DCRS-7600 series

Chassis Core Routing Switch

Installation Manual

(v1.6)

Digital China networks Co.Ltd

Preface

DCRS-7600 serial switch is a high performance routing switch released by Digital China network that can be deployed as the core layer device for campus and enterprise networks, or as an aggregation device for IP metropolitan area networks (MAN). DCRS-7600 serial switch provides 4 and 10 slots, with support for various types of line cards and can seamlessly support a variety of network interfaces from 100Mb, 1000Mb to 10GB Ethernet.

We are providing this manual for your better understanding, use and maintenance of the DCRS-7600. We strongly recommend you to read through this manual carefully before installation and configuration to avoid possible malfunction or damage to the switch. Furthermore, we sincerely hope our products and services satisfy you.

FCC - Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

You may use unshielded twisted-pair (UTP) for RJ-45 connections - Category 3 or better for 10 Mbps connections, Category 5 or better for 100 Mbps connections, Category 5, 5e, or 6 for 1000 Mbps connections. For fiber optic connections, you may use 50/125 or 62.5/ 125 micron multimode fiber or 9/125 micron single-mode fiber.

Content

CHAPTER 1 PRODUCT OVERVIEW 1-1

1.1 PRODUCT BRIEF 1-1
1.1.1 Introduction 1-1
1.1.2 Main Features 1-2
1.2 TECHNICAL SPECIFICATIONS 1-2
1.3 PHYSICAL SPECIFICATIONS 1-6
1.4 HARDWARE COMPONENTS 1-6
1.4.1 Chassis 1-6
1.4.2 Introduction to DCRS-7600 Series Cards 1-13
1.4.3 Interface description 1-53
1.4.4 Power supply 1-54
1.4.5 Power Distribution Box 1-59
1.4.6 System Backplane 1-62
1.4.7 Fan Tray 1-62
1.4.8 Dust Gauze 1-64
1.4.9 Rear Panel 1-65
1.4.10 Side Panels 1-67
1.5 SYSTEM FEATURES 1-69
1.5.1 DCRS-7604 System Features 1-69
1.5.2 DCRS-7608 System Features 1-70

CHAPTER 2 HARDWARE INSTALLATION 2-1

2.1 INSTALLATION NOTICE 2-1
2.1.1 Basic Requirements 2-1
2.1.2 Safety Guidelines 2-4
2.1.3 Safety Warning 2-5
2.1.4 Hot Line Work Safety Guidelines 2-5
2.2 PREPARING FOR INSTALLATION 2-6
2.2.1 Checking Switch Hardware Configuration and Accessories 2-6
2.2.2 Required Tools and Utilities 2-6
2.3 HARDWARE INSTALLATION 2-7
2.3.1 Switch Installation 2-7
2.3.2 Switch grounding 2-11
2.3.3 Card and module installation 2-12
2.3.4 Connecting to the Console 2-19
2.3.5 Connecting to the Management Port 2-19
2.3.6 SFP transceiver installation 2-20
2.3.7 Copper Cable/Fiber Cable Connection 2-20
2.3.8 Power supply connection 2-21

Chapter 1 Product Overview

RECOMMENDATION: Please read this manual first before using the switch, following the instructions to avoid damaging the device.

1.1 Product Brief

FIG 1-1 DCRS-7604 Switch

FIG 1-2 DCRS-7608 Switch

1.1.1 Introduction

Digital China DCRS-7600 series is a high performance routing switch that can be deployed as a core layer device for campus and enterprise networks, or an aggregation device for IP metropolitan area networks (MAN).

DCRS-7604 provides 4 slots, 3 or 2 of which are interface module slots. DCRS-7608 provides 10 slots, 8 of which are interface module slots.

DCRS-7600 series supports various types of line cards, and can seamlessly support network interfaces from 100Mb, 1000Mb to 10GB Ethernet. Featuring functions such as policy-based routing, IPv6, and load balance, it is capable of flexibly meeting the different requirements of complex customer environments. Furthermore, DCRS-7600 series allows redundancy for management modules, power supply. It supports both AC-input and DC-input power supplies, with hot-swapping support for cards, power supplies and fans. The working temperature of all cards can be monitored in real-time, offering carrier-class reliability.

1.1.2 Main Features

- DCRS-7604 supplies 4 slots that can be configured in Primary controller-Primary Backup mode with 2 management modules and 2 network modules, or Single controller mode with one management module and 3 network modules.
- DCRS-7608 supplies 10 slots that can be configured in Primary controller-Primary Backup mode with 2 management modules and 8 network modules, or Single controller mode with one management module and 8 network modules.
- Store-and-forward switching, ensuring minimal latency.
- Auto MDI/MDI-X, enabled on all RJ-45 ports, allows connections to other switches using a non-crossover twisted pair cable.
- Full-duplex IEEE802.3x flow control, half-duplex backpressure flow control.
- Console management port provided.
- Port working status and statistics available.
- Restart and reset to factory setting can be done both locally and remotely.
- TFTP /FTP firmware upgrade available.
- Can be installed into standard 19-inch chassis.

1.2 Technical specifications

Item	DCRS-7604	DCRS-7608
Slot	4	10

Port	10/100/1000BASE-T, 192 at best 1000Base-SX, 192 at best 1000Base-LX, 192 at best 10/100BASE-T, 192 at best 10GBase, 32 at best	10/100/1000BASE-T, 384 at best 1000Base-SX, 384 at best 1000Base-LX, 384 at best 10/100BASE-T, 384 at best 10GBase, 64 at best
Backboard bandwidth	1.2Tbps(can extend to 2.4Tbps)	2.4Tbps(can extend to 4.8Tbps)
Exchange capacity	640Gbps	1.28Tbps/2.4Tbps (the second generation engine)
Packet Forwarding Speed	476Mpps	952Mpps/1785Mpps (the second generation engine)
Forwarding Delay Time among Ports	<=6ms	<=6ms
VLAN Item	4K	4K
Layer 2 Protocol Specifications	IEEE802.3(10Base-T), IEEE802.3u(100Base-TX), IEEE802.3z(1000BASE-X), IEEE802.3ab(1000Base-T), IEEE802.3ae(10GBase), IEEE802.1Q(VLAN), IEEE802.3ak(10GBASE-CX4), IEEEE802.1d(STP), IEEEE802.1W(RSTP), IEEEE802.1S(MSTP), IEEE802.1p(COS), IEEE802.1x(Port Control), IEEE802.3x(Flow control), IEEE802.3ad(LACP), Port Mirror, RSPAN, ULDP, LLDP, IGMP Snooping, QinQ, GVRP, VLAN, PVLAN, VOICE VLAN, Protocol Vlan, Multicast VLAN, Mac Vlan, Broadcast Storm Control	
Layer 3 Protocol Specifications (IPv4)	Support ARP, ARP Proxy, ARP Limiting Speed, ARP Repeat-Authentication, Gratuitous ARP Support DNS client Support Static Routing, RIPv1/v2, OSPFv2, BGP4, GRE Unicast Routing Protocol etc. Support Routings for OSPF's different process import each other Support LPM Routing, Policy-based Routing(PBR), ECMP Support VRRP, URPF, Black Hole Routing Support IGMP v1/2/3, DVMRP, PIM-DM, PIM-SM, PIM-SSM, IGMP Proxy, anycast RP, MSDP, Static multicast Routing, boundary multicast Routing etc.	
Strengthen Extend	Support in-embed firewall, IDS, IPSce VPN, Content-exchange service, Network Analysis hardware module etc.	
Free-Resource	Support	

IPv6	Support ICMPv6, ND, DNSv6 Support IPv6 LPM Routing, IPv6 Policy-based Routing(PBR) Support IPv6 VRRPv3, IPv6 URPF, IPv6 Black Hole Routing Support RIPng, OSPFv3, BGP4+ Unicast Routing Protocol etc. Support 6to4 Tunnels, configured Tunnels, and ISATAP etc. Support MLD Snooping, IPv6 Multicast VLAN Support MLDv1/v2, PIM-SM/DM for IPv6, IPv6 anycast RP, IPv6 Static multicast Routing, IPv6 boundary multicast Routing, IPv6 multicast tunnel etc. Support IPv6 ACL, IPv6 QOS
Strengthen ARP/NDP Safety function	Support ARP/NDP Spoofing Prevention, ARP/NDP Scanning Prevention
MPLS	MPLS, LDP, MPLS VPN, MPLS TE, Access public network technology
QoS	Carry out by hardware completely, have no effect for performance. Each port has 8 queues. Support SP, WRR, and SWRR queue scheduling algorithm. Support traffic class base on 802.1p, ToS, port, DiffServ Class traffic by ACL; configure the COS, TOS, DSCP bases class result. Class traffic by high-layer content for ACL-X's 80 bytes Support SP, WRR, SWRR etc. Provide different service quality requested for speech, data and video transmit at the same network. Support Traffic Shaping Support priority Mark/Remark
ACL	Carry out by hardware completely, have no effect for forwarding performance. Support Standard ACL and Extended ACL Support IP ACL, base on IP-subnet ACL, MAC ACL, IP-MAC ACL, Support IP or MAC based on source/destination, Layer 3 IP protocol type, TCP/UDP layer 4 port number, IP priority (DSCP, ToS, and Precedence), base on VLAN, Tag/Untag, and CoS etc. Support REDIRECT based on ACL, Traffic statistic based on ACL
ACL-X	Support to transfer security policy automatically base on time. ACL's deepness content can be used for QoS sort standard; the deepness can extend 80 bytes.
DCSCMv4/v6	Support IPv4/IPv6 Multicast Source Controllable, Prevent lawless Multicast Source Support IPv4/IPv6 multicast user Controllable Support IPv4/IPv6 policy multicast

Port Function	Support MAC+ port binding, IP+ MAC+ port binding, IP+ port binding Support MAC filter Support Port Limit(bandwidth management) Support Port Loopback Detection Support Port Mirror(CPU Port Mirror, ingress or egress unilateralism/ bidirectional, one-to-one, many-to-one, stride board, stride equipment), Support Flow Control: HOL prevent head-packet block, half-duplex back pressure, full-duplex IEEE802.3x Support Port aggregation IEEE802.3ad(LACP), port-to-port GEC/FEC, each trunk can up to 8 ports, support load equipoise
DHCPv4/v6	Support IPv4/IPv6 DHCP Client, IPv4/IPv6 DHCP Relay, IPv4/IPv6 DHCP Snooping Inside-install IPv4/IPv6 DHCP Server, DHCP Option82
Security Access	Support IEEE 802.1x, DCSM
AAA Authentication	Support IPv4/IPv6 RADIUS
Security Function Configuration	Support IPv4/IPv6 syslog Support the unite for IPv4/IPv6 HTTP and SSL Support the user IP security inspection for IPv4/IPv6 SNMP Support MIB and TRAP Support IPv4/IPv6 FTP/TFTP Support IPv4/IPv6 NTP Support RMOM 1, 2, 3, 9 four groups Support the RADIUS authentication for IPv4/IPv6 telnet user name and password Support IPv4/IPv6 SSH The right configuration for users can adopt radius server’s shell management Support the function for timing-reset bases needs
sFlow Function	Support network flow analysis; Support RFC3176, can realize the flow monitoring and statistic based on protocol or address
IPFIX	A standard protocol can measure the flow information of the IETE network
Exception monitoring and fault check-up	Monitoring the Task exception, Memory exception, CPU utilance, Stack exception, Switching-chip exception, board temperature exception etc. And giving an alarm
Centralized Web Management Software	It is adopted the Digital China centralized web management software ‘LinkManager’ for unified management.

1.3 Physical Specifications

- **Management Port**

☐ One RJ-45 serial port for each management module

- **AC Power Input**

☐ Input: 110~240V, 50 ~ 60Hz

☐ Built-in Universal Power Supply

- **DC Power Input**

☐ Input: -36V~ -72V. Output: 12V/25A, 5V/10A

☐ Built-in Universal Power Supply

- **Power Consumption**

☐ DCRS-7604: 400W Max

☐ DCRS-7608: 1200W Max

- **Operating Temperature**

☐ 0°C ~ 40°C

- **Storage Temperature**

☐ -40°C ~ 70°C

- **Relative humidity**

☐ 10% ~ 90% with no condensate

- **Dimension**

☐ DCRS-7604(V1.0) 445mm×266mm×421mm (W x H x D)

☐ DCRS-7604(V2.0) 440mm×266mm×421mm (W x H x D)

☐ DCRS-7608 436mm×797mm×478mm (W x H x D)

- **Weight**

☐ DCRS-7604: 30kg (max. full configuration weight)

☐ DCRS-7608: 65kg (max. full configuration weight)

- **Mean Time Before Failure**

☐ Min. 80,000 Hours MTBF

1.4 Hardware Components

DCRS-7604 consists of the chassis, power supply system, ventilation system, system board, etc.

1.4.1 Chassis

1.4.1.1 DCRS-7604 Chassis

The DCRS-7604 uses a 19-inch Rack Mountable Chassis, with the standard dimensions of 445mm(W) x 266(H) x 421mm(D), the DCRS-7604(V2.0 above) with the dimensions of 440mm(W) x 266mm(H) x 421mm(D). The chassis consists of functional block and power supply block. The function module block is a board rack, which is the supporting structure for DCRS-7604 system boards (4 boards max). The fan block is located on the left side of the board rack, allowing one fan tray (4 axial fans for each fan tray). Dust gauze is provided on the right of the board rack for filtering air circulation through the rack. The power block upper the dust gauze provides power to the system, supporting up to two power modules. The power modules insert into the power slots from the front, with the distribution box at the back of the rack for maintenance. In addition, there is an ESD Wrist Strap Connectors on the board rack, located on the left side of the upper.

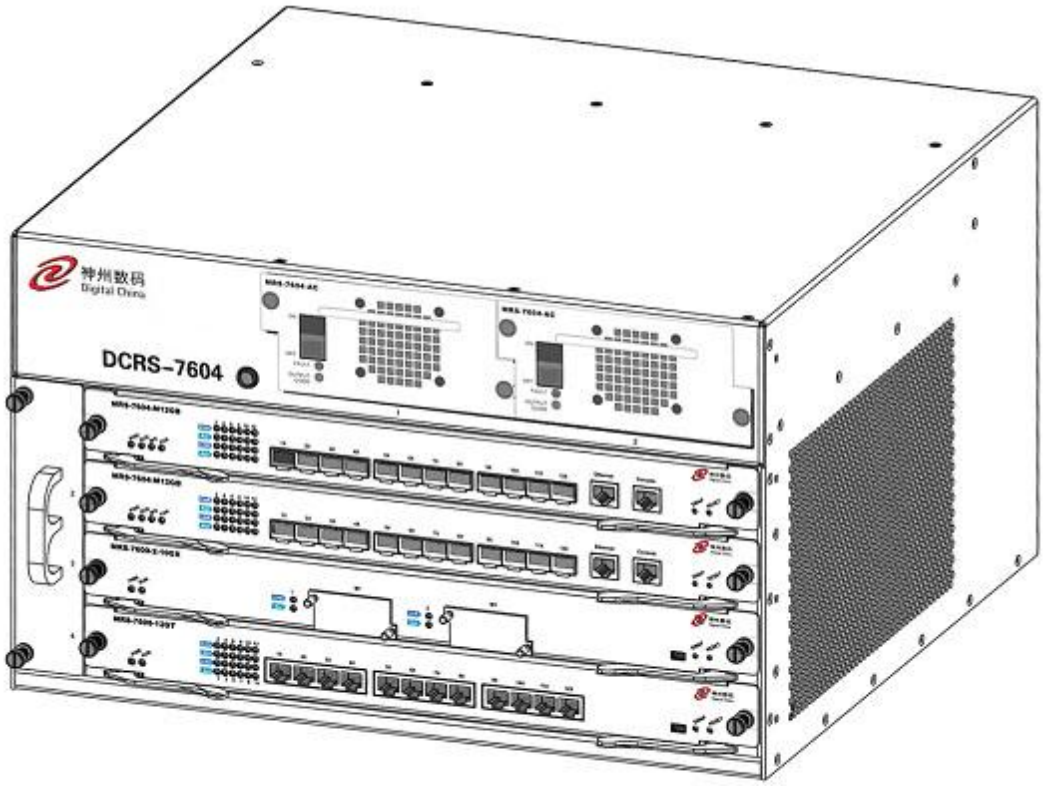

Fig 1-3 DCRS-7604 Module Outlook

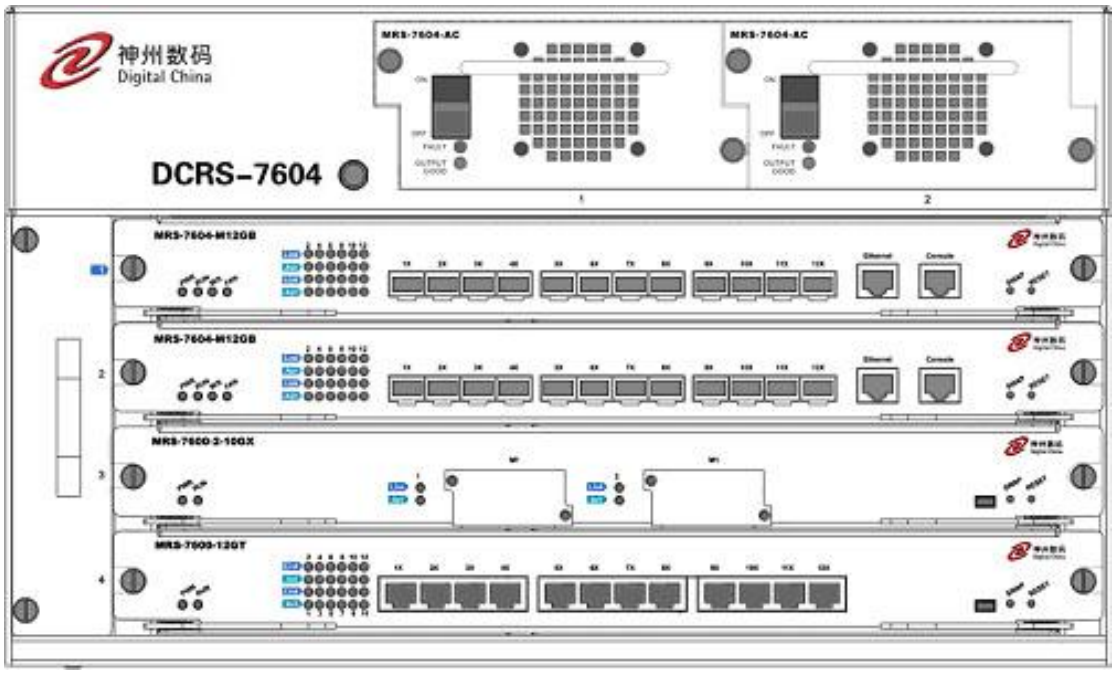

Fig 1-4 DCRS-7604 Front Panel View

① Management slot: It supports two management slots. MRS-7604-M4GX24TX (V2.1) or MRS-7604-M12GB etc can be inserted in to the Management slots. The second slot can also be used as I/O slot for configuring various I/O modules, such as MRS-7600-12GT, MRS-7600-12GB, MRS-7600-4XFP and more.
② Network slot: 2 network slots are provided. Various network modules can be added to the network slots.
③ Power slot: Used for system power supply modules. Supports up to two 400W AC modules.
④ Fan tray slot: Supports up to one system fan assemblies, each assembly consists of four axial fans.
⑤ Dust gauze slot: Exterior air inlet for the ventilation subsystem.
⑥ Distribution box slot: For system distribution box use, works in AC mode based on the power modules.

1.4.1.1.1 Board Rack

The board rack consists of board slots and a system board.

The boards are inserted vertically into the DCRS-7604 4 unit boards are provided. There are four slots in DCRS-7604 from number 1 to number 4 in order of top to down. The first slot is used to install management module; the second slot is used to management module under 1+1 redundant backup mode or install various I/O interface modules.

Board power indicator (printed on the panel as ***PWR***) and board running status indicator (printed on the panel as ***RUN***) is provided for each board. On the Main Control cards there is Master-Slave indicator (printed on the panel as ***M/S***) and a fan assembly

status indicator (printed on the panel as ***Fan***); interface status indicators for corresponding management interfaces and network interfaces (printed on the panel as ***Link*** and ***Act***).

The DCRS-7604 system board is an essential part of the switch, located inside the switch and providing interconnectivity between the management switch modules (short for *management card*) and network interface modules (*line card*), and for all management and control signals.

1.4.1.1.2 Power Supply

When powered by AC sources, the 110V/220V AC input power supplies and corresponding AC distribution box should be used. The acceptable input power ranges from 90 ~ 264V AC at 50 ~ 60 Hz. The maximum output power of each power module is 400W.

When powered by DC sources, the -48V DC input power supply and corresponding DC distribution box should be used. The acceptable input power ranges from -36V ~ 72V DC. The maximum output power of each power module is 400W.

1.4.1.1.3 Ventilation and Cooling System

The operating ambient temperature of the DCRS-7604 is 0 ~ 45°C; the thermal design of the equipment can ensure that the surface temperature of the device will not exceed 50% to 80% of the highest temperature allowable.

The switch uses fan assemblies to disperse heat, with the air flow being drawn in through the right section and out through the left section to facilitate air circulation, so that the switch can maintain normal operation under specified environmental conditions. The fan tray is attached to the fan tray slots left the board rack, and ventilation is provided via 4 axial fans that pump out air. Fan trays are hot swappable for maintenance, their status are indicated by the FAN indicators on the main switch panel. In addition, dust gauze is provided on the right of the board rack for filtering the air circulating through the rack. The dust gauze can be unplugged and removed through the back for maintenance.

1.4.1.2 DCRS-7608 Chassis

The DCRS-7608 uses a 19-inch Rack Mountable Chassis, with the standard dimensions of 436mm (W) x 797mm (H) x 478mm (D).

The chassis consists of functional block, thermal block, and power supply block. The function module block is a board rack, which is the supporting structure for DCRS-7608 system boards (10 boards max). Ten wiring clips are provided in the upper and lower parts of the board rack respectively, for the positioning of all kinds of cables. In addition, there are two ESD Wrist Strap Connectors on the board rack, located on the left side of the

upper and lower rack respectively.

The thermal block is located on the upper part of the board rack, allowing three fan trays (2 axial fans for each fan tray). Dust gauze is provided under the board rack for filtering air circulation through the rack.

The power block under the dust gauze provides power to the system, supporting up to three power modules. The power modules insert into the power slots from the front, with the distribution box at the back of the rack for maintenance. Closely beside the distribution box, a grounding post has been provided on each side of the rack for grounding connections.

In addition, on both sides of the lower section of the chassis, a handler is provided for easier transport.

