Support	CP/PAP/CHAP negotiation MP IP trunk			
ACL Support	Standard ACL and extended ACL Ingress/egress ACL VLAN ACL			
QoS Support	Diff-Serv QoS and Inte-Serv QoS Hierarchy of QoS (H-QoS) and multiple queue scheduling mechanisms including PQ/LLQ/CQ/WFQ/CBWFQ Fine traffic policing at a granularity of 1K Traffic shaping WRED congestion avoidance Priority marking/remarking 802.1p, TOS, DSCP, and EXP priority mapping VOQ			
Ethernet functions Support	802.1Q 802.3d (STP)/802.3w (RSTP)/802.3s (MSTP) IEEE 802.3ad (link aggregation), static port aggregation, and inter-board link aggregation Port mirroring and flow mirroring			
RPR	Inter-board RPR 2.5G/10G RPR and conform to IEEE 802.17 Wrapping and steering protection modes (the hardware self-heals within 50 ms) Dynamic ring selection and static ring selection with improved bandwidth utilization Auto topology discovery of nodes Weighted fairness algorithm and intelligent bandwidth allocation Five classes of services (A0/A1/B0/B1/C), of which class A0 services support ring bandwidth reservation to implement fine QoS			
Interface type	10/100/1000BASE-TX 100BASE-X 1000BASE-X 10GBASE-R/W OC-3 CPOS channelized E1/T1 and E3/T3 OC-12 CPOS channelized E3/T3 OC-48 CPOS channelized OC-3 and OC-12 E1/T1	OC-48c RPR OC-192c RPR OC-3c POS OC-12c POS	OC-48c POS OC-192c POS OC-3c ATM OC-12c ATM	
System management Support	Console/AUX modem/Telnet/SSH2.0 command line configuration Support file uploading/downloading via FTP, TFTP, Xmodem or SFTP Support SNMP v1/V2/V3 Support RMON v1: Groups 1, 2, 3 and 9 Support NTP clock Support Network Quality Analyzer (NQA) Support fault alarm and self-recovery Support data logs			
Reliability	Provide a dedicated hardware-based OAM monitoring engine to implement 30 ms link monitoring Provide 1+1 redundancy backup of the switching and route processing board and the power supply Use passive backplane design that avoids single-point failures Hot swapping of components Real-time hot backup of configuration data on the active main control board and the standby main control board Hot patching to perform online patch upgrading GR for OSFP/BGP/IS-IS/LDP/RSVP MP/ETH port aggregation and link aggregation between boards Inter-board RPR hardware ring protection with the service self-healing time less than 50 ms BFD for BGP/IS-IS/OSPF/RSVP/VPLS PW/VRRP to implement fast fault detection of various protocols (faults are detected within 30 ms) IP FRR and TE FRR (service switching is completed within 50 ms) Provide high network availability up to 99.999%			

