# 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.

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# 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, NAPT, internal server, ALG, blacklist, and NAT multi-instance, and support numerous polices 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.<br>Parallel routes<br>Policy routing<br>Routing policies<br>GRE tunnel, Ipv4 in Ipv4 tunnel, etc. | | | |
| IPv6 Support | Both the IPv4 protocol stack and the IPv6 protocol stack<br>IPv6 static routing protocol, RIPng, OSPFv3, IS-ISv6 and BGP4+<br>IPv6 policy routing and VRRPv3<br>Neighbor Discovery Protocol and Path MTU Discovery<br>Ping v6, Telnet v6, FTPv6, TFTPv6, DNSv6 and ICMPv6<br>IPv4-to-IPv6 transition technologies, including IPv6 manual tunnel, 6to4 tunnel, ISATAP tunnel, GRE tunnel and auto IPv4-compatible IPv6 tunnel<br>Parallel routes<br>Policy routing<br>Routing policies | | | |
| Multicast Support | Routing protocols, including PIM-DM, PIM-SM, PIM-SSM, MSDP, MBGP and Any-RP<br>IGMP V1/V2/V3 and IGMP Snooping v1/2/3<br>PIM6-DM, PIM6-SM and PIM6-SSM<br>Multicast Listener Discovery (MLD) V1/V2 and MLD Snooping v1<br>Multicast policy and multicast QoS<br>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<br>Three inter-AS MPLS VPN modes: Option 1, Option 2 and Option 3<br>Hierarchy of PE (HoPE)<br>Multi-role host<br>Martini/Kompella VLL to implement point-to-point L2 MPLS VPN<br>Martini/Kompella VPLS/H-VPLS to implement point-to-multipoint L2 MPLS VPN<br>MPLS TE/FRR with the FRR switching time less than 50 ms<br>Distributed multicast VPN | | | |

# SPECIFICATIONS (Continued)

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

# SPECIFICATIONS (Continued)

| Features | SR8802 | SR8805 | SR8808 | SR8812 |
|---|---|---|---|---|
| Security Support | Hierarchical management and password protection of users<br>SSHv2, which provides secure encryption channels for user login<br>Both standard ACL and extended ACL to filter packets and prevent network attacks<br>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<br>Host firewall function<br>MAC address control and IP+MAC binding<br>URPF technology, which can prevent network attacks based on source address spoofing<br>IEEE 802.1x and IEEE 802.1x SERVER<br>Portal authentication and RADIUS authentication<br>Plain text authentication and MD5 authentication of OSPF, RIPv2 and BGPv4 packets<br>Secure NMS SNMPv3 and SSHv2<br>Broadcast packet suppression<br>Active/standby data backup mechanism | | | |
| Firewall Support | ASPF<br>Virtual firewall<br>L2TP | NAT<br>Security zones<br>IPSec | ALG<br>Blacklist function | |
| NAT Support | Load sharing between multiple NAT boards<br>NAT, NAPT and NAT/NAPT multi-instance<br>Bidirectional NAT and twice NAT<br>NAT log function<br>Blacklist function<br>Internal servers<br>Application Layer Gateway (ALG) | | | |
| Network traffic analysis | Log formats V5, V8 and V9<br>Sampling and traffic statistics<br>Multiple log hosts<br>Load sharing between multiple NetStream boards | | | |
| Power supply requirements | DC: input voltage -48 V to -60 V<br>AC: input voltage 100 V to 240 V<br>Maximum output power: 1300 W (SR8802), 2000 W (SR8805), 3500 W (SR8808/SR8812) | | | |
| Operating environment | Operating temperature: 0°C to 45°C<br>Storage temperature: -40°C to 70°C<br>Operating humidity: 10% to 90% (non-condensing)<br>Storage humidity: 5% to 95% (non-condensing) | | | |
| Safety | CE, UL/cUL, FCC-PART15, VCCI, etc. | | | |
| EMC | UL 60950-1: 2003<br>IEC 60950-1: 2001<br>AS/NZS 3260<br>ICES-003 Class A<br>CISPR22 Class A<br>AS/NZS CISPR22 Class A<br>CISPR24<br>IEC/EN 61000-3-2<br>IEC/EN 61000-4-2<br>IEC/EN 61000-4-4<br>IEC/EN 61000-4-6<br>IEC/EN 61000-4-11 | CSA C22.2 No 60950-1:2003<br>EN 60950-1: 2001<br>FCC Part 15 (CFR 47) Class A<br>VCCI Class A<br>EN55022 Class A<br>ETSI EN 300 386 V1.3.3<br>EN55024<br>IEC/EN 61000-3-3<br>IEC/EN 61000-4-3<br>IEC/EN 61000-4-5<br>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℠ Maintenance Service | This service provides comprehensive on-site support and includes advance hardware replacement, expedited telephone technical support and software upgrades |
| H3C Express℠ 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<br><br>Includes traffic monitoring, utilization analysis, problem identification, and asset deployment recommendations<br><br>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<br><br>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<br><br>H3C engineers manage entire process from initial specifications to post-project review<br><br>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

# PRODUCT WARRANTY

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

# ORDERING INFORMATION

| SKU | Description |
|---|---|
| **Chassis** | |
| 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 |
| **Main Control Unit and Software** | |
| 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 |
| **Power Options and Memory** | |
| 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 |
| **SPE Modules** | |
| 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) |
| **Intelligent Modules** | |
| 0231A88J | Net Analysis Processing Module |
| 0231A88L | Firewall Processing Module |
| 0231A88K | NAT Processing Module |
| **Ethernet Modules** | |
| 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 |
|---|---|
| **CPOS Modules** | |
| 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) |
| **E1/T1 Modules** | |
| 0231A75Y | 8-Port E1/T1 + 8-Port Fiber GE |
| 0231A94U | 32-Port E1/T1 + 2-Port Fiber GE |
| **POS Modules** | |
| 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 |
| **RPR Modules** | |
| 0231A39J | 2-Port OC-48c/STM-16c RPR |
| 0231A39K | 1-Port OC-192c/STM-64c RPR |
| **ATM Modules** | |
| 0231A81Q | 4-Port OC-3c/STM-1c ATM |
| 0231A81R | 1-Port OC-12c/STM-4c ATM |
| **Cables** | |
| 04041054 | T1 Cable RJ45/RJ45-3m |
| 04026813 | Refiner Converter Cable |
| 14040202 | Coaxial Connector, BNC, 75ohm, Dual Female |
| 14080099 | Connector for T1VI and E1 RJ45 Interface |
| 0231A39W | CX4 Cable(50cm)-Stacking/IB/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) |

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