RG-S6920-4C

Next-Generation Data Center and Cloud Computing Core Switch

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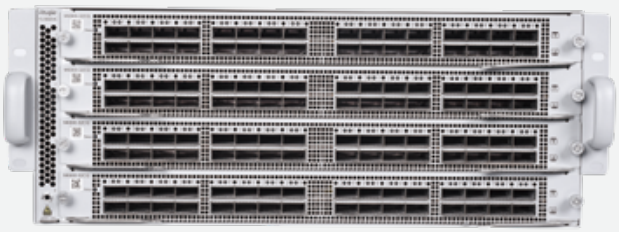
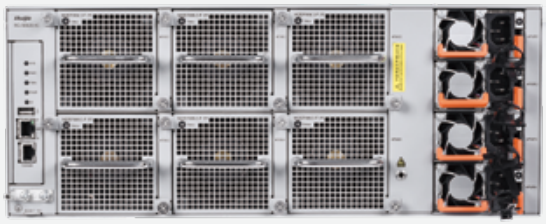
Product Pictures



Front View



Rear View

Isometric View

Product Overview

The RG-S6920-4C switch is a next-generation fixed switch launched by Ruijie Networks for high-end data centers and Artificial Intelligence Generated Content (AIGC) intelligent computing scenarios.

With an advanced hardware architecture design, the RG-S6920-4C switch provides up to 32 x 400GE ports or 128 x 100GE ports. All the ports support line-rate forwarding. The power modules and fan modules are redundant and pluggable. Remote Adaptive Load Balancing (RALB) and Artificial Intelligence Scene Load Balancing (AILB) of Ruijie AI-Fabric solution increase the bandwidth and shorten the AI training time in AIGC intelligent computing scenarios. A typical two-tier network supports up to 512 x 400GE ports, while a typical three-tier network supports up to 2,000 x 400GE ports. One-click RoCE configuration can be employed to import Explicit Congestion Notification (ECN), Priority-based Flow Control (PFC) and other complicated RDMA-related configuration for quick deployment.

Product Features

Next-Generation Data Center Network

The rapid development of AI/machine learning and other applications is driving the evolution of next-generation data center networks to 100GE/400GE networks. The next-generation data center network requires switches to have higher performance and bandwidth within a specific space. With a height of 4 RU, the RG-S6920-4C switch can provide a maximum of 128 x 100GE ports, a combination of 64 x 100GE ports and 16 x 400GE ports, or 32 x 400GE ports, which better meets the evolution requirements of the next-generation data center network.

High-Performance and Low-Latency Data Center Network

The RG-S6920-4C switch can work with the RG-S6510 series switches to build end-to-end, lossless, low-latency remote direct memory access (RDMA) networks by using advanced network flow control technologies such as PFC and ECN, as well as the memory management unit (MMU) technology. In addition, the switch supports RALB and AILB of Ruijie AI-Fabric solution to resolve the equal-cost multi-path routing (ECMP) conflict caused by per-flow load balancing and increase the bandwidth in the AIGC intelligent computing scenario, thereby shortening the AI training time. This meets network deployment requirements across various scenarios including AI, machine learning, high-performance computing, distributed storage, big data, and other applications..

Carrier-Class High Reliability

The RG-S6920-4C switch supports 2+2 power redundancy and 5+1 fan redundancy. All power modules and fan modules can be hot-swapped without affecting service continuity on the switch. The switch provides fault detection and alarm functions for power modules and fan modules, and can automatically adjust fan speed based on ambient temperature to adapt to environment changes in data centers. The switch also supports device-level and link-level reliability protection as well as overcurrent protection, overvoltage protection, and over temperature 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.

Quick Deployment

The RG-S6920-4C switch features automatic configuration of network parameters and profile-based automatic provisioning, allowing for quick deployment and significantly shortening the project deployment time.

It also supports automated acceptance testing, including cable testing, optical transceiver testing, and device testing, to ensure high-quality delivery

Intelligent O&M

The switch offers AI-powered automatic ECN tuning, real-time telemetry of key RoCE network metrics, visualization of server status and RoCE services, along with congestion and packet loss analytics.

