FS NC8200 Series Switches Data Sheet

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Product 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.

The NC8200-8C Ethernet line card supports 8x 100G QSFP28, offering line-rate forwarding from all ports. The QSFP28 ports are backward compatible with QSFP+ modules.

The NC8200-16Q Ethernet line card supports 16x 40G QSFP+ ports, offering line-rate forwarding from all ports.

The NC8200-24BC Ethernet line card supports 24x 25G SFP28 ports and 2x 100G QSFP28, offering line-rate forwarding from all ports. The SFP28 ports are backward compatible with SFP+ modules. The QSFP28 ports are backward compatible with QSFP+ modules.

Product highlights

- Flexible 10/25/40/100GbE Interface Speeds, Support Stacking
- Support MLAG, BGP4/BGP4+, EVPN-VXLAN, REUP, GR, BFD
- 1+1 Hot-Swappable Power Supplies, 2+1 Smart Fans
- Low-latency, Zero Packet Loss with PFC, ECN, RDMA over Converged Ethernet (RoCE)
- Support SPAN/RSPAN/ERSPAN and In-band Network Telemetry (INT) for Visibility
- Support ACL, RADIUS, TACACS+, DHCP Snooping, etc. for Security
- Support Ansible, OpenFlow, NETCONF, etc. Configuration and Automation Tools
- Support SNMP v1/v2c/v3, CLI, Telnet, SSH
- Achieve Reliable Links With 100G NVIDIA Mellanox NIC Only for NC8200-8C Line Card
- Achieve Reliable Links with Intel XL710-BM2-Based NIC Only for NC8200-16Q Line Card
- Achieve Reliable Links With 25G NVIDIA Mellanox NIC Only for NC8200-24BC Line Card

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Platform details

Switch models and configurations

Figures 1 show the FS NC8200-4TD switch.

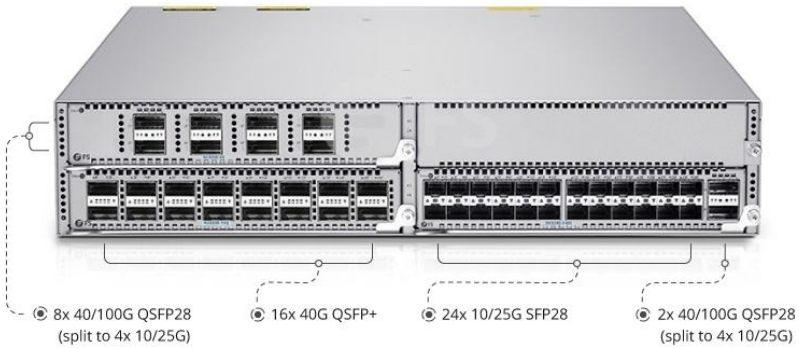

Figure 1.
NC8200-4TD, 4-Slot 2U Ethernet L3 Data Center Chassis Switch Unloaded, Supports 4 x 25/40/100Gb Line Cards, Support Stacking, Broadcom Chip, Software Installed

Switch configurations and port density

Table 1 shows the FS NC8200-4TD configurations and port density.

Table 1. Switch configuration and port density

FS P/N	NC8200-4TD
Description	NC8200-4TD, 4-Slot 2U Ethernet L3 Data Center Chassis Switch Unloaded, Supports 4 x 25/40/100Gb Line Cards, Support Stacking, Broadcom Chip, Software Installed
Port	
Number of Line Card Slots	4
Max. 10G port density	128
Max. 25G density	128
Max. 40G port density	64
Max. 100G port density	32
40G port density with breakout cable	64
100G port density with breakout cable	32

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FS P/N	NC8200-4TD
Management ports	1
Console port	1
Mini-USB B console port	1
USB 2.0	1

Memory and processor

Switch chip	Broadcom BCM56870
CPU	Cavium CN6130 (Quad-core, 1.0 GHz)
SDRAM	4GB
Flash memory	8GB
Latency	<1 us
Packet buffer	32MB

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Line cards

NC8200–4TD chassis switch supports three types of line cards NC8200–8C, NC8200–16Q and NC8200–24BC to realize flexible combination of ports.

Figures 2 through 4 show the FS NC8200 series line cards.

