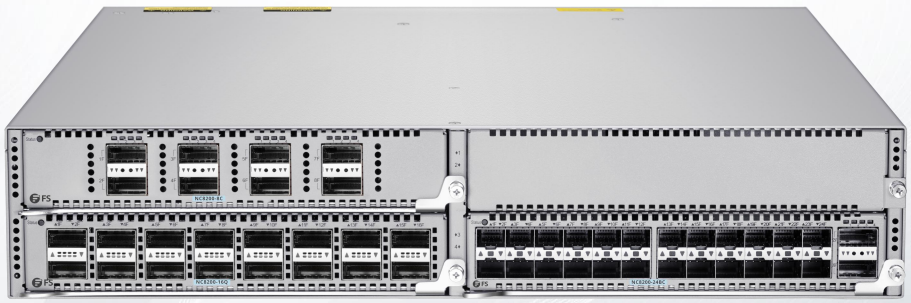
NC8200 Series Switch

FLEXIBLE DATA CENTER SWITCH CHASSIS AND 25G/40G/100G LINE CARDS

NC8200 series switch delivers high performance, high density, and low latency for medium-sized data centers and cloud-computing data centers.



Overview

The NC8200-4TD switch supports a maximum of 128x 10G/25G, 64x 40G, or 32x 100G high-density full line rate ports through flexible line cards combinations of NC8200-8C, NC8200-16Q and NC8200-24BC. The NC8200-4TD can operate as leaf and spine switch for medium-sized data centers and cloud-computing data centers deployments.

The switch employs an advanced cache scheduling mechanism to maximize the device's cache capability. With PFC and ECN to implement the low-latency, zero packet loss, high throughput and service forwarding rate, ensuring non-blocking transmission in the increasingly demanding data center environment.

Benefits

- Layer 3 Switch
- Broadcom BCM56870 Switch Chip
- Supports Up to 2 Units Stacking
- Supports VXLAN
- Supports MLAG (VAP), GR, BFD
- Low-latency, Zero Packet Loss with PFC/ECN
- IPv4/IPv6 Dual-stack Multi-layer Switching
- 1+1 Redundant Power Supplies
- 2+1 Redundant Fan Modules
- CLI/SNMP v1/v2c/v3/Telnet

Product Characteristics

Performance and Scalability

Within 2U configuration, NC8200-4TD supports a maximum of 128x 10G/25G, 64x 40G, or 32x 100G full line rate ports. The switch employs an advanced cache scheduling mechanism to maximize the device's cache capability, ensuring truly non-blocking transmission in the increasingly demanding data center environment.

Data Center Virtualization

The NC8200-4TD switch adopts the industry-leading stacking technology to achieve unified network management, reducing network nodes and enhance network reliability. The failover time for link failure is within 50-200ms to guarantee uninterrupted operation for mission-critical applications. The cross-device link aggregation feature enables access to servers or switches to achieve active-active uplinks.

Overlay Network Connection

The switch supports VXLAN, which can meet the requirements of overlay network construction in data centers, and overcomes network scale expansion difficulties caused by inadequate network VLANs in conventional data centers. In addition, network resources can be assigned to different new subnets without changing the physical topology, and restrictions on IP addresses and broadcast domains of physical networks do not need to be taken into account.

Data Center Layer 2 Network Expansion

The VXLAN technology encapsulates layer-2 packets into User Datagram Protocol (UDP) packets to build a logically layer-2 network on the layer-3 network. The NC8200-4TD switch supports EVPN protocol and provides VTEP (tunnel terminal) automatic discovery and authentication, which can reduce the flooding of VXLAN data plane and avoid the dependence on the underlying deployment multicast, simplify the deployment of VXLAN, improve the construction efficiency of large layer 2 network, and better meet the deployment requirements of large layer-2 network in the data center.

RDMA Lossless Infrastructure

The switch implements low-delay forwarding of the lossless Ethernet based on the Remote Direct Memory Access (RDMA) and optimizes service forwarding performance. It greatly reduces the operation cost per bit of the entire network and enhances the competitive edge of service products.

Hardware-based Traffic Visualization

The NC8200 Series support the visualization hardware feature and can visualize the end-to-end traffic of complex multipath networks composed of multiple nodes. In this way, the forwarding path and delay of each session can be monitored in a centralized manner, thereby raising the fault locating efficiency.

Carrier-class Reliability Protection

The NC8200-4TD switch supports built-in redundant power modules and modularized fan components. All the interface boards, power modules, and fan modules are hot-pluggable to guarantee undisturbed switching operation. In addition, the switches support fault detection and automatic alarms for the power and fan modules. The rotation speed of the fans automatically adjusts to the ambient temperature. The switches further provide device-level and link-level reliability protection with the over-current, over-voltage, and overheating protection measures.

