

A solid red circle graphic.

FS NC8400 Series Switches Data Sheet

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Product overview

The NC8400-4TH switch supports a maximum of 128x 40G/100G, or 64x 40/100G with 16x 400G high-density ports through flexible line card combinations of NC8400-32C and NC8400-16CD. It's optimal for spine deployments in large data centers, HPC, service providers and cloud providers.

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 NC8400-32C Ethernet line card supports 32x 100G QSFP28, offering line-rate forwarding from all ports. The QSFP28 ports are backward compatible with QSFP+ modules.

The NC8400-16CD Ethernet line card supports 16x 40/100G QSFP28 ports and 4x 400G QSFP-DD, offering line-rate forwarding from all ports. The QSFP28 ports are backward compatible with QSFP+ modules.

Product highlights

- Flexible 40/100/400GbE Interface Speeds
- Support MLAG, BGP4/BGP4+, REUP, GR, BFD
- 2+2 Hot-swappable Power Supplies, 5+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

Platform details

Switch models and configurations

Figure 1 shows the FS NC8400 series switches.



Figure 1.

NC8400-4TH, 4-Slot 4U Ethernet L3 Data Center Chassis Switch Unloaded, Supports 4x 40/100/400Gb Line Cards, Broadcom Chip, FSOS Installed

Switch configurations and port density

Table 1 shows the FS NC8400 series configurations and port density.

Table 1. Switch configuration and port density

FS P/N	NC8400-4TH
Description	NC8400-4TH, 4-Slot 4U Ethernet L3 Data Center Chassis Switch Unloaded, Supports 4x 40/100/400Gb Line Cards, Broadcom Chip, FSOS Installed
Port	
40G port density	128
100G port density	128
40G port density with breakout cable	128
100G port density with breakout cable	128
Management ports	1
Console port	1
USB port	1
Memory and processor	
Switch chip	BCM56980
CPU	Intel® Xeon D-1527 (Quad-core, 2.2 GHz)
SDRAM	8GB
Flash memory	64GB
Latency	1.2μs
Packet buffer	64MB

Note:

RJ45 ports can be used as 100M/1/2.5/5/10G ports for Ethernet connection, does not support 1G-T copper transceivers.

SFP+ ports can be used for 1/10G connection.

SFP28 can be used for 10/25G connection.

QSFP+ can be used for 40G or 4x 10G connection.

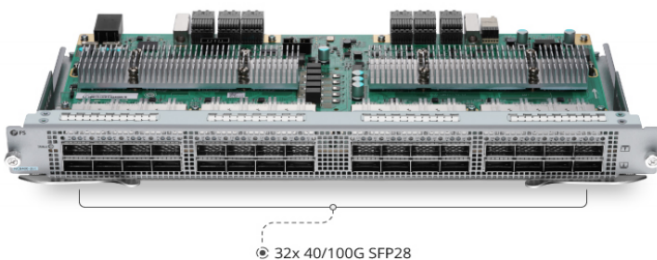
QSFP28 can be used for 40G/100G or 4x 10G/4x 25G connection.

QSFP-DD can be used for 400G connection.

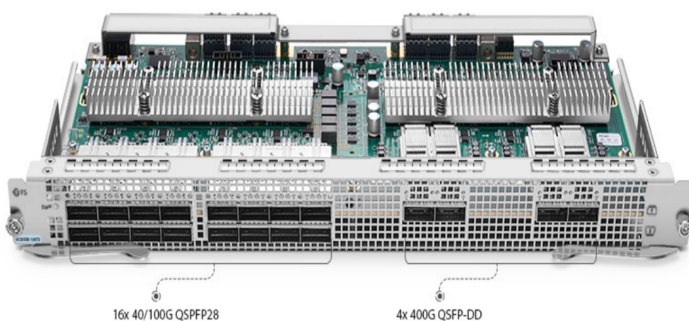
Line cards

NC8400-4TH chassis switch supports two types of line cards NC8400-32C and NC8400-16CD to realize flexible combination of ports.

Figures 2 through 3 show the FS NC8400 series line cards.

**Figure 2.**

NC8400-32C, 32-Port 100Gb QSFP28 Line Card for Data Center Chassis Switch NC8400-4TH

**Figure 3.**

NC8400-16CD, 16-Port 100Gb QSFP28 Line Card, with 4x400Gb QSFP-DD for Data Center Chassis Switch NC8400-4TH

Breakout Port Restrictions

The NC8400-32C default port speed for all active ports is 100Gbps. When configuring port breakout, Ports 1, 2, 3, and 4 form a single port group, as shown in Figure 1. Each color in the figure represents a different port group. In each port group, only the port marked with a fine black line supports breakout, the other three ports in the same port group will be unavailable. These inactive ports will not be visible in the running configuration.

Table 2 shows the FS NC8400 series line cards configurations and port density.

Table 2. Line cards configuration and port density

FS P/N	NC8400-32C	NC8400-16CD
Description	32-Port 100Gb QSFP28 Line Card for Data Center Chassis Switch NC8400-4TH	16-Port 100Gb QSFP28 Line Card, with 4x400Gb QSFP-DD for Data Center Chassis Switch NC8400-4TH
Port		
10G port density	-	-
25G port density	-	-
40G port density	32	16
100G port density	32	16
400G port density	-	4
40G port density with breakout cable	-	-
100G port density with breakout cable	-	-
400G port density with breakout cable	-	-

Note:**NC8400-32C**

QSFP28 can be used for 40G/100G connection.

NC8400-16CD

QSFP28 can be used for 40G/100G connection.

QSFP-DD can be used for 400G connection.