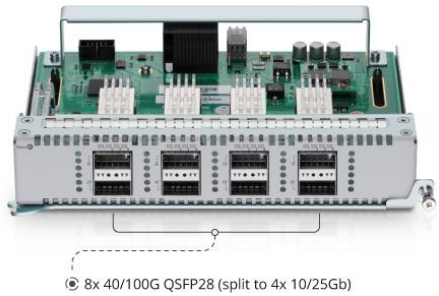

Figure 2.
NC8200-8C, 8-Port 100Gb QSFP28 Line Card for Data Center Chassis Switch NC8200-4TD

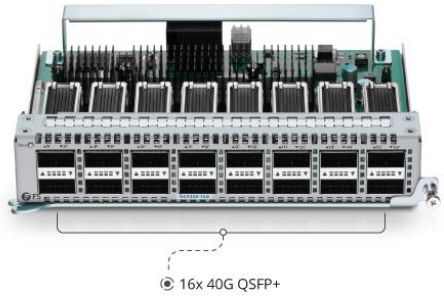

Figure 3.
NC8200-16Q, 16-Port 40Gb QSFP+ Line Card for Data Center Chassis Switch NC8200-4TD

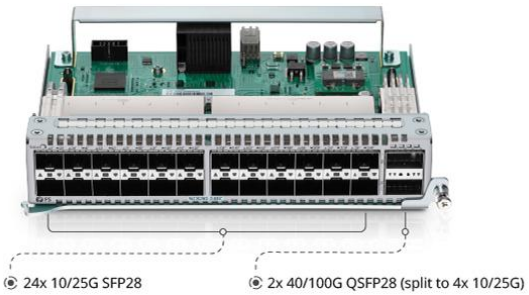

Figure 4.
NC8200-24BC, 24-Port 25Gb SFP28 Line Card, with 2 x 100Gb QSFP28 for Data Center Chassis Switch NC8200-4TD

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Table 2 shows the FS NC8200 series line cards configurations and port density.

Table 2. Line cards configuration and port density

FS P/N	NC8200-8C	NC8200-16Q	NC8200-24BC
Description	8-Port 100Gb QSFP28 Line Card for Data Center Chassis Switch NC8200-4TD	16-Port 40Gb QSFP+ Line Card for Data Center Chassis Switch NC8200-4TD	24-Port 25Gb SFP28 Line Card, with 2 x 100Gb QSFP28 for Data Center Chassis Switch NC8200-4TD
Port			
10G port density	-	-	24
25G port density	-	-	24
40G port density	8	16	2
100G port density	8	-	2
40G port density with breakout cable	-	-	-
100G port density with breakout cable	8	-	2

Note:

NC8200-8C

QSFP28 can be used for 40G/100G or 4x 10G/4x 25G connection.

NC8200-16Q

QSFP+ can not be used for 40G or 4x 10G connection.

NC8200-24BC

SFP28 can be used for 10/25G connection.

QSFP28 can be used for 40G/100G or 4x 10G/4x 25G connection.

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Power supplies and fans

The FS NC8200 Series switches ship with the dual 1+1 redundant AC power supply as default.

Table 3 provides more details on the FS NC8200 series power supplies and fan specifications.

Table 3. Power supply and fan specifications

Description	NC8200-4TD
Power supply	Dual 1+1 redundant power supplies (AC)
Fan number	3x Hot-swappable Fans
Airflow	Front-to-Back
Acoustic noise	<78db
Maximum fan speed	11000RPM
Max. power consumption	600W
Power max rating	800W
Input-voltage range and frequency	• Rated voltage range: 100-240VAC; 50-60Hz • Maximum voltage range: -AC input: 90-264VAC; 50-60Hz; -High-Voltage DC input: 192 V DC to 288 V DC
Power supply efficiency	90%
Input current	10-5A
Output ratings	12V 65A
Output holdup time	10ms
Power-supply input receptacles	C13
Power cord rating	10A

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Stacking

The FS NC8200 Series switch models are designed for stacking switches as a single virtual switch, enabling customers to have a single management plane and control plane.

Table 4 lists the supported stacking options.

Table 4. Supported stacking options

Part Name	NC8200-8C	NC8200-16Q	NC8200-24BC
Stacking ports	Port 1~8 (8*100G)	-	Port 1~24 (24*25G, 2*100G)
Supported stack members	Stack with other NC8200-8C with the same OS version	-	Stack with NC8200-24BC with the same OS version
Maximum number of VSL links	48	-	48
Number of members	2	-	2

Note:
1. For the line card NC8200-16Q, stacking is not supported.
2. Mixed Stacking Between NC8200 Series is not supported.
3. All 25G/100G ports can be stacked via transceivers or DAC/AOC cables, support port mixing but does not support speed reduction in the same VSL.