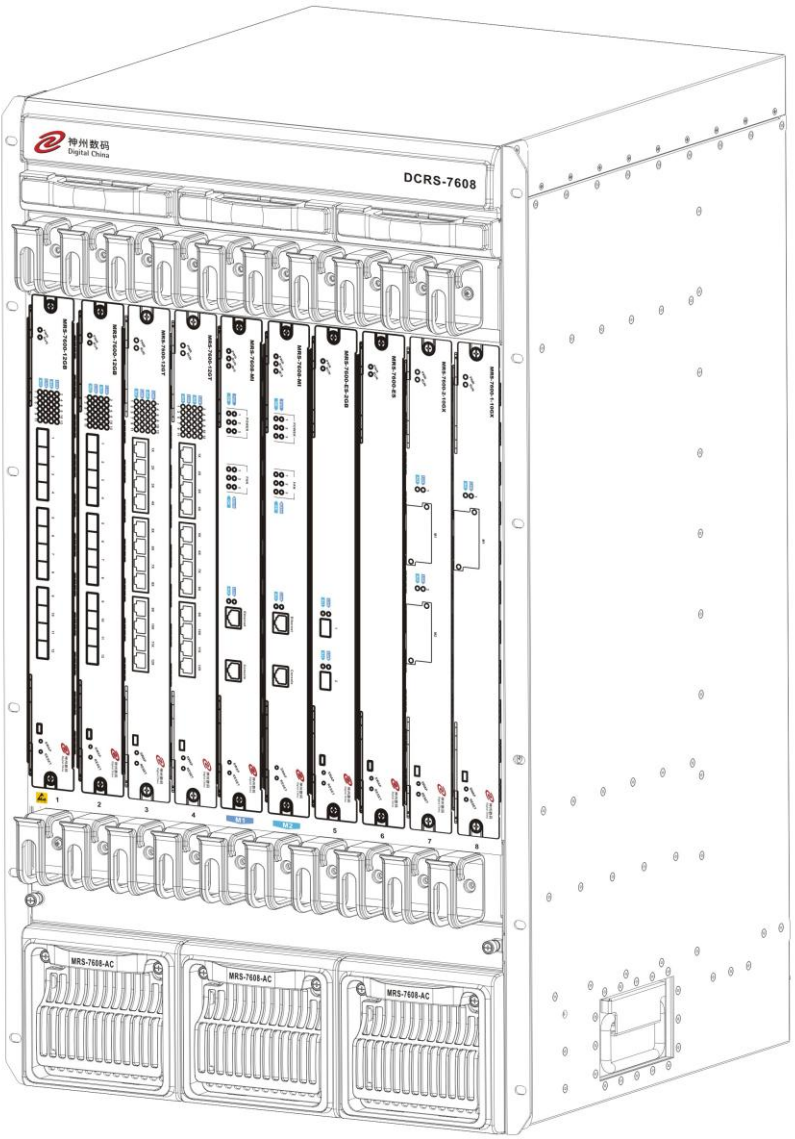

Fig 1-5 DCRS-7608 Module Outlook

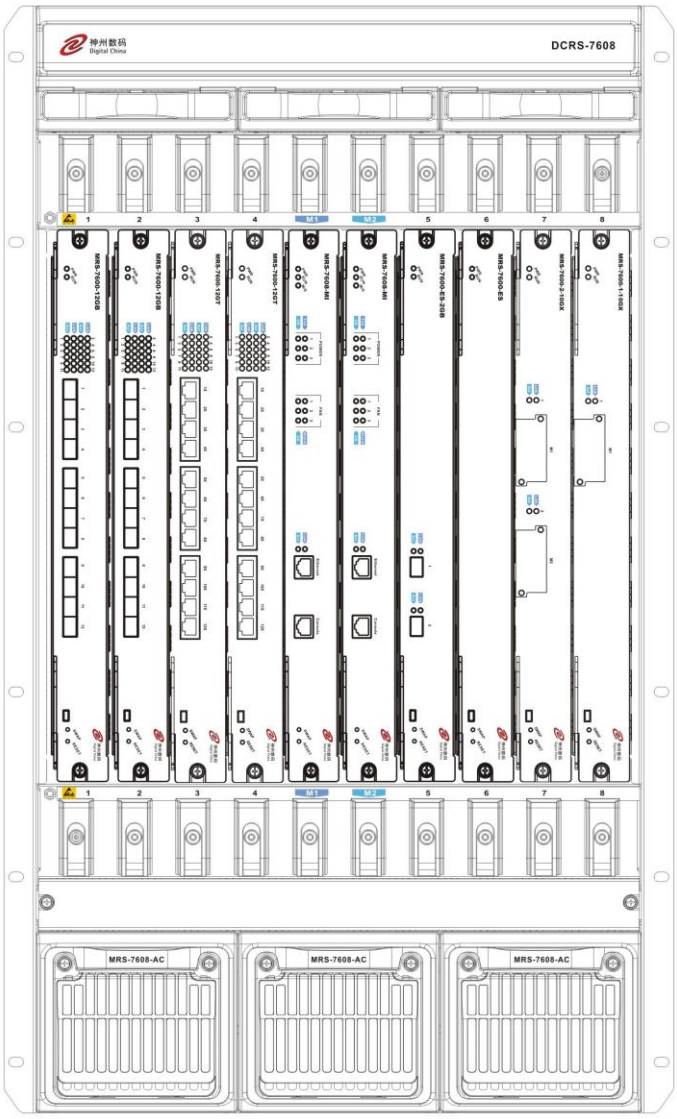

Fig 1-6 DCRS-7608 Front Panel view

① Management slot: 2 management slots are provided. One or two management switching modules MRS-7608-MI can be inserted in to the Management slots.

② Network slot: 8 network slots are provided. Various network modules can be added to the network slots, such as MRS-7600-12GT, MRS-7600-12GB, MRS-7600-2-10GX, etc.

③ Power slot: Used for system power supply modules. Supports up to three 600W AC modules or three 600W DC modules.

④ Fan tray slot: Supports up to three system fan assemblies, each assembly consists of two axial fans.

⑤ Dust gauze slot: Exterior air inlet for the ventilation subsystem.

⑥ Distribution box slot: For system distribution box use, works in AC/DC mode based on the power modules.

1.4.1.2.1 Board Rack

The board rack consists of board slots and a system board.

The boards are inserted vertically into the DCRS-7608 10 unit boards are provided. These include 2 management slots in the middle for management switch modules, marked specially in red as M1 and M2. The other eight board slots are network slots for various network interface modules, sequenced as 1 to 8 from left to right.

Board power indicator (printed on the panel as ***PWR***) and board running status indicator (printed on the panel as ***RUN***) is provided for each board. On the Main Control cards there is Master-Slave indicator (printed on the panel as ***M/S***) There is also a power module status indicator (printed on the panel as ***Power: Fail/OK***), fan assembly status indicator (printed on the panel as ***Fan: Alarm/OK***), and interface status indicators for corresponding management interfaces and network interfaces (printed on the panel as ***Link*** and ***Act***).

The DCRS-7608 system board is an essential part of the switch, located inside the switch and providing interconnectivity between the management switch modules (short for *management card*) and network interface modules (*line card*), and for all management and control signals.

1.4.1.2.2 Power Supply

When powered by AC sources, the 110V/220V AC input power supplies and corresponding AC distribution box should be used. The acceptable input power ranges from 90 ~ 264V AC at 50 ~ 60 Hz. The maximum output power of each power module is 600W.

When powered by DC sources, the -48 VDC input power supply and corresponding DC distribution box should be used. The acceptable input power ranges from -36 V ~ 72 VDC. The maximum output power of each power module is 600W.

1.4.1.2.3 Ventilation and Cooling System

The operating ambient temperature of the DCRS-7608 is 0 ~ 45°C; the thermal design of the equipment can ensure that the surface temperature of the device will not exceed 50% to 80% of the highest temperature allowable.

The switch uses fan assemblies to disperse heat, with the air flow being drawn in through the bottom section and out through the upper section to facilitate air circulation, so that the switch can maintain normal operation under specified environmental conditions. Three fan trays are attached to the fan tray slots above the board rack, and ventilation is provided via 6 axial fans that pump out air. Fan trays are hot swappable for maintenance, their status are indicated by the FAN indicators on the main switch panel. In addition, dust

gauze is provided under the board rack for filtering the air circulating through the rack. The dust gauze can be unplugged and removed through the front for maintenance.

1.4.2 Introduction to DCRS-7600 Series Cards

The following 21 kinds of cards for the DCRS-7600 series are currently available:

- Main control card (MRS-7604-M12GB): The central switching and controlling module for the DCRS-7604, System status control, switch management, user access control and administration, and network operation maintenance are performed here. 12 Gigabit SFP ports are also provided.
- Main control card (MRS-7604-M4GX24TX (V2.1)): The central switching and controlling module for the DCRS-7604, System status control, switch management, user access control and administration, and network operation maintenance are performed here. 24 10/10Base-TX ports with 4 Gigabit combo ports are also provided.
- Main control card (MRS-7608-MI): The central switching and controlling module for the DCRS-7608. System status control, switch management, user access control and administration, and network operation maintenance are performed here.
- 12 copper GT ports line card (MRS-7600-12GT): supporting 12 1000Base-T copper ports for layer 2 and layer 3 switching and routing.
- 12 fiber GB ports line card (MRS-7600-12GB): supporting 12 1000M fiber SFP ports for layer 2 and layer 3 switching and routing.
- Single 10GB fiber line card (MRS-7600-1-10GX): supporting 1 10GBase-X fiber port (XENPAK) for layer 2 and layer 3 switching and routing.
- Dual 10GB fiber line card (MRS-7600-2-10GX): supporting 2 10GBase-X fiber ports (XENPAK) for layer 2 and layer 3 switching and routing.
- Dual-gigabit-interface enhanced service handling card (MRS-7600-ES-2GB): implements the enhanced services like IPv6, MPLS, firewall etc, and carries two SFP gigabit fiber interfaces.
- 8 Gigabit Combo ports and 16 fiber GB ports line card(MRS-7600-8GX16GB): supporting 8 Gigabit Combo and 16 fiber GB ports for layer 2 and layer 3 switching and routing; ipv6 wire speed forward.
- Dual 10G XFP ports , 8 Gigabit Combo ports and 16 fiber GB ports line card (MRS-7600-2XFP8GX16GB): supporting 2 10G XFP ports, 8 Gigabit Combo and 16 fiber GB ports for layer 2, layer 3 switching and routing and ipv6 wire speed forward

- 4 Gigabit Combo ports and 24 100/10 Base-TX ports line card (MRS-7600-4GX24TX): supporting 4 Gigabit Combo ports and 24 100/10 Base-TX ports for layer 2 and layer 3 switching and routing.
- 12 Gigabit Combo ports and 12 copper GT ports (MRS-7600-12GX12GT): supporting 12 Gigabit Combo ports and 12 copper GT ports for layer 2 and layer 3 switching and routing and ipv6 wire speed forward.
- Dual 10G XFP ports, 12 Gigabit Combo ports and 12 copper Gb ports (MRS-7600-2XFP12GX12GT): supporting dual 10G XFP ports, 12 Gigabit Combo ports and 12 copper GT ports for layer 2 and layer 3 switching , routing and IPv6 wire speed forward.
- 48 copper GT ports line card (MRS-7600-48GT): supporting 48 1000Base-T copper ports for layer 2 and layer 3 switching and routing and IPv6 wire speed forward.
- Main control card (MRS-7604-M1XFP12GX12GT): The central switching and controlling module for the DCRS-7604, System status control, switch management, user access control and administration, and network operation maintenance are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy, and supports IPv6 wire speed transmission function. 12-port 1G optical-electronic combo, 12-port 1G electronic and 1-port 10G XFP interface.
- 4 10Gb XFP interfaces line card (MRS-7600-4XFP): implements 2-layer and 3-layer wire-speed switching and routing function of 4 10,000Mbps XFP interfaces and IPv6 wire-speed transmission.
- 48 copper GT ports line card (MRS-7600-48GB): implements 2-layer and 3-layer wire-speed switching and routing function of 48 1000Mbps optical interfaces and IPv6 wire-speed transmission.
- Main control card (MRS-7604-M44GT): The switching module of the DCRS-7604 switch. System status control, switch management, user access control and management, and network maintenances are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy, supports IPv6 wire-speed transmission. It has 44 1000Mbps electronic interfaces at the same time.
- Main control card (MRS-7604-M1XFP12GX12GB): is switching module for the DCRS-7604. System status control, switch management, user access control and management, and network maintenances are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy. MRS-7604-M1XFP12GX12GB supports 2-layer and 3-layer wire-speed switching and routing function of 12 1000Mbps optical-electronic

combos, 12 1000Mbps opticals and 1 10,000Mbps XFP interfaces, IPv6 wire-speed transmission.

- 12 1000Mbps optical-electronic combo, 12 1000Mbps optical interfaces line card(MRS-7600-12GX12GB): The switching module of the 76 series switch and implements 2-layer and 3-layer wire-speed switching and routing function of 12 1000Mbps optical-electronic combo, 12 1000Mbps optical interfaces, IPv6 wire-speed transmission.
- 12 1000Mbps optical-electronic combo, 12 1000Mbps optical and 2 10,000Mbps XFP interfaces line card (MRS-7600-2XFP12GX12GB): The switching module of the 76 series switch and implements 2-layer and 3-layer wire-speed switching and routing function of 12 1000Mbps optical-electronic combo, 12 1000Mbps optical and 2 10,000Mbps XFP interfaces, IPv6 wire-speed transmission.
- Main control card (MRS-7608-M2): The second generation central switching and controlling module for the DCRS-7608. System status control, switch management, user access control and administration, and network operation maintenance are performed here.
- 12 1000Mbps electronic interfaces, 24 1000Mbps optical interfaces line card (MRS-7600-24GB12GT): The switching module for the 7600 series switch, which supports MPLS VPN function and implements 2-layer and 3-layer wire-speed switching and routing function of 12 1000Mbps electronic interfaces, 24 1000Mbps optical interfaces, IPv6 wire-speed transmission.
- 12 1000Mbps electronic interfaces, 24 1000Mbps optical and 2 10,000Mbps XFP interfaces line card (MRS-7600-2XFP24GB12GT): The switching module for the 7600 series switch , which supports MPLS VPN function and implements 2-layer and 3-layer wire-speed switching and routing function of 12 1000Mbps electronic interfaces, 24 1000Mbps optical and 2 10,000Mbps XFP interfaces, IPv6 wire-speed transmission.
- Dual 10G XFP ports, 12 Gigabit Combo ports and 12 copper Gb ports (MRS-7600-2XFP12GX12GT(R4)): supporting dual 10G XFP ports, 12 Gigabit Combo ports and 12 copper GT ports for layer 2 and layer 3 switching , routing and IPv6 wire speed forward.
- 12 Gigabit Combo ports and 12 copper Gb ports (MRS-7600-12GX12GT (R4)): supporting 12 Gigabit Combo ports and 12 copper GT ports for layer 2 and layer 3 switching, routing and IPv6 wire speed forward.
- 48 copper GT ports line card (MRS-7600-48GB (R4)): implements 2-layer and 3-layer wire-speed switching and routing function of 48 1000Mbps optical interfaces and IPv6 wire-speed transmission.

- Main control card (MRS-7604-M1XFP12GX12GT (R4)): The central switching and controlling module for the DCRS-7604, System status control, switch management, user access control and administration, and network operation maintenance are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy, and supports IPv6 wire speed transmission function. 12-port 1G optical-electronic combo, 12-port 1G electronic and 1-port 10G XFP interface.
- Main control card (MRS-7608-MI(R4)): The central switching and controlling module for the DCRS-7608. System status control, switch management, user access control and administration, and network operation maintenance are performed here.

1.4.2.1 MRS-7604-M12GB

The MRS-7604-M12GB is switching module for the DCRS-7604. System status control, switch management, user access control and administration, and network maintenances are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy. 12 Gigabit SFP ports are also provided.

1.4.2.1.1 Front Panel

The MRS-7604-M12GB provides 12 1000Base-SFP ports. At the same time, it comes with 1 Console port (control console) and 1 10/100Base-Tx Ethernet port (management port).

The Front Panel view is shown below:

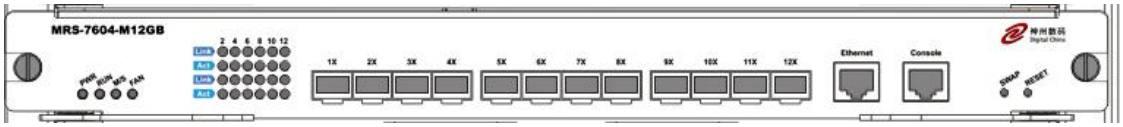

Fig 1-7 MRS-7604-M12GB Front Panel View

1.4.2.1.2 Front Panel - Indicator

The following table describes the front panel indicators of MRS-7604-M12GB:

Table 1-1 MRS-7604-M12GB indicators description

LED	Panel Symbol	Status	Description
Power Indicator	PWR	On (Green)	Card powered
		Off	Card powered off
Operation indicator	RUN	On (Green, blink at 1 Hz)	Cards operating normally

		On (Green, blink at 8 Hz)	System is loading
		On (Yellow, blink at 8 Hz)	System is shutting down
		On (Red, blink at 8 Hz)	Cards malfunction
		Off	Cards are powered off and can be removed
Master-Slave indicator	M/S	On (Green)	Master
		Off	Slave
Fan Assembly Status indicator: FAN	FAN	On (Green)	Fan operating normally
		Off	Fan malfunctioning or not present (with ***Alarm*** off)
SFP port indicator			
Status indicator	Link	On (Green)	Network connection on SFP transceiver is normal
		Off	No network connection present on SFP transceiver
Transmission Indicator	Act	Blinking (Green)	Sending or receiving data

1.4.2.1.3 Front Panel Port Description

The MRS-7604-M12GB provides 12 SFP (Mini GBIC) Gigabyte fiber transceiver slots.

1.4.2.1.4 Front Panel – Console Port

The MRS-7604-M12GB provides a RJ-45 (receptacle) Console serial port. Users can connect to hosts via this port to perform system debugging, configuration, maintenance, management and host software loading.

Table 1-2 MRS-7604-M12GB Console description

Property	Specification
Connector	RJ-45 (receptacle)
Connector type	RS-232

Baud rate	9600bps (default)
Supporting service	● Connects to character terminals ● Connects to PC serial port and running terminal emulator on PC.

1.4.2.1.5 Front Panel – Management Port

The MRS-7604-M12GB provides a RJ-45 (receptacle) Ethernet port. Users can connect through this management port to hosts for program loading or to connect to remote devices for remote management (e.g., a managing workstation). Note: when connecting to the host, a cross-over cable should be used.

Table 1-3 MRS-7604-M12GB management port description

Property	Specification
Connector	RJ-45 (Receptacle)
Connector type	● 10/100Mbps auto sensing ● Cat 5 UTP: 100 m

1.4.2.1.6 Front Panel – Reset Button

MRS-7604-M12GB provides a RESET button for resetting the board.

1.4.2.2 MRS-7604-M4GX24TX

The MRS-7604-M4GX24TX is switching module for the DCRS-7604. System status control, switch management, user access control and management, and network maintenances are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy. 24 10/100Base-TX ports with 4 Gigabit combo ports (RJ45or SFP) are also provided.

1.4.2.2.1 Front Panel

The MRS-7604-M4GX24TX provides 24 10/100Base-TX ports and 4 Gigabit COMBO slots. At the same time, it comes with 1 Console port (control console) and 1 10/100Base-Tx Ethernet port (administration port).

The Front Panel view is shown below:

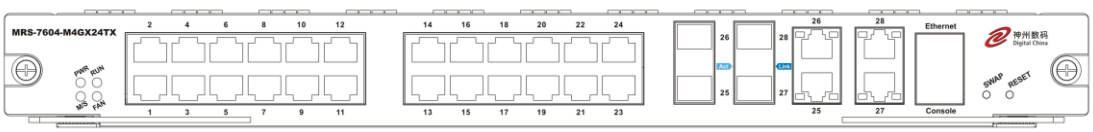

Fig 1-8 MRS-7604-M4GX24TX

1.4.2.2.2 Front Panel - Indicator

The following table describes the front panel indicators of MRS-7604-M4GX24TX:

Table 1-4 MRS-7604-M4GX24TX indicators description

LED	Panel Symbol	Status	Description
Power Indicator	PWR	On (Green)	Card powered
		Off	Card powered off
Operation indicator	RUN	On (Green, blink at 1 Hz)	Cards operating normally
		On (Green, blink at 8 Hz)	System is loading
		On (Yellow, blink at 8 Hz)	System is shutting down
		On (Red, blink at 8 Hz)	Cards malfunction
		Off	Cards are powered off and can be removed
Master-Slave indicator	M/S	On (Green)	Master
		Off	Slave
Fan Assembly Status indicator: FAN	FAN	On (Green)	Fan operating normally
		On (Red)	Fan malfunctioning
		Off	Fan not present (with ***Alarm*** off)
SFP port indicator			
Status indicator	Link	On (Green)	Network connection on SFP transceiver is normal
		Off	No network connection present on SFP transceiver
Transmission Indicator	Act	Blinking (Green)	Sending or receiving data
10/100Base-RJ45 port indicator			
Status indicator	Link	On (Green)	Network connection is normal
		Off	No network connection present on 10/100Base-RJ45 port
Transmission Indicator	Act	Blinking (Green)	Sending or receiving data
1000Base-TX port indicator			
Status indicator	Link	On (Green)	Network connection on 1000Base-TX transceiver is normal

		Off	No network connection present on 1000Base-TX transceiver
Transmission Indicator	Act	Blinking (Green)	Sending or receiving data

1.4.2.2.3 Front Panel Port Description

The E MRS-7604-M4GX24TX provides 24 10/100Base-TX ports and 4 Gigabite COMBO (RJ-45 or SFP) transceiver slots.

1.4.2.2.4 Front Panel – Console Port

The MRS-7604-M4GX24TX provides a RJ-45 (receptacle) Console serial port. Users can connect to hosts via this port to perform system debugging, configuration, maintenance, management and host software loading.

Table 1-5 MRS-7604-M4GX24TX Console description

Property	Specification
Connector	RJ-45 (receptacle)
Connector type	RS-232
Baud rate	9600bps (default)
Supporting service	● Connects to character terminals ● Connects to PC serial port and running terminal emulator on PC.

1.4.2.2.5 Front Panel – Management Port

MRS-7604-M4GX24TX provides a RJ-45 (receptacle) Ethernet port. Users can connect the hosts for program loading through this management port or connect the remote devices for remote management (e.g., a managing workstation). Note: when connecting to the host, a cross-over cable should be used.

Table1-6 MRS-7604-M4GX24TX management port description

Property	Specification
Connector	RJ-45 (Receptacle)
Connector type	● 10/100Mbps auto sensing ● Cat 5 UTP: 100 m

1.4.2.2.6 Front Panel – Reset Button

MRS-7604-M4GX24TX provides a RESET button for resetting the board.

1.4.2.3 MRS-7608-MI

The MRS-7608-MI is switching module for the DCRS-7608. System status control, switch management, user access control and management, and network maintenances are performed here. The board can be inserted into M1 or M2 slots of the chassis for Master-Slave redundancy.

1.4.2.3.1 Front Panel

The MRS-7608-MI comes with 1 Console port (control console) and 1 10/100Base-Tx Ethernet port (management port).

The Front Panel view is shown below:

Fig 1-9 MRS-7608-MI Front Panel view

1.4.2.3.2 Front Panel - Indicator

The following table describes the front panel indicators of MRS-7608-MI:

Table 1-7 MRS-7608-MI indicators description

LED	Panel Symbol	Status	Description
Power Indicator	PWR	On (Green)	Card powered
		Off	Card powered off
Operation indicator	RUN	On (Green, blink at 1 Hz)	Cards operating normally
		On (Green, blink at 8 Hz)	System is loading
		On (Yellow, blink at 8 Hz)	System is shutting down
		On (Red, blink at 8 Hz)	Cards malfunction
		Off	Cards are powered off and can be removed
Master-Slave indicator	M/S	On (Green)	Master
		Off	Slave
Power Supply Module Status indicator:	OK	On (Green)	Power Supply Module operating normally
		Off	Power supply module malfunctioning or not present (with **Fail** off)

POWER	Fail	On (Yellow)	Power Supply Module malfunction
		Off	Power supply module operating normally or not present (with ***OK*** off)
Fan Assembly Status indicator: FAN	OK	On (Green)	Fan operating normally
		Off	Fan malfunctioning or not present (with ***Alarm*** off)
	Alarm	On (Yellow)	Fan malfunction
		Off	Fan operating normally or not present (with ***OK*** off)

1.4.2.3.3 Front Panel – Console Port

The MRS-7608-MI provides a RJ-45 (receptacle) Console serial port. Users can connect to hosts via this port to perform system debugging, configuration, maintenance, management and host software loading.

Table 1-8 MRS-7608-MI Console description

Property	Specification
Connector	RJ-45 (receptacle)
Connector type	RS-232
Baud rate	9600bps (default)
Supporting service	● Connects to character terminals ● Connects to PC serial port and running terminal emulator on PC.

1.4.2.3.4 Front Panel – Management Port

The MRS-7608-MI provides a RJ-45 (receptacle) Ethernet port. Users can connect through this management port to hosts for program loading or to connect to remote devices for remote management (e.g., a managing workstation). Note: when connecting to the host, a cross-over cable should be used.

Table 1-9 MRS-7608-MI management port description

Property	Specification
Connector	RJ-45 (Receptacle)
Connector type	● 10/100Mbps auto sensing ● Cat 5 UTP: 300 m

1.4.2.3.5 Front Panel – Reset Button

MRS-7608-MI provides a RESET button for resetting the board.

1.4.2.4 MRS-7600-12GT

12 copper GT ports line card (MRS-7600-12GT): supports 12 1000Base-T copper ports for layer 2 and layer 3 switching and routing.

