

# DCRS-7600E Series Core Layer Routing Switch

## ■ Product Overview

Yunke China Information DCRS-7600E Series is high performance chassis switch, which consists of two models.

- DCRS-7604E 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-7608E 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-7600E 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-7600E series is ideal for the core layer of campuses, enterprise networks and the aggregation layer of IP metropolitan networks.

## ■ Key Features and Benefits

### ➤ Performance and Scalability

- DCRS-7604E supports up to 14 \*10G ports or 160 (48x3+16) Gigabit Copper ports or 96(24x4) Gigabit Fiber ports. DCRS-7608E supports up to 32 \*10G ports or 384 (48x8) Gigabit Copper ports or 192 (24x8) Gigabit Fiber 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.

### ➤ OpenFlow

- Supports OpenFlow1.3 standard protocol. OpenFlow network is increasingly becoming a trend as the core protocol of SDN network. It makes the network easier programming Openflow brings the high performance to datacenter users via self-defined network. With OpenFlow, this product is ideal to build SDN test-bed for research institutes and SDN Experimental Bureau for large ISP and operator.

### ➤ 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

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links together as a logical trunk and providing load balance and fault tolerance for uplink connections.

- IGMP snooping prevents flooding of IP multicast traffic, and limits bandwidth intensive video traffic only to the subscribers.

### ➤ **L3 Features**

- The DCRS-7600E 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-7600E 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 Detection functions.

### ➤ **Easy high reliability network**

- MRPP (Multi-layer Ring Protection Protocol), is a link layer protocol applied on Ethernet loop protection which reduces network convergence time to 50ms.

### ➤ **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-7600E 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-7600E series switch will be a right

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product to meet the requirement. The DCRS-7600E passed IPv6 form Phase II certificate is the best proof of the application.

## ■ Specifications

Items	DCRS-7604E	DCRS-7608E
Slot	1 or 2 management slots 3 or 2 business slots	2 management slots 8 business slots
Business Ports	10/100/1000base-T: MAX 160 1000base-X: MAX 96 10G: MAX 14	10/100/1000base-T: MAX 384 1000base-X: MAX 192 10G: MAX 32
Console	1	1
<b>Performance</b>		
Backbone Switching Capacity	120Gbps	320Gbps
Forwarding Rate	87Mpps	238Mpps
Routing Entries	MAX 16K	MAX 16K
VLAN Table	4K	4K
<b>Features</b>		
Forwarding	Storage and Forwarding	
L2 Features	IEEE802.3(10Base-T) IEEE802.3u(100Base-TX) IEEE802.3z(1000BASE-X) IEEE802.3ab(1000Base-T) IEEE802.3ae(10GBase) Loopback Interface 9k Jumbo Frame Port Loopback Detection LLDP and LLDP-MED UDLD	
	LACP 802.3ad, max 128 group trunk with max 8 ports for each trunk Load Balance	
	IEEE802.1d(STP) IEEE802.1w(RSTP) IEEE802.1s(MSTP) Max 48 instance Root Guard BPDU Guard BPDU Forwarding	
	One to one or any to one mirror Mirror cross business cards RSPAN	

	<p>IGMP v1/v2/v3, IGMP v1/v2/v3 Snooping, IGMP Proxy</p> <p>ICMPv6, ND, ND Snooping, MLDv1/v2, MLDv1/v2 Snooping</p> <p>QinQ, GVRP, Broadcast / Multicast / Unicast Storm Control</p> <p>Port/ MAC/ IP Segment/ Portocol/ Voice/ Private/ VLAN support</p> <p>Multicast VLAN Register/MVR for IPv4 and IPv6</p> <p>Port-Based 802.1Q, 4096 VLAN</p> <p>MAC Binding(IPv4 /IPv6), MAC Filter, MAC Limit</p> <p>Support Smart Link( or named Flexible Link)</p> <p>Port Binding(IPv4 /IPv6) and IP source guard</p>
L3 Features	<p>IP Protocol(IP support both of IPv4 and IPv6)</p> <p>Default Routing, Static Routing, Black hole Route, VLSM and CIDR,</p> <p>RIPv1/V2, OSPFv2, BGP4, support MD5 authentication LPM Routing</p> <p>OSPFv3, BGP4+ support</p> <p>4 byte BGP AS number</p> <p>GR for OSPF and BGP</p> <p>Policy Based Routing(PBR) for IPv4 and IPv6</p> <p>VRRP, VRRP v3</p> <p>DVMRP, PIM-DM, PIM-SM, PIM-SSM, MSDP</p> <p>Static Multicast Route</p> <p>Multicast Edge Configure</p> <p>Any cast RP for IPv4 and IPv6</p> <p>PIM-SM/DM/SSM for IPv6, 6 to 4 Tunnels, configured Tunnels, ISATAP</p> <p>Multicast Receive Control</p> <p>Illegal multicast Source Detection</p> <p>URPF for IPv4 and IPv6</p> <p>BFD</p> <p>ECMP(Equal Cost Multi-Path)with maxim 8 groups</p> <p>ARP Guard, Local ARP Proxy, Proxy ARP, ARP Binding, Gratuitous ARP, ARP Limit</p>
Tunnel technical	<p>Manual Configure IPv4/IPv6 Tunnel</p> <p>6to4 Tunnel</p> <p>ISATAP Tunnel</p> <p>GRE Tunnel</p>
MPLS	<p>255 VRF/VFI</p> <p>LDP</p> <p>L3 MPLS VPN</p> <p>L2 VLL/VPLS</p> <p>MPLS/VPLS proxy</p> <p>Cross Domain MPLS VPN</p> <p>MPLS QOS</p>

