DCRS-9816
Core-layer Chassis Switch

Product Overview

DCN DCRS-9816 is high performance wire speed chassis switch. DCRS-9816 has 18 slots, including 2 management slots and 16 business slots. With redundant power supply, fans and management modules, the DCRS-9816 ensures continuous operation and fully redundant system.

The DCRS-9800 series serves campus and data center networking requirements in enterprise, commercial, and service provider environments.

Model and Appearance of DCRS-9816

Appearance	Description
  DCRS-9816	- Number of Management Engine slots: 2 - Number of Business slots：16 - Port density per chassis: 384 x GE, 320 x 10GE, 32 x 40GE - Dimensions (W x D x H): 440mm × 450mm × 842mm(19U) - Switching Capacity: 1536Gbps - Forwarding performance: 1143Mpps

Blades

Appearance	Description
MRS-9800-SUP	Super management blade, 1+1 redundancy
MRS-9800-FAB	Fabric blade, 1+1 redundancy
MRS-9800-20XS2Q	20* 10GbE (SFP+) + 2*40GbE (QSFP) ports Wire-Speed, IPv6, MPLS, VPLS supported
MRS-9800-24GT-V	24* 10/100/1000Base-T ports Wire-Speed, IPv6, MPLS, VPLS supported
MRS-9800-24GB-V	24 * 100/1000Base-X(SFP) ports Wire-Speed, IPv6, MPLS, VPLS supported
MRS-9800-AC	Power supply module Rated input voltage range: 100~240V AC 50/60Hz; Maximum input voltage range: 90~264V AC 47/63Hz; Maximum input current: 10 A (input voltage: 90V AC) Maximum output current: 0.5A (output voltage: 10V DC)/12.6A (output voltage: 46.8V DC) Rated output voltage:12V/48V DC Rated output power: 600W N+M redundancy

Highlights

Performance and Scalability

DCRS-9816 supports up to max 320*10G ports or 384 Gigabit ports, providing flexibility and high port density.

10G blades support max 20 ports for downlink to distribution layer switches or access switches directly, aggregating them to the core layer, and preventing port bottlenecks in Gigabit switches. Furthermore, the optional 10Gigabit Ethernet SFP+ 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, L2/L3 MPLS-VPN supported by a software upgrade to ensuring future investment protection.

OpenFlow

Supports OpenFlow1.2 standard protocol. OpenFlow network is increasingly becoming a trend as the core protocol of the SDN network. It makes the network easier programming OpenFlow brings high performance to datacenter users via a 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.

Support open controller OpenDaylight, Floodlight, Ryu, Pox, etc.

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 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-9800 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 within the same domain and different domains.

DVMRP, PIM-SM/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-9800 supports 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 a rich application experience, the product support Multicast VLAN Register and Multicast Receive Control and Illegal Multicast Source Detection function.

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.

Specifications

| Items	DCRS-9816
Slot	2 management slots 16 business slots

Business Ports	10/100/1000BASE-T: MAX 384 1000Base-SX: MAX 384 1000Base-LX: MAX 384 10G: MAX 320
Performance	
Switching Capacity	1536Gbps
Forwarding Rate	1143Mpps
Routing Table	MAX 16K
VLAN Table	4K
Features	
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 Link Aggregation by manual
	IEEEE802.1d(STP) IEEEE802.1w(RSTP) IEEEE802.1s(MSTP) Max 48 instance Root Guard BPDU Guard BPDU Forwarding
	One to one or any to one mirror Mirror cross-business cards RSPAN
	IGMP v1/v2/v3, IGMP v1/v2/v3 Snooping, IGMP Proxy ICMPv6, ND, ND Snooping, MLDv1/v2, MLDv1/v2 Snooping
	GVRP Port/ MAC/ IP Segment/ Portocol/ Voice/ Private/ VLAN support Multicast VLAN Register/MVR for IPv4 and IPv6
	Port-based 802.1Q, 4K VLAN QinQ and Selective QinQ
	DFI/Broadcast/Multicast Storm control
	Binding (IPv4/IPv6), IP Source Guard MAC Filter, MAC Limit
	IP Source Guard
	Port Binding (IPv4 /IPv6)
	Support Smart Link (or named Flexible Link)
L3 Features	IP Protocol (IP support both IPv4 and IPv6)
	Default Routing, Static Routing, Blackhole Route, VLSM and CIDR, RIPv1/V2, OSPFv2, BGP4, support MD5 Authentication LPM Routing
	OSPFv3, BGP4+ support
	Policy-based routing (PBR) for IPv4 and IPv6
	Support 4-byte BGP AS number
	Support GR for OSPF and BGP