1.4.2.4.1 Front Panel

MRS-7600-12GT provides 12 RJ45 ports (10/100/1000Mbps adaptive).
The Front Panel view is shown below:

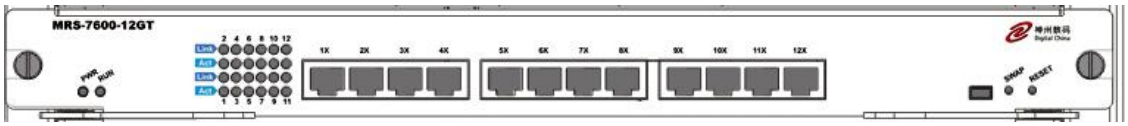

Fig 1-10 MRS-7600-12GT Front Panel view

1.4.2.4.2 Front Panel - Indicator

The following table describes the MRS-7600-12GT's front panel indicators:

Table 1-10 MRS-7600-12GT indicator descriptions

LED	Panel Symbol	Status	Description
Power Indicator	PWR	On (green)	Card powered
		Off	Card powered off
Operation indicator	RUN	On (Green, blinks at 1 Hz)	Card operating normally
		On (Green, blinks at 8 Hz)	System is loading
		On (Yellow, blinks at 8 Hz)	System is shutting down
		On (Red, blinks at 8 Hz)	Malfunction status
		Off	Card is powered off and can be removed
RJ-45 port indicator			
Status indicator	Link	On (Green)	Network connection is normal
		Off	No network connection present on 1000Base-TX port
Transmission Indicator	Act	Blinking (Green)	Sending or receiving data

1.4.2.4.3 Front Panel Port Description

The MRS-7600-12GT provides 12 RJ-45 1000M copper ports.

1.4.2.4.4 Front Panel – Reset Button

The MRS-7600-12GT provides a **RESET** button for resetting the board.

1.4.2.5 MRS-7600-12GB

12 fiber GB ports line card (MRS-7600-12GB): supports 12 SFP GB fiber ports for layer 2 and layer 3 switching and routing.

1.4.2.5.1 Front Panel

MRS-7600-12GB provides 12 SFP ports. The Front Panel view is shown below:

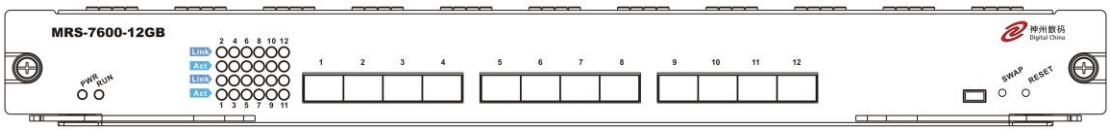

Fig 1-11 MRS-7600-12GB Front Panel view

1.4.2.5.2 Front Panel - Indicator

The following table describes the MRS-7600-12GB's front panel indicators:

Table 1-11 MRS-7600-12GB indicator descriptions

LED	Panel Symbol	Status	Description
Power Indicator	PWR	On (green)	Card powered
		Off	Card powered off
Operation indicator	RUN	On (Green, blinks at 1 Hz)	Cards operating normally
		On (Green, blinks at 8 Hz)	System is loading
		On (Yellow, blinks at 8 Hz)	System is shutting down
		On (Red, blinks at 8 Hz)	Malfunction status
		Off	Cards is powered off and can be removed
SFP port indicator			
Status indicator	Link	On (Green)	Network connection on SFP transceiver is normal
		Off	No network connection present on SFP transceiver
Transmission Indicator	Act	Blinking (Green)	Sending or receiving data

1.4.2.5.3 Front Panel Port Description

The MRS-7600-12GB provides 12 SFP Gigabyte fiber transceiver slots.

1.4.2.5.4 Front Panel – Reset Button

The MRS-7600-12GB provides a **RESET** button for resetting the board.

1.4.2.6 MRS-7600-1-10GX and MRS-7600-2-10GX

Single 10GbE fiber line card (MRS-7600-1-10GX): supporting 1 XENPAK 10Gb fiber port for layer 2 and layer 3 switching and routing.

Dual 10GbE fiber line card (MRS-7600-2-10GX): supporting 2 XENPAK 10Gb fiber port for layer 2 and layer 3 switching and routing.

1.4.2.6.1 Front Panel

The MRS-7600-1-10GX provides 1 XENPAK 10GB fiber transceiver ports, the front panel view are shown below:

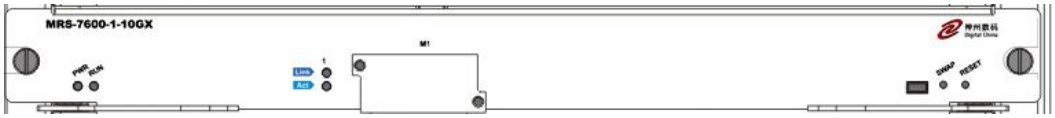

Fig 1-12 MRS-7600-1-10GX front panel view

The MRS-7600-2-10GX provides 2 XENPAK 10GB fiber transceiver ports, the front panel view are shown below:

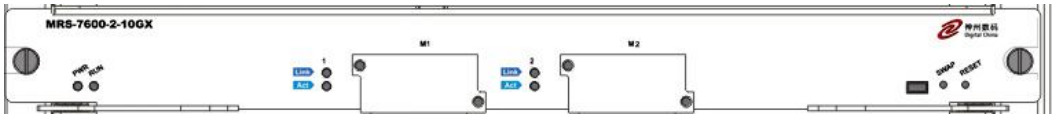

Fig 1-13 MRS-7600-2-10GX front panel view

1.4.2.6.2 Front Panel - Indicator

The following table describes the front panel indicators for the MRS-7600-1-10GX and MRS-7600-2-10GX:

Table 1-12 Description of the MRS-7600-1-10GX 、MRS-7600-2-10GX indicators

LED Indicator	Panel Symbol	Status	Description
Power Indicator	PWR	On (green)	Card powered.
		Off	Card powered off
Operation	RUN	On (Green, blinks at 1 Hz)	Card operating normally

indicator		On (Green, blinks at 8 Hz)	System is loading
		On (Yellow, blinks at 8 Hz)	System is shutting down
		On (Red, blinks at 8 Hz)	Malfunction status
		Off	Card is powered off and can be removed.
XENPAK port indicator			
Status indicator:	Link	On (Green)	Network connection on XENPAK transceiver is normal
		Off	No network connection present on XENPAK transceiver
Transmission Indicator	Act	Blinking (Green)	Sending or receiving data

1.4.2.6.3 Front Panel Port Description

MRS-7600-1-10GX, MRS-7600-2-10GX provides 1 or 2 XENPAK 10Gb fiber transceiver slots;

Table 1-13 XENPAK port descriptions

Port Type	Specification
XENPAK	● XENPAK-SC transceiver (10GBASE-LR LAN-PHY) (Agilent HFCT-701XB, LAN mode, wavelength 1310nm)： 62.5/125 μm multi-mode fiber (MMF): 300m 9/125 μm single-mode fiber (SMF): 10Km

1.4.2.6.4 Front Panel – Reset Button

The MRS-7600-1-10GX 、MRS-7600-2-10GX provides a ***RESET*** button for resetting the board.

1.4.2.7 MRS-7600-ES-2GB

Dual-gigabit-interface enhanced service handling card (MRS-7600-ES-2GB): implements the enhanced services like IPv6, MPLS, firewall etc, and carries two SFP gigabit fiber interfaces.

1.4.2.7.1 Front Panel Diagram

MRS-7600-ES-2GB provides 2 SFP 1000Mbps fiber transceiver ports, the front panel view is shown below:

Fig 1-14 MRS-7600-ES-2GB front panel view

1.4.2.7.2 Front Panel Indicator

The description of front panel indicator of MRS-7600-ES-2GB is as follows:

Table 1-14 MRS-7600-ES-2GB indicator description

LED Indicator	Panel Sign	Status	Meanings
Power Indicator	PWR	On (Green)	Network Interface Card power on
		Off	Network Interface Card power off
Running Indicator	RUN	On (Green 1Hz flash)	Network Interface Card running in normal status
		On (Green 8Hz flash)	System loading (Network Interface Card Booting after hot plug in)
		On (Yellow 8Hz flash)	System shutting down
		On (Red 8Hz flash)	Running status is in failure
		Off	Network Interface Card is off and can be pulled out
SFP Interface Indicator			
Status Indicator	Link	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP transceiver or the connection has problem
Transmission Indicator	Act	Flashes (Green)	Sending or receiving data

1.4.2.7.3 Front Panel Port Description

MRS-7600-ES-2GB provides 2 SFP 1000Mbps fiber transceiver slots.

1.4.2.7.4 Front Panel – Reset Button

The MRS-7600-ES-2GB provides a ***RESET*** button for resetting the board.

1.4.2.8 MRS-7600-8GX16GB and MRS-7600-2XFP8GX16GB

MRS-7600-8GX16GB line card: supporting 8 gigabit combo ports and 16 fiber GB ports for layer2 and layer3 switching and routing and IPv6 wire speed forward.

MRS-7600-2XFP8GX16GB line card: supporting dual 10G XFP ports, 8 gigabit combo ports and 16 fiber GB ports for layer2 and layer3 switching and routing and IPv6 wire speed forward.

1.4.2.8.1 Front Panel Diagram

MRS-7600-8GX16GB provides eight GT electronic ports, twenty four GB optical SFP ports, where the eight 1G electronic ports and the first eight 1G optical ports are combo ports.

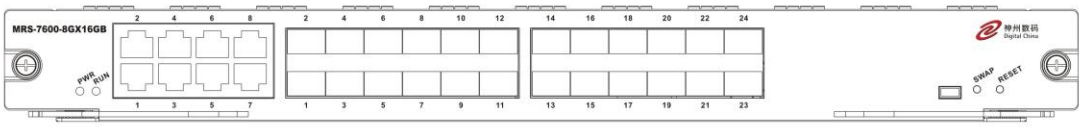

Fig 1-15 MRS-7600-8GX16GB front panel view

MRS-7600-2XFP8GX16GB provides two 10G XFP ports, eight 1G electronic ports, twenty four 1G optical SFP ports, where the eight 1G electronic ports and the first eight 1G optical ports are combo ports.

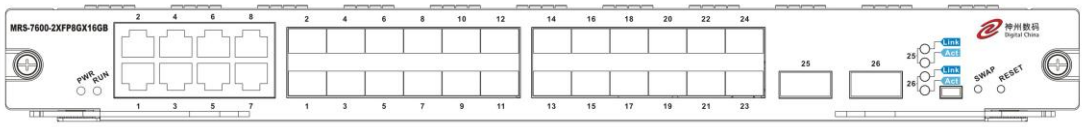

Fig 1-16 MRS-7600-2XFP8GX16GB front panel view

1.4.2.8.2 Front Panel Indicator

The description of front panel indicator of MRS-7600-8GX16GB and MRS-7600-2XFP8GX16GB is as follows:

Table 1-15 MRS-7600-8GX16GB and MRS-7600-2XFP8GX16GB indicator description

LED Indicator	Panel Sign	Status	Meanings
Power Indicator	PWR	On (Green)	Network Interface Card power on
		Off	Network Interface Card power off
Running Indicator	RUN	On (Green 1Hz flash)	Network Interface Card running in normal status
		On (Green 8Hz flash)	System loading (Network Interface Card Booting after hot plug in)
		On (Yellow 8Hz flash)	System shutting down
		On (Red 8Hz flash)	Running status is in failure
		Off	Network Interface Card is off and can be pulled out
RJ-45 Interface indicator			

Status Indicator	"Left Light"	On (Green)	RJ-45 Interface Network Connection is normal
		Off	There is not network connection at RJ-45 interface
Transmission Indicator	"Right Light"	Flashed (Green)	Sending or receiving data
SFP Interface Indicator			
Status Indicator	"Left Light"	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP transceiver
Transmission Indicator	"Right Light"	Flashes (Green)	Sending or receiving data
XFP Interface Indicator			
Status Indicator	Link	On (Green)	XFP transceiver network connection is normal
		Off	There is not network connection at XFP transceiver
Transmission Indicator	Act	On (Green)	Sending or receiving data

1.4.2.8.3 Front Panel Interface Description

MRS-7600-8GX16GB and MRS-7600-2XFP8GX16GB provide eight RJ-45 1G electronic ports, twenty four SFP 1G optical fibre transceiver slots.

MRS-7600-2XFP8GX16GB provides two XFP 10G electronic ports.

1.4.2.8.4 Front Panel RESET Button

MRS-7600-8GX16GB and MRS-7600-2XFP8GX16GB both provide a **RESET** button to reset the panel.

1.4.2.9 MRS-7600-4GX24TX

MRS-7600-4GX24TX is the line card exchange model of DCRS-7600 series exchanges. It implements the layer2 and layer3 wire speed exchange and routing function of twenty four 10/100M electronic ports and four 1G COMBO (4 10/100/1000M electronic interfaces or four 1G optical interfaces).

1.4.2.9.1 Front Panel Diagram

MRS-7600-4GX24TX provides twenty four 10/100M electronic ports and four 1G COMBO.

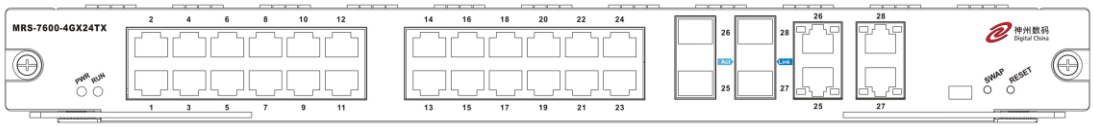

Fig 1-17 MRS-7600-4GX24TX front panel view

1.4.2.9.2 Front Panel Indicator

The description of front panel indicator of MRS-7600-4GX24TX is as follows:

Table 1-16 MRS-7600-4GX24TX indicator description

Indicator	Panel Sign	Status	Meanings
Power Indicator	PWR	On (Green)	Network Interface Card power on
		Off	Network Interface Card power off
Running Indicator	RUN	On (Green 1Hz flash)	Network Interface Card running in normal status
		On (Green 8Hz flash)	System loading (Network Interface Card Booting after hot plug in)
		On (Yellow 8Hz flash)	System shutting down
		On (Red 8Hz flash)	Running status is in failure
		Off	Network Interface Card is off and can be pulled out
SFP Interface indicator			
Status Indicator	Link	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP transceiver
Transmission Indicator	Act	Flashes (Green)	Sending or receiving data
100MB electronic port indicator			

Status Indicator	Link	On (Green)	100MB electronic port transceiver network connection is normal
		Off	There is not network connection at 100MB electronic port transceiver
Transmission Indicator	Act	Flashes (Green)	Sending or receiving data
1GB Electronic Port Indicator			
Status Indicator	Link	Flashes (Green)	1GB electronic port transceiver network connection is normal
		Off	There is not network connection at 1GB electronic port transceiver
Transmission Indicator	Act	Flashes (Green)	Sending or receiving data

1.4.2.9.3 Front Panel Interface Description

MRS-7600-4GX24TX provides twenty four 10/100M and four 1G COMBO ports.

1.4.2.9.4 Front Panel RESET Button

MRS-7600-4GX24TX provides a **RESET** button to reset the panel.

1.4.2.10 MRS-7600-12GX12GT and MRS-7600-2XFP12GX12GT

12-port optical-electronic combo and 12-port electronic interface line card (MRS-7600-12GX12GT): to implement the layer2 and layer3 wire speed exchange and routing function of 12-port 1G optical-electronic combo and 12-port 1G electronic interface and IPv6 wire speed transmission function.

Double 10G and 12-port optical-electronic combo and 12-port electronic interface line card (MRS-7600-2XFP12GX12GT): to implement the layer2 and layer3 wire speed exchange and routing function of 12-port 1G optical-electronic combo, 12-port 1G electronic and 2-port 10G XFP interface, and IPv6 wire speed transmission function.

1.4.2.10.1 Front Panel Diagram

MRS-7600-12GX12GT provides twelve 1G SFP ports, twenty four 1G electronic

ports, where the twelve 1G optical ports and the last twelve 1G electronic ports are combo ports.

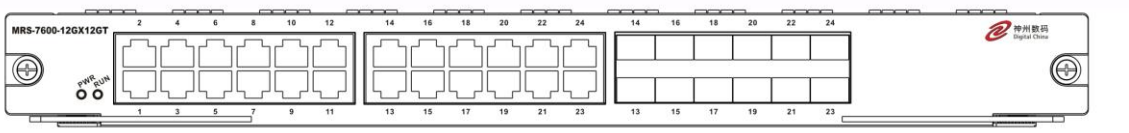

Fig 1-18 MRS-7600-12GX12GT front panel view

MRS-7600-2XFP12GX12GT provides two 10G XFP ports, twelve 1G optical SFP ports, twenty four 1G electronic SFP ports, where the twelve 1G optical ports and the last twelve 1G electronic ports are combo ports.

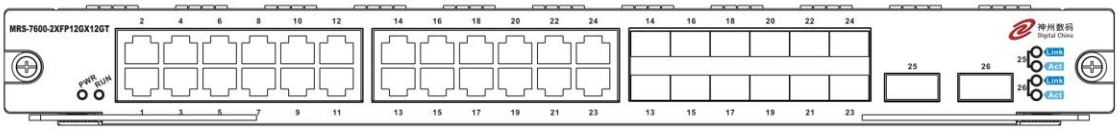

Fig 1-19 MRS-7600-2XFP12GX12GT front panel view

1.4.2.10.2 Front Panel Indicator

The description of front panel indicator of MRS-7600-12GX12GT and MRS-7600-2XFP12GX12GT is as follows:

Table 1-17 MRS-7600-12GX12GT and MRS-7600-2XFP12GX12GT indicator description

LED Indicator	Panel Sign	Status	Meanings
Power Indicator	PWR	On (Green)	Network Interface Card power on
		Off	Network Interface Card power off
Running Indicator	RUN	On (Green 1Hz flash)	Network Interface Card running in normal status
		On (Green 8Hz flash)	System loading (Network Interface Card Booting after hot plug in)
		On (Yellow 8Hz flash)	System shutting down
		On (Red 8Hz flash)	Running status is in failure
		Off	Network Interface Card is off and can be pulled out
RJ-45 Interface indicator			
Status Indicator	Shared	On (Green)	RJ-45 Interface Network Connection is normal
		Off	There is not network connection at RJ-45 interface

Transmission Indicator		On (Yellow)	Sending or receiving data
SFP Interface Indicator			
Status Indicator	"Left Light"	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP interface
Transmission Indicator	"Right Light"	Flashes (Green)	Sending or receiving data
XFP interface Indicator			
Status Indicator	Link	On (Green)	XFP transceiver network connection is normal
		Off	There is not network connection at XFP transceiver
Transmission Indicator	Act	Flashes (Green)	Sending or receiving data

1.4.2.10.3 Front Panel Interface Description

MRS-7600-12GX12GT and MRS-7600-2XFP12GX12GT provide twelve SFP 1G optical fibre transceivers and twenty four RJ-45 1G electronic port slots.

MRS-7600-2XFP12GX12GT provides two XFP 10G optical ports.

1.4.2.11 MRS-7600-48GT

48GT electronic interface line card (MRS-7600-48GT): to implement the layer2 and layer3 wire speed exchange and routing function of 48GT electronic interface and IPv6 wire speed transmission function.

1.4.2.11.1 Front Panel Diagram

MRS-7600-48GT provides 48-Port 10/100/1000M Ethernet electronic ports,

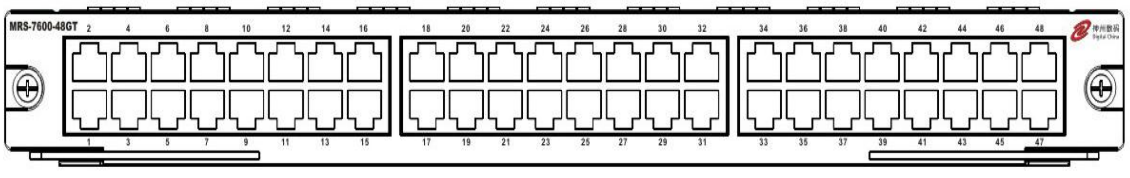

Fig 1-20 MRS-7600-48GT front panel view

The ports in the above chart are port GE1－GE48 from the bottom-left corner to the top-right corner. The indicator lamps of ports having odd index number are on the left side of the port array, while the indicator lamps of ports having even index number are on the

right side. The lamps are green and orange indicator lamps.

1.4.2.11.2 Front Panel Indicator

The description of front panel indicator of MRS-7600-48GT as follows:

Table 1-18 MRS-7600-48GT indicator description

LED Indicator	Panel Sign	Status	Meanings
RJ-45 Interface indicator			
Status Indicator	Shared	On (Green)	RJ-45 Interface Network Connection is normal
		Off	There is not network connection at RJ-45 interface
Transmission Indicator		On (Yellow)	Sending or receiving data

1.4.2.11.3 Front Panel Interface Description

MRS-7600-48GT provides 48-port 10/100/1000M RJ-45 electronic port.

1.4.2.12 MRS-7604-M1XFP12GX12GT

The MRS-7604-M1XFP12GX12GT is switching module for the DCRS-7604. System status control, switch management, user access control and management, and network maintenances are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy. 12-port 1G optical-electronic combo, 12-port 1G electronic and 1-port 10G XFP interface, and IPv6 wire speed transmission function.

1.4.2.12.1 Front Panel Diagram

MRS-7604-MIXFP12GX12GT provides 12-port 1G optical-electronic combo, 12-port 1G electronic port and 1-port 10G XFP interface. It implements 2-layer and 3-layer wire-speed switching and routing function and IPv6 wire-speed transmission. The front 12 ports are electronic ports, and the last 12 electronic ports are combo ports.

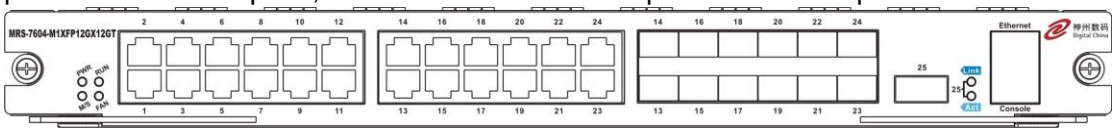

Fig 1-21 MRS-7604-M1XFP12GX12GT front panel view

1.4.2.12.2 Front Panel Indicator

The description of front panel indicator of MRS-7604-M1XFP12GX12GT as follows:

Table 1-19 MRS-7604-M1XFP12GX12GT indicator description

LED Indicator	Panel Sign	Status	Meanings
Power Indicator	PWR	On (Green)	Network Interface Card power on
		Off	Network Interface Card power off
Master-Slave Indicator	M/S	On (Green)	Master
		Off	Slave
FAN Indicator	FAN	On (Green)	Fan card is in place and running in normal status
		On (Red)	Fan is not in normal status
		Off	Fan is not in place
Running Indicator	RUN	On (Green 1Hz flash)	Network Interface Card running in normal status
		On (Green)	System loading (Network Interface Card Booting after hot plug in)
		Off	Running status is in failure
RJ-45 Interface indicator			
Port Indicator	Shared	On (Green)	RJ-45 Interface Network Connection is normal
		Off	There is not network connection at RJ-45 interface
		On (orange)	Sending or receiving data
SFP Interface Indicator			
Status Indicator	"Left Light"	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP interface
Transmission Indicator	"Right Light"	Flashes (Green)	Sending or receiving data
XFP interface Indicator			
Status Indicator	Link	On (Green)	XFP transceiver network connection is normal
		Off	There is not network connection at XFP transceiver
Transmission Indicator	Act	Flashes (Green)	Sending or receiving data

1.4.2.12.3 Front Panel Interface Description

MRS-7604-M1XFP12GX12GT provides 12-port 1G optical SFP ports, 24-port 1G electronic of RJ-45 and 1-port 10G XFP interface.

1.4.2.13 MRS-7600-4XFP

MRS-7600-4XFP implements 2-layer and 3-layer wire-speed switching and routing function of 4 10,000Mbps XFP interfaces and IPv6 wire-speed transmission.

1.4.2.13.1 Front Panel Diagram

The following is the sketch map of its front panel:

Fig 1-22 the Sketch Map of the Front Panel of MRS-7600-4XFP

1.4.2.13.2 Front Panel Indicator

The following is the instruction of the indicator lamps on the front panel of MRS-7600-4XFP.