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Switch performance

Table 5 shows performance specifications for the FS NC8200 series switches.

Table 5. Performance specifications

Description	NC8200-4TD
Switching capacity	6.4 Tbps
Forwarding rate	4760 Mpps
Total number of MAC addresses	96K (Default Mode), 160000 (Bridge Mode)
Total number of IPv4 routes (indirect routes)	28000 (Default Mode), 128000 (ALPM Mode)
Total number of IPv4 host routes (direct routes and ARP)	28000 (Default Mode), 128000 (ALPM Mode)
Total number of IPv6 routes (indirect routes)	12000 (Default Mode), 64000 (ALPM Mode)
Total number of IPv6 host routes (direct routes and NDP)	1000 (Default Mode), 64000 (ALPM Mode)
Total number of IPv4 multicast routes	16000
Total number of IPv6 multicast routes	16000
QoS ACL scale	4500
Security ACL scale	4500
VLAN IDs	4000
STP virtual ports (port* VLANs) for MST	64
Total switched virtual interfaces (SVIs)	4096
Jumbo frame	9KB

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Platform benefits

Table 6 lists the software spotlights for the FS NC8200 series switches.

Table 6. Software spotlights

Functionality	Description
IPv4/IPv6 Dual-Stack Multi-Layer Switching	Support line-rate IPv4/IPv6 dual-stack multi-layer switching Support IPv4 router protocol static routing Support RIP, OSPFv2, IS-ISv4, BGP4, RIPng, OSPFv3, ISISv6, BGP4+, and ECMP Supports IPv6 addressing, ICMPv6, Path MTU Discovery
Data Center Virtualization Features	Support 2 units stacking simplified network topology Support 50-200ms link failure fast recovery Support cross-device link aggregation M-LAG Realize dual-active link uplink
Data Center Layer 2 Network Expansion	Support VXLAN-BRIDGE/ROUTE Support VXLAN-EVPN Support VXLAN static routing Support Anycast-gateway Support VLAN access to VXLAN network Support SVI access to VXLAN network Support routing port access to VXLAN network Support three-layer sub-interface access to VXLAN network Meet the requirements of large-scale Layer 2 network deployment within the data center
Sound Security Protection Policies	Support hardware-based IPv6 ACLs Support hardware CPU protection mechanism Support DHCP snooping Support the source IP-based Telnet device access control Support the Secure Shell (SSH) and SNMPv3 Support Network Foundation Protection Policy (NFPP)
High Reliability	Support the Spanning Tree Protocols (IEEE802.1d STP, IEEE802.1w RSTP, standard 802.1s MSTP) Support Virtual Router Redundancy Protocol (VRRP) Support Rapid Link Detection Protocol (RLDP) Support Rapid Ethernet Uplink Protection Protocol (REUP) Support GR perfect restart, BFD fast forwarding detection and other mechanisms Support modular power redundancy Support modular fan redundancy Support Hot swap without affecting normal operation of other devices
Strong Multi-Service Support Capability	Support the IPv4 and IPv6 multicast functions Support IGMP snooping, IGMP, MLD, PIM, MSDP Support IGMP source port and source IP check function
RDMA lossless Ethernet	Support PFC, ECN, DCBX Realized lossless Ethernet low-latency forwarding based on RDMA (Remote Direct Memory Access)
Easy Network Maintenance	Support SNMP (SNMPv1,v2c,v3), RMON, gRPC, OAM and Syslog Support Telnet, SSHv1/v2 Support In-band Network Telemetry (INT)

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Software requirements

The FS NC8200 Series Switches run on FS OS Software version.

Table 7 lists the latest software requirements for the switch models.

Table 7. Latest software requirements

FS P/N	Description	Latest software requirements
NC8200-4TD	NC8200-4TD, 4-Slot 2U Ethernet L3 Data Center Chassis Switch Unloaded, Supports 4 x 25/40/100Gb Line Cards, Support Stacking, Broadcom Chip, Software Installed	FSOS 11.0.5_B9P101 Software

Product specifications

Table 7 shows the product specifications for the FS S5860 series switches.

