

# DCRS-7600 Series

## Dual Stack Core Routing Switch



**DCRS-7604**



**DCRS-7608**



### ■ Product Overview

Digital China Networks DCRS-7600 Series is high performance chassis switch, which consists of two models.

- DCRS-7604 is 4 slots Chassis Switch. It can work with 1 or 2 management modules and 3 or 2 business modules. It has business ports on the management modules which enable high density.
- DCRS-7608 has 10 slots. It has 2 management slots and 8 business slots. All business slots configuration can be any combination of network interface modules.

With redundant power supply, fans and management modules, the Digital China DCRS-7600 Series ensures continuous operation and fully redundant system. Moreover, all parts are hot swappable. They can be added or exchanged without interrupting the whole system.

The DCRS-7600 series is ideal for the core layer of campuses, enterprise networks and the aggregation layer of IP metropolitan networks.

### ■ Target Market

- With the rich features and high performance and flexible ports, the products can be deployed to the following networks:



	MAN	Campus	LAN	Dual Stack
Core	N	Y	Y	Y
Aggregation	Y	Y	Y	N
Access	Y	N	N	N

## ■ Key Features and Benefits

### ➤ Performance and Scalability

- DCRS-7604 supports up to 13 \*10G ports or 188 (48x3+44) Gigabit ports or 188 10/100 ports,
  - DCRS-7608 supports up to 32 \*10G ports or 384 (48x8) Gigabit ports, providing flexibility and high port density.
  - 10G modules support 4 ports for downlink to L3 Gigabit distribution layer switches or L2 Gigabit switches, aggregating them to the core layer, and preventing port bottlenecks in Gigabit switches. Furthermore, the optional 10Gigabit Ethernet XFP transceivers can be chosen for different distance fiber uplinks.
  - Backup Master ensures the availability of a master controller for network control at any time.
  - Firmware & configuration are automatically upgraded from master to slave units for management simplicity.
- \*Intensive protocol support is included for MPLS, MPLS-VPN, ensuring future investment protection.

### ➤ Continuous Availability

- IEEE 802.1w Rapid Spanning Tree Protocol provides a loop free network and redundant links to the core network with rapid convergence.
- IEEE 802.1s Multiple Spanning Tree Protocol runs STP per VLAN base, providing Layer 2 load sharing on redundant links.
- IEEE 802.3ad Link Aggregation Control Protocol (LACP) increases bandwidth by automatically aggregating several physical links together as a logical trunk and providing load balancing and fault tolerance for uplink connections.
- IGMP snooping prevents flooding of IP multicast traffic, and limits bandwidth intensive video traffic to only the subscribers.

### ➤ L3 Features

- The DCRS-7600 series delivers high-performance hardware based IP routing.
- RIP, OSPF and BGP provide dynamic routing by exchanging routing information with other Layer 3 switches or routers.
- DVMRP, PIM-DM Multicast Routing Protocols send IP multicast traffic from one subnet to another.
- VRRP prevents your system from failing by dynamically backing up multiple L3 switches for routing.
- Support OSPF and BGP graceful restart to protect network stability.

### ➤ Strong Multicast

- The DCRS-7600 support abundant multicast features. The product support rich L2 multicast features such as IGMPv1/v2/v3 and snooping and L3 multicast protocols such as DVMRP, PIM-DM, PIM-SM and PIM-SSM. As the rich application experience, the product support multicast vlan register and multicast receive control and illegal multicast source detect functions.

### ➤ Easy high reliability network

- MRPP is Multi-layer Ring Protection Protocol. It introduced Layer concept for loop at the basis of traditional loop protect protocol. Each loop layer has multi same level Ethernet loop network. With multi- loop layers, it can achieve quick convergence from core to aggregation.
- MRPP can get fast recovery for links at different layers. Compared with spanning tree protocol, it has advantages of fast convergence, simple protocol calculation, little system resources cost, clear networking idea and so on, which can improve the reliability of Ethernet network operation.