Table 1-20 the Instruction of Indicator Lamps of MRS-7600-4XFP

LED Indicator	Panel Sign	State	Explanation
Power Indicator Lamp	PWR	On(green)	The boardcard is power-on
		Off	The boardcard is power-off
Run Operating Indicator	RUN	On(green, glittering at the frequency of 1 HZ)	The boardcard is operating normally
		On(green, glittering at the frequency of 8 HZ)	The system is booting(Booting after the boardcard is hot-plugged in)
		Off	The boardcard is operating abnormally
XFP Interface Indicator Lamps			
State Indicator Lamp	Link	On(green)	The network connection of XFP Transceiver is normal.
		Off	There is no network connection on XFP Transceiver
Transmissio	Act	On(green)	Receiving or sending data.

n Indicator Lamp			

1.4.2.13.3 Front Panel Interfaces Description

MRS-7600-4XFP provides 4 10,000Mbps XFP electric interfaces.

1.4.2.14 MRS-7600-48GB

48-port 1000Mbps optical line card (MRS-7600-48GB): Implements 2-layer and 3-layer wire-speed switching and routing function of 48 1000Mbps optical interfaces, and IPv6 wire-speed transmission.

1.4.2.14.1 Front Panel Diagram

MRS-7600-48GB provides 48 1000Mbps optical interfaces.

The following is the sketch map of its front panel:

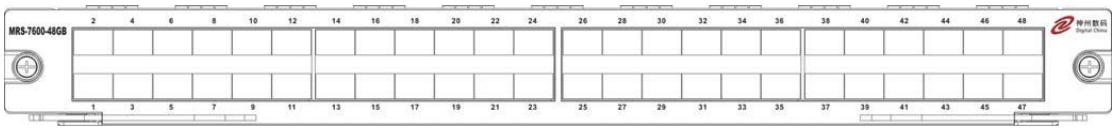

Fig 1-23 the Sketch Map of the Front Panel of MRS-7600-48GB

The ports in the above chart are port GB1－GB48 from the bottom-left corner to the top-right corner. The indicator lamps of ports having odd index number are on the left side of the port array, while the indicator lamps of ports having even index number are on the right side. The lamps are green indicator lamps.

1.4.2.14.2 Front Panel Indicator

The following is the instruction of the indicator lamps on the front panel of MRS-7600-48GB.

Table 1-21 the Instruction of Indicator Lamps of MRS-7600-48GB

LED Indicator	Panel Sign	State	Explanation
SFP Interface Indicator Lamps			
State Indicator Lamp		On(green)	The network connection of SFP interface is normal.
		Off	There is no network connection on SFP interface
Transmission Indicator		On(green)	SFP is receiving or sending data.

Lamp			

1.4.2.14.3 Front Panel Interface Description

MRS-7600-48GB provides 48 SFP 1000Mbps optical transceiver interfaces.

1.4.2.15 MRS-7604-M44GT

The MRS-7604-M44GT is switching module for the DCRS-7604 switch. System status control, switch management, user access control and management, and network maintenances are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy, supports IPv6 wire-speed transmission. It has 44 1000Mbps electronic interfaces at the same time.

1.4.2.15.1 Front Panel Diagram

MRS-7604-M44GT implements 2-layer and 3-layer wire-speed switching and routing function of 44 1000Mbps electronic interfaces and IPv6 transmission.

The following is the sketch map of its front panel:

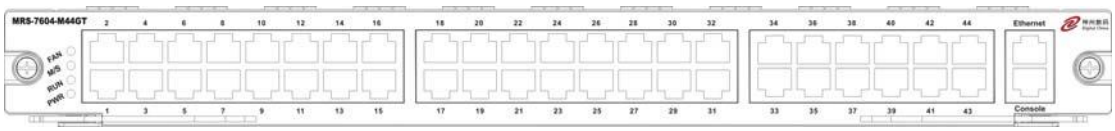

Fig 1-24 the Sketch Map of the Front Panel of MRS-7604-M44GT

1.4.2.15.2 Front Panel Indicator

The following is the instruction of the indicator lamps on the front panel of MRS-7604-M44GT.

Table1-22 MRS-7604-M44GT indicator description

LED	Panel Symbol	Status	Description
Power Indicaor	PWR	On(Green)	Card Powered
		Off	Card Powered off
Master-Slave Indicator	M/S	On(Green)	Master
		Off	Slave
Fan Indicator	FAN	On(Green)	Operating normally
		Off	Operating abnormally
Operation Indicator	RUN	On(Green, blink at 1 Hz)	Cards operating normally
		On(Green, blink at 8	System is loading (Booting after the

		Hz)	boardcard is hot-plugged in)
		Off	Operating malfunctioning
RJ-45 Interface Indicator			
Port indicator		On(Green)	The network connection of RJ-45 interface is normal
		Off	There is no network connection on RJ-45 interface
		On(Orange)	Receiving or sending data

1.4.2.15.3 Front Panel Interface Description

MRS-7604-M44GT provides 44-port 10/100/1000M RJ-45 electronic port.

1.4.2.16 MRS-7604-M1XFP12GX12GB

The MRS-7604-M1XFP12GX12GB is switching module for the DCRS-7604. System status control, switch management, user access control and management, and network maintenances are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy. MRS-7604-M1XFP12GX12GB supports 2-layer and 3-layer wire-speed switching and routing function of 12 1000Mbps optical-electronic combos, 12 1000Mbps opticals and 1 10,000Mbps XFP interfaces, IPv6 wire-speed transmission.

1.4.2.16.1 Front Panel Diagram

MRS-7604-M1XFP12GX12GB provides 12-port 1G optical-electronic combo, 12-port 1G optical and 1-port 10G XFP interface. 12-port 1G optical-electronic are combo at the front, 12-port are 1G optical interface at the back.

The following is the sketch map of its front panel:

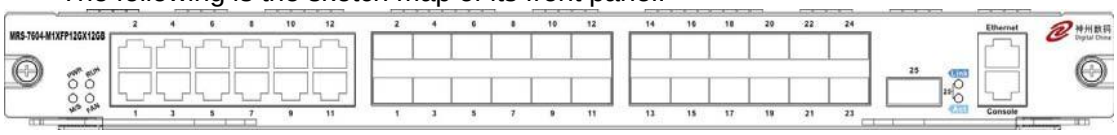

Fig 1-25 the Sketch Map of the Front Panel of MRS-7604-M1XFP12GX12GB

1.4.2.16.2 Front Panel Indicator

The following is the instruction of the indicator lamps on the front panel of MRS-7604-M1XFP12GX12GB.

Table1-23 MRS-7604-M1XFP12GX12GB indicator description

LED	Panel Symbol	Status	Description

Power Indicaor	PWR	On(Green)	Card Powered
		Off	Card Powered off
Master-Slave Indicator	M/S	On(Green)	Master
		Off	Slave
Fan Indicator	FAN	On(Green)	Fan operating normally
		Off	Fan not present or operating abnormally
Operation Indicator	RUN	On(Green, blink at 1 Hz)	Cards operating normally
		On(Green, blink at 8 Hz)	System is loading (Booting after the boardcard is hot-plugged in)
		Off	Operating malfunctioning
RJ-45 Interface Indicator			
Port Indicator		On(Green)	The network connection of RJ-45 interface is normal
		Off	There is no network connection on RJ-45 interface
		On(Orange)	Receiving or sending data
SFP Interface Indicator			
Status Indicator	“Left Light”	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP interface
Transmission Indicator	“Right Light”	On (Green)	Sending or receiving data
XFP Interface Indicator			
Status Indicator	Link	On (Green)	XFP transceiver network connection is normal
		Off	There is not network connection at XFP transceiver
Transmission Indicator	Act	On (Green)	Sending or receiving data

1.4.2.16.3 Front Panel Interface Description

MRS-7604-M1XFP12GX12GB provides 24 SFP 1000Mbps optical fibre transceivers, 12 RJ-45 1000Mbps electronic port slots and 1 XFP 10,000Mbps electronic port.

1.4.2.17 MRS-7600-12GX12GB and MRS-7600-2XFP12GX12GB

The MRS-7600-12GX12GB is switching module for the 76 series switch and implements 2-layer and 3-layer wire-speed switching and routing function of 12 1000Mbps optical-electronic combo, 12 1000Mbps optical interfaces, IPv6 wire-speed transmission.

The MRS-7600-2XFP12GX12GB is switching module for the 76 series switch and implements 2-layer and 3-layer wire-speed switching and routing function of 12 1000Mbps optical-electronic combo, 12 1000Mbps optical and 2 10,000Mbps XFP interfaces, IPv6 wire-speed transmission.

1.4.2.17.1 Front Panel Diagram

MRS-7600-12GX12GB provides 12 1000Mbps optical-electronic combo and 12 1000Mbps optical interfaces. 12 1000Mbps electronic ports are combo ports at the front, 12 ports are 1000Mbps optical port at the back.

The following is the sketch map of its front panel:

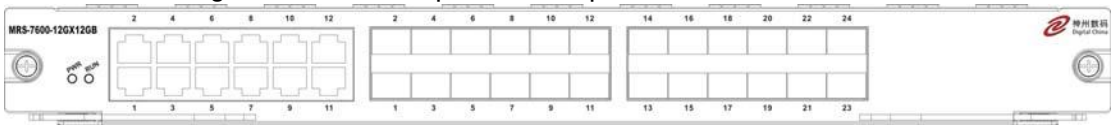

Fig 1-26 the Sketch Map of the Front Panel of MRS-7600-12GX12GB

The MRS-7600-2XFP12GX12GB provides 12 1000Mbps optical-electronic combo, 12 1000Mbps optical interfaces and 2 10,000Mbps XFP interfaces. 12 1000Mbps electronic ports are combo ports at the front, 12 ports are 1000Mbps optical ports at the back.

The following is the sketch map of its front panel:

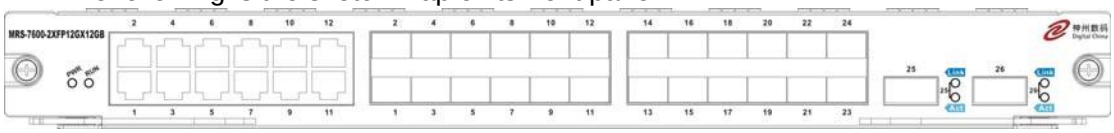

Fig 1-27 the Sketch Map of the Front Panel of MRS-7600-2XFP12GX12GB

1.4.2.17.2 Front Panel Indicator

The following is the instruction of the indicator lamps on the front panel of MRS-7600-12GX12GB and MRS-7600-2XFP12GX12GB.

Table1-24 MRS-7600-12GX12GB and MRS-7600-2XFP12GX12GB indicator description

LED	Panel Symbol	Status	Description
Power Indicaor	PWR	On(Green)	Card Powered
		Off	Card Powered off
Operation Indicator	RUN	On(Green, blink at 1 Hz)	Cards operating normally
		On(Green, blink at 8	System is loading (Booting after the

		Hz)	boardcard is hot-plugged in)
		Off	Operating malfunctioning
RJ-45 Interface Indicator			
Port Indicator		On(Green)	The network connection of RJ-45 interface is normal
		Off	There is no network connection on RJ-45 interface
		On(Orange)	Receiving or sending data
SFP Interface Indicator			
Status Indicator	"Left Light"	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP interface
Transmission Indicator	"Right Light"	On (Green)	Sending or receiving data
XFP Interface Indicator			
Status Indicator	Link	On (Green)	XFP transceiver network connection is normal
		Off	There is not network connection at XFP transceiver
Transmission Indicator	Act	On (Green)	Sending or receiving data

1.4.2.17.3 Front Panel Interface Description

MRS-7600-12GX12GB and MRS-7600-2XFP12GX12GB provides 24 SFP 1000Mbps optical fibre transceivers, 12 RJ-45 1000Mbps electronic port slots.

MRS-7600-2XFP12GX12GT provides 2 XFP 10,000Mbps optical ports.

1.4.2.18 MRS-7608-M2

The MRS-7608-M2 is main switching module for the DCRS-7608, the important functions such as system status control, route management, user access control and management, network maintenances are performed here. The board can be inserted into M1 or M2 slots of the chassis switch and support Master-Slave redundancy.

1.4.2.18.1 Front Panel Diagram

The MRS-7608-M2 provide 1 Console port (control platform), and 1 10/100/1000Base-Tx Ethernet port (management port).

The Front Panel is shown as below:

Fig 1-28 MRS-7608-M2 Front Panel

1.4.2.18.2 Front Panel Indicator

The following table describes the front panel indicators of MRS-7608-M2:

Table1-25 MRS-7608-M2 indicator description

LED	Panel Symbol	Status	Description
Power Indicator	PWR	On(Green)	Card Powered
		Off	Card Powered off
Operation Indicator	RUN	On(Green, blink at 1 Hz)	Cards operating normally
		On(Green, blink at 8 Hz)	System is loading when the card is hot plugged
		On(Yellow, blink at 8 Hz)	System is shutting down
		On(Red, blink at 8 Hz)	Cards malfunction
		Off	Cards are powered off and can be removed
Master-Slave indicator	M/S	On(Green)	Master
		Off	Slave
Power Supply Module Status indicator: **POWER**	OK	On(Green)	Power Supply Module operating normally
		Off	Power supply module malfunctioning or not present (with ***Fail*** off)
	Fail	On(Yellow)	Power Supply Module malfunction
		Off	Power supply module operating normally or not present (with ***OK*** off)
Fan Assembly Status indicator **FAN**	OK	On(Green)	Fan operating normally
		Off	Fan malfunctioning or not present (with ***Alarm*** off)
	Alarm	On(Yellow)	Fan malfunction

		Off	Fan operating normally or not present (with ***OK*** off)

1.4.2.18.3 Front Panel Console

The MRS-7608-M2 provides a RJ-45 (receptacle) Console serial port. Users can connect to background terminal computers via this port to perform system debugging, configuration, maintenance, management and host software loading.

Table1-26MRS-7608-M2 Console Port Description

Property	Specification
Connector	RJ-45(receptacle)
Connector type	RS-232
Baud rate	9600bps(default)
Supporting Service	● Connects to character terminals ● Connects to PC serial port and running terminal emulator on PC

1.4.2.18.4 Front Panel Management Port

The MRS-7608-M2 provides a RJ-45 (receptacle) Ethernet port. Users can connect through this management port to background terminal computer for program loading or to connect to remote devices for remote management (e.g., a managing workstation). Note: when connecting to the host, a cross-over cable should be used.

Table1-27 MRS-7608-M2 Management Port description

Property	Specification
Connector	RJ-45(receptacle)
Connector type	● 10/100/1000Mbps adapting ● Cat 5(UTP): 300m

1.4.2.19 MRS-7600-24GB12GT and MRS-7600-2XFP24GB12GT

The MRS-7600-24GB12GT is switching module for the 7600 series switch, which supports MPLS VPN function and implements 2-layer and 3-layer wire-speed switching and routing function of 12 1000Mbps electronic interfaces, 24 1000Mbps optical interfaces, IPv6 wire-speed transmission.

The MRS-7600-2XFP24GB12GT is switching module for the 7600 series switch, which supports MPLS VPN function and implements 2-layer and 3-layer wire-speed

switching and routing function of 12 1000Mbps electronic interfaces, 24 1000Mbps optical and 2 10,000Mbps XFP interfaces, IPv6 wire-speed transmission.

1.4.2.19.1 Front Panel

The MRS-7600-24GB12GT provides 12 1000Mbps electronic interfaces and 24 1000Mbps optical interfaces.

The Front Panel view is shown below:

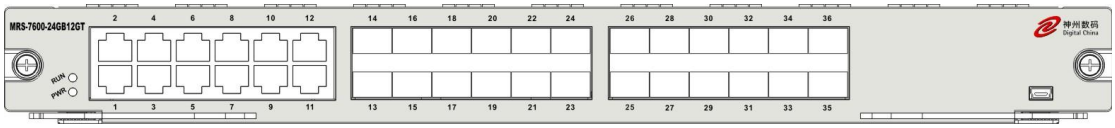

Fig 1-29 MRS-7600-24GB12GT Front Panel View

MRS-7600-2XFP24GB12GT provides 12 1000Mbps electronic interfaces, 24 1000Mbps optical and 2 10,000Mbps XFP interfaces.

The Front Panel view is shown below:

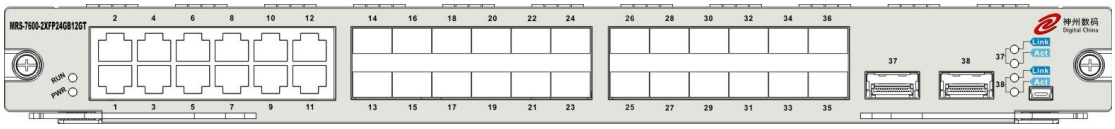

Fig 1-30 MRS-7600-2XFP24GB12GT Front Panel View

1.4.2.19.2 Front Panel - Indicator

The following is the instruction of the indicator lamps on the front panel of MRS-7600-24GB12GT and MRS-7600-2XFP24GB12GT.

Table1-28 MRS-7600-24GB12GT and MRS-7600-2XFP24GB12GT indicator description

LED	Panel Symbol	Status	Description
Power Indicator	PWR	On(Green)	Card Powered
		Off	Card Powered off
Operation Indicator	RUN	On(Green, blink at 1 Hz)	Cards operating normally
		On(Green, blink at 8 Hz)	System is loading (Booting after the boardcard is hot-plugged in)
		Off	Operating malfunctioning
RJ-45 Interface Indicator			
Port Indicator		On(Green)	The network connection of RJ-45 interface is normal

		Off	There is no network connection on RJ-45 interface
		On(Orange)	Receiving or sending data
SFP Interface Indicator			
Status Indicator	"Left Light"	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP interface
Transmission Indicator	"Right Light"	On (Green)	Sending or receiving data
XFP Interface Indicator			
Status Indicator	Link	On (Green)	XFP transceiver network connection is normal
		Off	There is not network connection at XFP transceiver
Transmission Indicator	Act	On (Green)	Sending or receiving data

1.4.2.19.3 Front Panel Interface Description

MRS-7600-24GB12GT provides 12 1000Mbps electronic interfaces and 24 1000Mbps optical SFP interfaces.

MRS-7600-2XFP24GB12GT provides 12 1000Mbps electronic interfaces, 24 1000Mbps optical SFP and 2 10,000Mbps XFP interfaces.

1.4.2.20 MRS-7600-12GX12GT (R4) and MRS-7600-2XFP12GX12GT (R4)

12-port optical-electronic combo and 12-port electronic interface line card (MRS-7600-12GX12GT(R4)): to implement the layer2 and layer3 wire speed exchange and routing function of 12-port 1G optical-electronic combo and 12-port 1G electronic interface and IPv6 wire speed transmission function.

Double 10G and 12-port optical-electronic combo and 12-port electronic interface line card (MRS-7600-2XFP12GX12GT(R4)): to implement the layer2 and layer3 wire speed exchange and routing function of 12-port 1G optical-electronic combo, 12-port 1G electronic and 2-port 10G XFP interface, and IPv6 wire speed transmission function.

1.4.2.20.1 Front Panel Diagram

MRS-7600-12GX12GT (R4) provides twelve 1G optical combo ports, twelve 1G electronic ports, where the twelve 1G ports are electronic ports in the front and the last twelve 1G ports are combo ports.

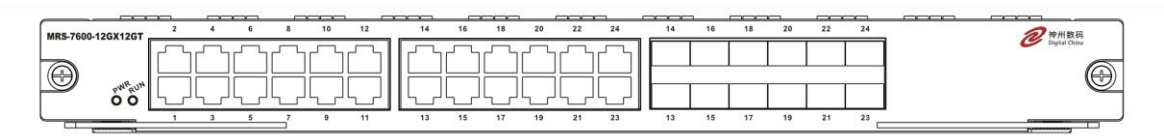

Fig 1-31 MRS-7600-12GX12GT (R4) front panel view

MRS-7600-2XFP12GX12GT (R4) provides twelve 1G optical combo ports, twelve 1G electronic ports and two 10G XFP ports, where the twelve 1G ports are electronic ports in the front and the last twelve 1G ports are combo ports.

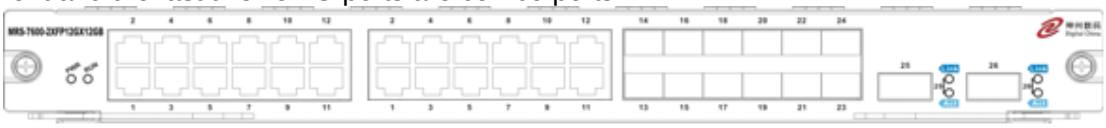

Fig 1-32 MRS-7600-2XFP12GX12GT (R4) front panel view

1.4.2.20.2 Front Panel Indicator

The description of front panel indicator of MRS-7600-12GX12GT (R4) and MRS-7600-2XFP12GX12GT (R4) is as follows:

Table 1-29 MRS-7600-12GX12GT (R4) and MRS-7600-2XFP12GX12GT (R4) indicator description

LED Indicator	Panel Sign	Status	Meanings
Power Indicator	PWR	On (Green)	Network Interface Card power on
		Off	Network Interface Card power off
Running Indicator	RUN	On (Green 1Hz flash)	Network Interface Card running in normal status
		On (Green 8Hz flash)	System loading (Network Interface Card Booting after hot plug in)
		Off	Running status is in failure
RJ-45 Interface indicator			
Port Indicator		On (Green)	RJ-45 Interface Network Connection is normal
		Off	There is not network connection at RJ-45 interface
		On (Orange)	Sending or receiving data
SFP Interface Indicator			

Status Indicator	"Left Light"	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP interface
Transmission Indicator	"Right Light"	On (Green)	Sending or receiving data
XFP interface Indicator			
Status Indicator	Link	On (Green)	XFP transceiver network connection is normal
		Off	There is not network connection at XFP transceiver
Transmission Indicator	Act	On (Green)	Sending or receiving data

1.4.2.20.3 Front Panel Interface Description

MRS-7600-12GX12GT (R4) and MRS-7600-2XFP12GX12GT (R4) provide 24 SFP 1G optical fibre transceivers and 12 RJ-45 1G electronic port slots.

MRS-7600-2XFP12GX12GT (R4) provides two XFP 10G optical ports.

1.4.2.21 MRS-7600-48GB (R4)

48-port 1000Mbps optical line card (MRS-7600-48GB (R4)): Implement 2-layer and 3-layer wire-speed switching and routing function of 48 1000Mbps optical interfaces, and IPv6 wire-speed transmission.

1.4.2.21.1 Front Panel Diagram

MRS-7600-48GB (R4) provides 48 1000Mbps optical interfaces.

The following is the sketch map of its front panel:

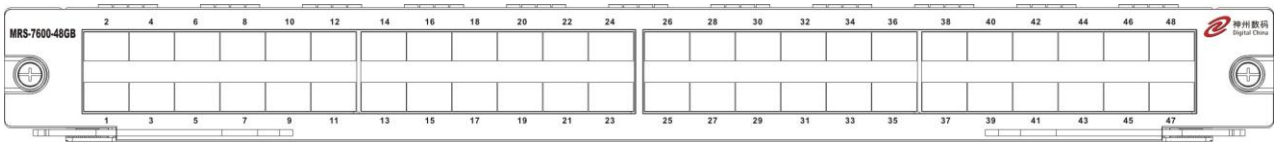

Fig 1-33 the Sketch Map of the Front Panel of MRS-7600-48GB (R4)

The ports in the above chart are port GB1－GB48 from the bottom-left corner to the top-right corner. The indicator lamps of ports having odd index number are on the left side of the port array, while the indicator lamps of ports having even index number are on the right side. The lamps are green indicator lamps.

1.4.2.21.2 Front Panel Indicator

The following is the instruction of the indicator lamps on the front panel of MRS-7600-48GB (R4).

Table 1-30 the Instruction of Indicator Lamps of MRS-7600-48GB (R4)

LED Indicator	Panel Sign	State	Explanation
SFP Interface Indicator Lamps			
State Indicator Lamp		On(green)	The network connection of SFP interface is normal.
		Off	There is no network connection on SFP interface
Transmission Indicator Lamp		On(green)	SFP is receiving or sending data.

1.4.2.21.3 Front Panel Interface Description

MRS-7600-48GB (R4) provides 48 SFP 1000Mbps optical transceiver interfaces.