IPv4/IPv6 Dual-Stack Protocols and Multilayer Switching

The hardware of the RG-S6920-4C switch supports IPv4 and IPv6 protocol stacks and multilayer line-rate switching. It is capable of distinguishing IPv4 and IPv6 packets and supports multiple tunneling technologies (such as manually configured tunnels), providing flexible communication solutions based on IPv6 network planning and the current network environment.

The RG-S6920-4C switch supports a wide range of IPv4 routing protocols, including static routing, Routing Information Protocol (RIP), Open Shortest Path First (OSPF), Intermediate System to Intermediate System (IS-IS), 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+. Users can select appropriate routing protocols for upgrading an existing network to an IPv6 network or building a new IPv6 network..

All-Round Management Performance

The switch provides various management ports such as the console port, management port, and USB port, and supports Simple Network Management Protocol (SNMP) v1/v2c/v3, and the 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 enhance management security.
In addition, the switch supports the switched port analyzer (SPAN), remote switched port analyzer (RSPAN), and multiple SPAN monitoring ports, making network traffic monitoring intuitive. The switch provides various network traffic analysis reports to help you promptly optimize the network architecture and schedule resources.

Technical Specifications

Hardware Specifications

Item	RG-S6920-4C
Dimensions (W × D × H)	442 mm x 735 mm x 173.6 mm (17.40 in. x 28.94 in. x 6.83 in.)
Rack height	4 RU
Unit weight	25.15 kg (55.45 lbs., empty chassis) 34.25 kg (75.51 lbs., a chassis with four power modules and six fan modules)
Switching capacity	25.6 Tbps
Packet forwarding rate	8000 Mpps
Management port	1 x RJ45 console port 1 x RJ45 MGMT port
USB port	1 x USB 2.0 port (Type A connector)
Module slot	4 x expansion module slots 4 x power module slots 6 x fan module slots
Power consumption	Maximum power consumption: 1950 W Typical power consumption: 1469 W Static power consumption: 516 W
Power input	RG-PA1200I-F (AC input) Rated input voltage: 100 V AC to 127 V AC, 200 V AC to 240 V AC, 50 Hz/60 Hz Maximum input voltage: 90 V AC to 140 V AC, 180 V AC to 264 V AC, 47 Hz to 63 Hz Rated input current: 13.8 A (100 V AC to 127 V AC) 8.5 A (200 V AC to 240 V AC) Power port type: C14

System Specifications	RG-S6920-4C
Power input	RG-PA1200I-F (HVDC input): Rated input voltage: 240 V DC Maximum input voltage: 180 V DC to 300 V DC Rated current: 6.5 A Power port type: C14
Temperature	Operating temperature: 0°C to 40°C (32°F to 104°F) Storage temperature: –40°C to +70°C (–40°F to +158°F) Note: At altitudes ranging from 2000 m (6561.68 ft.) to 5000 m (16,404.20 ft.), the maximum temperature decreases by 1°C (1.8°F) for every 200 m (656.17 ft.) increase in elevation.
Humidity	Operating humidity: 10% RH to 90% RH (non-condensing) Storage humidity: 5% RH to 95% RH (non-condensing)
Altitude	Operating altitude: ≤ 5,000 m (16,404.20 ft.) Storage altitude: ≤ 5000 m (16,404.20 ft.)
Cooling	Air cooling, front-to-rear airflow (port-side intake)

