



RG-S6580 Series Data Center Switch Datasheet



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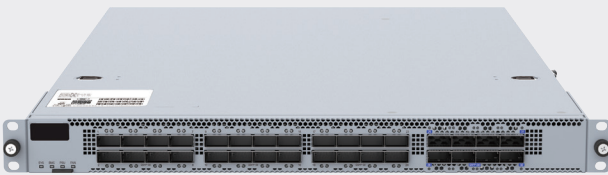
Product Pictures



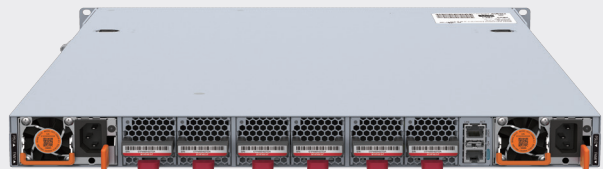
RG-S6580-48CQ8QC Front View



RG-S6580-48CQ8QC Rear View



RG-S6580-24DC8QC Front View



RG-S6580-24DC8QC Rear View

Product Overview

The RG-S6580 series switches are new-generation high-performance and high-density switches released by Ruijie Networks for AI and other application scenarios. The switches are highlighted by the high performance and high density. The switches provide high-density 200GE or 100GE ports and can be used with the RG-S6980-64QC switch to meet design requirements of the spine-leaf network architecture.

There are two models available:

RG-S6580-48CQ8QC: 48 100GE DSFP ports and eight 400GE QSFP-DD ports

RG-S6580-24DC8QC: 24 200GE QSFP56 ports and eight 400GE QSFP-DD ports



| Product Features

Next-Generation Data Center Network

The rapid development of AI/machine learning, and other applications drives the evolution of the next-generation data center network to the 100GE/400GE network. The next-generation data center network requires switches to have higher performance and bandwidth within a specific space. With a height of 1 RU, the RG-S6580 series switches provide a maximum of 48 100GE ports (or 24 200GE ports) and eight 400GE ports, which better meets the evolution requirements of the next-generation data center network.

High-Performance and Low-Delay Data Center Network

The RG-S6580 series switches can work with the RG-S6980-64QC switch to build end-to-end, lossless, low-latency remote direct memory access (RDMA) networks based on priority-based flow control (PFC), explicit congestion notification (ECN), and other network flow control technologies as well as the memory management unit (MMU) technology. It meets network deployment requirements in various scenarios including AI/machine learning, high-performance computing, distributed storage, and big data.

Carrier-Class Reliability Protection

The RG-S6580 series switches support 1+1 power redundancy and 5+1 fan redundancy. All power supply modules and fan modules can be hot-swapped without affecting the normal operation of the switch. The switch provides fault detection and alarm functions for power supply modules and fans. It automatically adjusts the fan speed based on temperature changes, to better adapt to the environment in data centers. The switch also supports device-level and link-level reliability protection as well as overcurrent protection, overvoltage protection and overheating protection.

In addition, the switch integrates various link reliability mechanisms such as process-level graceful restart (GR) and bidirectional forwarding detection (BFD). When multiple services and heavy traffic are carried over the network, these mechanisms can reduce the impact of exceptions on network services and enhance the overall reliability.

IPv4/IPv6 Dual-Stack Protocols and Multilayer Switching

The hardware of the RG-S6580 series switches supports IPv4 and IPv6 protocol stacks and multilayer line-rate switching. The hardware differentiates and processes IPv4 and IPv6 packets. The switch also integrates multiple tunneling technologies such as manual tunneling. Users can flexibly work out IPv6 inter-network communication solutions by using this switch based on IPv6 network planning and network conditions.

The RG-S6580 series switches support a wide range of IPv4 routing protocols, including static routing, Routing Information Protocol (RIP), RIPv2, Open Shortest Path First (OSPF), and Border Gateway Protocol version 4 (BGP4). Users can select appropriate routing protocols based on network environments, to flexibly build networks.

The switch also supports abundant IPv6 routing protocols, including static routing, Routing Information Protocol next generation (RIPng), OSPFv3, and BGP4+. Appropriate routing protocols can be selected to upgrade an existing network to an IPv6 network or build a new IPv6 network.

All-Round Management Performance

The switch provides various management interfaces such as the console interface, management interface, and USB interface, and supports Simple Network Management Protocol (SNMP) v1/v2c/v3 and universal network management platform. It supports CLI-based management, telnet, and cluster management, which facilitates device management. The supported encryption modes such as SSH2.0 and SSL ensure more secure management.

In addition, the switch supports the Switched Port Analyzer (SPAN)/Remote Switched Port Analyzer (RSPAN) and multiple SPAN monitoring ports. It can analyze network traffic and take proper management and maintenance measures accordingly, clearly presenting the service traffic on a network. The switch can provide various network traffic analysis reports so that users can optimize the network structure and adjust resource deployment timely.

