Cisco Nexus 9332C and 9364C Fixed Spine Switches

Contents

Product overview

Based on Cisco® Cloud Scale technology, this platform supports cost-effective, ultra-high-density cloud-scale deployments, an increased number of endpoints, and cloud services with wire-rate security and telemetry. The platform is built on modern system-architecture designed to provide high performance and meet the evolving needs of highly scalable data centers and growing enterprises.

The product is designed to support innovative technologies such as Media Access Control Security (MACsec), Virtual Extensible LAN (VXLAN), tunnel endpoint VTEP-to¬-VTEP overlay encryption, CloudSec and Streaming Statistics Export (SSX)[1]. MACsec is a security technology that allows traffic encryption at the physical layer and provides secure server, border leaf, and leaf-to-spine connectivity. SSX is hardware-based, consisting of a module that reads statistics from the ASIC and sends them to a remote server for analysis. Through this application, users can better understand network performance without any impact on the switch control plane or CPU.

Cisco provides two modes of operation for Cisco Nexus® 9000 Series Switches. Organizations can use Cisco NX-OS Software to deploy the switches in standard Cisco Nexus switch environments (NX-OS mode). Organizations can also deploy the infrastructure that is ready to support the Cisco Application Centric Infrastructure (Cisco ACI™) platform to take full advantage of an automated, policy-based, systems-management approach (Cisco ACI mode).

Switch models

The Cisco Nexus 9364C Spine Switch is a 2-Rack-Unit (2RU) spine switch that supports 12.84 Tbps of bandwidth and 4.3 bpps across 64 fixed 40/100G QSFP28 ports and 2 fixed 1/10G SFP+ ports (Figure 1). Breakout cables are not supported. The last 16 ports marked in green are capable of wire-rate MACsec encryption.[1] The switch can operate in Cisco ACI Spine or NX-OS mode.

Figure 1.
Cisco Nexus 9364C Switch

[1] See the latest release notes for additional information here.

The Cisco Nexus 9332C is a compact form-factor 1-Rack-Unit (1RU) spine switch that supports 6.4 Tbps of bandwidth and 2.3 bpps across 32 fixed 40/100G QSFP28 ports and 2 fixed 1/10G SFP+ ports (Figure 2). Breakout cables are not supported. The last 8 ports marked in green are capable of wire-rate MACsec encryption.[2] The switch can operate in Cisco ACI Spine or NX-OS mode.

Figure 2.
Cisco Nexus 9332C Switch

Specifications

Table 1. Cisco Nexus 9300 ACI Spine Switch specifications

Model	Cisco Nexus 9364C	Cisco Nexus 9332C
Physical	• 64-port 40/100G QSFP28 ports and 2-port 1/10G SFP+ ports • Buffer: 40MB • System memory: 32GB • SSD: 128GB • USB: 1 port • RS-232 serial console ports: 1 • Management ports: 2 (1 x 10/100/1000BASE-T and 1 x 1-Gbps SFP) • Broadwell-DE CPU: 4 cores	• 32-port 40/100G QSFP28 ports and 2-port 1/10G SFP+ ports • Buffer: 40MB • System memory: 16 GB • SSD: 128GB • USB: 1 port • RS-232 serial console ports: 1 • Management ports: 2 (1 x 10/100/1000BASE-T and 1 x 1-Gbps SFP) • Broadwell-DE CPU: 4 cores
Power and cooling	• Power: 1200W AC, 930W DC[3] or 1200W HVAC/HVDC • Input voltage: 100 to 240V* AC or -40V to -72V DC (min-max), -48V to -60V DC (nominal) *Supports input voltage of 100-120V for a max output of 800W, 200-240V for a max output of 1200W. PSU redundancy is not supported when used in 100-120V • Hot-swappable, dual fan trays with redundant fans • Frequency: 50 to 60 Hz (AC) • Efficiency: 90% or greater (20 to 100% load) • Port-side intake or port-side exhaust options • Typical power: 429W (AC) • Maximum power: 1245W (AC)	• Power: 750W AC[4], 1100W AC, 1100 DC or 1100W HVAC/HVDC[5] • Input voltage: 100 to 240V* AC or -40V to -72V DC (min-max), -48V to -60V DC (nominal) *Supports input voltage of 100-120V for a max output of 800W, 200-240V for a max output of 1200W. PSU redundancy is not supported when used in 100-120V • Hot-swappable, 5 fans with redundancy • Frequency: 50 to 60 Hz (AC) • Efficiency: 90% or greater (20 to 100% load) • RoHS compliance: Yes • Port-side intake or port-side exhaust options • Typical power: 296W (AC) • Maximum power: 700W (AC)

[2] See the latest release notes for additional information here.