1.4.2.22 MRS-7604-M1XFP12GX12GT (R4)

The MRS-7604-M1XFP12GX12GT (R4) is switching module for the DCRS-7604. System status control, switch management, user access control and management, and network maintenances are performed here. The board can be inserted into first or second slots of the chassis for Master-Slave redundancy. It provides 12-port 1G optical-electronic combo, 12-port 1G electronic and 1-port 10G XFP interface.

1.4.2.22.1 Front Panel Diagram

MRS-7604-MIXFP12GX12GT (R4) implements 2-layer and 3-layer wire-speed switching and routing function of 12-port 1G optical-electronic combo, 12-port 1G electronic and 1-port 10G XFP interface, IPv6 wire-speed transmission. The front 12 ports are 1000Mbps electronic ports, 12 1000Mbps electronic ports are combo ports at the back,

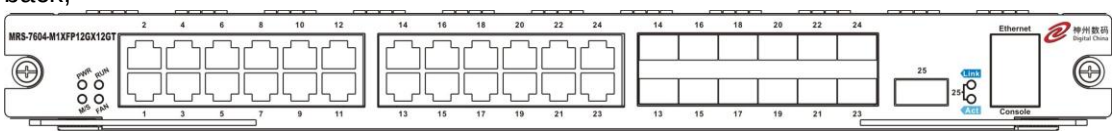

Fig 1-34 MRS-7604-M1XFP12GX12GT (R4) front panel view

1.4.2.22.2 Front Panel Indicator

The description of front panel indicator of MRS-7604-M1XFP12GX12GT (R4) as

follows:

Table 1-31 MRS-7604-M1XFP12GX12GT (R4) indicator description

LED Indicator	Panel Sign	Status	Meanings
Power Indicator	PWR	On (Green)	Network Interface Card power on
		Off	Network Interface Card power off
Master-Slave indicator	M/S	On(Green)	Master
		Off	Slave
Fan Indicator	FAN	On(Green)	Fan operating normally
		On(Red)	Fan operating abnormally
		Off	Fan not present
Running Indicator	RUN	On (Green 1Hz flash)	Network Interface Card running in normal status
		On (Green)	System loading (Network Interface Card Booting after hot plug in)
		Off	Running status is in failure
RJ-45 Interface indicator			
Port Indicator		On (Green)	RJ-45 Interface Network Connection is normal
		Off	There is not network connection at RJ-45 interface
		On (Orange)	Sending or receiving data
SFP Interface Indicator			
Status Indicator	"Left Light"	On (Green)	SFP transceiver network connection is normal
		Off	There is not network connection at SFP interface
Transmission Indicator	"Right Light"	Flashes (Green)	Sending or receiving data
XFP interface Indicator			
Status Indicator	Link	On (Green)	XFP transceiver network connection is normal
		Off	There is not network connection at XFP transceiver
Transmission Indicator	Act	Flashes (Green)	Sending or receiving data

1.4.2.22.3 Front Panel Interface Description

MRS-7604-M1XFP12GX12GT (R4) provides 12-port 1G optical SFP combo, 24-port 1G electronic and 1-port 10G XFP interface.

1.4.2.23 MRS-7608-MI (R4)

The MRS-7608-MI (R4) is switching module for the DCRS-7608. System status control, switch management, user access control and management, and network maintenances are performed here. The board can be inserted into M1 or M2 slots of the chassis for Master-Slave redundancy.

1.4.2.23.1 Front Panel

The MRS-7608-MI (R4) comes with 1 Console port (control console), 1 10/100Base-Tx Ethernet port (management port) and 1 CF card port.

The Front Panel view is shown below:

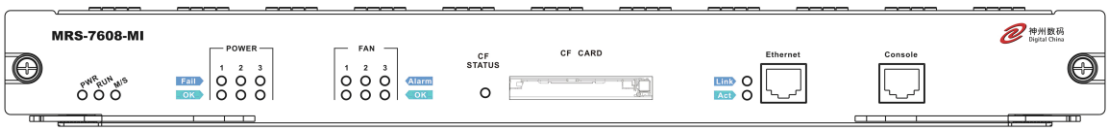

Fig 1-35 MRS-7608-MI (R4) Front Panel view

1.4.2.23.2 Front Panel - Indicator

The following table describes the front panel indicators of MRS-7608-MI (R4):

Table 1-32 MRS-7608-MI (R4) indicators description

LED	Panel Symbol	Status	Description
Power Indicator	PWR	On (Green)	Card powered
		Off	Card powered off
Operation indicator	RUN	On (Green, blink at 1 Hz)	Cards operating normally
		On (Green, blink at 8 Hz)	System is loading
		Off	Cards malfunction
Master-Slave indicator	M/S	On (Green)	Master
		Off	Slave
Power Supply	POWER _OK	On (Green)	Power Supply Module operating normally

Module Status indicator: POWER		Off	Power supply module malfunctioning or not present
	POWER_Fail	On (Yellow)	Power Supply Module alarm
		Off	Power supply module not alarm or not present
Fan Assembly Status indicator: FAN	FAN_OK	On (Green)	Fan operating normally
		Off	Fan malfunctioning or not present
	FAN_ALARM	On (Yellow)	Fan alarm
		Off	Fan operating not alarm or not present
Ethernet management port indicator	ACT	On (Green)	Ethernet port Sending or receiving data
		Off	Ethernet port Sending or receiving no data
	LINK	On (Green)	Ethernet port link success
		Off	Ethernet port link unsuccess
CF card status indicator	CF-STATUS	On (Green)	CF card is in position and can work
		Off	CF card not present

1.4.2.23.3 Front Panel – Console Port

The MRS-7608-MI (R4) provides a RJ-45 (receptacle) Console serial port. Users can connect to hosts via this port to perform system debugging, configuration, maintenance, management and host software loading.

Table 1-33 MRS-7608-MI(R4) Console description

Property	Specification
Connector	RJ-45 (receptacle)
Connector type	RS-232
Baud rate	9600bps (default)
Supporting service	● Connects to character terminals ● Connects to PC serial port and running terminal emulator on PC.

1.4.2.23.4 Front Panel – Management Port

The MRS-7608-MI (R4) provides a RJ-45 (receptacle) Ethernet port. Users can connect through this management port to hosts for program loading or to connect to remote devices for remote management (e.g., a managing workstation). Note: when

connecting to the host, a cross-over cable should be used.

Table 1-34 MRS-7608-MI (R4) management port description

Property	Specification
Connector	RJ-45 (Receptacle)
Connector type	● 10/100Mbps auto sensing ● Cat 5 UTP: 100 m

1.4.2.23.5 Front Panel – CF Card Interface

MRS-7608-MI (R4) provides a standard CF card slot, and supports hot-swapping. CF card content supports 256MB/512MB/1GB, it can be save edition, configuration files and so on, so as to conveniency switch software update. **Notice:** It is suggested to use DCN CF card, it is not assure the compatibility with other CF card.

1.4.3 Interface description

DCRS-7600 series provide 1000Mbps SFP electric interfaces, RJ-45 (receptacle) Console serial ports and 10,000Mbps XFP electric interfaces.

Interface description is as follows:

Table 1-35 DCRS-7600 series interface description

Interface Format	Specs
RJ-45 port	● 10/100/1000Mbps self-adapting ● MDI/MDI-X network wire type self-adapting ● 5 kinds of Unshielded Twisted Pair(UTP): 100m
SFP	• SFP-SX-L transceiver 1000Base-SX SFP(850nm, MMF, 550m) • SFP-LX-L transceiver 1000Base-LX SFP(1310nm, SMF, 10km or MMF, 550m) • SFP-LX-20-L transceiver 1310nm lightwave, 9/125um single-mode fiber: 20km • SFP-LX-40 transceiver 9/125um single-mode fiber: 40km • SFP-LH-70-L transceiver 9/125um single-mode fiber: 70km • SFP-LH-120-L transceiver 9/125um single-mode fiber: 120km
SFP-GT	● SFP-GT module:

	1000Base-T SFP interface card module, RJ-45 interface
XFP	• XFP-SR transceiver 10GBase-SR XFP (850nm, 62.5 μm MMF 32m, 50 μm 500MHz/km MMF 85m, 50 μm 2000MHz/km MMF 300m) • XFP-LR transceiver 10GBase-LR XFP (1310nm, SMF,10km) • XFP-ER transceiver 1550nm SMF, 40km • XFP-ER-70 transceiver 1550nm SMF, 70km

1.4.4 Power supply

1.4.4.1 MRS-7604-AC

DCRS-7604 uses 1 +1 redundant power supplies. Each of them may serve as a standby power supply for another. Under normal operation conditions, the two power supply modules concurrently operate and each of them bears half of the loads. If one of the power supply modules fails to work or its switch is off, its alarming indicator will be on. At the same time, another power supply becomes responsible for the power supply of the whole switch. When the failure power supply module returns to normal state or its switch is turned on, the alarming indicator will be off.

The power supply modules are installed on the upper part of the machine chassis, and are connected with the backplane of the switch through specific interfaces. The two power supply modules are fixed on the machine chassis with two screws. Each power supply module has one switch. Under normal operation conditions, two switches shall be turned on. For changing power supply modules, it is not necessary to open the chassis. You may turn off the switches of corresponding power supply modules and screwing off the fixing screws for changing the modules.

1.4.4.1.1 Power module Front Panel

The front panel of MRS-7604-AC is equipped with power supply switches, power supply indicators as well as ventilating and cooling port and a handle for inserting and pulling out the modules.

The Front Panel view is shown below:

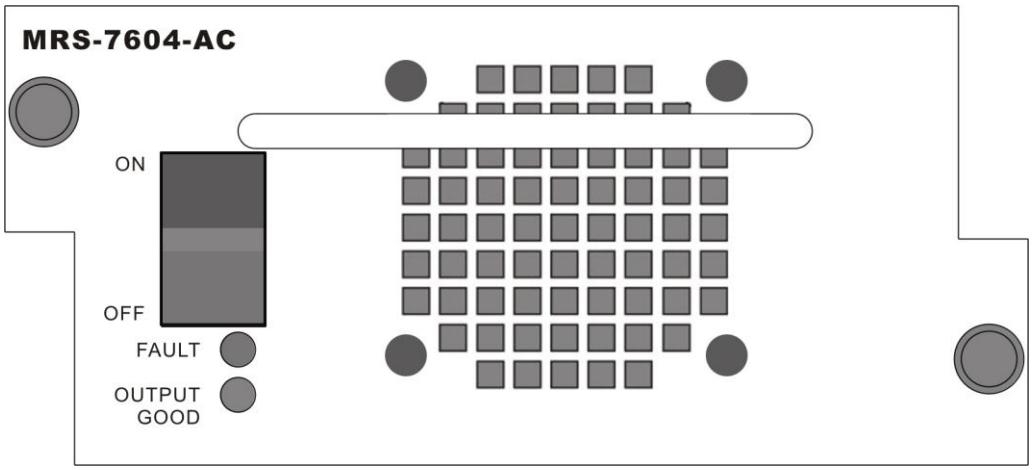

Fig 1-36 MRS-7604-AC Front Panel View

1.4.4.1.2 LED

The LED description of MRS-7604-AC is as follows

Table 1-36 The Description of MRS-7604-AC LED

LED	Panel Label	Status	Description
Output LED	Output Good	On Green	Power Module Output Status is okay
		Off	Power Module has no output
Abort LED	Fault	On Yellow	Faulty Power Module /Not turning-on The Output Switch
		Off	Power Module Working Fine

1.4.4.1.3 Switch of power supply for front panel

MRS-7604-AC provides a power supply switch for controlling the power output of control module. Under normal operation conditions, the switches for power supply modules shall be turned on concurrently. When the switch of one power supply module is turned on and another is turned off, the FAULT indicator of the module will be on to suggest the users to turn on the switch so as to utilize 1+1 redundant backup.

1.4.4.2 MRS-PWR-A1-AC

DCRS-7604 uses 1+1 redundant power supplies. Each of them may serve as a standby power supply for another. Under normal operation conditions, the two power supply modules concurrently operate and each of them bears half of the loads.

1.4.4.2.1 MRS-PWR-A1-AC (400W AC Power Module)

MRS-PWR-A1-AC is a 400W AC power module, it supports hot-swapping and redundant backup.

MRS-PWR-A1-AC can be used in the DCRS-7604(V2.0).

1.4.4.2.2 Power module Front Panel

The front panel of MRS-7604-A1-AC is equipped with power supply switches, power supply indicators as well as ventilating and cooling port and a handle for inserting and pulling out the modules.

The Front Panel view is shown below:

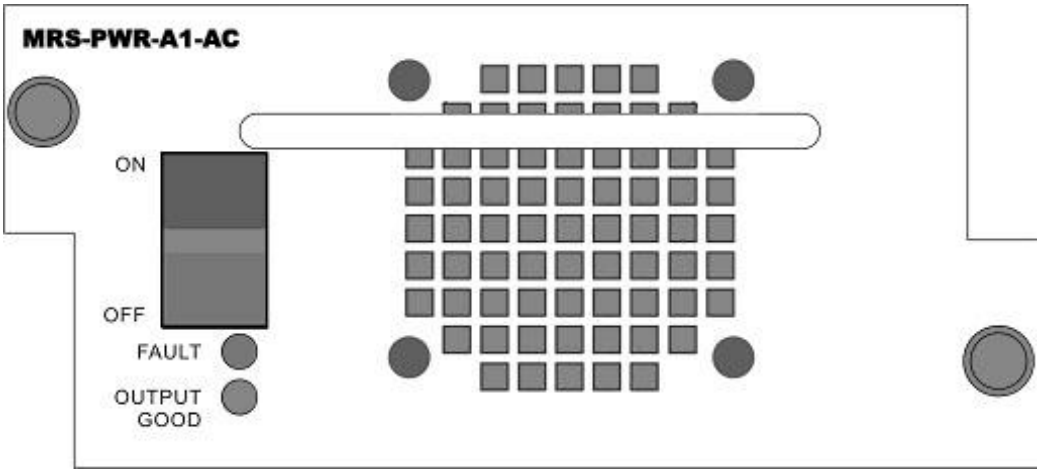

Fig 1-37 MRS-7604-A1-AC Front Panel View

1.4.4.2.3 LED

The LED description of MRS-7604-A1-AC is as follows

Table 1-37 The Description of MRS-7604-A1-AC LED

LED	Panel Label	Status	Description
Output LED	Output Good	On Green	Power Module Output Status is okay
		Off	Power Module has no output
Abort LED	Fault	On Yellow	Faulty Power Module /Not turning-on The Output Switch
		Off	Power Module Working Fine

1.4.4.2.4 Switch of power supply for front panel

MRS-7604-A1-AC provides a power supply switch for controlling the power output of control module. Under normal operation conditions, the switches for power supply modules shall be turned on concurrently. When the switch of one power supply module is turned on and another is turned off, the FAULT indicator of the module will be on to suggest the users to turn on the switch so as to utilize 1+1 redundant backup.

1.4.4.3 MRS-PWR-A1-DC

DCRS-7604 uses 1 +1 redundant DC power supplies. But not suggest that the AC power and DC power be used mixed.

1.4.4.3.1 MRS-PWR-A1-DC (Direct Current Power Module for 400W)

MRS-PWR-A1-DC is a Direct Current Power module for 400W, which support hot plug and redundance backup.

MRS-PWR-A1-DC can be used in the DCRS-7604(V2.0).

1.4.4.3.2 Power module Front Panel

The front panel of MRS-PWR-A1-DC is equipped with power supply switches, power supply indicators as well as ventilating and cooling port and a handle for inserting and pulling out the modules. On panel's right hand is DC connector, supports -48VDC input. The power supply DC connector has three input terminal, they are RTN, -48V and PG from the top down, and the meanings are shown below:

RTN: power supply reflow

-48V: -48V input

PG: plane ground

The Front Panel view is shown below:

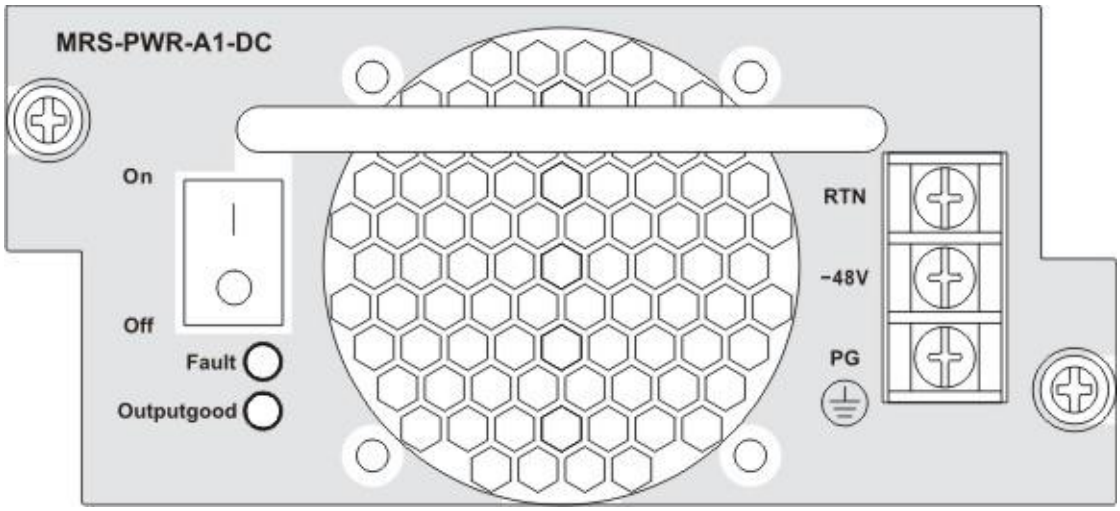

Fig 1-38 MRS-PWR-A1-DC Front Panel View

1.4.4.3.3 LED

The LED description of MRS-PWR-A1-DC is as follows:

Table 1-38 the Description of MRS-PWR-A1-DC LED

LED	Panel Label	Status	Description
Output LED	Output Good	On Green	Power Module Output Status is okay
		Off	Power Module has no output
Abort LED	Fault	On Yellow	Faulty Power Module /Not turning-on The Output Switch
		Off	Power Module Working Fine

1.4.4.3.4 Switch of power supply for front panel

MRS-PWR-A1-DC provides a power supply switch for controlling the power output of control module. Under normal operation conditions, the switches for power supply modules shall be turned on simultaneous. When the switch of one power supply module is turned on and another is turned off, the FAULT indicator of the module will be on to suggest the users to turn on the switch so as to utilize 1+1 redundant backup.

1.4.4.4 MRS-PWR-B1-AC and MRS-PWR-B1-DC

DCRS-7608 uses 2+1 redundant power supplies, three power modules can act as backups for each other. During normal operation, all three power modules each take one third of the load. If one of the modules fails or is not present, the other two power modules will supply power for the whole switch, and the corresponding POWER/Fail warning indicator for the failed/missing module will illuminate, prompting the replacement of the failed module. The warning indicator will turn off after the failed module is replaced or recovers.

The DCRS-7608 power module is installed in the lower section of the chassis, and connects to the power board of the switch. All the power modules attach to the chassis with 2 screws, respectively. When replacing the power modules, the chassis need not to be opened, just remove the 2 fastening screws to take out the power module requiring replacement.

1.4.4.4.1 MRS-PWR-B1-AC (Alternating Current Power Module)

When powered by AC inputs, the AC power module MRS-PWR-B1-AC and corresponding AC distribution box should be used in the DCRS-7608. The input voltage of the MRS-PWR-B1-AC is 110V/220 VAC, with ranges between 90 ~ 264 VAC and frequency between 50 ~ 60 Hz, the maximum output power is 600W.

1.4.4.4.2 MRS-PWR-B1-DC (DC Power Module)

When powered by DC inputs, the DC power module MRS-PWR-B1-DC and corresponding DC distribution box should be used in the DCRS-7608. The input voltage of the MRS-PWR-B1-DC is -48V DC, with ranges between -36V ~ -72V DC and the maximum output power is 600W.

1.4.4.4.3 Power module Front Panel

There are vents (with dust gauzes), 2 fastening screws and handle for replacing the modules on the front panels of MRS-PWR-B1-AC and MRS-PWR-B1-DC.

The Front Panel view is shown below:

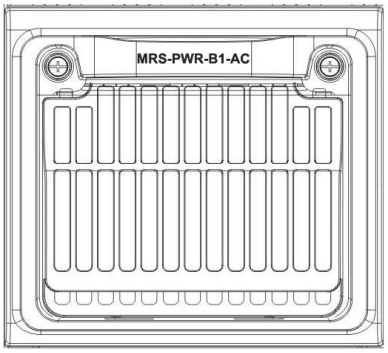

Fig 1-39 MRS-PWR-B1-AC Front Panel view

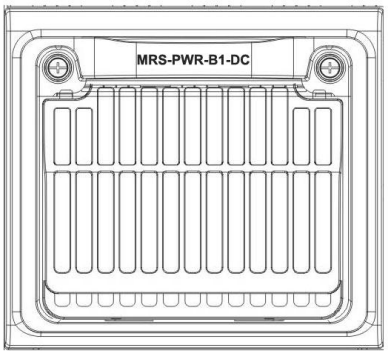

Fig 1-40 MRS-PWR-B1-DC Front Panel view

1.4.5 Power Distribution Box

1.4.5.1 DCRS-7604 Power Distribution Box

There is a special A.C. distribution box on the backboard of DCRS-7604 switch.

In generally, the enterprises users usually ask for the 220VAC access. The panel of A.C. distribution box is equipped with a 220VAC socket for provide power supply to the equipment. At the same time, it provides power supply to the two power supply modules. After the D.C. output is disposed on the backplane, it provides power supply to the modules and fan tray. The lower part of the power supply socket is equipped with a locking ring, which is used to fix the power supply lines to prevent unexpected disconnection and make the wiring more convenient. The distribution box is equipped with a grounding terminal at its lower right part, which is used for grounding the switch.

The Front Panel view is shown below:

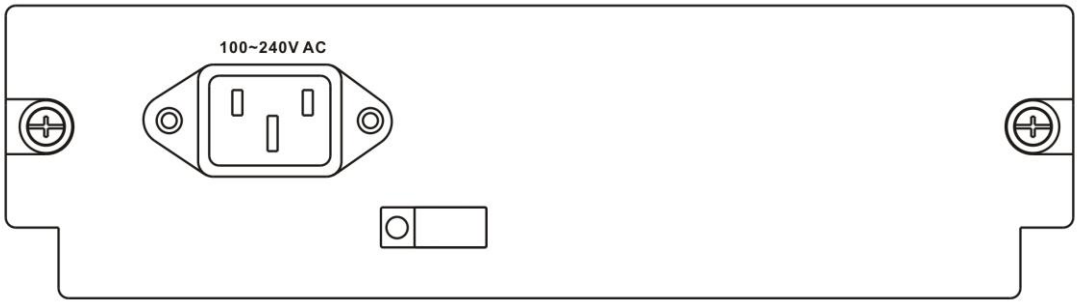

Fig 1-41 DCRS-7604 Power Distribution Box Panel view

1.4.5.2 DCRS-7604(V2.0 above) Power Distribution Box

There is a special A.C. distribution box on the backboard of DCRS-7604(v2.0 above) switch.

In generally, the enterprises users usually ask for the 220VAC access. The panel of A.C. distribution box is equipped with a 220VAC socket for provide power supply to the equipment. At the same time, it provides power supply to the two power supply modules. After the D.C. output is disposed on the backplane, it provides power supply to the modules and fan tray. The lower part of the power supply socket is equipped with a locking ring, which is used to fix the power supply lines to prevent unexpected disconnection and make the wiring more convenient. The distribution box is equipped with a grounding terminal at its lower right part, which is used for grounding the switch.

