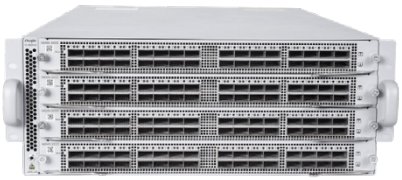

RG-S6920-4C Switch Datasheet

FEATURE HIGHLIGHTS

- Compact 4U design with high-density 100G and 400G
- Maximum support 128x100G ports or 64x100G ports+16x400G ports ports
- Bundled with Advanced Data Center features without additional investment e.g. RDMA, IPv6, INT, etc.
- High reliability: Hot patches, power and fan redundancy support

Ruijie's RG-S6920-4C Switch is a new-generation switch released by Ruijie Networks for cloud data centers and high-end parks. It is highlighted by its high performance, high density, and flexible card insertion. RG-S6920-4C is a 4U modular switch with 4 expansion slots which can accommodate a maximum of 128x100G ports or 64 x100G ports+16x400G ports. The switch provides 2+2 power redundancy and 5+1 fan redundancy and both the power module and fan support hot swap. Working with Ruijie RG-S6510 series ToR switches, fully meet the latest cloud computing Spine-Leaf layer 3 architecture design.

Figure 1: RG-S6920-4C (Rear View)

Figure 2: M6900-32CQ

PRODUCT FEATURES

Next-Generation Data Center Network

The rapid development of applications such as AI/machine learning has driven the evolution of next-generation data center networks to 100G/400G. The next-generation data center network requires equipment in a unit space with higher performance and greater bandwidth. RG-S6920-4C can provide a maximum of 128 100G ports, or 64x100G ports+16x400G ports in a 4U height space. It satisfies the evolution requirements of the next-generation data center networkwell.

RDMA Lossless Infrastructure

The switch implements low-delay forwarding of the lossless Ethernet based on the Remote Direct Memory Access (RDMA) and optimizes service forwarding performance. It greatly reduces the operation cost per bit of the entire network and enhances the competitive edge of service products.

Carrier-Class Reliability Protection

The RG-S6920-4C is equipped with built-in redundant power modules and modular fan assemblies. All interface boards, power modules, and fan modules can be hot-swapped without affecting normal running of the device.

The switch provides fault detection and alarm functions for power modules and fans. It can automatically adjust the fan speed based on temperature changes, to better adapt to the environment in data centers.

The device also provides multiple device-level and link-level reliability protection as well as overcurrent protection, overvoltage protection and overheating protection.

In addition, the switch supports Graceful Restart (GR), Bidirectional Forwarding Detection (BFD), and other mechanisms. They ensure appropriate network convergence time and normal running of services even if multiple services and heavy traffic are carried over the network.

IPv4/IPv6 Dual-Stack Multi-Layer Switching

The hardware of RG-S6920-4C supports IPv4 and IPv6 protocol stacks and multilayer line-rate switching. The hardware differentiates and processes IPv4 and IPv6 packets and supports multiple tunnel technologies (such as manually configured tunnels, automatic tunnels, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels). The switch can be used to flexibly build IPv6 inter-network communication solutions based on IPv6 network planning and network conditions.

The device supports numerous IPv4 routing protocols, including static routing, Routing Information Protocol (RIP), Open Shortest Path First (OSPF), Intermediate System to Intermediate System (IS-IS), Border Gateway Protocol version 4 (BGP4). Users can select required routing protocols based on network environments, to flexibly build networks.

The device 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.

Advanced Management

The switch provides various management interfaces such as the Console interface, MGMT interface, and USB interface, and supports SNMP v1/v2/v3 as well as universal network management platform and service management software such as BMC. 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 device supports the Switched Port Analyzer (SPAN)/Remote Switched Port Analyzer (RSPAN) and multiple SPAN observation ports. It can analyze network traffic and take proper management and maintenance measures accordingly, clearly presenting the service traffic on a network. The device 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