[3] 930W-DC PSU is supported in redundancy mode if 3.5W QSFP+ modules or Passive QSFP cables are used and the system is used in 40° C ambient temperature or less; for other optics or higher ambient temperatures, 930W-DC is supported with 2 PSU's in nonredundancy mode only.

[4] 750W AC PSU is compatible only with software versions ACI-N9KDK9-14.2 or NXOS-9.3.3 and onwards

[5] HVAC/HVDC support is on the roadmap for future releases confirmed.

Model	Cisco Nexus 9364C	Cisco Nexus 9332C
Environmental	• Physical (H x W x D): 3.38 x 17.37 x 22.27 in. (8.59 x 44.13 x 56.58 cm) • Weight: 36.9 lb (16.74kg) with power supplies and fans, 27.4 lb (12.43kg) without power supplies and fans • Operating temperature: 32 to 104°F (0 to 40°C) • Nonoperating (storage) temperature: –40 to 158°F (–40 to 70°C) This is correct • Humidity: 5 to 90% (noncondensing) • Altitude: 0 to 13,123 ft (0 to 4000m) • RoHS compliance: Yes	• Physical (H x W x D): 1.7 x 17.3 x 22.9 in. (4.4 x 43.9 x 58.1 cm) • Weight: 25.1lb (11.4kg) with power supplies and fans, 19 lb (8.6kg) without power supplies and fans • Operating temperature: 32 to 104°F (0 to 40°C) • Nonoperating (storage) temperature: –40 to 158°F (–40 to 70°C) This is correct • Humidity: 5 to 90% (noncondensing) • Altitude: 0 to 13,123 ft (0 to 4000m) • RoHS compliance: Yes
Acoustics	• Fan speed at 40%: 76.7 dBA • Fan speed at 70%: 88.7 dBA • Fan speed at 100%: 97.4 dBA	• Fan speed at 50%: 76.4 dBA • Fan speed at 70%: 83.3 dBA • Fan speed at 100%: 92.1 dBA
MTBF	• 257,860 hours	• 363,500 hours

Performance and scalability

Table 2 lists the performance and scalability specifications for the Cisco Nexus 9364C and 9332C switches.

Table 2. Performance and scalability specifications

Item	Specifications
Maximum number of IPv4 Longest Prefix Match (LPM) routes	• Default: 7000 • LPM heavy*: 262,000
Maximum number of IPv4 host entries	• Default: 96,000 • LPM heavy*: 262,000
Maximum number of MAC address entries	92,000
Number of multicast routes	• Default: 8000 • LPM heavy*: 32,768
Number of Interior Gateway Management Protocol (IGMP) snooping groups	8000
Number of Access Control List (ACL) entries*	• Per slice of the forwarding engine: • 4000 ingress • 2000 egress • Maximum: 16,000 ingress • 8000 egress • Shipping: 14,328 ingress • 7160 egress
Maximum number of VLANs	3967
Maximum number of Virtual Routing and Forwarding (VRF) instances	1000

Item	Specifications
Maximum number of links in a port channel	32
Maximum number of Equal-Cost Multipath (ECMP) paths	64
Maximum number of ECMP groups	1024
Maximum number of port channels	64
Number of active SPAN sessions	4
Maximum number of Rapid Per-VLAN Spanning Tree (RPVST) instances	3967
Maximum number of Hot-Standby Router Protocol (HSRP) groups	490
Maximum number of Multiple Spanning Tree (MST) instances	64
Maximum number of VTEPs	256
Maximum number of static Network Address Translation (NAT) entries	1023
Maximum number of dynamic NAT entries	1023
Maximum number of static twice NAT entries	768
Maximum number of dynamic twice NAT entries	1023
Number of Queues	8

* LPM-heavy values are the maximum numbers.