The NC8200-4TD switch also supports features like Graceful Restart (GR) and Bidirectional Forwarding (BFD) mechanisms. All the features ensure the network convergence time is unaffected even when the network bears abundant services and heavy traffic, and therefore ensure normal operation.

IPv4/IPv6 Dual-Stack Multi-Layer Switching

The hardware of the NC8200-4TD switch supports line-rate IPv4/IPv6 dual-stack multi-layer switching, and distinguishes and processes IPv4 and IPv6 protocol packets. The switches also support multiple tunneling technologies including manually configured tunnels, automatic tunnels, ISATAP tunnels and so on. The switches provide flexible IPv6 inter-network communication solutions to be realized according to the requirement plan and status quo of the IPv6 networks.

The switch supports a wide range of IPv4 routing protocols including static routing, RIP, OSPF, IS-IS and BGP4, which can be selected flexibly according to the network environment. The series also supports an abundant list of IPv6 routing protocols, such as static routing, RIPng, OSPFv3 and BGP4+, which can be selected flexibly either to upgrade the existing network to IPv6 network or to construct a new IPv6 network.

Flexible and Comprehensive Security Policies

The NC8200-4TD switch features multiple security features, which effectively defend against and control virus flooding and hacker attacks. These features include anti-DoS attack, validity check of ARP packets on ports, and multiple hardware-based ACL policies.

The switch supports hardware-based IPv6 ACLs, which can easily control IPv6 users' access to edge devices even when IPv6 users exist within an IPv4 network. It allows coexistence of IPv4 and IPv6 users on the network and can control access permissions of IPv6 users, such as restricting access to sensitive resources on the network.

The switch also supports Telnet access control based on source IP addresses. The measure prevents unauthorized users or hackers from attacking or controlling devices and thereby enhances security of the device NMS. The NC8200-4TD switch also implement Secure Shell (SSH) and SNMPv3 to encrypt management information in Telnet and SNMP processes, thereby ensuring security of management device information and preventing hacker from waging attacks or controlling devices.

The switch prevents unauthorized users from network access through multiple functions. These functions include multi-element binding, port security, time ACL, and bandwidth limit based on data traffic. The NC8200-4TD switch highly strengthens access security and are perfect match for large-sized networks.

Advanced Management

The NC8200-4TD switch is equipped with management ports such as Console, MGMT and USB. The switch supports SNMP v1/v2c/v3 as well as universal network management platform and service management software such as BMC. The switch enables Command Line Interface (CLI), Telnet, and cluster management, which simplify device management and provide various encryption modes such as SSH2.0 and SSL to enhance network security.

The switch supports SPAN/RSPAN mirroring and multiple mirroring observation ports, offering users high visibility and transparency for easy maintenance. The switch also provides a wide range of network traffic reports to help users optimize network structure and adjust resources deployment accordingly.

Technical Specification

NC8200 series switch come with advanced hardware architecture design and abundant L2 and L3 features. Here's a look at the details.

CHARACTERISTICS

	NC8200-4TD
Port	
Number of Line Card Slots	4
Max. 100G Ports	32
Max. 40G Ports	64
Max. 25G Ports	128
Max. 10G Ports	128
RJ45 Management Port	1
RJ45 Console Port	1
Mini-USB B Console Port	1
USB 2.0	1
Operating System	
OS	FSOS
Key Components	
Switch Chip	Broadcom BCM56870
CPU	Cavium CN6130 (Quad-core, 1.0 GHz)
SDRAM	4GB
Performance	
Layer Type	Layer 3
Switching Capacity	6.4 Tbps

CHARACTERISTICS

	NC8200-4TD
Performance	
Forwarding Rate	4.76 Bpps
MAC Address	96K
Packet Buffer	32MB
Flash Memory	8GB
Port Latency	<1 us
Number of VLANs	4K
Jumbo Frame	9KB
Stackability	Up to 2 Units
MTBF (Hours)	390,000
Status Indicators	Status, ID, MGMT, FAN, Power Supply
Remote Management Protocol	SNMP v1/v2c/v3, CLI, Telnet
Power	
Input Voltage	100-240VAC, 50-60Hz, 10-5A
Max. Power Consumption	< 650W
Physical and Environmental	
Dimensions (Hx Wx D)	3.39"x 17.4"x 20.47"(86x 442x 520mm)
Rack Space	2U
Fan Number	3 (2+1 Redundancy)
Hot-swappable Power Supplies	2 (1+1 Redundancy)
Airflow	Front-to-Back

CHARACTERISTICS

	NC8200-4TD
Physical and Environmental	
Weight	41.89 lbs (19 kg), with two power supplies and three fans
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	-40°F to 158°F (-40°C to 70°C)
Operating Humidity	10 to 90% (Non-condensing)
Storage Humidity	10 to 90% (Non-condensing)
Warranty	
Warranty	5 Years