### ➤ Comprehensive QoS

- 8 egress queues per port enable differentiated management of up to 8 traffic types.
- Traffic is prioritized according to 802.1p, DSCP, IP precedence and TCP/UDP port number, giving optimal performance to real-time applications such as voice and video.
- Bidirectional rate limiting, per port or traffic class, preserves network bandwidth and allows full control of network resources.

### ➤ Enhanced Security

- IEEE 802.1X port-based access control ensures all users are authorized before being granted access to the network.
- MAC based authentication can provide client-free security access and help customer deployed security rapidly.
- Access Control Lists (ACL) can be used to restrict access to sensitive network resources by denying packets based on L2/L3/L4 headers.
- SSL, Web Management Encryption, RADIUS and TACACS+ authentication protect data communication and ensure data privacy.

### ➤ Simple Management

- Industry standard Command Line Interface (CLI) via console port or Telnet can be used for switch management.
- Embedded user friendly web interface helps users quickly and simply configure switches.
- Backup and restore Firmware and configuration files via TFTP.

### ➤ Abundant IPv6 Support

- The DCRS-7600 series switch supports IPv6 routing in hardware for maximum performance. As more network devices growing and the need for larger addressing and higher security become critical, the DCRS-7600 series switch will be a right product to meet the requirement. The DCRS-7600 passed IPv6 form Phase II certificate is the best proof of the application.

## ■ Specifications

Items	DCRS-7604	DCRS-7608
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<b>Slot</b>	1 or 2 management slots 3 or 2 business slots	2 management slots 8 business slots
<b>Business Ports</b>	10/100/1000BASE-T: MAX 188 1000Base-SX: MAX 188 1000Base-LX: MAX 188 10/100Base-T: MAX 188 10G: MAX 13	10/100/1000BASE-T: MAX 384 1000Base-SX: MAX 384 1000Base-LX: MAX 384 10/100Base-T: MAX 384 10G: MAX 32
<b>Console</b>	1	1
<b>Performance</b>		
<b>Backplane Bandwidth</b>	1.2Tbps	2.4Tbps
<b>Switching Capacity</b>	376Gbps	768Gbps
<b>Full-mesh Switching Capacity</b>	160Gbps	320Gbps
<b>Forwarding Rate</b>	282Mpps	571.4Mpps
<b>MAC Table</b>	MAX 128K	MAX 256K
<b>Routing Table</b>	MAX 128K	MAX 256K
<b>VLAN Table</b>	4K	4K
<b>Features</b>		
<b>Forwarding</b>	<ul style="list-style-type: none"> <li>■ Storage and forwarding</li> </ul>	
<b>L2 Features</b>	<ul style="list-style-type: none"> <li>■ IEEE802.3(10Base-T)</li> <li>■ IEEE802.3u(100Base-TX)</li> <li>■ IEEE802.3z ( 1000BASE-X )</li> <li>■ IEEE802.3ab ( 1000Base-T )</li> <li>■ IEEE802.3ae ( 10GBase )</li> <li>■ Loopback interface</li> <li>■ 9k Jumbo Frame</li> <li>■ Port loop detect</li> <li>■ LLDP and LLDP-MED</li> <li>■ UDLD</li> </ul>	
	<ul style="list-style-type: none"> <li>■ Support LACP 802.3ad, max 128 group trunk with max 8 ports for each trunk,</li> <li>■ Support load balance</li> </ul>	
	<ul style="list-style-type: none"> <li>■ IEEE802.1d(STP)</li> <li>■ IEEE802.1W(RSTP)</li> <li>■ IEEE802.1S(MSTP) Max 48 instance</li> <li>■ Root Guard</li> <li>■ Bpdu Guard</li> <li>■ BPDU forwarding</li> </ul>	
	<ul style="list-style-type: none"> <li>■ Support one to one or any to one mirror</li> <li>■ Support mirror cross business boards</li> <li>■ Support RSPAN</li> </ul>	