Refer to the Cisco Nexus 9000 Series Verified Scalability Guide for the latest, exact scalability numbers validated for specific software.

Regulatory Standards Compliance

Table 3 summarizes regulatory standards compliance for the Cisco Nexus 9364 and 9332C switches.

Table 3. Regulatory Standards Compliance: Safety and EMC

Specification	Description
Regulatory compliance	Products should comply with CE Markings according to directives 2004/108/EC and 2006/95/EC
Safety	• UL 60950-1 Second Edition • CAN/CSA-C22.2 No. 60950-1 Second Edition • EN 60950-1 Second Edition • IEC 60950-1 Second Edition • AS/NZS 60950-1 • GB4943

Specification	Description
EMC: Emissions*	• 47CFR Part 15 (CFR 47) Class A • AS/NZS CISPR22 Class A • CISPR22 Class A • EN55022 Class A • ICES003 Class A • VCCI Class A • EN61000-3-2 • EN61000-3-3 • KN22 Class A • CNS13438 Class A
EMC: Immunity	• EN55024 • CISPR24 • EN300386 • KN 61000-4 series
RoHS	• The product is RoHS-6 compliant with exceptions for leaded-Ball Grid-Array (BGA) balls and lead press-fit connectors.

* Cisco Nexus N9K-C9364C passes EMC Radiated Emissions standards in all configurations, with the only exception being if > 40 pluggable optics of Cisco QSFP-100G-SR4-S, Part# 10-3142-02 (or 10-3142-01) are used.

Supported optics pluggable

For details on the optical modules available and the minimum software release required for each supported optical module, visit https://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_table_list.html.

Software licensing

The software packaging for the Cisco Nexus 9000 Series offers flexibility and a comprehensive feature set. The default system software has a comprehensive Layer 2 security and management feature set. To enable additional functions, including Layer 3 IP unicast and IP multicast routing and Cisco Nexus Data Broker, you must install additional licenses. The licensing guide illustrates the software packaging and licensing available to enable advanced features. For the latest software release information and recommendations, refer to the product bulletin at https://www.cisco.com/go/nexus9000.

Ordering information

Table 4 presents ordering information for the Cisco Nexus 9300 ACI Spine Switch.

Table 4. Ordering information

Part number	Product description
Hardware	
N9K-C9364C	Cisco Nexus 9364C ACI Spine Switch with 64p 40/100G QSFP28, 2p 1/10G SFP
N9K-C9332C	Cisco Nexus 9332C ACI Spine Switch with 32p 40/100G QSFP28, 2p 1/10G SFP

Part number	Product description
FAN options	
NXA-FAN-160CFM-PI	Cisco Nexus Fan, 160CFM, port-side intake airflow
NXA-FAN-160CFM-PE	Cisco Nexus Fan, 160CFM, port-side exhaust airflow
NXA-FAN-35CFM-PI	Cisco Nexus Fan, 35CFM, port-side intake airflow
NXA-FAN-35CFM-PE	Cisco Nexus Fan, 35CFM, port-side exhaust airflow
Power supply options	
NXA-PAC-750W-PI	Cisco Nexus 9000 750W AC PS, Port-side Intake
NXA-PAC-750W-PE	Cisco Nexus 9000 750W AC PS, Port-side Exhaust
NXA-PAC-1100W-PE2	Cisco Nexus 1100W AC PS, port-side exhaust
NXA-PAC-1100W-PI2	Cisco Nexus 1100W AC PS, port-side intake
NXA-PAC-1200W-PE	Cisco Nexus 1200W AC PS, port-side exhaust
NXA-PAC-1200W-PI	Cisco Nexus 1200W AC PS, port-side intake
N9K-PUV-1200W	Cisco Nexus 1200W, 200-277AC,240-380DC, dual airflow PSU
NXA-PDC-930W-PE	Cisco Nexus 930W -48V DC PS, port-side exhaust
NXA-PDC-930W-PI	Cisco Nexus 930W -48V DC PS, port-side intake
NXA-PHV-1100W-PE	Cisco Nexus 1100W Platinum HV-AC-DC PS, port-side exhaust
NXA-PHV-1100W-PI	Cisco Nexus 1100W Platinum HV-AC-DC PS, port-side intake
NXA-PDC-1100W-PE[6]	Cisco Nexus 1100W Platinum DC PS, port-side exhaust
NXA-PDC-1100W-PI	Cisco Nexus 1100W Platinum DC PS, port-side intake
Power cords	
CAB-250V-10A-AR	AC Power Cord – 250V, 10A – Argentina (2.5 meters)
CAB-250V-10A-BR	AC Power Cord – 250V, 10A – Brazil (2.1 meters)
CAB-250V-10A-CN	AC Power Cord – 250V, 10A – PRC (2.5 meters)
CAB-250V-10A-ID	AC Power Cord – 250V, 10A – South Africa (2.5 meters)
CAB-250V-10A-IS	AC Power Cord – 250V, 10A – Israel (2.5 meters)