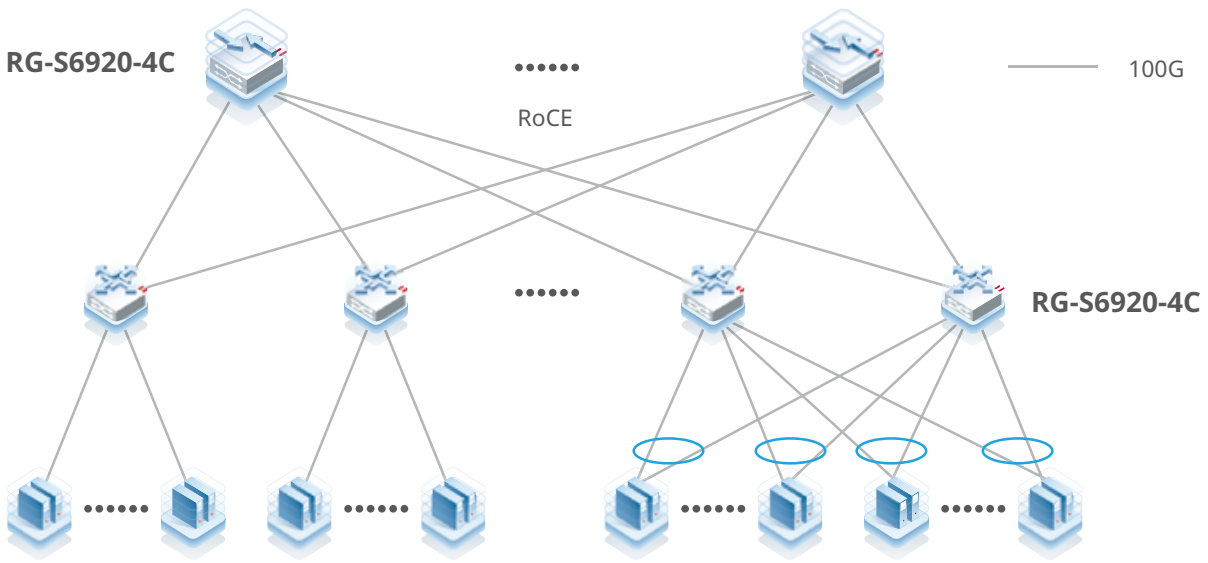
Software Specifications

Item	RG-S6920-4C
Layer 2 Protocols	IEEE802.3ad (Link Aggregation Control Protocol), IEEE802.1p, IEEE802.1Q, IEEE802.1D (STP), IEEE802.1w (RSTP), IEEE802.1s (MSTP), IGMP Snooping, MLD Snooping, Jumbo Frame (9 KB), IEEE802.1ad (QinQ and selective QinQ), GVRP
Layer 3 Protocols (IPv4)	BGP4, OSPFv2, RIPv1, RIPv2, MBGP, LPM Routing, Policy-based Routing (PBR), Route-policy, Equal-Cost Multi-Path Routing (ECMP), WCMP, VRRP, IGMP v1/v2/v3, DVMRP, PIM-SSM/SM/DM, MSDP, Any-RP
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+, MLDv1/v2, PIM-SMv6, manual tunnel and IPv4 over IPv6 tunnel
Data Center Features	PFC, ECN, and other data center features M-LAG RDMA OpenFlow 1.3 BGP-EVPN Global load balancing technologies such as RALB and AILB
Visualization	gRPC sFLOW sampling INT

Item	RG-S6920-4C
QoS	Mapping of IEEE 802.1p, DSCP, and ToS priorities ACL-based traffic classification Priority marking/remarking Multiple queue scheduling mechanisms, including SP, WRR, DRR, SP+WRR, 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, DDoS attack defense, illegitimate data packet detection, data encryption, source IP spoofing prevention, IP scanning prevention, 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, uRPF, broadcast packet suppression, DHCP Snooping, ARP spoofing prevention, ARP check, and 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 function, temperature alarm function, and configuration rollback
Other Protocols	DHCP Client, DHCP Relay, DHCP Server, DNS Client, UDP relay, ARP Proxy, and Syslog

Typical Applications

AIGC Network Scenario



Ordering Guide

The configuration procedure for the RG-S6920-4C switch is as follows:

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

Ordering Information

Chassis, Fan, and Power Supply Modules

Product Model	Description
RG-S6920-4C	Four expansion slots, four power supply module slots, and six fan module slots The power supply module model is RG-PA1200I-F and the fan model is M2EFAN I-F.
RG-PA1200I-F	Power supply module, supporting 2+2 redundancy, hot swapping, and front-to-rear ventilation design
M2EFAN I-F	Fan module, supporting 5+1 redundancy, hot swapping, and front-to-rear ventilation design

Expansion Modules

Product Model	Description
M6900-32CQ	32 x 40GE /100GE optical ports (QSFP28)
M6900-16CQ4QC	16 × 100GE optical ports (QSFP28) + 4 × 400GE optical ports (QSFP-DD)
M6900-08QC	8 x 400GE optical ports (QSFP-DD)

