



# RG-S6580 Series Data Center Switch Datasheet



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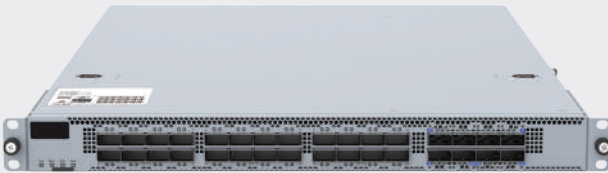
## Product Pictures



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)<br>Six fan module slots (5+1 redundancy; the system needs at least 5 fan modules are required) |                                                       |
| 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 x 700 mm x 44 mm (17.40 in. x 27.56 in. x 1.73 in., 1 RU)                | 442 mm x 670.8 mm x 43.6 mm (17.40 in. x 26.41 in. x 1.72 in., 1 RU)          |
| Weight                 | Chassis with six fan modules and two power supply modules: 11.5 kg (25.35 lbs.) | Chassis with six fan modules and two power supply modules: 11 kg (24.25 lbs.) |

### Power Supply and Consumption

| Power Supply and Consumption | RG-S6580-48CQ8QC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RG-S6580-24DC8QC                                                                                            |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Power Input                  | AC input<br>RG-PA1200I-F module <ul style="list-style-type: none"> <li>Rated voltage: 110 V AC/220 V AC</li> <li>Rated voltage range: 100 V AC to 127 V AC (50 Hz to 60 Hz), rated current: 13.8 A</li> <li>Rated voltage range: 200 V AC to 240 V AC (50 Hz to 60 Hz), rated current: 8.5 A</li> <li>Max voltage range: 90 V AC to 264 V AC (47 Hz to 63 Hz)</li> </ul> HVDC input<br>RG-PA1200I-F module <ul style="list-style-type: none"> <li>Rated voltage: 240 V DC</li> <li>Max voltage range: 180 V DC to 300 V DC</li> <li>Max input current: 6.5 A</li> </ul> |                                                                                                             |
| Maximum Power Consumption    | <ul style="list-style-type: none"> <li>Max: 742 W</li> <li>Typical: 633 W</li> <li>Static: 178 W</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Max: 850 W</li> <li>Typical: 700 W</li> <li>Static: 300 W</li> </ul> |

## Environment and Reliability

| Environment and Reliability | RG-S6580-48CQ8QC                                                                                   | RG-S6580-24DC8QC |
|-----------------------------|----------------------------------------------------------------------------------------------------|------------------|
| Temperature Alarm           | Temperature alarms and overheat protection                                                         |                  |
| Operating Temperature       | 0°C to 40°C (32°F to 104°F)                                                                        |                  |
| Storage Temperature         | -40°C to +70°C (-40°F to +158°F)                                                                   |                  |
| Operating Humidity          | 10% RH to 90% RH (non-condensing)                                                                  |                  |
| Storage humidity            | 5% to 95% RH (non-condensing)                                                                      |                  |
| Working altitude            | Operating altitude: up to 5000 m (16,404.20 ft.)<br>Storage altitude: up to 5000 m (16,404.20 ft.) |                  |

## 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+                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ACL                     | ACL 80, ACL-based Redirection, IPv6 ACL, Extended/Standard IP/MAC-based ACL, Time-based ACL, Global ACL, When an ACL is applied to different physical interfaces or SVIs, resources can be shared., ACL Counter, ACL Counter Only, ACL Logging, Displaying ACL Resource Usage, Expert-level ACL, IPv4 UDF ACL, Global ACL Counter Only, Matching Against the Inner 5-Tuple of the VXLAN, IPv6 UDF ACL, Matching Against the Inner 5-Tuple of the Passing VXLAN, Ingress/Egress ACLs | ACL80, ACL-based redirection, IPv6 ACL, Extended/Standard IP ACL, Extended MAC ACL, Time-based ACL, Global ACL, Resource sharing in the case of applying an ACL on different physical ports or SVIs, ACL counter, ACL counter only, ACL logging, Displaying ACL resource usage, ACL-based re-marking, Expert-level ACL, IPv4 user-defined function(UDF) ACL, Configuring ACL counter-only globally, ACL matching against the inner 5-tuple of VXLAN packets, IPv6 UDF ACL, ACL matching against the inner 5-tuple of packets passing through the VXLAN |
| Data Center Features    | PFC, ECN, and other data center features<br>RDMA                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Visualization           | gRPC<br>sFlow sampling                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Software Specifications | RG-S6580-48CQ8QC                                                                                                                                                                                                                                                                                                                                          | RG-S6580-24DC8QC |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| QoS                     | Mapping of IEEE 802.1p, DSCP, and ToS priorities<br>ACL-based traffic classification<br>Priority marking/remarking<br>Multiple queue scheduling mechanisms, including SP, WRR, WFQ, DRR, SP+WRR, SP+WFQ, and SP+DRR<br>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                                                                                                                                                                                                                                                                                   |                  |