The Front Panel view is shown below:

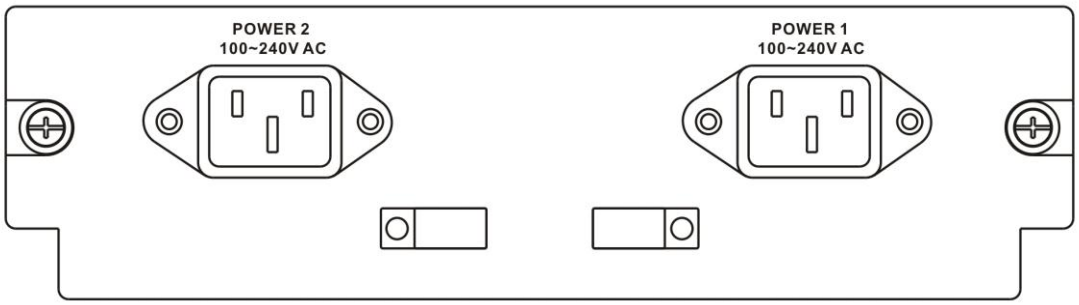

Fig 1-42 DCRS-7604(v2.0 above) Power Distribution Box Panel view

1.4.5.3 DCRS-7608 Power Distribution Box

There is a dedicated AC distribution box or DC distribution box in the lower section of DCRS-7608 backplane, distributing power supply for the corresponding AC or DC power module. A grounding post is provided on the chassis on both sides of the distribution box for switch grounding. There is also an extraction handle, which is intended for the installation and removal of the distribution box only. **Never lift or move the switch with this handle!**

1.4.5.3.1 AC Power Distribution Box

Enterprise network users usually require equipment to have 220 VAC input, the AC power modules and AC distribution box can satisfy this application. Three 220V/110 VAC power input sockets are provided on the panel of the DCRS-7608 AC distribution box. Input AC power will first pass through protective circuits, such as the AC filter, lightning protection tube, and then provide power for the three AC power modules. The other modules and fan trays are powered only after the DC output from the power modules are equalized and coupled. A wiring clip is provided above each 220V/110V AC input socket for the positioning of power cords and easier wiring. In addition, on the left side of the AC distribution panel is a power supply switch used to control the modules' power output. Please turn this power supply switch on during normal operation of the DCRS-7608.

The Front Panel view is shown below:

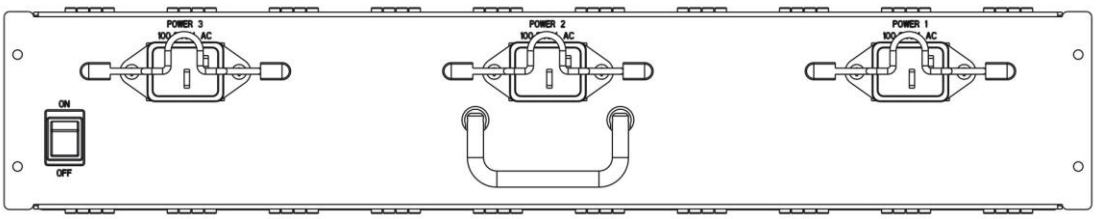

Fig 1-43 DCRS-7608 **AC** Power Distribution Box

1.4.5.3.2 DC Power Distribution Box

Telecom network users usually require equipment to have -48V DC input, the DC power modules and DC distribution box can satisfy this application. Two sets of -48V DC power input posts are provided on the panel of DCRS-7608 DC distribution box. Each DC input will first pass through protective circuits, such as the DC feed through filter, current limiting protection air switch, coupling diode, and then provide power for all three DC power modules. The other modules and fan trays are powered only after the DC output from the power modules are equalized and coupled. Please turn on the air switch of -48V DC input during normal operation of DCRS-7608.

The Front Panel view is shown below:

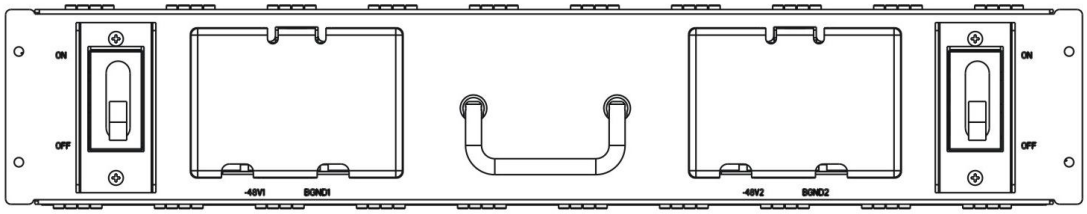

FIG 1-44 DCRS-7608 **DC** Power Distribution Box

1.4.6 System Backplane

The system board of DCRS-7604 serial switch is located inside the switch, providing interconnectivity in the high speed data links between management switching modules, network interface modules and between all management and control signals of various cards. A backplane has been installed in the unit chassis. The backplane provides the following functions:

- Provides communication channel for cards to achieve interconnectivity of various signals
- The backplane is powerless
- Supports the hot-swapping of various cards
- Supports Mainboard Master-Slave swap
- Auto identification of all slots
- Distributed power supplies
- Introduction of monitoring signals for fans and power supplies

1.4.7 Fan Tray

1.4.7.1 DCRS-7604 Fan Tray

Four fans are installed in the DCRS-7604's fan tray; the fan tray is on the left side of the switch's front panel, and to be upright slot. The fans are protected by the fan tray to prevent bodily injury. The fan tray covers the entire board area, ensuring sufficient ventilation for the devices, hence enhancing the stability of devices even under high temperature environments. In the fan tray's front panel, there labeled the slot number from 1 to 4, and the first slot used as main slot which denoted by blue arrowhead. Please note that the fan blades still spin at a high speed when disconnected from the device during operation, to avoid bodily injury **do not** touch the spinning blades.

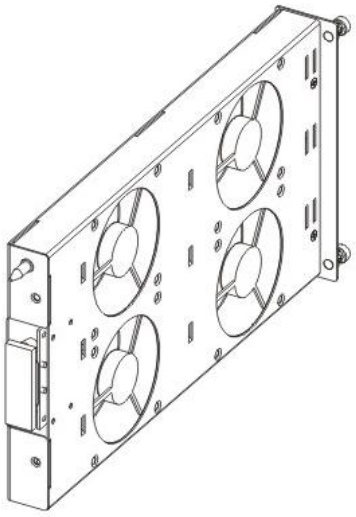

Fig 1-45 MRS-7604-FAN Outlook

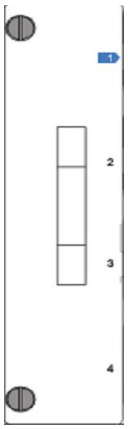

Fig 1-46 MRS-7604-FAN Front Panel View

1.4.7.2 DCRS-7608 Fan Tray

Three fan assemblies (MRS-7608-FAN) can be configured in the DCRS-7608, and installed in a horizontal configuration into the fan module slots in the switch's upper front panel. The three fan assemblies cover the entire board area, ensuring sufficient ventilation for the devices, hence enhancing the stability of devices even under high temperature environments. Each fan assembly consists of 2 axial fans, which are protected by the fan

tray to prevent bodily injury. Please note that the fan blades still spin at a high speed when disconnected from the device during operation, to avoid bodily injury **do not** touch the spinning blades.

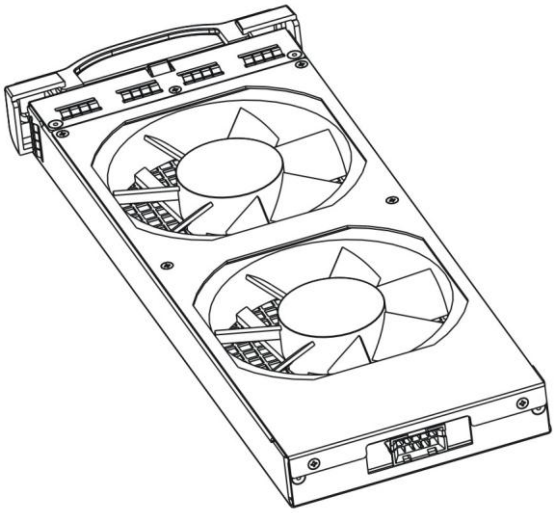

Fig 1-47 MRS-7608-FAN Outlook

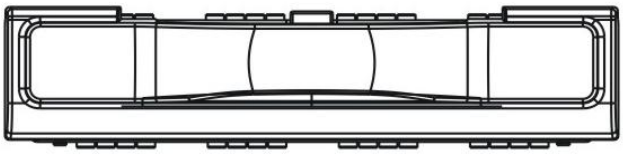

Fig 1-48 MRS-7608-FAN Front Panel View

1.4.8 Dust Gauze

1.4.8.1 DCRS-7604 Dust Gauze

The DCRS-7604's dust gauze lies the right side of the switch (opposite the fan tray), and prevents large particles in the air from entering the switch. The dust gauze should be inserted from the back of the DCRS-7604 in an upright position.

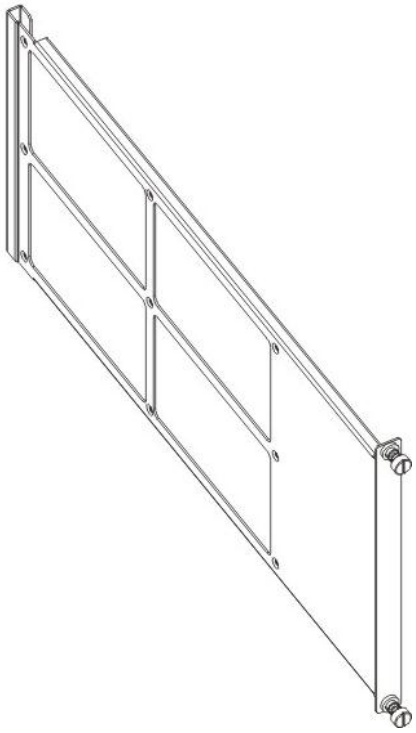

Fig 1-49 DCRS-7604 Dust Gauze Outlook

1.4.8.2 DCRS-7608 Dust Gauze

The DCRS-7608's dust gauze lies under the board rack and prevents large particles in the air from entering the switch. The dust gauze should be inserted from the front of the DCRS-7608 in a horizontal position.

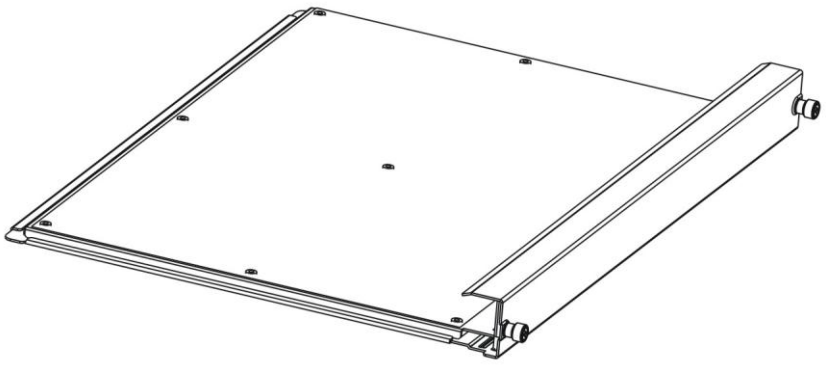

Fig 1-50 DCRS-7608 Dust Gauze Outlook

1.4.9 Rear Panel

1.4.9.1 DCRS-7604 Rear Panel

The rear panel of the DCRS-7604 covers the switch backplane. It must pull out the dust gauze before romove the rear panel. There is a grounding connector for the switch grounding. There are two reversible handles on the rear panel; they are used only for the installation and removal of the rear panel. The rear panel is shown below:

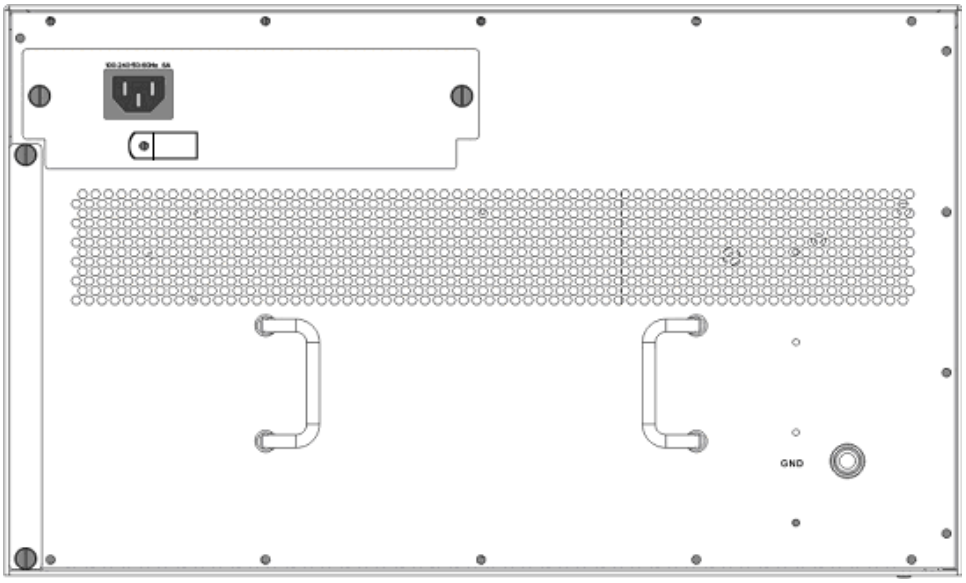

FIG 1-51 DCRS-7604 Rear Panel View

1.4.9.2 DCRS-7608 Rear Panel

The rear panel of the DCRS-7608 covers the switch backplane. To ensure safe operation of the switch, please **do not** open the rear panel. There are two reversible handles on the rear panel; they are used only for the installation and removal of the rear panel. Never lift or move the switch with these handles! The rear panel is shown below:

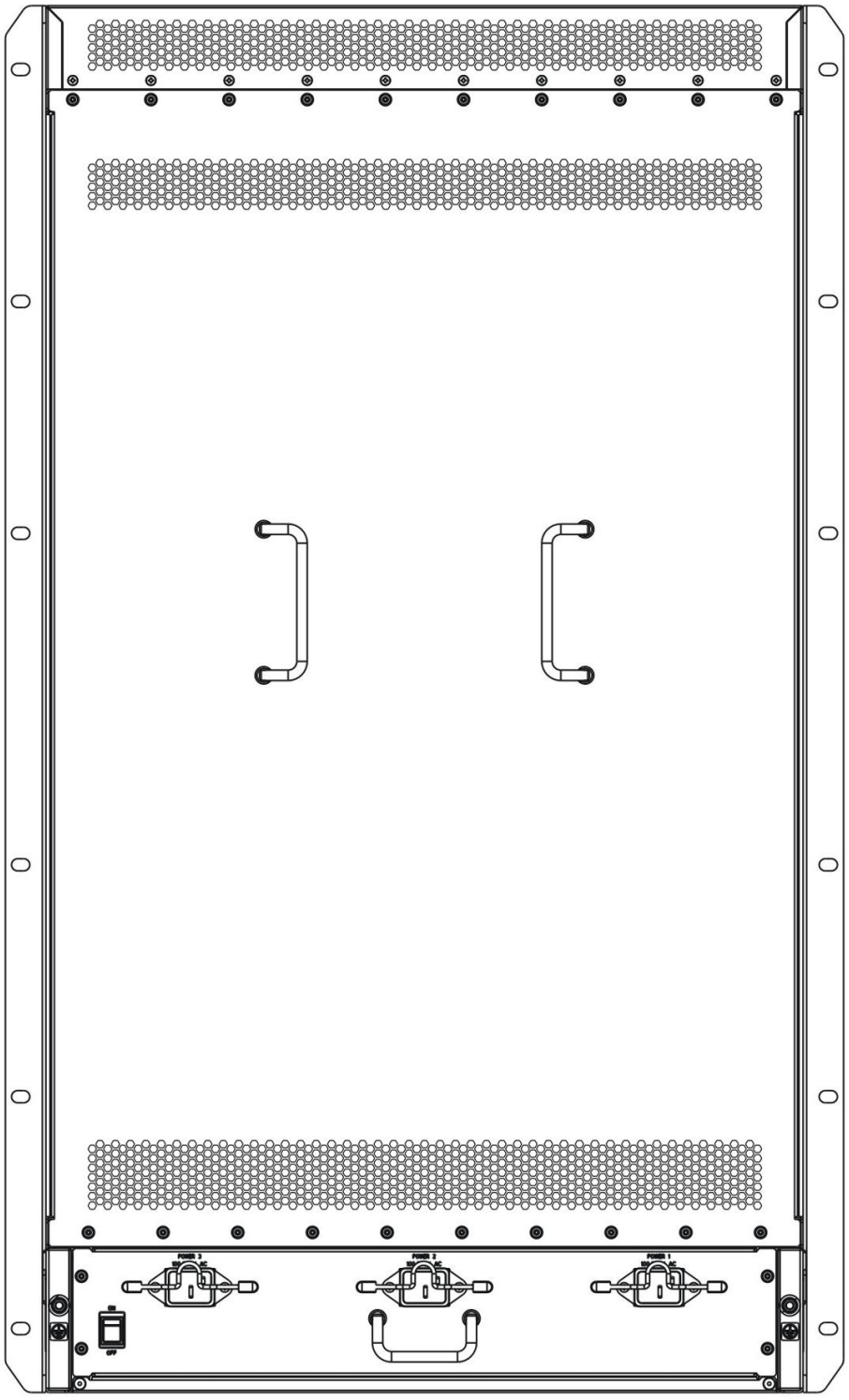

FIG 1-52 DCRS-7608 Rear Panel View

1.4.10 Side Panels

1.4.10.1 DCRS-7604 Side Panels

There are several rows of ventilation openings in the left and right sides of the switch,

as shown above.

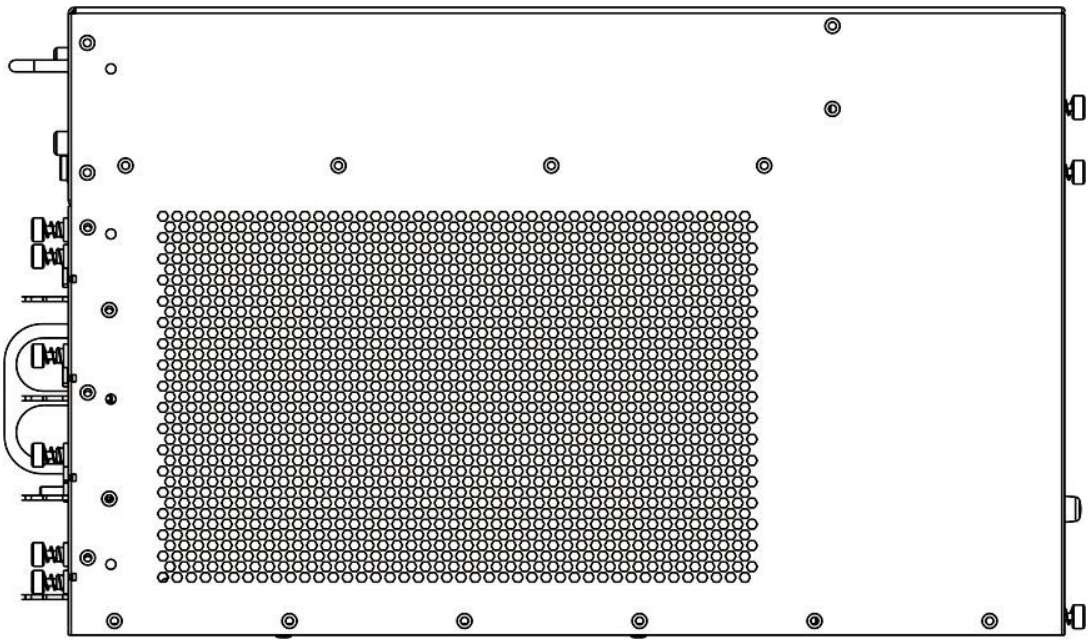

FIG 1-53 DCRS-7604 Side Panels View

Please do not block the ventilation openings and ensure that enough clearance is left on both sides of the switch for air circulation. Failure to do so can cause the chassis to overheat and the system to fail, or damage to components.

1.4.10.2 DCRS-7608 Side Panels

There are several rows of ventilation openings in the left and right sides of the switch, as shown below.

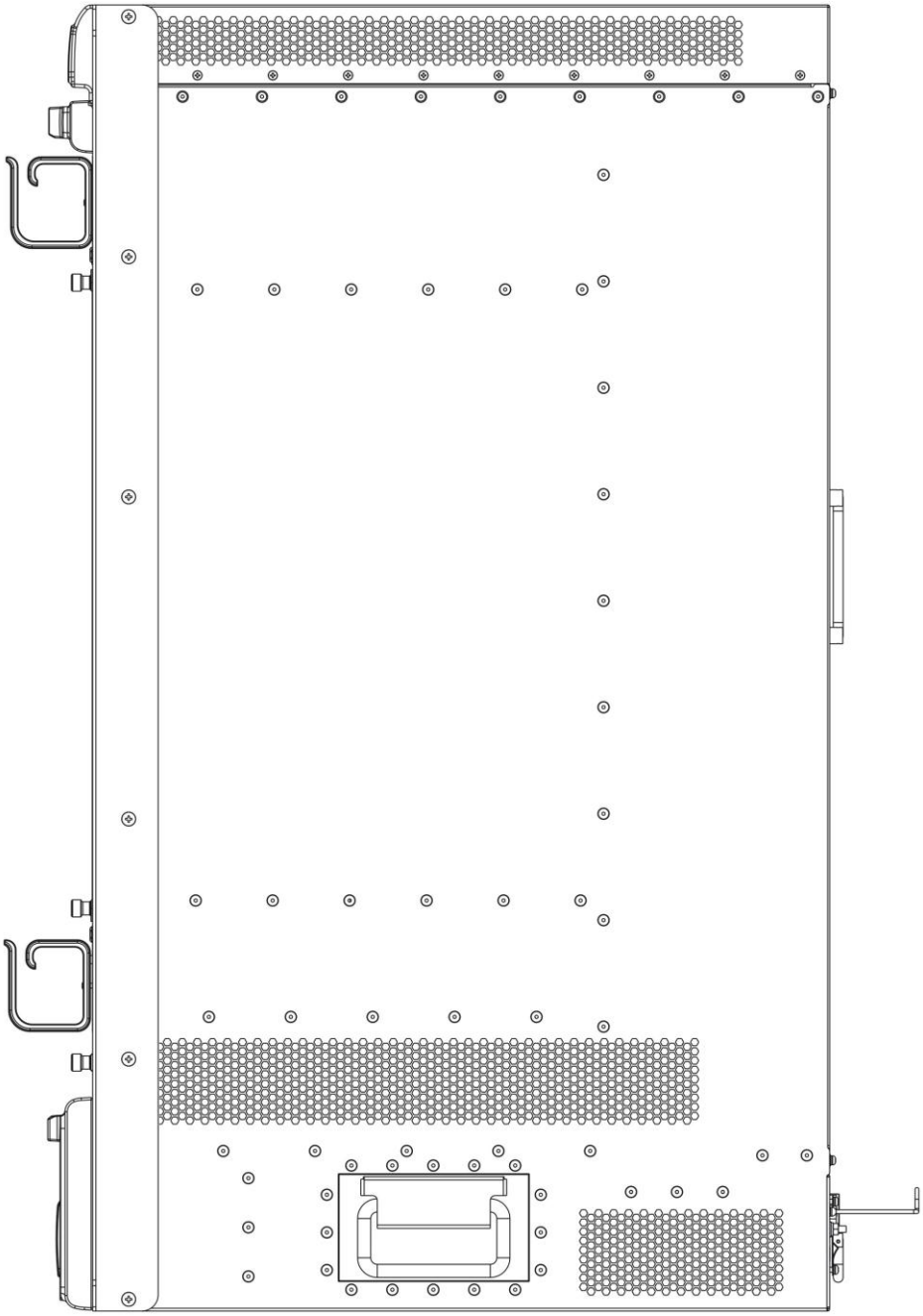

FIG 1-54 DCRS-7608 Side Panels View

Please do not block the ventilation openings and ensure that enough clearance is left on both sides of the switch for air circulation. Failure to do so can cause the chassis to overheat and the system to fail, or damage to components.

1.5 System Features

1.5.1 DCRS-7604 System Features

The DCRS-7604 Switch system features are described in the table below.

