FS N9510-64D Switch Data Sheet

Contents

Product overview

The N9510-64D switch is a new generation of high-density 400G port core switch for data centers. It supports 400G access, low latency, and has complete data center features. A single N9510-64D switch can provide a maximum of 64 400G ports. The N9510-64D switch can form a high-performance and high-reliability data center network with other access and aggregation switches of FS.

The switch incorporates multiple features that optimize data center network flexibility, efficiency, and reliability, including industry-leading chip, redundant hot-swappable power supplies and fans, PFC, ECN, etc, meeting the growing demands of data center environment.

Product highlights

- Broadcom BCM56990 Switch Chip
- Support Ansible, NETCONF, Python, etc. Configuration and Automation Tools
- Flexible 100/200/400GbE Interface Speeds
- Support BGP4/BGP4+, REUP, GR, BFD
- Low-latency, Zero Packet Loss with PFC, ECN, RDMA over Converged Ethernet (RoCE)
- 2+2 Hot-swappable Power Supplies, 7+1 Smart Fans
- Support SPAN/RSPAN/ERSPAN for Visibility
- Support ACL, RADIUS, TACACS+, etc. for Security
- Support SNMP v1/v2c/v3, CLI, Telnet, SSH

Platform details

Switch models and configurations

Figure 1 shows the FS N9510-64D switch.
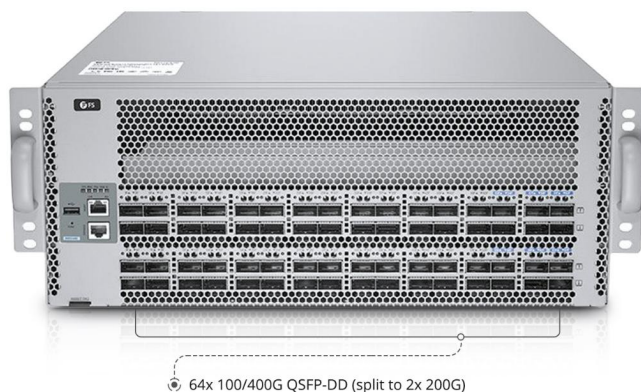

64x 100/400G QSFP-DD (split to 2x 200G)

Figure 1.
N9510-64D, 64-Port Ethernet L3 Data Center, 64 x 400Gb QSFP-DD, Broadcom Chip, Software Installed

Switch configurations and port density

Table 1 shows the FS N9510-64D configurations and port density.

Table 1.   Switch configuration and port density

FS P/N	N9510-64D
Description	64-Port Ethernet L3 Data Center, 64 x 400Gb QSFP-DD, Broadcom Chip, Software Installed
Port	
100G port density	64
200G port density	-
400G port density	64
200G port density with breakout cable	128
Management ports	1
Console port	1
USB port	1
Memory and processor	
Switch chip	BCM56990 (100G per lane)
CPU	Intel Xeon D-1627 (4-core 8-thread processor with a clock speed of 2.9GHz)
SDRAM	DDR4 8GB (Compatible with 16GB)
Flash memory	240GB
Latency	1µs
Packet buffer	113.66 MB

Note:

QSFP-DD port can be configured as 100/400Gb, or as 2x 200Gb via breakout cables.

Power supplies and fans

Table 2 provides more details on the FS S5860 series power supplies and fan specifications.

Table 2. Power supply and fan specifications

Description	N9510-64D
Power supply	2+2 redundant power supplies (AC)
Fan number	8x Hot-swappable Fans (7+1 Redundancy)
Airflow	Front-to-Back
Acoustic noise	<78dB
Maximum fan speed	10700rpm
Max. power consumption	2524W
Power max rating	1300W
Input-voltage range and frequency	200-240VAC; 50-60Hz
Power supply efficiency	90%
Input current	10A (MAX)
Output ratings	12V 107A
Output holdup time	10ms
Power-supply input receptacles	C13
Power cord rating	10A

Switch performance

Table 3 shows performance specifications for the FS N9510-64D switch.