## SPECIFICATIONS (Continued)

Features	SR8802	SR8805	SR8808	SR8812
Security Support	Hierarchical management and password protection of users SSHv2, which provides secure encryption channels for user login Both standard ACL and extended ACL to filter packets and prevent network attacks Defense against attacks from ARP, 802.1x, unknown multicast packets, broadcast packets, unknown unicast packets, route scanning packets in the local network segment, packets with TTL=1, and protocol packets Host firewall function MAC address control and IP+MAC binding URPF technology, which can prevent network attacks based on source address spoofing IEEE 802.1x and IEEE 802.1x SERVER Portal authentication and RADIUS authentication Plain text authentication and MD5 authentication of OSPF, RIPv2 and BGPv4 packets Secure NMS SNMPv3 and SSHv2 Broadcast packet suppression Active/standby data backup mechanism			
Firewall Support	ASPF Virtual firewall L2TP	NAT Security zones IPSec	ALG Blacklist function	
NAT Support	Load sharing between multiple NAT boards NAT, NAT and NAT/NAPT multi-instance Bidirectional NAT and twice NAT NAT log function Blacklist function Internal servers Application Layer Gateway (ALG)			
Network traffic analysis	Log formats V5, V8 and V9 Sampling and traffic statistics Multiple log hosts Load sharing between multiple NetStream boards			
Power supply requirements	DC: input voltage -48 V to -60 V AC: input voltage 100 V to 240 V Maximum output power: 1300 W (SR8802), 2000 W (SR8805), 3500 W (SR8808/SR8812)			
Operating environment	Operating temperature: 0°C to 45°C Storage temperature: -40°C to 70°C Operating humidity: 10% to 90% (non-condensing) Storage humidity: 5% to 95% (non-condensing)			
Safety	CE, UL/cUL, FCC-PART15, VCCI, etc.			
EMC	UL 60950-1: 2003 IEC 60950-1: 2001 AS/NZS 3260 ICES-003 Class A CISPR22 Class A AS/NZS CISPR22 Class A CISPR24 IEC/EN 61000-3-2 IEC/EN 61000-4-2 IEC/EN 61000-4-4 IEC/EN 61000-4-6 IEC/EN 61000-4-11	CSA C22.2 No 60950-1:2003 EN 60950-1: 2001 FCC Part 15 (CFR 47) Class A VCCI Class A EN55022 Class A ETSI EN 300 386 V1.3.3 EN55024 IEC/EN 61000-3-3 IEC/EN 61000-4-3 IEC/EN 61000-4-5 IEC/EN 61000-4-8		

## SERVICE AND SUPPORT

H3C Global Services offers the resources and talents of a major corporation plus more than two decades of experience in resolving network challenges and delivering business benefits to enterprises around the world.

Global support with a personalized, local focus in the local language helps drive productivity and minimize expenses. Because H3C understands both the technology and the business, we're the partner you need to remain strong and competitive.

### Suggested Service, Support and Training Offerings

H3C Guardian <sup>SM</sup> Maintenance Service	This service provides comprehensive on-site support and includes advance hardware replacement, expedited telephone technical support and software upgrades
H3C Express <sup>SM</sup> Maintenance Service	This service provides speedy access to H3C shipment of advance hardware replacements (including a four-hour option), expedited telephone technical support and software upgrades
Network Health Check	An activity-auditing service focused on improving network performance and productivity  Includes traffic monitoring, utilization analysis, problem identification, and asset deployment recommendations  Extensive report provides blueprint for action
Network Installation and Implementation Services	Experts set up and configure equipment and integrate technologies to maximize functionality and minimize business disruption  For large and complex sites, implementation services include personalized configuration, project management, extended testing and coaching on network administration
Project Management	Provides extra focus and resources that special projects demand  H3C engineers manage entire process from initial specifications to post-project review  Using structured methodology, requirements are identified, projects planned and progress of implementation activities tracked
Global Education and Training	Self-paced and instructor-led technology and product courses, plus certification programs

For additional information, please visit [www.h3cnetworks.com/services](http://www.h3cnetworks.com/services)

## PRODUCT WARRANTY

The H3C SR8800 Series have a 1-year hardware warranty that includes the power supply and fan assembly.