Table 1-39 DCRS-7604 System Features

Property	Specification
Basic Configuration	4 slots
Hot swap	Yes
Failover design	Core part redundant hot swapping
	Power supplies redundant hot swappable
Processor	High capability
Status indicator	Port: Traffic, LINK General: Power status, system status, hot-swap indicator
Weight	30KG (Max full configuration weight)
Physical Dimensions	445(W)X 266(H)X 421(D) DCRS-7604(V1.0) 440(W)X 266(H)X 421(D) DCRS-7604(V2.0above)
Relative humidity	10% ~ 90% with no condensing
Operating Temperature	0°C ~ 40°C
Power Supplies	Nominal Input Voltage AC: 200 ~ 264 VAC, 50 ~ 60Hz DC: -36V ~ -72VDC (supporting 1+1 redundant backup of power modules)
Power Consumption	≤ 400 W

1.5.2 DCRS-7608 System Features

The DCRS-7608 Switch system features are described in the table below.

Table 1-40 DCRS-7608 System Features

Property	Specification
Basic Configuration	10 slots
Hot swap	Yes
Failover design	Core part redundant hot swapping
	Power supplies redundant hot swappable
Processor	High capability
Status indicator	Port: Traffic, LINK General: Power status, system status, hot-swap indicator

Weight	65KG (Max full configuration weight)
Physical Dimensions	436mm x 797mm x 478mm (W x H x D)
Relative humidity	10% ~ 90% with no condensing
Operating Temperature	0°C ~ 45°C
Power Supplies	Nominal Input Voltage AC: 90 ~ 264 VAC, 50 ~ 60Hz DC: -36 ~ -72 VDC (supporting 2+1 redundant backup of power modules)
Power Consumption	≤ 1200 W

Chapter 2 Hardware Installation

2.1 Installation Notice

During the installation and use of the DCRS-7600 Switch, please follow the safety guidelines listed below.

2.1.1 Basic Requirements

2.1.1.1 Site Requirements

The DCRS-7600 series Switch must be used indoors, and have the following requirements:

Ambient temperature: 0 ~ 40°C

Humidity: 10% ~ 90%, non-condensing

The DCRS-7600 series is equipped with a fan assembly for providing the switch with an appropriate level of cooling; you can place the switch on a workbench or rack. Ensure the following:

- The rack or workbench should be well ventilated. For sufficient air circulation, it is recommended to mount the switch on a 19″ standard rack with sufficient spacing. Air conditioning is recommended in areas with high temperatures in the summer.
- To cool the internal circuits, the switch comes with internal fan assemblies. To maintain proper air circulation through the switch chassis, we recommend that you maintain a minimum 100mm separation between the chassis air intake or the chassis air exhaust and any walls. Make sure that all air intakes and exhausts on the system remain unobstructed. Do not stack heavy items on the switch.
- Make sure the rack or workbench is strong enough to support the weight of a fully configured switch.
- Make sure the rack or workbench is well grounded; if the workbench is not grounded, it should be placed near a grounding conductor to provide easy ground connection for the switch.

2.1.1.2 Temperature and Humidity Requirements

To maximize the switch’s performance and lifespan, the site should maintain a

desirable temperature and humidity. High-humidity conditions can cause electrical resistance degradation or even electric leakage, degradation of mechanical properties and corrosion of internal components. Extreme low relative humidity may cause the insulation spacer to contract, making the fastening screw insecure. Furthermore, in dry environments, static electricity is liable to be produced and cause harm to internal circuits. Temperature extremes can cause reduced reliability and premature aging of insulation materials, thus reducing the switch's working lifespan. The recommended temperature and humidity are shown below:

Temperature:		Relative humidity	
Long term condition	Short term condition	Long term condition	Short term condition
15 ~ 30°C	0 ~ 40°C	40～65%	10～90%

Notice

A sample of ambient temperature and humidity should be taken at 1.5m above the floor and 0.4m in front of the switch rack, with no protective panel covering the front and rear of the rack.

Short term working conditions refer to a maximum of 48 hours of continued operation and an annual cumulative total of less than 15 days.

Formidable operation conditions refers to the ambient temperature and relative humidity value that may occur during an air-conditioning system failure, and normal operation conditions should be recovered within 5 hours.

2.1.1.3 Dust and Particles

Dust is harmful to the safe operation of the DCRS-7600 series. Dust can lead to electrostatic adherence, especially likely under low relative humidity, causing poor contact of metal connectors or contacts. Electrostatic adherence will result in not only reduced product lifespan, but also increased chance of communication failures. The recommended values for dust content and particle diameter in the site are shown below:

Max. Diameter (μm)	0.5	1	3	5
Max. Density (particles/m^3)	1.4×10^7	7×10^5	2.4×10^5	1.3×10^5

In addition, salt, acid and sulfide in the air are also harmful to the switch. Such

harmful gases will aggravate metal corrosion and the aging of some parts. The chosen site should avoid harmful gases, such as SO_2, H_2S, NO_2, NH_3 and Cl_2, etc. The table below details the threshold values.

Gas	Average (mg/m³)	Max (mg/m³)
SO_2	0.2	1.5
H_2S	0.006	0.03
NO_2	0.04	0.15
NH_3	0.05	0.15
Cl_2	0.01	0.3

2.1.1.4 Preventing Electrostatic Discharge Damage

Static electric discharges can cause damage to internal circuits, even the entire switch. Follow these guidelines for preventing ESD damage:

1. Ensure proper earth grounding of the device
2. Perform regular cleaning to reduce dust
3. Maintain proper temperature and humidity
4. Always wear an ESD wrist strap and antistatic uniform when in contact with circuit boards

2.1.1.5 Anti-interference Requirements

All sources of interference, whether from the device/system itself or the outside environment, will affect operations in various ways, such as capacitive coupling, inductive coupling, electromagnetic radiation, common impedance (including the grounding system) and cables/lines (power cables, signal lines, and output lines). The following should be noted:

1. Precautions should be taken to prevent power source interruptions
2. Provide the system with a dedicated grounding, rather than sharing the grounding with electronic equipment or lightning protection devices
3. Keep away from high power radio transmitters, radar transmitters, and high frequency strong circuit devices
4. Provide electromagnetic shielding if necessary

2.1.1.6 Rack Configuration

The dimensions of the DCRS-7600 are designed to be mounted on a standard 19'' rack, DCRS-7604's dimensions are 445mm x 266mm x 421mm (W x H x D),

DCRS-7604(V2.0 above)'s dimensions are 440mm x 266mm x 421mm (W x H x D). DCRS-7608's dimensions are 436mm x 797mm x 478mm (W x H x D). Please ensure good ventilation for the rack.

- Every device in the rack will generate heat during operation, therefore vent and fans must be provided for an enclosed rack, and devices should not be stacked closely,
- When mounting devices in an open rack, care should be taken to prevent the rack frame from obstructing the switch ventilation openings. Be sure to check the positioning of the switch after installation to avoid the aforementioned.

Notice

If a standard 19" rack is not available, the DCRS-7600 series can be placed on a clean level desktop, leave a clearance of 100mm around the switch for ventilation, and do not place anything on top of the switch.

2.1.1.7 Power Supply Requirements

The DCRS-7600 is designed to use modular switching power supplies. The power input specification is shown below:

Nominal Input Voltage:

AC: 200 ~ 264 VAC, 50 ~ 60Hz

DC: -36 ~ -72VDC

DCR-7604 total power consumption: ≤400W

DCR-7608 total power consumption: ≤1200W

Before installing the power modules, please check the power input to ensure proper grounding of the power supply system. The input source for the switch should be reliable and security, a voltage adaptor can be used if necessary. The building's circuit protection system should include in a fuse or circuit-breaker of no greater than 240V, 10A. It is recommended to use a UPS for more reliable power supply.

Notice

Improper power supply system grounding, extreme fluctuation of the input source, and transients (or spikes) can result in larger error rate, or even hardware damage.

2.1.2 Safety Guidelines

1. Disconnect power supplies from the chassis before disassembly or moving the

switch.

2. Install the switch in a clean area, ensuring proper temperature and humidity conditions.
3. Keep the device accessories in a safe place.
4. When handling modules, always handle the modules by the edge, avoid contact with integrated components and printed circuits. Prevent electrostatic discharge damage to the integrated components and printed circuits.
5. Keep maintenance tools in a safe place.
6. Do not wear loose clothing that may catch on devices, also remember to fasten ties or scarves and roll up your sleeves.
7. If the environment may cause harm to eyes, be sure to wear a pair of protective goggles.
8. Do not perform any operation that may result in bodily injury or damage to the device.
9. When cleaning the switch, do not use a damp cloth to wipe the switch and never wash the switch with liquids.

2.1.3 Safety Warning

1. Safety warnings appear throughout this publication, referring to operations that may harm you if performed incorrectly.
2. Read through the installation instruction carefully before operating the system.
3. Only trained and qualified personnel should be allowed to install, replace, or service the switch.
4. Disconnect power supplies from the chassis before disassembly or moving the switch.
5. The final configuration of the product must abide by all national laws and codes.
6. The final configuration of the product must abide by in point national laws and codes.

2.1.4 Hot Line Work Safety Guidelines

1. Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, watches and bracelets). Metal objects will cause short circuits and damage the device when in contact with both powered items and the ground.
2. An improper connection between the device and power sockets may be hazardous.

3. Only trained and qualified personnel should be allowed to operate and maintain the device.
4. Reading through the installation guidelines before powering on the system.

Notice:

! Watch out for potential dangers, e.g. wet floors, ungrounded power lines, and worn power lines;

! Have an emergency switch installed inside the workshop, so that power can be cut off promptly should an accident occur;

! Do not work alone if potential dangers are present;

! On the event of an accident, take the following measures.

Measure1: Power down the system;

Measure2: Make emergency calls if required;

Measure3: Determine whether the victim requires immediate treatment and take appropriate action;

Measure4: If possible, send someone for medical help; otherwise, consider the damage and seek help.

2.2 Preparing for Installation

After verifying site requirements, please check the contents of the switch container and accessory kit. (If you are concerned that any item is missing or an incorrect item has been supplied, please contact your dealer as soon as possible.)

2.2.1 Checking Switch Hardware Configuration and Accessories

Please use the packing list shipped with the switch as the checklist to verify the switch configuration and contents of the accessory kit.

2.2.2 Required Tools and Utilities

Required tools	● cross screwdrivers
	● Flat-blade screwdriver
	● ESD-preventive wrist strap

Connection cables	● Serial port cable
	● Multi-mode fiber cable
	● Single-mode fiber cable
	● Category 5 cable with RJ-45 connector

2.3 Hardware Installation

The installation of the DCRS-7600 includes the following:

- ☞ Switch mounting
  - ■ Desktop installation
  - ■ Rack-mounting the switch
- ☞ Switch grounding
- ☞ Cards and modules installation
- ☞ Connecting to the Console
  - ■ Connecting to the Console port
- ☞ Connecting to the Management Port
  - ■ Connecting to the Ethernet port
- ☞ SFP transceiver installation
  - ■ Install the SFP transceiver in the SFP slot
- ☞ XENPAK transceiver installation
  - ■ Install the XENPAK transceiver in the XENPAK slot
  - ■ Copper Cable/Fiber cable connection
  - ■ Ethernet cable connection
  - ■ Fiber cable connection
- ☞ Power supply connection

2.3.1 Switch Installation

2.3.1.1 Desktop installation

- **Note:**
  - Choose a smooth level workbench
  - Verify that the workbench is strong enough to support the DCRS-7604's fully configured weight
  - Plan a good position for your DCRS-7604 that is easy to operate and has an appropriate power source and grounding point.
  - Place the DCRS-7604 safely on the workbench; avoid obstructions on any side of

the switch.

Notice

To avoid damage, do not place any weight on the switch.

2.3.1.2 Rack-mounting DCRS-7600 series

- **Note:**

  Before mounting the DCRS-7600 series into the rack, verify that the mounting positions of the rack are correct. Preposition of the mounting points may result in inadequate spacing between the switch front panel and the rack front door, and the rack front door may be unable to be closed with cables and fiber cables connected. Please keep a 10 mm spacing between the switch front panel and the rack front door.

  Verify the following before installation: the rack is stably positioned; all modules inside the chassis are fully installed; no obstructions are present inside or around the rack; the switch is situated near the rack for ease of installation.

- **Installation Steps**

Step 1: Attach the 2 hangers on the DCRS-7600 series with screws provided in the accessory kit.

Be sure to attach the hangers in the correct direction, otherwise the switch will not be able to mount into a standard rack.

Note that the hangers are not weight bearing. They are used to fasten the switch. The mounting Shelf or sliding rails (bolt to the rack) will support the switch. The figure below shows the steps for mounting the hangers:

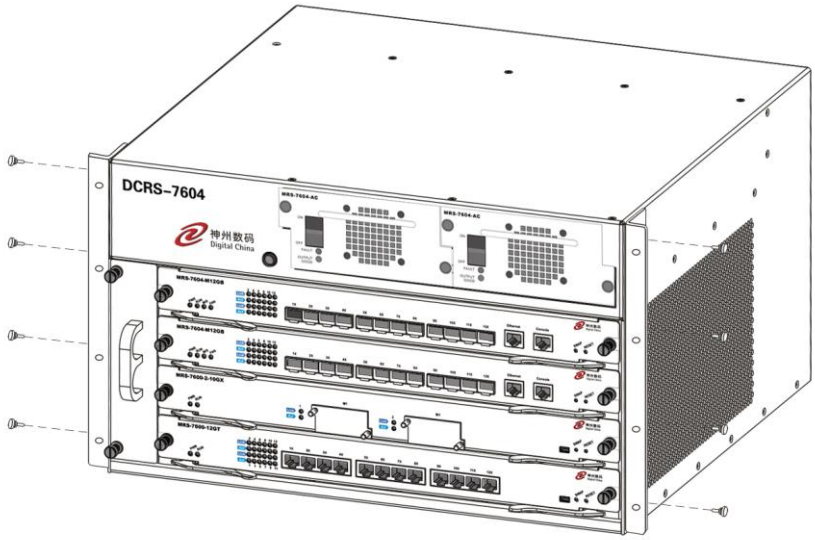

Fig 2-1 Installing DCRS-7604 Switch Hangers

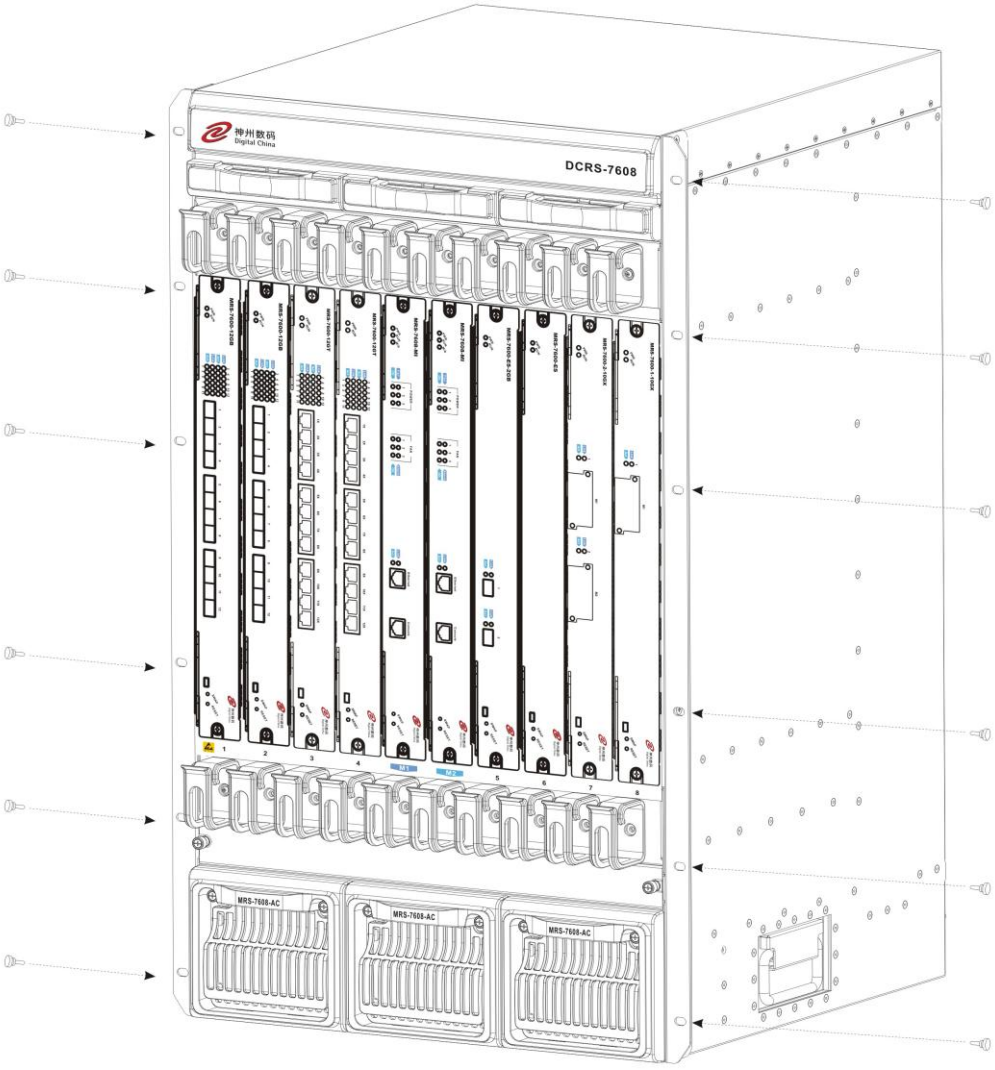

Fig 2-2 Installing DCRS-7608 Switch Hangers

Step 2: Put the hanger-mounted switch smoothly into a standard 19'' rack.

Because of the size and weight of a DCRS-7600 series, 2 people are required to complete the installation. With a person standing on each side of the chassis, grasp the chassis handle in the lower side panel with one hand, and use the other hand near the top of the chassis for balance. Slowly lift the chassis in unison and carry it to the rack. Lift the DCRS-7600 series to a position a little higher than the mounting shelf or sliding rails, resting the chassis on the shelf/rails, and then carefully slide the chassis into the rack. Be sure to align the hangers and mounting holes in the rack column.

Step 3: Fasten the DCRS-7600 series to the rack with the screws provided.

Bolt the hangers to the matching holes in the rack column with the screws provided. Be sure to tighten the screws smoothly. The DCRS-7600 series should now be securely attached to the equipment rack.

The procedure is shown below:

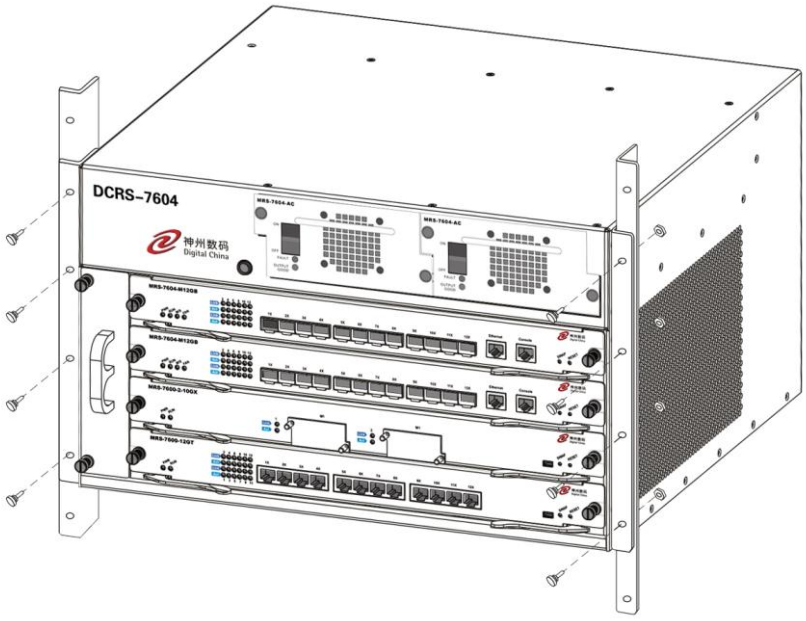

Fig2-3 Rack-mounting DCRS-7604

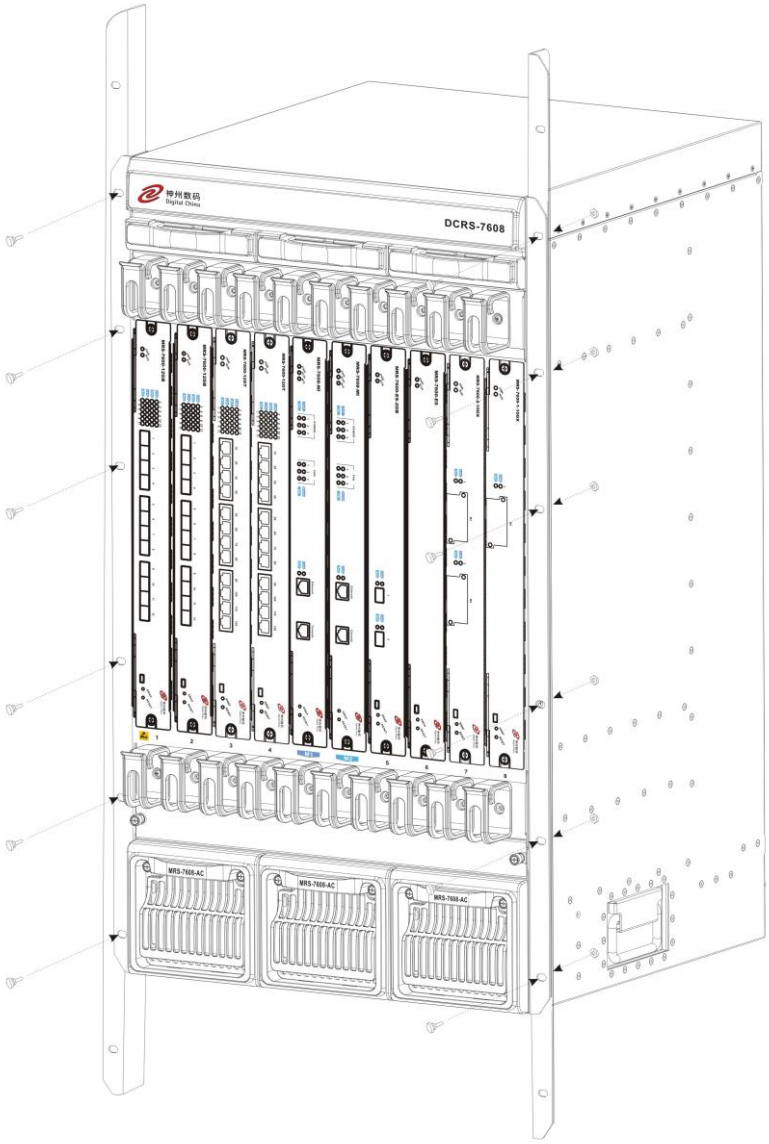

Fig2-4 Rack-mounting DCRS-7608

2.3.1.3 Wearing an ESD Wrist Strap

An ESD Wrist Strap must be worn during the installation of the switch. To prevent any damage occurring to the device, avoid contact between the printed circuit boards and your clothing. Avoid bodily contact with components on the circuit boards if possible.

To wear an ESD Wrist Strap:

Step 1: place your hand into the ESD wrist strap.

Step 2: tighten the fastener and ensure that it makes maximum contact with the skin.

Step 3: Insert the equipment end of the strap into the antistatic socket (indicated by an ESD symbol) in the switch front panel.

2.3.2 Switch grounding

A good grounding system is the groundwork for the smooth and safe operation of the DCRS-7600 series, and an excellent way to prevent lightning strikes and resistance interference. Please follow the switch grounding specification instructions, verify the installation site's grounding condition and ensure proper grounding accordingly.

- **Proper grounding**

  When using an AC power source, the device must be grounded with the green and yellow ground cables; otherwise, shock hazards may occur when insulation resistance between the internal power supply and the chassis degrades.

- **Lightning protection grounding**

  The lightning protection system is an independent system consisting of a lightning rod, conductor and connection joint with the grounding system. The grounding system usually is shared with the power reference grounding and green and yellow ground cable grounding. Lightning protection grounding is a building requirement, not a specific requirement of the switch.

- **Electromagnetic compliance grounding**

  This refers to the grounding to comply with switch electromagnetic compatibility requirements, including shielded grounding, filter grounds, noise, and interference control and level reference. The overall grounding requirements are the sum total of the above. Ground resistance value should be less than 1 ohm.