Table 7. Product specifications

Description	NC8200-4TD	NC8200-8C	NC8200-16Q	NC8200-24BC
Environmental				
Operating temperature	32°F to 104°F (0°C to 40°C)	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)	-40°F to 158°F (-40°Cto70°C)
Operating humidity	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)
Storage humidity	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)
Temperature alarm	Supported	-	-	-
Acoustic noise	<78dB	-	-	-
Physical specifications				
Dimensions (HxWxD)	3.39"x17.4"x20.47" (86x 442x 520mm)	1.61"x 7.87"x 8.15" (41x 200x 207mm)	1.61"x 7.87"x 8.15" (41x 200x 207mm)	1.61"x 7.87"x 8.15" (41x 200x 207mm)
Rack units (RU)	2 RU	1 RU	1 RU	1 RU
Weight	41.89 lbs (19 kg), with two power supplies and three fans	1.32 lbs (0.6kg)	2.65 lbs (1.2kg)	1.32 lbs (0.6kg)

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Description	NC8200-4TD	NC8200-8C	NC8200-16Q	NC8200-24BC
Electrical				
Voltage (auto ranging)	100-240VAC	-	-	-
Frequency	50-60Hz	-	-	-
Current	10A Max	-	-	-
Power rating (maximum consumption)	<600W	-	-	-
Mean-time between failures				
MTBF (hours)	390,000	-	-	-
Connectors				
Connectors and cabling	• SFP+ transceivers: LC fiber connectors (single-mode or multimode fiber) • SFP28 transceivers: LC fiber connectors (single-mode or multimode fiber) • QSFP+ transceivers: MPO and LC fiber connectors (single-mode or multimode fiber) • QSFP28 transceivers: MPO and LC fiber connectors (single-mode or multimode fiber) • Ethernet management port: An out-band Ethernet port, which uses standard RJ45 connector • Management console port: Use RS-232 interface electrical level and standard RJ45 connector			
Power connectors	• Customers can provide power to a switch by using the internal power at the back of the switch • Internal power supply connector: The internal power supply is an auto-ranging unit. It supports input voltages between 100 and 240 VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet			
Standards				
Standards	802.1s, 802.1w, 802.1ad, 802.1d, 802.1p, 802.1q, RMON, SNMPV1 V2 V3			

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Quality certification

At FS, our Quality Commitment lies in all aspects of processes, resources, and methods that enable us to build superior networks for our customers. Through a quality policy focusing on continuous improvement of products and services, we're able to achieve the highest levels of satisfaction for our customers. To that end, every FS employee is accountable for contributing to the value of the products and services we deliver.

Figures 5 shows some of the authoritative certifications obtained by FS NC8200–4TD Switch.

Figure 5.

Optics supported

For details about the optical modules available, visit:

NC8200-4TD: Transceivers DACs and AOCs Supported on NC8200-4TD Switch

Warranty, service and support

FS NC8200 Series Switches enjoy 5 years limited warranty against defects in materials or workmanship. For more information for FS Returns & Refunds policy, visit https://www.fs.com/policies/warranty.html or https://www.fs.com/policies/day_return_policy.html

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Ordering information

Table 8 provides the ordering information for NC8200 series switches.

Table 8. Ordering information

FS P/N	Product description
Switch hardware	
NC8200-4TD	NC8200-4TD, 4-Slot 2U Ethernet L3 Data Center Chassis Switch Unloaded, Supports 4 x 25/40/100Gb Line Cards, Support Stacking, Broadcom Chip, Software Installed
Line cards	
NC8200-8C	NC8200-8C, 8-Port 100Gb QSFP28 Line Card for Data Center Chassis Switch NC8200-4TD
NC8200-16Q	NC8200-16Q, 16-Port 40Gb QSFP+ Line Card for Data Center Chassis Switch NC8200-4TD
NC8200-24BC	NC8200-24BC, 24-Port 25Gb SFP28 Line Card, with 2 x 100Gb QSFP28 for Data Center Chassis Switch NC8200-4TD
Power supply	
GW-CRPS800N2C	Hot-Swappable AC Power Module 800W, for N8560-64C and NC8200-4TD

Additional information

For more information about the NC8200 Series Switches, contact your account manager or visit https://www.fs.com/search_result?keyword=NC8200

Document history

New or revised topic	Described in	Date
Updates to FS NC8200 Series Switches Data Sheet	Updated all	9/27/2022

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