Technical Specifications

Hardware Specifications

System Specifications

System Specifications	RG-S6580-48CQ8QC	RG-S6580-24DC8QC
Ports	48 × 100GE ports (DSFP) + 8 × 400GE ports (QSFP-DD)	24 × 200GE ports (QSFP56) + 8 × 400GE ports (QSFP-DD)
Expansion Modules	Not supported	
Expansion Module Slots	Two power supply module slots (1+1 redundancy) Six fan module slots (5+1 redundancy; the system needs at least 5 fan modules)	
Management Port	One management port, one console port, and one USB port, compliant with the USB2.0 standard	
Switching Capacity	16.0 Tbps	
Packet Forwarding Rate	5350 Mpps	
802.1Q VLAN	4094	

Dimensions

Dimensions	RG-S6580-48CQ8QC	RG-S6580-24DC8QC
Dimensions (W × D × H)	442 mm × 700 mm × 44 mm, 1 RU	442 mm × 670.8 mm × 43.6 mm, 1 RU

Power Supply and Consumption

Power Supply and Consumption	RG-S6580-48CQ8QC	RG-S6580-24DC8QC
Power Input	AC input: <ul style="list-style-type: none"> • Rated voltage range: 200 VAC to 240 VAC • Maximum voltage range: 90 VAC to 264 VAC • Frequency: 50 Hz to 60 Hz • Rated input current: 8 A HVDC input: <ul style="list-style-type: none"> • Input voltage range: 192 VDC to 288 VDC • Rated input current: 6.5 A 	

Power Supply and Consumption	RG-S6580-48CQ8QC	RG-S6580-24DC8QC
Overall Power Consumption	Static power consumption: 178 W Dynamic power consumption (maximum): 742 W Typical power consumption: 633 W	Static power consumption: 180 W Dynamic power consumption (maximum): 794 W Typical power consumption: 450 W

Environment and Reliability

Environment and Reliability	RG-S6580-48CQ8QC	RG-S6580-24DC8QC
Temperature Alarm	Temperature alarms and overheat protection	
EMC	GB/T 9254.1	
Safety Regulation	GB 4943.1	
Operating Temperature	0°C to 40°C	
Storage Temperature	-40°C to 70°C	
Operating Humidity	10% to 90% RH (non-condensing)	

Software Specifications

Software Specifications	RG-S6580-48CQ8QC	RG-S6580-24DC8QC
L2 Protocols	IEEE 802.3x, IEEE 802.3ad (Link Aggregation Control Protocol), IEEE 802.1p, IEEE 802.1Q, IEEE 802.1D (STP), IEEE 802.1w (RSTP), IEEE 802.1s (MSTP), Jumbo Frame (9 KB)	
L3 Protocols (IPv4)	BGP4, OSPFv2, RIPv1, RIPv2, LPM routing, Policy-based Routing (PBR), route-policy, Equal-Cost Multi-Path Routing (ECMP), WCMP, VRRP	
IPv6 Basic Protocols	Neighbor Discovery, ICMPv6, Path MTU Discovery, DNSv6, DHCPv6, ICMPv6, ICMPv6 redirection, ACLv6, TCP/UDP for IPv6, SNMP v6, Ping/Traceroute v6, IPv6 RADIUS, Telnet/SSH v6, FTP/TFTP v6, NTP v6, IPv6 MIB support for SNMP, VRRP for IPv6, IPv6 QoS	
IPv6 Features	Static routing, ECMP, PBR, OSPFv3, RIPng, BGP4+	
Data Center Features	PFC, ECN, and other data center features RDMA	
Visualization	gRPC sFlow sampling	

Software Specifications	RG-S6580-48CQ8QC	RG-S6580-24DC8QC
QoS	Mapping of IEEE 802.1p, DSCP, and ToS priorities ACL-based traffic classification Priority marking/remarking Multiple queue scheduling mechanisms, including SP, WRR, WFQ, DRR, SP+WRR, SP+WFQ, and SP+DRR Congestion avoidance mechanisms such as WRED and tail discarding	
HA Design	GR for RIP/OSPF/BGP, BFD, DLDP, REUP dual-link fast switching, RLDP unidirectional link detection, 1+1 power redundancy and fan redundancy, and hot swapping for all cards and power supply modules	
Security Features	Network foundation protection policy (NFPP), CPP, RADIUS/TACACS, IPv4/v6 packet filtering by basic ACL, extended ACL or VLAN-based ACL, plaintext-based and MD5 ciphertext-based authentication for OSPF, and BGPv4 packets, telnet login and password mechanisms for restricted IP addresses, broadcast packet suppression, hierarchical user management	
Management Mode	SNMP v1/v2c/v3, telnet, console, MGMT, RMON, SSHv1/v2, FTP/TFTP, NTP, syslog, SPAN/RSPAN/ERSPAN, ZTP, NETCONF, Python, fan and power alarm, and temperature alarm	
Other Protocols	DHCP client, DHCP relay, DHCP server, DNS client, ARP proxy, and Syslog	

Configuration Guide

The configuration procedure for RG-S6580 series switches is as follows:

- Select the switch (installed with all fan and power supply modules).
- Select optical transceivers based on port requirements.

Ordering Information

Chassis, Fan Module

Product Model	Description
RG-S6580-48CQ8QC	48 × 100GE DSFP ports + 8 × 400GE QSFP-DD ports Two power slots and six fan slots The chassis is installed with two RG-PA1200I-F modules and six M1HFAN II-F fan modules.
RG-S6580-24DC8QC	24 × 200GE QSFP56 ports + 8 × 400GE QSFP-DD ports Two power slots and six fan slots The chassis is installed with two RG-PA1200I-F modules and six M1HFAN II-F fan modules.

Power Supply Module

Product Model	Description
RG-PA1200I-F	1200 W AC module (AC/240 V HVDC)

Fan Module

Product Model	Description
M1HFAN II-F	Fan module (front-to-rear ventilation)

400GE Optical Module

Product Model	Description
400G-QDD-FR4-SM1310	400GE FR4 optical transceiver, QSFP-DD package, LC connector, 1310 nm wavelength The transmission distance is 2000 m when single-mode fibers are used.
400G-QDD-DR4-SM1310	400GE DR4 optical transceiver, QSFP-DD package, MPO connector, 1310 nm wavelength The transmission distance is 500 m when single-mode fibers are used.

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