	VRRP, VRRP v3
	DVMRP, PIM-DM, PIM-SM, PIM-SSM MSDP (Multicast Source Discovery Protocol) Static Multicast Route Multicast Edge Configure Anycast RP for IPv4 and IPv6 PIM-SM/DM/SSM for IPv6, 6 to 4 Tunnels, configured Tunnels, ISATAP Multicast Receive Control Illegal Multicast Source Detection
	URPF for IPv4 and IPv6
	BFD
	ECMP (Equal Cost Multi-Path) with maxim 8 groups
	ARP Guard, Local ARP Proxy, Proxy ARP, ARP Binding, Gratuitous ARP, ARP Limit
Tunnel Technical	Manual Configure IPv4/IPv6 tunnel 6to4 Tunnel ISATAP Tunnel GRE Tunnel
MPLS	255 VRF/VFI LDP L3 MPLS VPN VPLS MPLS QoS
QoS	8 Hardware Queues per port
	Traffic Classification based on IEEE 802.1p, ToS, port, and DiffServ
	SP, WRR, SWRR
	Traffic Shaping
	Rate Limit for Import and Export
	PRI Mark/Remark
	WRED
	2 buckets with dual-rate and triply color mark
ACL	Standard and Expanded ACL
	IP ACL and MAC ACL,
	ACL based on source/definition IP, MAC, L3 protocol, TCP/UDP port number, IP PRI (DSCP, ToS, Precedence), Time
	Ingress and Egress ACL
ACL-X	Time-Based Security Auto-negotiation
	ACL rules can be configured to port, VLAN
	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 an alarm
DHCP	Support DCHP Client, Relay, Snooping, Option 82
	DHCP Server for IPv4 and IPv6
	DHCP v6 and DHCP Snooping v6
DNS	DNS Client DNS Proxy
Ring Protocol	MRPP (Multi-Ring Protect Protocol)

Access security	802.1X
	   ✓ Port, MAC, username based
	   ✓ Account-based on time length and traffic
	   ✓ Guest VLAN and Auto VLAN
	   ✓ Work with a private client can manage P2P traffic
	MAC Based AAA (Client free access)
	PPPOE/PPPOE+ forwarding

AAA	RADIUS AAA for IPV4 and IPv6 TACACS+ AAA
Configuration and Management	CLI, Telnet, WEB, SSH and SSL
	SNMPv1/v2c/v3
	MIB
	RMON 1, 2, 3, 9
Power Saving Technology	Reduce power consumption, improve cooling and reliability Flexible fan and port management to save power consumption
Syslog	Save Syslog and Trap to local device or server Max. 8 servers for Syslog or Trap receive
NMS	Strict Access Control by ACL and QoS
	Access the switch through AAA or Local Authentication
	SNTP and NTP
	Setup Time Zone and Summer Time
Supervision and Trouble Shooting	Supervise abnormity of task, memory, CPU, stack, switch chip, temperature and raise an alarm Sflow Ping and Traceroute command
Configuration Management	Configuration file storage Command operation log Dual Images and files startup FTP/TFTP server or client upgrade X-modem protocol transfer the file
OAM	802.3ah 802.1ag
Physical	
Dimension(W x D x H)	440mm×450mm ×842mm (19U)
Relative Humidity	10%~90%, non-condensing
Storage Temperature	-40℃~70℃
Operating Temperature	0℃~40℃
Power	AC: Input 90~260V, 50~60 Hz:
Power Consumption	≤1600W
MTBF	>250,000 hours

Typical Application

DCRS-9816 switch could be deployed on the core layer of campus network, education network, and enterprise data center network. The typical application scenario is shown below
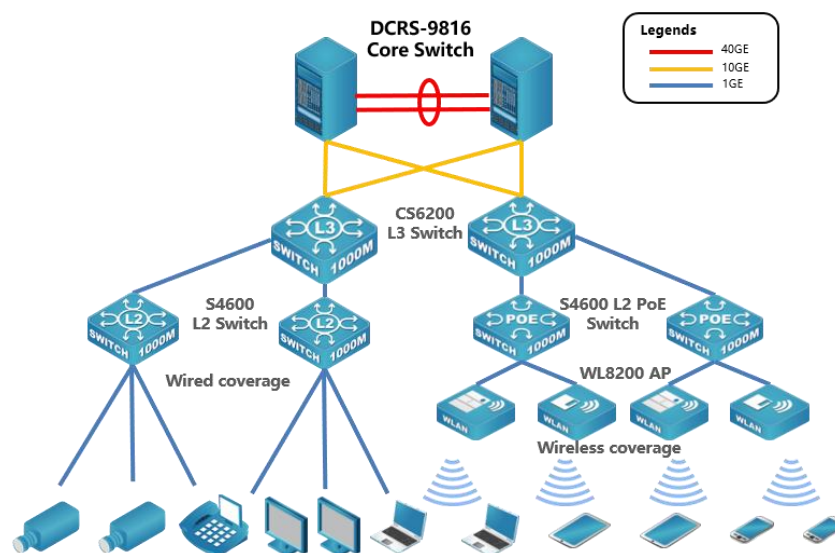
Order Information

Product	Description
DCRS-9816	DCRS-9816 routing switch chassis (2 slots for management cards and 16 slots for business blades. AC power supply 3+1 redundancy), standard with 1 MRS-9800-AC power supply, no management cards.
MRS-9800-AC	220V AC Power Supply (600W) for DCRS-9800
MRS-9800-SUP	DCRS-9800 Series super management blade
MRS-9800-FAB	DCRS-9800 Series fabric blade
MRS-9800-20XS2Q	DCRS-9800 Series Interface Module (20* 10GbE (SFP+) + 2*40GbE (QSFP) ports), Wire-Speed, IPv6, MPLS, VPLS supported
MRS-9800-24GB-V	DCRS-9800 Series Interface Module (24 * 100/1000Base-X(SFP) ports), Wire-Speed, IPv6, MPLS, VPLS supported
MRS-9800-24GT-V	DCRS-9800 Series Interface Module (24* 10/100/1000Base-T ports), Wire-Speed, IPv6, MPLS, VPLS supported