## Safety and Regulatory Compliance

| Specifications                      | RG-S6580-48CQ8QC                                                                                                                                                                                                                                                                  | RG-S6580-24DC8QC                                                                                                                                          |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety                              | <ul style="list-style-type: none"> <li>• IEC 62368-1</li> <li>• EN 62368-1</li> <li>• BS EN 62368-1</li> <li>• GB 4943.1</li> </ul>                                                                                                                                               | <ul style="list-style-type: none"> <li>• GB 4943.1</li> </ul>                                                                                             |
| Electromagnetic Compatibility (EMC) | <ul style="list-style-type: none"> <li>• EN 55032</li> <li>• BS EN 55032</li> <li>• EN 55035</li> <li>• BS EN 55035</li> <li>• EN 61000-3-2</li> <li>• EN 61000-3-3</li> <li>• BS EN 61000-3-2</li> <li>• BS EN 61000-3-3</li> <li>• EN 300 386</li> <li>• GB/T 9254.1</li> </ul> | <ul style="list-style-type: none"> <li>• GB/T 9254.1</li> <li>• VCCI-CISPR 32:2016</li> </ul>                                                             |
| Environment                         | <ul style="list-style-type: none"> <li>• 2011/65/EU EN 50581</li> <li>• 2012/19/EU EN 50419</li> <li>• (EC) No.1907/2006</li> <li>• GB/T 26572</li> </ul>                                                                                                                         | <ul style="list-style-type: none"> <li>• 2011/65/EU EN 50581</li> <li>• 2012/19/EU EN 50419</li> <li>• (EC) No.1907/2006</li> <li>• GB/T 26572</li> </ul> |

\*For more country-specific regulatory information and approvals, contact your local sales agency.

# 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<br>Two power slots and six fan slots<br>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<br>Two power slots and six fan slots<br>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) |

### 400GBASE Series Optical Modules

| Product Model       | Description                                                                              |
|---------------------|------------------------------------------------------------------------------------------|
| 400G-QDD-SR8-MM850  | 400G SR8 module, QSFP-DD form factor, MPO-16 APC, 850 nm, 100 m (328.08 ft.) over MMF    |
| 400G-QDD-DR4-SM1310 | 400G DR4 module, QSFP-DD form factor, MPO-12 APC, 1310 nm, 500 m (1,640.42 ft.) over SMF |

| Product Model       | Description                                                                            |
|---------------------|----------------------------------------------------------------------------------------|
| 400G-QDD-FR4-SM1310 | 400G FR4 module, QSFP-DD form factor, Duplex LC, 1310 nm, 2 km (6,561.68 ft.) over SMF |

## 100GBASE Series Optical Modules

| Product Model         | Description                                                                              |
|-----------------------|------------------------------------------------------------------------------------------|
| 100G-AOC-5M           | 100G QSFP28 AOC cable, 5 m (16.40 ft.)                                                   |
| 100G-AOC-10M          | 100G QSFP28 AOC cable, 10 m (32.81 ft.)                                                  |
| 100G-QSFP-SR-MM850    | 100G SR module, QSFP28 form factor, MPO, 850 nm, 100 m (328.08 ft.) over MMF             |
| 100G-QSFP-iLR4-SM1310 | 100G iLR4 module, QSFP28 form factor, Duplex LC, 1310 nm, 2 km (6,561.68 ft.) over SMF   |
| 100G-QSFP-LR4-SM1310  | 100G LR4 module, QSFP28 form factor, Duplex LC, 1310 nm, 10 km (32,808.40 ft.) over SMF  |
| 100G-QSFP-ER4-SM1310  | 100G ER4 module, QSFP28 form factor, Duplex LC, 1310 nm, 40 km (131,233.59 ft.) over SMF |

## Warranty

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

- Warranty terms: <https://www.ruijienetworks.com/support/servicepolicy>
- Warranty period: <https://www.ruijienetworks.com/support/servicepolicy/Service-Support-Summary/>

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.ruijienetworks.com/>
- Online support: <https://www.ruijienetworks.com/support>
- Hotline support: <https://www.ruijienetworks.com/support/hotline>
- Email support: [service\\_rj@ruijienetworks.com](mailto:service_rj@ruijienetworks.com)



**Ruijie Networks Co., Ltd.**

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