[6] The 1100W DC power supply (NXA-PDC-1100W-PE/PI) is shipped with a connector already plugged into the power supply; a cable is therefore not required. For more product specification information, please see the Hardware Installation Guide here.

Part number	Product description
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia (2.5 meters)
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU (2.5 meters)
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy (2.5 meters)
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, SWITZ (2.5 meters)
CAB-9K10A-UK	Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK (2.5 meters)
CAB-9K12A-NA	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America (2.5 meters)
CAB-AC-L620-C13	North America, NEMA L6-20-C13 (2.0 meters)
CAB-C13-C14-2M	Power Cord Jumper, C13-C14 Connectors, 2 Meter Length (2.0 meters)
CAB-C13-CBN	Cabinet Jumper Power Cord, 250 VAC 10A, C14-C13 Connectors (0.7 meter)
CAB-IND-10A	10A Power Cable for India (2.5 meters)
CAB-N5K6A-NA	Power Cord, 200/240V 6A, North America (2.5 meters)
CAB-HVDC-3T-2M	HVDC Power Cable, China CCC Compliant, Thin (2.0 meters)
CAB-HVAC-SD-0.6M	HVAC Power Cable for Anderson-LS-25
CAB-HVAC-RT-0.6M	HVAC Power Cable with Right-Angle Connector for RF-LS-25
CAB-48DC-40A-8AWG	C-Series -48VDC PSU Power Cord, 3.5M, 3 Wire, 8AWG, 40A
Accessories	
N9K-C9300-ACK	Cisco Nexus 9300 Accessory Kit
N9K-C9300-RMK	Cisco Nexus 9300 Rack Mount Kit
N3K-C3064-ACC-KIT	Cisco Nexus 1RU Switch Accessory Kit
NXK-ACC-KIT-1RU[7]	Cisco Nexus 3000/9000 Fixed Accessory Kit, 1 RU front and rear removal
NXK-ACC-KIT-2RU	Cisco Nexus 3000/9000 Fixed Accessory Kit, 2 RU front and rear removal

Warranty

The Cisco Nexus 9300 switch has a 1-year limited hardware warranty. The warranty includes hardware replacement with a 10-day turnaround from receipt of a Return Materials Authorization (RMA).

[7] NXK-ACC-KIT-1RU/2RU are on the roadmap for future releases.

Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's Corporate Social Responsibility (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Reference links to **product-specific environmental sustainability information** that is mentioned in relevant sections of this data sheet are provided in the following table:

Sustainability Topic	Reference
General	
Product Compliance	Table 3. Safety and Compliance Information
Power	
Power Supply	Table 1. Product specifications: Power Supplies, Typical and Max power specification
Material	
Unit Weight, Dimensions and Mean Time between Failures Metrics	Table 1. Product specifications

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

Service and Support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco Nexus 9300 switch in your data center. The innovative Cisco Services offerings are delivered through a unique combination of people, processes, tools, and partners and are focused on helping you increase operation efficiency and improve your data center network. Cisco Advanced Services uses an architecture-led approach to help you align your data center infrastructure with your business goals and achieve long-term value. Cisco SMARTnet™ Service helps you resolve mission-critical problems with direct access at any time to Cisco network experts and award-winning resources.

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For more information

For more information on the Cisco Nexus 9000 Series and for the latest software release information and recommendations, please visit https://www.cisco.com/go/nexus9000.

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