	<ul style="list-style-type: none"> <li>■ IGMP v1/v2/v3, IGMP v1/v2/v3 Snooping, IGMP proxy</li> <li>■ ICMPv6, ND, ND snooping, MLDv1/v2, MLDv1/v2 snooping</li> </ul>
	<ul style="list-style-type: none"> <li>■ QinQ, GVRP, Broadcast / Multicast / Unicast Storm Control</li> <li>■ Port/ MAC/ IP segment/ Portocol/ Voice/ Private/ Vlan support</li> <li>■ Multicast Vlan register/MVR for IPv4 and IPv6</li> </ul>
	<ul style="list-style-type: none"> <li>■ Support port-based 802.1Q, 4096 VLAN</li> </ul>
	<ul style="list-style-type: none"> <li>■ MAC binding(Ipv4 /Ipv6), MAC filter, MAC limit</li> </ul>
	<ul style="list-style-type: none"> <li>■ Support smart link( or named flexible link)</li> </ul>
	<ul style="list-style-type: none"> <li>■ Port binding(Ipv4 /Ipv6) and IP source guard</li> </ul>
■ L3 Features	<ul style="list-style-type: none"> <li>■ IP Protocol ( IP support both of IPv4 and IPv6 )</li> <li>■ Default Routing, Static Routing, Black hole route, VLSM and CIDR,</li> <li>■ RIPv1/V2, OSPFv2, BGP4, support MD5 authentication LPM Routing</li> <li>■ OSPFv3, BGP4+ support</li> <li>■ Support 4 byte BGP AS number</li> <li>■ Support GR for OSPF and BGP</li> <li>■ Policy based Routing(PBR) for IPv4 and IPv6</li> <li>■ VRRP, VRRP v3</li> <li>■ DVMRP, PIM-DM, PIM-SM, PIM-SSM, MSDP</li> <li>■ Static Multicast route</li> <li>■ Multicast edge configure</li> <li>■ Any cast RP for Ipv4 and Ipv6</li> <li>■ PIM-SM/DM/SSM for IPv6, 6 to 4 Tunnels, configured Tunnels, ISATAP</li> <li>■ Multicast receive control</li> <li>■ Illegal multicast source detect</li> <li>■ URPF for IPv4 and IPv6</li> <li>■ Support BFD</li> <li>■ Support ECMP ( Equal Cost Multi-Path ) with maxim 8 groups</li> <li>■ ARP guard, Local ARP proxy, Proxy ARP, ARP binding, Gratuitous ARP, ARP limit</li> </ul>
<b>Tunnel technical</b>	<ul style="list-style-type: none"> <li>■ Support manual configure IPv4/IPv6 tunnel</li> <li>■ Support 6to4 tunnel</li> <li>■ Support ISATAP tunnel</li> <li>■ Support GRE tunnel*</li> </ul> <p>* supported by MRS-7600-2XFP24GB12GT</p>

