RG-S6980-64QC

Data Center Switch Datasheet

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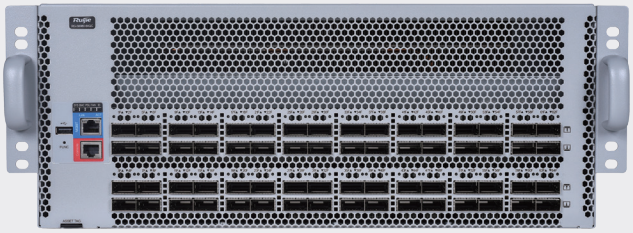
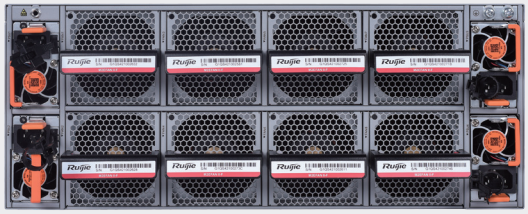
Product Pictures



Front View



Rear View

Isometric View

Product Overview

The RG-S6980-64QC switch is a next-generation modular switch released by Ruijie Networks for artificial intelligence (AI), big data, high-performance computing, and distributed storage applications. It is highlighted by its high performance and high density. It can be used with the RG-S6580-48CQ8QC TOR switch to meet the design requirements of the spine-leaf network architecture.

Product Features

Next-Generation Data Center Network

The rapid development of AI/machine learning, big data, high-performance computing, distributed storage, and other applications is driving the evolution of next-generation data center networks to 100GE/400GE networks. The next-generation data center networks require switches to provide higher performance and greater bandwidth within a specific space. With a height of 4 RU, the RG-S6980-64QC switch provides a maximum of 64 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-S6980-64QC switch can work with the RG-S6580 series switches 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-S6980-64QC switch supports 2+2 power redundancy and 7+1 fan redundancy. All power supply modules and fan modules can be hot-swapped without affecting the normal operation of the device. 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 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 overall reliability.

IPv4/IPv6 Dual-Stack Protocols and Multilayer Switching

The hardware of the RG-S6980-64QC switch 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-S6980-64QC switch supports 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/v2/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 in a timely manner.

Technical Specifications

Hardware Specifications

System Specifications

System Specifications	RG-S6980-64QC
Ports	Fixed 64 × 400GE ports (QSFP-DD)
Expansion Modules	Not supported
Expansion Slots	Four power supply module slots Eight fan module slots
Management Port	One management port, one console port, and one USB port, compliant with the USB2.0 standard
Switching Capacity	51.2 Tbps
Packet Forwarding Rate	10300 Mpps
802.1Q VLAN	4094

Dimensions and Weight

Dimensions and Weight	RG-S6980-64QC
Dimensions (W × D × H)	442 mm × 735 mm × 173.6 mm, 4 RU
Weight	About 48 kg (including eight fan modules and four power supply modules)

Power Supply and Consumption

Power Supply and Consumption	RG-S6980-64QC
Maximum Power Consumption	2524 W
AC	AC input: Rated voltage range: 100 VAC to 127 VAC Frequency: 50 Hz to 60 Hz Rated input current: 12 A (max) Rated voltage range: 200 VAC to 240 VAC Frequency: 50 Hz to 60 Hz Rated input current: 8 A (max)

Dimensions and Weight	RG-AP880-AR
High-voltage DC	HVDC input: Rated voltage: 240 VDC Rated input current: 6.5 A

Environment and Reliability

Environment and Reliability	RG-S6980-64QC
Operating Temperature	0°C to 40°C
Operating Humidity	10% to 90% RH (Non-condensing)

Software Specifications

Software Specifications	RG-S6980-64QC
L2 Protocols	IEEE 802.3ae (10GBase), IEEE 802.3ak, IEEE 802.3an, 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
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

Software Specifications	RG-AP880-AR
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, RIPv2, and BGPv4 packets, telnet login and password mechanisms for restricted IP addresses, broadcast packet suppression, hierarchical user management
Management Mode	SNMP v1/v2/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 the RG-S6980-64QC switch is as follows:

- Select the switch.
- Select the fan and power supply modules.
- Select optical transceivers based on port requirements.

Ordering Information

Chassis, Fan, and Power Supply Modules

Product Model	Description
RG-S6980-64QC	Fixed 64 × 400GE ports, four power supply module slots, and eight fan slots
RG-PA1200I-F	Power supply module, supporting 2+2 redundancy, hot swapping, and front-to-rear ventilation design
M2EFAN II-F	Fan module, supporting 7+1 redundancy, hot swapping, and front-to-rear ventilation design

400GE Optical Transceivers

Product Model	Description
400G-QDD-FR4-SM1310	QSFP-DD package, LC connector, and 1310 nm wavelength The transmission distance is 2 km when single-mode fibers are used.

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For further information, please visit our website https://www.ruijienetworks.com