Power supplies and fans

The FS NC8400 series switches ship with the dual 2+2 redundant AC power supply as default.

Table 3 provides more details on the FS NC8400 series power supplies and fan specifications.

Table 3. Power supply and fan specifications

Description	NC8400-4TH	
Power supply	4 (2+2 Redundancy)	
Fan number	6 (5+1 Redundancy)	
Airflow	Front-to-Back	
Acoustic noise	<78dB	
Maximum fan speed	27500rpm	
Max. power consumption	1950W	
Power max rating	<1300W	
Input-voltage range and frequency	• 100-240VAC, 50-60Hz, 12-7A	
Power supply efficiency	50/60Hz	
Input current	10A	
Output ratings	11.4V~12.6V	
Output holdup time	10ms@ 70%Load	
Power-supply input receptacles	C13	
Power cord rating	10A	

Switch performance

Table 4 shows performance specifications for the FS NC8400 series switches.

Table 4. Performance specifications

Performance for all NC8400 Series Switches	NC8400-4TH
Switching capacity	25.6 Tbps
Forwarding rate	19050 Mpps
Total number of MAC addresses	8000
Total number of IPv4 routes (indirect routes)	750000
Total number of IPv4 host routes (direct routes and ARP)	16000
Total number of IPv6 routes (indirect routes)	250000
Total number of IPv6 host routes (direct routes and NDP)	6000
Total number of IPv4 multicast routes	510
Total number of IPv6 multicast routes	255
QoS ACL scale	1000
Security ACL scale	1000
VLAN IDs	4094
STP virtual ports (port* VLANs) for MST	64
Total switched virtual interfaces (SVIs)	4000
Jumbo frame	9KB

Platform benefits

Table 5 lists the software spotlights for the FS NC8400 series switches.

Table 5. 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, RIPv4, OSPFv3, IS-ISv6, BGP4+, and ECMP Supports IPv6 addressing, ICMPv6, Path MTU Discovery
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) Support Zero Touch Provisioning (ZTP)

Software requirements

The FS NC8400Series Switches run on FS OS Software version.

Table 5 lists the latest software requirements for the switch models.

Table 5. Latest software requirements

FS P/N	Description	Latest software requirements
NC8400-4TH	NC8400-4TH, 4-Slot 4U Ethernet L3 Data Center Chassis Switch Unloaded, Supports 4 x 40/100/400Gb Line Cards, Broadcom Chip, FSOS Installed	-

Product specifications

Table 6 shows the product specifications for the FS NC8400 series switches.

Table 6. Product specifications

Description	NC8400-4TH	NC8400-32C	NC8400-16CD
Environmental			
Operating temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°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)
Storage humidity	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)	6.8"x 17.4"x 28.9" (173.6x 442x 735mm)	1.65"x 16.54"x 8.01" (42x 420x 203.5mm)	1.65"x 16.54"x 8.01" (42x 420x 203.5mm)
Rack units (RU)	4 RU	1 RU	1 RU
Weight	95.9 lbs (43.5 kg), with four line cards, four power supplies and six fans	4.63 lbs (2.1kg)	4.85 lbs (2.2kg)

Description	NC8400-4TH	NC8400-32C	NC8400-16CD
Distance	-	-	-

Electrical

Voltage (auto ranging)	100-240VAC	-	-
Frequency	50-60Hz	-	-
Current	12-7A	-	-
Power rating (maximum consumption)	<1950W	<329W	<310W

Mean-time between failures

MTBF (hours)	>390000	-	-
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Connectors

Connectors and cabling	- QSFP+ transceivers: MPO and LC fiber connectors (single-mode or multimode fiber) - QSFP28 transceivers: MPO and LC fiber connectors (single-mode or multimode fiber)		
Power connectors	Customers can provide power to a switch by using the internal power at the back of the switch		

Standards

Standards	802.3 -2005, 803.ab, 802.3af, 802.1d, 802.1q, 802.3-2005 (802.3ae), 802.3ba (2010), 802.1x		
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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.

Figure 2 shows some of the authoritative certifications obtained by FS NC8400 Series Switches.



Figure 2

Warranty, service and support

FS NC8400 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

FS provides a personal account manager, free professional technical support, and 24/7 live customer service to each customer.[customer.support.html](https://www.fs.com/customer.support.html)

- Professional Lab: Test each product with the latest and advanced networking equipment.
- Free Technical Support: Provide free & tailored solutions and services for your businesses.
- 80% Same-day Shipping: Immediate shipping for in-stock items.
- Fast Response: Direct and immediate assistance from an expert.

For more information, visit https://www.fs.com/service/fs_support.html

Ordering information

Table 7 provides the ordering information for NC8400 series switches.

Table 7. Ordering information

FS P/N	Product description
Switch hardware	
NC8400-4TH	NC8400-4TH, 4-Slot 4U Ethernet L3 Data Center Chassis Switch Unloaded, Supports 4 x 40/100/400Gb Line Cards, Broadcom Chip, FSOS Installed
Line Cards	
NC8400-32C	NC8400-32C, 32-Port 100Gb QSFP28 LineCardfor Data Center Chassis Switch NC8400-4TH
NC8400-16CD	NC8400-16CD,16-Port 100Gb QSFP28 Line Card, with 4x400Gb QSFP-DD for Data Center Chassis Switch NC8400-4TH

Additional information

For more information about the NC8400 Series Switches, contact your account manager or visit https://www.fs.com/search_result?keyword=NC8400

Document History

New or revised topic	Described in	Date
Updates to FS NC8400 Series Switches Data Sheet	Updated line cards information	03/25/2023
Updates to FS NC8400 Series Switches Data Sheet	Updated all	11/4/2022



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