<b>MPLS*</b>	<ul style="list-style-type: none"> <li>■ Support 255 VRF/VFI</li> <li>■ Support LDP</li> <li>■ L3 MPLS VPN</li> <li>■ L2 VLL/VPLS</li> <li>■ MPLS/VPLS proxy</li> <li>■ MPLS-TE/FRR*</li> <li>■ Support cross domain MPLS VPN</li> <li>■ Support MPLS QOS</li> </ul> <p>*supported by software upgrade in future and MRS-7600-2XFP24GB12GT</p>
<b>QoS</b>	<ul style="list-style-type: none"> <li>■ 8 hardware queues per port</li> <li>■ Support traffic classification based on IEEE 802.1p, ToS, port and DiffServ</li> <li>■ Support SP, WRR.SWRR</li> <li>■ Support Traffic Shaping</li> <li>■ Support PRI Mark/Remark</li> </ul>
<b>ACL</b>	<ul style="list-style-type: none"> <li>■ Support standard and expanded ACL</li> <li>■ Support IP ACL and ACL,</li> <li>■ Support ACL based on source/definition IP, MAC, L3 IP, TCP/UDP port number, IP PRI(DSCP, ToS, Precedence), Time</li> </ul>
<b>ACL-X</b>	<ul style="list-style-type: none"> <li>■ Support time-based security auto-negotiation</li> <li>■ ACL rules can be configured to port, VLAN, VLAN routing interfaces</li> <li>■ Can be used for QoS classification</li> </ul>
<b>Anti-attack and Security</b>	<ul style="list-style-type: none"> <li>■ S-ARP: ARP inspection, defense ARP-DOS attack and address clone</li> <li>■ Anti-Sweep: prevent ping Sweep</li> <li>■ S-ICMP: resist PING-DOS attack, ICMP unreachable attack</li> <li>■ S-Buffer: prevent DDOS attack</li> <li>■ Switch engine CPU protection</li> <li>■ Key message priority: secure processing of key legal messages</li> <li>■ Port credit: inspect illegal DHCP Server, Radius Server. Connection via credit port only</li> <li>■ Advanced LPM: filter "Bluster", "zero day" and "SQL slammer worm"</li> <li>■ Support URPF, avoid IP address clone</li> <li>■ All the above technologies efficiently prevent various DOS attack (e.g. ARP, Synflood, Smurf, ICMP attack), support ARP monitoring, defense Worm, Bluster, check sweep and raise alarm</li> </ul>
<b>Reliability and Redundancy Balance</b>	<ul style="list-style-type: none"> <li>■ Support MSTP(802.1s)</li> <li>■ Support VRRP, LACP load balance</li> <li>■ MRPP - Multi-layer Ring Protection Protocol</li> <li>■ Support VLAN based traffic balance</li> <li>■ Redundant power supply, power load balancing</li> <li>■ Support Firmware &amp; Configure dual fault tolerance backup</li> <li>■ Support shift between main/backup, all hot-swappable</li> </ul>

<b>DHCP</b>	■ Support DHCP Client, Relay, Snooping, Option 82	
	■ DHCP Server for IPv4 and IPv6	
	■ DHCP v6 and DHCP snooping V6	
<b>DNS</b>	■ DNS Client	
	■ DNS proxy	
<b>Access security</b>	■ 802.1X <ul style="list-style-type: none"> <li>■ Port, MAC, username based</li> <li>■ Support account based on time length and traffic</li> <li>■ Support guest vlan and auto vlan</li> <li>■ Work with private client can manage P2P traffic</li> </ul>	
	■ MAC Based AAA(Client free access)	
	■ PPPOE/PPPOE+ forwarding	
	<b>AAA</b>	■ Support RADIUS for IPV4 and IPv6
		■ TACACS+
<b>Configuration and Management</b>	■ Support CLI, support Console (RS-232) , support Telnet (Ipv4/Ipv6), SSH(Ipv4/Ipv6),SSL for IPv4	
	■ Support SNMPv1/v2c/v3 for IPv4, SNMPv1/v2c for IPv6	
	■ Support MIB	
	■ Support RMON 1, 2, 3, 9	
<b>Power Saving Technology</b>	■ Support, reduce power consumption, improve cooling and reliability	
<b>SysLog</b>	■ Support save syslog and trap to local device or server	
	■ Support max 8 servers for syslog or trap receive	
<b>NMS</b>	■ Strict access control by ACL	
	■ Access Switch through AAA or Local Authentication	
	■ Support SNTP and NTP	
	■ Setup time zone and Daylight Saving time	
<b>Supervision and Trouble Shooting</b>	■ Supervise abnormality of task, memory, CPU, stack, switch chip, temperature and raise alarm	
	■ Sflow for IPv4 and IPv6	
	■ Support IPFIX (IP Flow Information Export)	
	■ Ping and trace route command	
<b>Configuration Management</b>	■ Configuration file storage	
	■ Command operation log	
	■ Support FTP/TFTP server or client upgrade	
	■ Support X-modem protocol transfer the file	
<b>Physical</b>		
<b>Dimension(W x D x H)</b>	445mm*421mm*266mm(6.5U)      436mm*478mm*797mm(17U)	
<b>Relative Humidity</b>	10%~90%, non-condensing	
<b>Storage Temperature</b>	40°C~70°C	
<b>Operating Temperature</b>	0°C~40°C	