QoS	8 Hardware Queues per port
	Traffic Classification based on IEEE 802.1p, ToS, port and DiffServ
	SP, WRR, SWRR
	Traffic Shaping
	PRI Mark/Remark
ACL	Standard and Expanded ACL
	IP ACL and ACL,
	ACL based on source/destination IP, MAC, L3 IP, TCP/UDP port number, IP PRI(DSCP, ToS, Precedence), Time
ACL-X	Time-based Security Auto-negotiation
	ACL rules can be configured to port, VLAN, VLAN routing interfaces
	Can be used for QoS Classification
Anti-attack and Security	S-ARP: ARP Inspection, defense ARP-DOS Attack and Address Clone
	Anti-Sweep: prevent Ping Sweep
	S-ICMP: resist PING-DOS attack, ICMP unreachable attack
	S-Buffer: prevent DDOS attack
	Switch engine CPU protection
	Key message priority: secure processing of key legal messages
	Port credit: inspect illegal DHCP Server, Radius Server. Connection via credit port only
	Support URPF, avoid IP address clone
	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
Reliability and Redundancy Balance	Support MSTP(802.1s)
	Support VRRP, LACP load balance
	MRPP - Multi-layer Ring Protection Protocol
	Support VLAN based traffic balance
	Redundant power supply, power load balancing
	Support Firmware & Configure dual fault tolerance backup
	Support shift between main/backup, all hot-swappable
DHCP	Support DHCP Client, Relay, Snooping, Option 82
	DHCP Server for IPv4 and IPv6
	DHCP v6 and DHCP Snooping v6
DNS	DNS Client
	DNS Proxy
Access security	802.1X
	MAC Based AAA(Client free access)
	PPPOE/PPPOE+ forwarding

AAA	RADIUS for IPV4 and IPv6 TACACS+	
Configuration and Management	CLI, support Console(RS-232), support Telnet (Ipv4/Ipv6), SSH(Ipv4/Ipv6),SSL for IPv4	
	SNMPv1/v2c/v3 for IPv4, SNMPv1/v2c for IPv6	
	MIB	
	RMON 1, 2, 3, 9	
Power Saving Technology	Reduce power consumption, improve cooling and reliability	
SysLog	Save Syslog and Trap to local device or server Max. 8 servers for Syslog or Trap receive	
NMS	Strict access control by ACL Access Switch through AAA or Local Authentication Support SNTP and NTP Setup Time Zone and Summer Time	
Supervision and Trouble Shooting	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	
Configuration Management	Configuration file storage Command operation log Support FTP/TFTP server or client upgrade Support X-modem protocol transfer the file	
Physical		
Dimension(W x D x H)	445mm*421mm*266mm(6.5U)	436mm*478mm*797mm(18U)
Relative Humidity	10%~90%, non-condensing	
Storage Temperature	40°C ~70°C	
Operating Temperature	0°C~40°C	
Power	AC: Input 100V~240V AC	AC: Input 100V~240V AC
MTBF	>250,000 hours	>250,000 hours
Power Consumption	≤400W	≤1000W
EMC safety	FCC, CE, RoHS,	FCC, CE, RoHS

## ■ Order Information

Product	Description
DCRS-7608E	10-Slot Chassis Core Routing Switch(2+1 power supply redundancy, Standard with 1 MRS-PWR-AC-B, 3 hot-pluggable fan trays, no management module, )
DCRS-7604E	4-Slot Chassis Core Routing Switch(1 + 1 power supply redundancy, Standard with 1

	MRS-PWR-AC-B,1 hot-pluggable fan tray, no management module)
MRS-PWR-AC-B	AC Power Supply (500W) for DCRS-7608E(R3) and DCRS-7604E(R2)
MRS-7608E-M2	DCRS-7608E Management Module Type 2 (High performance management module)
MRS-7604E-M16GX8GB	DCRS-7604E Management Module, 16 GbE Combo(SFP/RJ45) and 8*100/1000Base-X port, Wire-Speed, IPv6 supported
MRS-7604E-M2XS8GX16GB	DCRS-7604E Management Module, 2*10GbE(SFP+) + 8*GbE Combo (SFP/RJ45) + 16*100/1000Base-X(SFP), Wire-Speed, IPv6 supported
MRS-7600E-4XS16GX8GB	DCRS-7600E Series Interface Module, 4*10GbE(SFP+) + 16*GbE Combo (SFP/RJ45) + 8*100/1000Base-X(SFP), Wire-Speed, IPv6 supported
MRS-7600E-48GT	DCRS-7600E Enhanced 48 ports 10/100/1000Base-T module, hardware based IPv6
MRS-7600E-OF	DCRS-7600E OpenFlow module
MRS-7600E-20XS2Q	DCRS-7600E Series Interface Module, 20*10GbE(SFP+) + 2*40GbE(QSFP+), Wire-Speed, IPv6 supported
MRS-7600E-48GT(R4)	DCRS-7600E Series Interface Module, 48*10/100/1000Base-T, Wire-Speed, IPv6 supported
MRS-7600E-28GB16GT4XS	DCRS-7600E Series Interface Module, 28*GbE(SFP) + 16*10/100/1000Base-T + 4*10GbE(SFP+), Wire-Speed, IPv6 supported
MRS-7600E-44GB4XS	DCRS-7600E Series Interface Module, 44*GbE(SFP) + 4*10GbE(SFP+), Wire-Speed, IPv6 supported
AOC-SFPX-10M	AOC cable with 2 10G(SFP+) modules, 10m, suitable for SFP+ ports on same model of switch, can be used for VSF
DAC-SFPX-3M	DAC cable with 2 10G(SFP+) modules, 3m, suitable for SFP+ ports on same model of switch, can be used for VSF

## ■ Contact us

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