CHARACTERISTICS

	NC8200-8C	NC8200-16Q	NC8200-24BC
Port			
Ports	8x 100G QSFP28	16x 40G QSFP+	24x 25G SFP28, 2x 100G QSFP28
Max. 100G Ports	8	/	2
Max. 40G Ports	8	16	2
Max. 25G Ports	/	/	24
Max. 10G Ports	/	/	24
Power			
Max. Power Consumption	< 57W	< 57W	< 96W
Physical and Environmental			
Dimensions (Hx Wx D)	1.61"x 7.87"x 8.15" (41x 200x 207mm)		
Weight	1.32 lbs (0.6kg)	2.65 lbs (1.2kg)	1.32 lbs (0.6kg)
Operating Temperature	32°F to 113°F (0°C to 45°C)	32°F to 104°F (0°C to 40°C)	32°F to 113°F (0°C to 45°C)
Storage Temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Operating Humidity	10 to 90% (Non-condensing)	10 to 90% (Non-condensing)	10 to 90% (Non-condensing)
Warranty			
Warranty	5 Years	5 Years	5 Years

FEATURES

Functionality	Description
Layer 2 Protocols	IEEE802.3ae (10GBase) IEEE802.3ab IEEE802.3af IEEE802.1d IEEE802.3ad (link aggregation) IEEE802.1q IEEE802.3ba IEEE802.1D (STP) IEEE802.1w (RSTP) IEEE802.1s (MSTP) IEEE802.1ad (QinQ) IGMP Snooping Jumbo Frame (9K bytes) GVRP
Layer 3 Protocols (IPv4)	BGP4 OSPFv2 RIPv1 RIPv2 Policy-based Routing Route-policy ECMP WCMP VRRP IGMP v1/v2/v3 PIM-SSM/SM/DM MSDP
IPv6 Basic Protocols	Neighbor Discovery (ND) ICMPv6 Path MTU Discovery DNSv6 DHCPv6 ICMPv6 ICMPv6 redirection ACLv6

FEATURES

Functionality	Description
IPv6 Basic Protocols	TCP/UDP for IPv6 SNMP v6 Ping/Traceroute v6 IPv6 RADIUS Telnet/SSH v6 FTP/TFTP v6 NTP v6 IPv6 MIB support for SNMP VRRP for IPv6
IPv6 Features	Static routing Equal-cost routing Policy routing OSPFv3 RIPng BGP4+ MLDv1/v2 PIM-SMv6 Manual tunnel Automatic tunnel IPv4 over IPv6 tunnel ISATAP tunnel
Data Center Features	PFC/ECN RDMA VXLAN routing, VXLAN bridging EVPN VXLAN OpenFlow 1.3
Visualization	GRPC protocol sFLOW high-precision sampling
QoS	EXP priority mapping based on 802.1p, DSCP, TOS Precedence

FEATURES

Functionality	Description
QoS	ACL traffic classification Priority marking/remarking Multiple queue scheduling mechanisms, such as SP, WRR, DRR, SP+WRR, and SP+DRR
Stacking	Stacking technology for virtualizing multiple devices into one device
Cache Management	Support cache status monitoring and management, identify traffic microbursts
Reliability	GR for RIP/OSPF/BGP BFD detection RLDP (Rapid Link Detection Protocol) 1+1 power redundancy 2+1 fan redundancy Hot-swappable fans and power modules
Security	Network Foundation Protection Policy (NFPP) CPU Protection (CPP) DDoS attack defense Detection of unauthorized data packets Data encryption RADIUS / TACACS+ IPv4/IPv6 ACL packet filtering based on standard or extended VLANs Plain text authentication and MD5 cipher-text authentication of OSPF, RIPv2, and BGPv4 packets Telnet login through limited IP addresses and the password mechanism u-RPF Broadcast packet suppression DHCP Snooping Anti-gateway

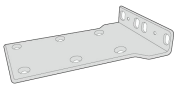
FEATURES

Functionality	Description
Manageability	SNMP v1/v2c/v3 NETCONF Telnet Console MGMT RMON SSHv1/v2 FTP/TFTP for file upload and download management NTP Clock Syslog SPAN/RSPAN/ERSPAN Telemetry In-band Network Telemetry (INT)
Other Protocols	DHCP Client DHCP Relay DHCP Server DNS Client ARP Proxy Syslog
Power Supply	AC input: Rated voltage range: 100 V to 240V AC, 50–60 Hz Maximum voltage range: 90 V to 264 V AC, 50–60 Hz Rated input current: 5 A to 10 A HVDC input: Input voltage range: 192–288 V DC Input current range: < 4.5 A

Accessories

Power Cord*2

Grounding Cable*1



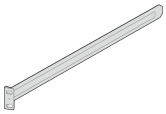
Mounting Bracket*2

M4 Screw*6

M6 Screw*6

M6 Nut*6

Inner Rail*2



Slide Rail*2

Blank Plate*4

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