40GE Optical Transceivers

Product Model	Description
40G-QSFP-iLR4-SM1310	40G iLR4 optical transceiver, QSFP+, Duplex LC, 2 km (6,561.68 ft.) over single-mode fiber (SMF)
40G-QSFP-LR4-SM1310	40G LR4 optical transceiver, QSFP+, Duplex LC, 10 km (32,808.40 ft.) over SMF
40G-QSFP-LSR-MM850	40G SR optical transceiver, QSFP+ form factor, MPO, 400 m (1312.34 ft.) over multimode fiber (MMF)

Product Model	Description
40G-QSFP-SR-MM850	40G SR optical transceiver, QSFP+ form factor, MPO, 150 m (492.13 ft.) over MMF
40G-QSFP-LX4-SM1310	40G LX4 optical transceiver, QSFP+ form factor, Duplex LC, 150 m (492.13 ft.) over OM3/OM4 MMF, 2 km (6,561.68 ft.) over SMF
40G-AOC-30M	40G QSFP+ AOC, 30 m (98.43 ft.)
40G-AOC-5M	40G QSFP+ AOC, 5 m (16.40 ft.)

100GE Optical Transceivers

Model	Description
100G-QSFP-SR-MM850	100G SR optical transceiver, QSFP28 form factor, MPO, 850 nm, 100 m (328.08 ft.) over MMF
100G-QSFP-iLR4-SM1310	100G iLR4 optical transceiver, QSFP28 form factor, Duplex LC, 1310 nm, 2 km (6,561.68 ft.) over SMF
100G-QSFP-LR4-SM1310	100G LR4 optical transceiver, QSFP28 form factor, Duplex LC, 1310 nm, 10 km (32,808.40 ft.) over SMF
100G-QSFP-ER4-SM1310	100GE ER4 optical transceiver, QSFP28 form factor, Duplex LC, 1310 nm, 40 km (131,233.60 ft.) over SMF
100G-AOC-10M	100G AOC, QSFP28 form factor, 10 m (32.81 ft.)
100G-AOC-5M	100G AOC, QSFP28 form factor, 5 m (16.40 ft.)

200GE Optical Transceivers

Model	Description
200G-Q56-SR4-MM850(D)	200GE SR4 optical transceiver, QSFP56 form factor, MPO12/APC, 850 nm, 100 m (328.08 ft.) over OM4 MPO MMF, CMIS-compliance

400GE Optical Transceivers

Model	Description
400G-QDD-DR4-SM1310	400G DR4 optical transceiver, QSFP-DD form factor, MPO-12 APC, 1310 nm, 500 m (1,640.42 ft.) over SMF

Model	Description
400G-QDD-FR4-SM1310	400G FR4 optical transceiver, QSFP-DD form factor, Duplex LC, 1310 nm, 2 km (6,561.68 ft.) over SMF
400G-QDD-SR8-MM850	400G SR8 optical transceiver, QSFP-DD form factor, MPO-16 APC, 850 nm, 100 m (328.08 ft.) over MMF
400G-QDD-AOCxM	400G AOC, QSFP-DD form factor, X = 3 m (9.84 ft.)/5 m (16.40 ft.)/10 m (32.81 ft.)/15 m (49.21 ft.)/20 m (65.62 ft.)/30 m (98.43 ft.)/50 m (164.04 ft.)

Warranty

For more information about warranty terms and period, contact your local sales agency:

- Warranty terms: https://www.ruijie.com/support/servicepolicy
- Warranty period: https://www.ruijie.com/support/servicepolicy/Service-Support-Summany/

Note: The warranty terms are subject to the terms of different countries and distributors.

More Information

For more information about Ruijie Networks, visit the official Ruijie website or contact your local sales agency:

- Ruijie Networks official website: https://www.ruijie.com/
- Online support: https://www.ruijie.com/support
- Hotline support: https://www.ruijie.com/support/hotline
- Email support: service_rj@ruijie.com

Ruijie Networks Co., Ltd.

For more information, visit www.ruijie.com or call 86-400-620-8818.