Model		RG-S6920-4C
Ports		128x100G ports, or 64x100G ports + 16x400G ports
Module Slots		4
Management Ports		One MGMT port, one Console port, and one USB port, compliant with the USB2.0 standard
Expansion Modules		4 Power module slots (2+2 Hot swappable) 6 Fan module slots (5+1 Hot swappable)
Switching Capacity		25.6 Tbit/s
Packet Forwarding Rate		8000 Mpps
CPU		4 cores processor at 2.2GHz
RAM		8GB
Flash Memory		64GB(SSD)
System Buffer		64MB
Dimensions		442 x 735 x 173.5 (W x D x H, mm) (4U height)
Operating Temperature		0°C to 40°C
Operating Humidity (non-condensing)		10% to 90% RH
Weight		About 43.5 kg (including full equipped line modules, power modules and fans)
Maximum Power		< 1950 W
Input Voltage	AC	Rated voltage range: 100 V to 240V AC, 50–60 Hz Maximum voltage range: 90 V to 264 V AC, 50–60 Hz
	High-voltage DC	Input voltage range: 192–288 V DC
Reliability		390,000 hours
Safety Standards		IEC 62368, EN 60950-1, GB4943-2011
Emission Standards		GB9254-2008 CLASSA, EN 300 386, EN 55032, EN 61000-3-2, EN 61000-3-3, EN 55035, EN61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-8, EN 61000-4-11, CISPR 32

Functions and Features

Model	RG-S6920-4C
Layer-2 Protocols	IEEE802.3ad (link aggregation), IEEE802.1p, IEEE802.1x, IEEE802.1Q, IEEE802.1D (STP), IEEE802.1w (RSTP), IEEE802.1s (MSTP), IGMP Snooping, Jumbo Frame (9 KB), IEEE802.1ad (QinQ), and GVRP
Layer-3 Protocols (IPv4)	BGP4, OSPFv2, RIPv1, RIPv2, MBGP, LPM Routing, Policy-based Routing, Route-policy, ECMP, WCMP, VRRP, IGMP v1/v2/v3, PIM-SSM/SM/DM, MSDP, Any-RP
IPv6 Basic Protocols	Neighbor Discovery (ND), 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, equal-cost routing, PBR, OSPFv3, RIPng, BGP4+, MLDv1/v2, PIM-SMv6, manual tunnel, automatic tunnel*, IPv4 over IPv6 tunnel, and ISATAP tunnel*
Data Center Features	Supports PFC, ECN, and other data center features. Supports RDMA. Supports OpenFlow 1.3.
Visualization	Supports the GRPC protocol. Supports sFLOW high-precision sampling. Supports INT.
QoS	Supports EXP priority mapping including 802.1p, DSCP, and ToS. Supports ACL-based traffic classification. Supports priority marking/remarking. Supports multiple queue scheduling mechanisms including SP, WRR, DRR, SP+WRR, and SP+DRR.
HA Design	Supports GR for RIP, OSPF, BGP, and other routing protocols. Supports BFD. Supports REUP dual-link fast switching and RLDP unidirectional link detection. Supports 2+2 power redundancy and 5+1 fan redundancy. Supports hot swap for all cards and power modules.
Security Functions	Network Foundation Protection Policy (NFPP), CPP, DDoS attack defense, illegitimate data packet detection, data encryption, source IP spoofing prevention, IP scanning prevention, RADIUS/TACACS, ACL-based IPv4/v6 packet filtering by standard and extended VLANs, 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, gateway ARP spoofing prevention, and ARP check
Management	SNMP v1/v2/v3, Telnet, Console, MGMT, RMON, SSHv1/v2, FTP/TFTP-based file upload/download management, NTP, Syslog, ZTP, SPAN/RSPAN, PYTHON, Fan/Power/Temperature abnormal alerts
Other Protocols	DHCP Client, DHCP Relay, DHCP Server, DNS Client, UDP relay, ARP Proxy, and Syslog

Performance and Capacity

Model	RG-S6920-4C
Maximum MAC Address	8K
Maximum Forwarding Routes (FIB IPv4/IPv6)	750K
ARP Table	16K
Maximum VRF	1K
Maximum IPv6 ND (Neighbor Discovery)	6K
Maximum VRRP Groups	500
Maximum ECMP Paths	512
Maximum MSTP Instance	64
Maximum 802.1q VLAN	4K

Application

Ruijie RG-S6900 and RG-S6500 Series is designed for the data center network in AI, Big Data and Cloud Computing era. With the breakthrough of deep learning algorithm, enormous sample data and HPC(high-performance computing) capabilities are used in the data center. The data center need a network which featured with high throughput, zero packet loss and low latency. With the technologies related to RoCE(RDMA over Converged Ethernet) , the RG-S6900 & RG-S6500 series can be used to help kinds of customers, such as Cloud providers, AI and Big Data companies and HPC users, build a visible and lossless data center.