The DCRS-7600 series provides chassis grounding post in the lower rear chassis, marked as "GND". Chassis protection grounding should be properly connected to the rack grounding connector

The ground cabling procedures are listed below:

Step 1: remove the nuts from the rear chassis grounding posts

Step 2: wrap one end of the green and yellow grounding cable to the grounding posts

Step 3: attach the grounding post nut and tighten well

Step 4: attach the other end of the grounding cable to the rack grounding connector

Note:

- The grounding cable should be made of a good conductor, and the diameter should be determined by the possible maximum current that may pass through.
- Bare conductor cabling is forbidden.
- Ground resistance value: the combined grounding resistance should be less than 1 ohm.

2.3.3 Card and module installation

The DCRS-7600 series is a rack-mounting device, various cards and modules are

available.

Basic configuration: chassis, power supply modules (optional 1 +1 redundant), system backplane, fan tray, dust gauze, distribution box. The above parts have been mounted upon shipment; please verify they are properly locked before installation.

2.3.3.1 Removing and Installing the Cards

The installation procedure is the same for all cards, as shown below:

Step 1: Power down the switch (Hot-swapping is supported by optional cards for the switch. However, for better convenience, it is recommended to power down the switch before installing the cards, if no module in the switch is running.)

Step 2: Ensure proper grounding of the switch

Step 3: Put on an ESD wrist strap before contact with the switch circuit, and make sure the ESD wrist strap is connected securely to the ESD connector in the switch's front panel.

Step 4: Loosen the panel fasteners locking back plate counterclockwise and remove the back plate.

Step 5: Insert the optional module into the slot; you can use the metal handle on the front plate of the module to ensure good contact. Then lock the module with panel fasteners in the front plate.

2.3.3.2 Removing and installing the Dust Gauze

Dust gauze is provided in the right section of the DCRS-7600 series, which can be installed and removed from the back of the switch. The dust gauze is meant to prevent large debris or particles in the air from being ingested into the switch. Please perform cleaning on a regular basis according to the site conditions.

- Loosen the 2 panel fasteners in the dust gauze
- Draw the dust gauze out smoothly by holding the 2 screws
- Clean the dust gauze with a brush (never wash with any liquid)
- Insert the gauze back to its original position in the switch
- Tighten the panel fasteners.

Note: The dust gauze is installed on switch chassis shipment.

The installation and removal of the dust gauze is shown below:

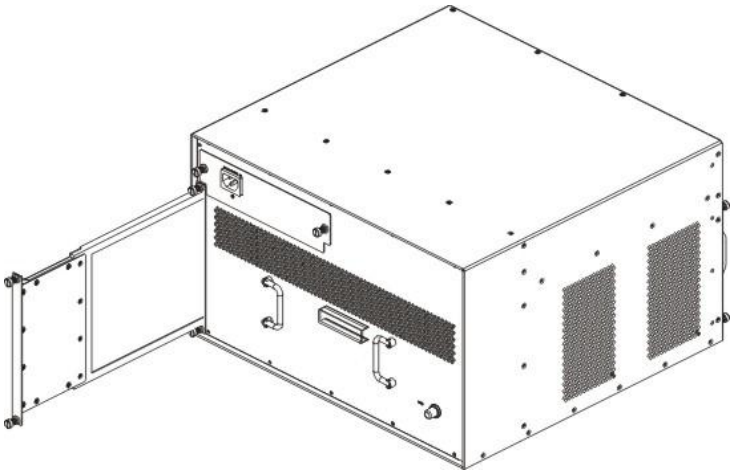

Fig2-5 Installation and removal of the DCRS-7604 dust gauze

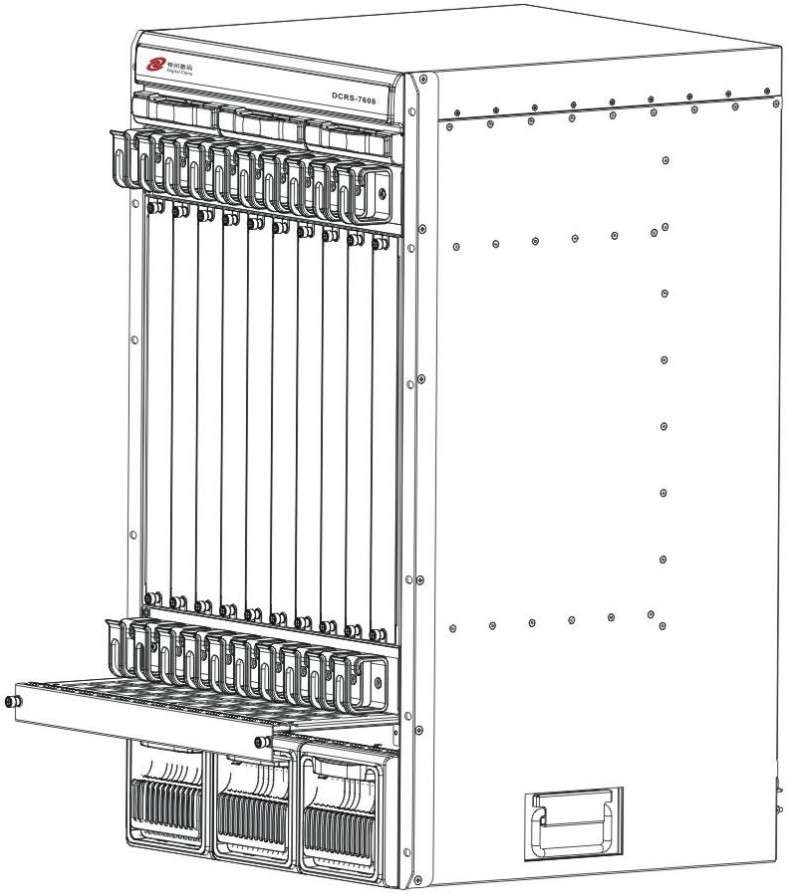

Fig2-6 Installation and removal of the DCRS-7608 dust gauze

2.3.3.3 Removing and Installing the Fan Tray

2.3.3.3.1 Removing and Installing the DCRS-7604 Fan Tray

The DCRS-7604 has two fan trays in the left section of the switch, and can be serviced from the front. The installation and removal of the fan tray is relatively simple. To install, just hold the fan tray in the correct direction, align with the corresponding slot and push to secure. Tighten the panel fasteners in the font panel. Upon removal, first loosen the 2 screws in the front panel of the fan tray, hold the handle in the front panel of fan tray with your middle and ring fingers, press the locker slightly down, and the fan tray can be drawn out smoothly.

Note: The fan trays are installed on switch chassis shipment.

The installation and removal of a fan tray is shown below:

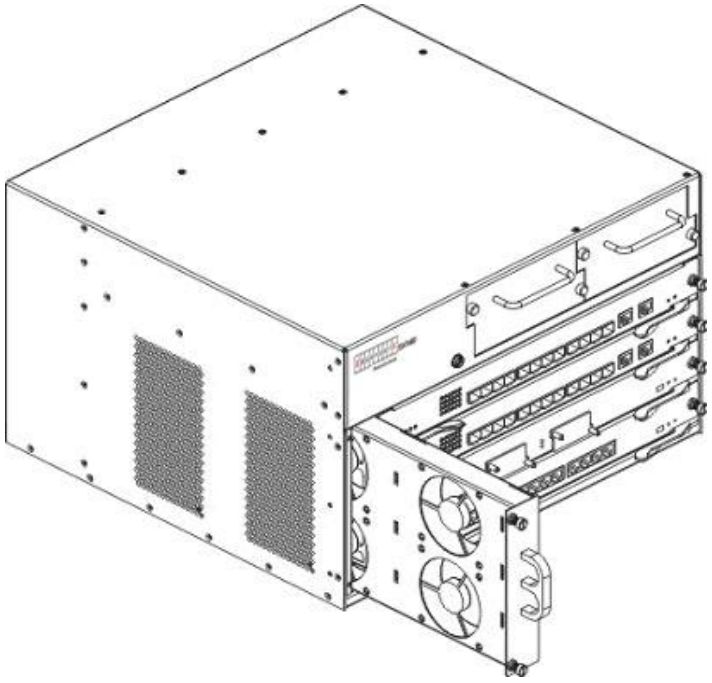

Fig2-7 The installation and removal of DCRS-7604 fan tray

2.3.3.3.2 Removing and Installing the DCRS-7608 Fan Tray

The DCRS-7608 has three fan trays in the upper section of the switch, and can be serviced from the front. The installation and removal of the fan tray is relatively simple. To install, just hold the fan tray in the correct direction, align with the corresponding slot and push to secure. The locker in the front panel of the fan tray will lock automatically. Upon removal, hold the handle in the front panel of fan tray with your middle and ring fingers, press the locker slightly down, and the fan tray can be drawn out smoothly.

Note: The fan trays are installed on switch chassis shipment.

The installation and removal of a fan tray is shown below:

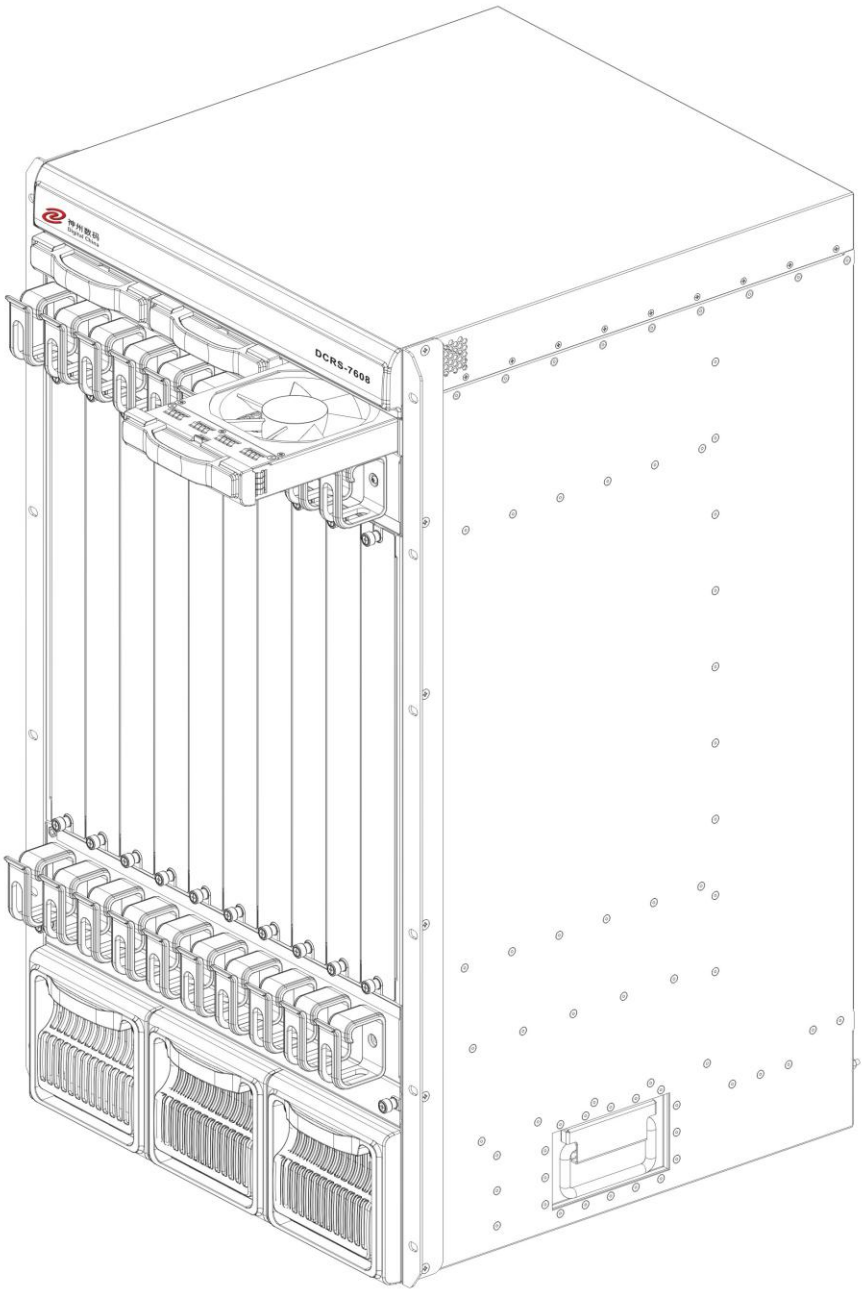

Fig2-8 The installation and removal of DCRS-7608 fan tray

2.3.3.4 Removing and Installing Power Supply Modules

2.3.3.4.1 Removing and Installing DCRS-7604 Power Supply Modules

The DCRS-7604 employs a 1 +1 redundant power supply module combination; all two modules will work during normal operation. In case one module fails, it can be replaced while the system is operating without presenting an electrical hazard or damage to the system. The procedures are provided below:

Step 1: First, turn off the switch in the front panel of the power supply module to be

replaced

Step 2: Loosen the 2 panel fasteners in the front panel of the power supply module to be replaced by turning the screwdriver counter clockwise

Step 3: Hold the handle in the upper front panel of the power supply module, and draw out the power supply module firmly and smoothly

Step 4: Turn off the switch in the front panel of the new power supply module, use the new power supply module and replace the failed module. Tighten the panel fasteners in the font panel

Step 5: Turn on the switch in the front panel of the power supply module, successful replacement will be indicated by the green OUTPUT GOOD indicator on the front panel of the power supply module being illuminated and by the yellow Fail indicator not illuminating.

Installation of a power supply module is shown below:

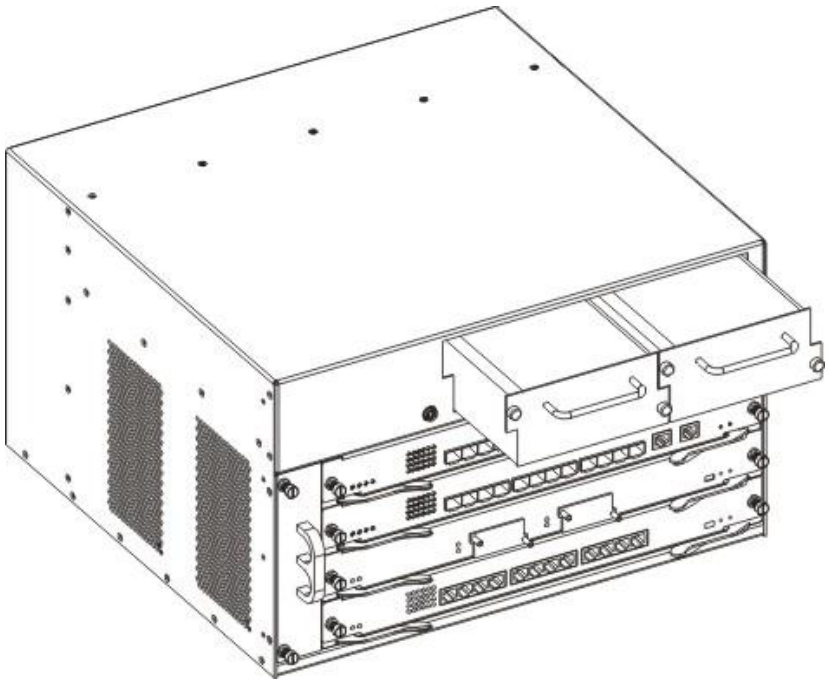

Fig 2-9 the installation and removal of DCRS-7604 power supply modules

2.3.3.4.2 Removing and Installing DCRS-7608 Power Supply Modules

The DCRS-7608 employs a 2 +1 redundant power supply module combinations, all three modules will work during normal operation. In case one module fails, it can be replaced while the system is operating without presenting an electrical hazard or damage to the system. The procedures are provided below:

Step 1: Loosen the 2 panel fasteners in the front panel of the power supply module to be replaced by turning the screwdriver counter clockwise

Step 2: hold the handle in the upper front panel of the power supply module, and draw out the power supply module firmly and smoothly

Step 3: Use a new power supply module and replace the failed module

Step 4: Tighten the panel fasteners in the font panel

Step 5: Successful replacement will be indicated by the green Power OK indicator being illuminated and by the yellow Fail indicator not illuminating.

Installation of a power supply module is shown below:

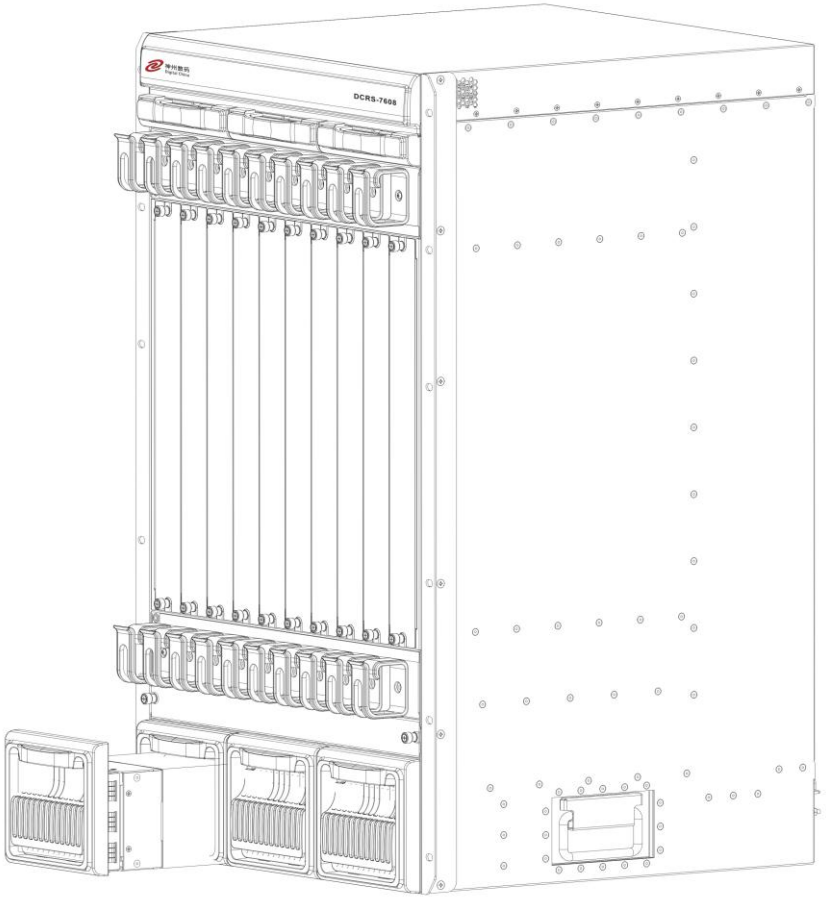

FIG 2-10 The installation and removal of DCRS-7608 power supply modules

- Clean power module dust gauze:

Power module dust gauze is provided in the front panel of the MRS-PWR-B1-AC and MRS- PWR-B1-DC power modules, which can be removed and installed easily. It can prevent large debris or particles in the air from being ingested into the power supply module. Please perform cleaning on a regular basis according to the site conditions.

- Pulling the lower dust gauze front panel, draw the dust gauze and front panel out
- Clean the dust gauze with a brush (never wash with any liquid)
- Insert the gauze back to its original position in the power supply module

- Push dust gauze and front panel back to power module
- Press the lower dust gauze front panel and lock it

The installation and removal of the dust gauze is shown below:

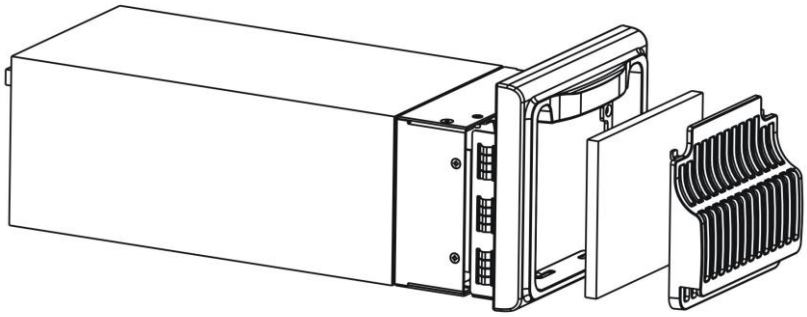

FIG 2-11 The installation and removal of Power module dust gauze

2.3.4 Connecting to the Console

The DCRS-7600 provides a RS-232 port as the local console. Users can configure the switch through a character terminal (PC) with RS-232 ports. The connection procedures are listed below:

Step 1: Find a character terminal or a PC with a RS-232 serial port.

Step 2: Connect the RS-232 serial port of character terminal to the configuration port of the switch, ensuring at least one of them is powered down.

⚠ Notice

Upon connection, please verify the sign above the port to avoid using the wrong port.

2.3.5 Connecting to the Management Port

The DCRS-7604-M12GB, DCRS-7604-M4GX24TX (V2.1) and DCRS-7608-MI provide a RJ-45 (female) Ethernet port. Users can connect to this administration port through a backend host with Ethernet interface for program loading, or use this port to connect to remote devices (e.g., an administrative workstation) for remote administration. The connection procedure is listed below:

- Connecting to a back-end PC

  Step 1: Find a PC with Ethernet Interface.

  Step 2: Connect the PC to the RJ-45 Ethernet port of the switch with a twisted-pair crossover cable.

- Remote Administration of the device

  Step 1: Connect the administrative Ethernet port in the main controlling board to a HUB with a standard network cable.

  Step 2: Connect the Hub to an administrative workstation in the local area network.

  Or:

  Step 1: Connect the administrative Ethernet port in the main controlling board to a Router with a crossover network cable.

  Step 2: Connect the router to an administrative workstation in the wide area network.

2.3.6 SFP transceiver installation

In the DCRS-7600, each line card with a 1000BASE fiber interface provides several SFP 1000BASE transceiver slots.

The procedure for installing the SFP 1000BASE fiber transceiver is shown below:

Step 1: Put on a ESD wrist strap (or antistatic gloves)

Step 2: Insert the SFP transceiver onto the guide rail inside the 1000BASE fiber interface line card Do not put the SFP transceiver up-side-down.

Step 3: Push the SFP transceiver along the guide rail gently until you feel the transceiver snap into place at the bottom of the line card.

Note: the SFP 1000BASE fiber transceiver is hot swappable.

Notice

Do not stare directly at the 2 fiber bore in the SFP 1000Base fiber transceiver when the switch is in operation. The laser may hurt your eyes.

2.3.7 Copper Cable/Fiber Cable Connection

Ethernet cable connection:

Step 1: Insert one end of the Ethernet cable into the RJ-45 Ethernet port in the switch copper cable line card;

Step 2: Insert the other end of the Ethernet cable into the RJ-45 Ethernet port of the other device;

Step 3: Check all status indicators for the corresponding ports, a lighted LINK indicates the link has been established, otherwise the link is not ready and the cable should be examined;

Notice

Upon connection, please verify the sign above the port to avoid use of other ports, which might damage to the modules or the switch.

The connection procedure for fibers is listed below:

Step 1: Remove the protective dust plug from the SFP/XENPAK fiber transceiver bore; take out the fiber cable and remove the protective cap from one end of the fiber cable. Keep the fiber end clean and neat.

Step 2: Immediately attach the end of the fiber cable to the SFP/XENPAK transceiver, and the other end to the transceiver of the corresponding device. Note: Upon connection, the SFP/XENPAK transceiver's TX port should be connected to the RX port of the corresponding device, and vice versa.

Step 3: Check the fiber port status indicator, a lighted LINK indicates that the link has been established; otherwise the link is not ready and should be examined.

Notice

Upon connection, please verify the sign above the port to avoid using other ports, which might damage the transceiver or the other ports.

When connecting the other device through fiber cable to the switch, the output power of the fiber must not exceed the maximum received power of the corresponding modules, otherwise, it will damage the fiber transceiver. Do not stare at the fiber bore when the switch is in operation to avoid harm.

2.3.8 Power supply connection

Connection procedures for the AC power supply module are described below:

Step 1: Insert one end of electrical line into the power supply socket and another end into the corresponding socket of the switch; when connecting electrical lines, it shall be confirmed that the power supply modules are power off.

Step 2: It shall be examined whether or not the fan on the power supply module operates normally. If the fan fails to operate, please examine whether the power supply socket is power on and whether the power supply module are inserted and locked properly.

Step 3: Turn on the power supply modules (if there are two power supply modules, both of them shall be turned on.), and examine whether or not the indicator of the indicator of the front panel is normal. If the OUTPUT GOOD indicator fails to be

on, please turn off the power supply without delay and examine the status of power supply and each inserting plate.

Notice

If the Power OK indicator does not illuminate after repeating the above steps, please contact the dealer. Do not open the switch chassis by yourself. Please contact the dealer in the case of any failure.