## ORDERING INFORMATION

SKU	Description
<b>Chassis</b>	
0235A31B	H3C SR8802 10G Core Router Chassis
0235A31C	H3C SR8805 10G Core Router Chassis
0235A31D	H3C SR8808 10G Core Router Chassis
0235A31E	H3C SR8812 10G Core Router Chassis
<b>Main Control Unit and Software</b>	
0231A84N	Main Control Unit for SR8802
0231A82E	Main Control Unit for SR8805/08/12 (1E)
0231A80E	Main Control Unit for SR8805/08/12 (2E)
3130A19E	H3C SR8800 Series Router Software License
<b>Power Options and Memory</b>	
0231A98N	AC P/S 90-264V (Max 800W) for SR8802
0231A83B	DC P/S 36-72V (Max 1300W) for SR8802
0231A48H	AC P/S 90-264V (Max 2000W) for SR8805
0231A48F	DC P/S 36-75V (Max 2000W) for SR8805
0231A67V	DC P/S -36--75V (Max 3500W) for SR8808/12
0231A83S	AC P/S 90-264V (Max 1800W) Universal
0231A88G	AC P/S 90-264V (Max 1800W)
0231A83T	3500W AC Power Frame for SR8808/12
0231A793	1GB SDRAM
0601A001	Compact Flash 1G
<b>SPE Modules</b>	
0231A82F	SPE-1010 Single Service Processing Engine
0231A84P	SPE-1020 Dual Service Processing Engine
0231A39B	SPE-1010-E Single Service Processing Engine (Enhanced)
0231A39R	SPE-1020-E Dual Service Processing Engine (Enhanced)
<b>Intelligent Modules</b>	
0231A88J	Net Analysis Processing Module
0231A88L	Firewall Processing Module
0231A88K	NAT Processing Module
<b>Ethernet Modules</b>	
0231A39L	10-Port 1000BASE-X Module
0231A39M	20-Port 1000BASE-X Module
0231A76C	20-Port 10/100/1000BASE-T Module
0231A39A	1-Port 10GBASE-R/W Module

SKU	Description
<b>CPOS Modules</b>	
0231A76A	1-Port OC-3/STM-1 CPOS (E1/T1) + 8-Port Fiber GE
0231A76B	2-Port OC-3/STM-1 CPOS (E1/T1) + 8-Port Fiber GE
0231A84W	4-Port OC-3/STM-1 CPOS (E3/T3) + 4-Port Fiber GE
0231A85C	1-Port OC-12/STM-4 CPOS (E3/T3) + 4-Port Fiber GE
0231A85H	1-Port OC-48/STM-16 CPOS (OC-3/STM-1)
<b>E1/T1 Modules</b>	
0231A75Y	8-Port E1/T1 + 8-Port Fiber GE
0231A94U	32-Port E1/T1 + 2-Port Fiber GE
<b>POS Modules</b>	
0231A85J	8-Port OC-3c/OC-12c POS/GE
0231A825	2-Port OC-3c/STM-1c POS + 6-Port GE
0231A822	2-Port OC-12c/STM-4c POS + 6-Port GE
0231A826	2-Port OC-48c/STM-16c POS + 4-Port GE
0231A821	4-Port OC-48c/STM-16c POS
0231A828	1-Port OC-192c/STM-64c POS
<b>RPR Modules</b>	
0231A39J	2-Port OC-48c/STM-16c RPR
0231A39K	1-Port OC-192c/STM-64c RPR
<b>ATM Modules</b>	
0231A81Q	4-Port OC-3c/STM-1c ATM
0231A81R	1-Port OC-12c/STM-4c ATM
<b>Cables</b>	
04041054	T1 Cable RJ45/RJ45-3m
04026813	Refiner Converter Cable
14040202	Coaxial Connector, BNC, 75ohm, Dual Female
14080099	Connector for T1V1 and E1 RJ45 Interface
0231A39W	CX4 Cable(50cm)-Stacking/1B/SAS
0404A09E	CAB-E1-120ohm-2m-RJ45
0404A076	CAB-E1-120ohm-15m-RJ45
0404A077	CAB-E1-120ohm-30m-RJ45
0404A078	Extend-CAB-E1-10m-BNC
0404A079	Extend-CAB-E1-15m-BNC
0404A080	Extend-CAB-E1-20m-BNC
0231A0AN	DB28 E1 Cable-120 ohm-3m-RJ45)
0231A0AP	DB28 E1 Cable-75 ohm-3m-BNC)
0231A0AQ	DB28 T1 Cable-100 ohm-3m-RJ45)

Visit [www.H3Cnetworks.com](http://www.H3Cnetworks.com) for more information about H3C enterprise solutions.