<b>Power</b>	AC: Input 200~240V, 50~60 Hz; DC: Input -36V~ -72V, Output 12V/25A, 5V/10A	AC: Input 90~260V, 50~60 Hz: DC: Input -36V~ -72V: Output 12V/25A, 5V/10A
<b>MTBF</b>	>250,000 hours	>250,000 hours
<b>Power Consumption</b>	≤400W	≤1200W
<b>MEF Comply</b>	Comply MEF 9,14	Comply MEF 9,14
<b>EMC safety</b>	FCC, CE, RoHS,	FCC, CE, RoHS

## ■ Warranty

Limited lifetime warranty

## ■ Order Information

Product	Description
<b>DCRS-7608E</b>	10-Slot Chassis Core Routing Switch (3 power supply at most, N+1 redundancy, Standard with 1 MRS-PWR-B1-AC-B, 3 hot-pluggable fan trays. No management module, )
<b>DCRS-7604E</b>	4-Slot Chassis Core Routing Switch (1+1 power supply redundancy, Standard with 1 MRS-PWR-A1-AC-B, 1 hot-pluggable fan tray. No management module, )
<b>DCRS-7608E-DC</b>	10-Slot Chassis Core Routing Switch (3 power supply at most, N+1 redundancy, Standard with 1 MRS-PWR-B1-DC, 2 hot-pluggable fan trays. No management module, )
<b>DCRS-7604E-DC</b>	4-Slot Chassis Core Routing Switch (1+1 power supply redundancy, Standard with 1 MRS-PWR-A1-DC, 1 hot-pluggable fan tray. No management module, )
<b>MRS-PWR-B1-AC-B</b>	220V AC Power Supply (600W) for DCRS-7608E
<b>MRS-PWR-A1-AC-B</b>	220V AC Power Supply (400W) for DCRS-7604E
<b>MRS-PWR-B1-DC_B</b>	(-48) V DC Power Supply(600W) for DCRS-7608E
<b>MRS-PWR-A1-DC-B</b>	(-48) V DC Power Supply(400W) for DCRS-7604E
<b>MRS-7608-MI</b>	DCRS-7608E Management Module Type I
<b>MRS-7608-MII</b>	DCRS-7608E Management Module Type II(High performance management module)
<b>MRS-7604E-M1XFP12GX12GT</b>	DCRS-7604E management module, with 1 port 10G (XFP), 12 ports 10/100/1000Base-T, and 12 port SFP(Combo),. hardware based IPv6
<b>MRS-7604E-M1XFP12GX12GB</b>	DCRS-7604E management module, with 1 port 10G (XFP), 12 ports SFP, and 12 port Gigabit Combo(SFP/GT),. hardware based IPv6



<b>MRS-7600E-12GX12GT</b>	DCRS-7600E Enhanced Interface Module with 12 10/100/1000Base-T ports and 12 Gigabit Combo(SFP/GT) ports, hardware based IPv6
<b>MRS-7600E-12GX12GB</b>	DCRS-7600E Enhanced Interface Module with 12 SFP ports and 12 Gigabit Combo(SFP/GT) ports, hardware based IPv6
<b>MRS-7600E-2XFP24GB12GT</b>	DCRS-7600E Enhanced Interface Module with 2 10G ( XFP ) ports + 12 10/100/1000Base-T ports+24 Gigabit SFP ports, ASIC-based hardware line speed IPv6 and MPLS support.
<b>MRS-7600E-2XFP12GX12GT</b>	DCRS-7600E Enhanced Interface Module with 2 10G ( XFP ) ports + 12 10/100/1000Base-T ports+12 Gigabit Combo(SFP/GT) ports, ASIC-based hardware line speed IPv6.
<b>MRS-7600E-48GT</b>	DCRS-7600E Enhanced 48 ports 10/100/1000Base-T module, hardware based IPv6
<b>MRS-7600E-48GB</b>	DCRS-7600E Enhanced 48 ports 1000Base-X ( SFP ) module, hardware based IPv6
<b>MRS-7600E-4XFP</b>	DCRS-7600E Enhanced 4 ports 10G(XFP) module, hardware based IPv6

## ■ Connect us

For more detail information about DCN product, contact:

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