Table 3.   Performance specifications

Performance	N9510-64D
Switching capacity	51.2 Tbps
Forwarding rate	10300 Mpps
Total number of MAC addresses	8000
Total number of IPv4 routes (indirect routes)	200000
Total number of IPv4 host routes (direct routes and ARP)	200000
Total number of IPv6 routes (indirect routes)	128000
Total number of IPv6 host routes (direct routes and NDP)	128000
Total number of IPv4 multicast routes	200000
Total number of IPv6 multicast routes	128000
QoS ACL scale	1000
Security ACL scale	1000
VLAN IDs	4094
STP virtual ports (port* VLANs) for MST	64
Total switched virtual interfaces (SVIs)	4094
Jumbo frame	9216

❚ Platform benefits

Table 4 lists the software spotlights for the FS N9510-64D switch.

Table 4.   Software spotlights

Functionality	Description
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
Sound Security Protection Policies	Detected by professional vulnerability scanning tool (Nessus) Support hardware-based IPv6 ACLs Support hardware CPU protection mechanism Support DHCP snooping Support the Secure Shell (SSH) and SNMPv3 Support Network Foundation Protection Policy (NFPP)
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, BGP4, RIPng, OSPFv3, BGP4+, and ECMP Support IPv6 addressing, ICMPv6, path MTU discovery
RDMA Lossless Ethernet	Support PFC, ECN Realized lossless Ethernet low-latency forwarding based on RDMA (Remote Direct Memory Access)
Strong Multi-Service Support Capability	Support the IPv4 and IPv6 multicast functions
Easy Network Maintenance	Support SNMP (SNMPv1,v2c,v3), RMON, gRPC, Syslog Support Telnet, SSHv1/v2

❚ Software requirements

The FS N9510-64D Switch run on FS OS Software version.

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

Table 5.   Latest software requirements

FS P/N	Description	Latest software requirements
N9510-64D	N9510-64D, 64-Port Ethernet L3 Data Center, 64 x 400Gb QSFP-DD, Broadcom Chip, Software Installed	

▍ Product specifications

Table 6 shows the product specifications for the FS N9510-64D switch.

Table 6.   Product specifications

FS P/N	N9510-64D
Environmental	
Operating temperature	32°F to 122°F (0°C to 50°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)
Temperature alarm	Supported
Acoustic noise	<78dB
Physical specifications	
Dimensions (HxWxD)	6.89"x17.40"x29.92" (175x442x760mm)
Rack units (RU)	4 RU
Weight	About 48 kg (including eight fan modules and four power modules)
Electrical	
Voltage (auto ranging)	200-240VAC
Frequency	50-60Hz
Current	10A Max
Power rating (maximum consumption)	2524W
Mean-time between failures	
MTBF (hours)	122000

FS P/N	N9510-64D
Connectors	
Connectors and cabling	• QSFPDD transceivers: MTP® fiber connectors (multimode fiber) • QSFP28 transceivers: MTP® fiber connectors (multimode fiber)
Standards	
Standards	IEEE802.1d STP, IEEE802.1w RSTP, 802.1s MSTP, RMON, SNMPV1 V2 V3

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 2 shows some of the authoritative certifications obtained by FS N9510-64D Switch.

Figure 2.

Optics supported

For details about the optical modules available, visit：
N9510-64D: Transceivers DACs and AOCs Supported on N9510-64D Switch

▌ Warranty, service and support

FS N9510-64D Switch 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.

- 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 N9510-64D switch.

Table 7. Ordering information

FS P/N	Product description
Switch hardware	
N9510-64D	N9510-64D, 64-Port Ethernet L3 Data Center, 64 x 400Gb QSFP-DD, Broadcom Chip, Software Installed

▌ Additional information

For more information about the N9510-64D Switch, contact your account manager or visit https://www.fs.com/search_result?keyword=N9510-64D

▌ Document history

New or revised topic	Described in	Date
Optics supported	Added "Transceivers DACs and AOCs Supported on N9510-64D Switch" document	18/11/2022
Updates to FS N9510-64D Switch Data Sheet	Updated all	9/30/2022

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