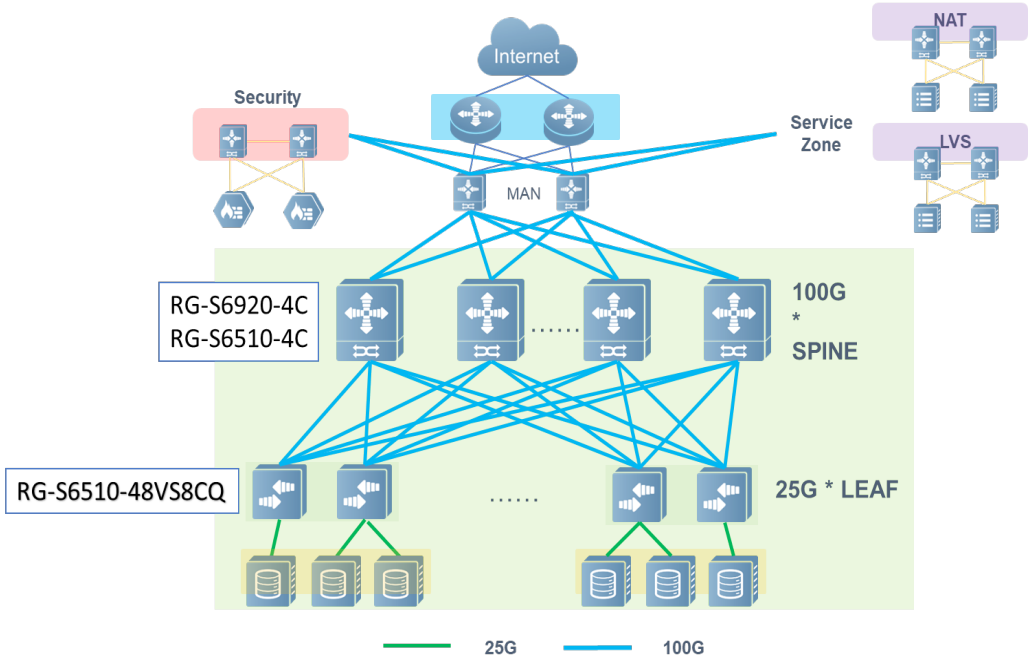

Figure 3: Data Center Network Architecture

Ordering Information

1. Switches, expansion modules, fans and power modules

Model	Description
RG-S6920-4C	4-slot module 100G/400G Data Centre Switch (4U Compact Design) (Max ports: 128x100G ports or 64 x100G ports+16x400G ports) Support 2+2 power supply redundancy (factory default with 4 RG-PA1200I-F) Support 5+1 fan tray redundancy (factory default with 6 M2EFAN I-F)
RG-PA1200I-F	AC Power Supply Module for RG-S6920-4C, support 1+1 redundancy, hot swap, and front-to-rear ventilation channel design
M2EFAN I-F	Fan Tray for RG-S6920-4C, support 2+1 redundancy, hot swap, and front-to-rear ventilation channel design
M6900-32CQ	32-port 100G (QSFP28) optical line module
M6900-16CQ4QC	16-port 100G (QSFP28) + 4-port 400G (QSFP-DD) optical line module

2. Transceivers and Accessories

Model	Description
100G-QSFP-SR-MM850	(SR4 optical transceiver) 100G SR optical transceiver, QSFP28 encapsulation, MPO interfaces, and 850 nm wavelength. The transmission distance is 100 m when OM4 optical fibers are used and 70 m when OM3 optical fibers are used. It can be split into four 25GE SFP+ multi-mode short-distance optical transceivers.
100G-QSFP-iLR4-SM1310	(CWDM4 optical transceiver) 100G iLR optical transceiver, QSFP28 encapsulation, LC interfaces, and 1310 nm wavelength. The maximum transmission distance is 2 km (applicable to single-mode optical fibers).
100G-QSFP-LR4-SM1310	(LR4 optical transceiver) 100G LR optical transceiver, QSFP28 encapsulation, LC interfaces, and 1310 nm wavelength. The maximum transmission distance is 10 km (applicable to single-mode optical fibers).
100G-AOC-10M	100G QSFP28 Optical Stack Cable (included both side transceivers), 10 Meters