Cisco Nexus 9300-SE1 Series Switches

Contents

Product overview

Artificial Intelligence and Machine Learning (AI/ML) applications are being used increasingly in today's data centers, and the Cisco Nexus® 9000 Series Switches have the hardware and software capabilities to provide the right latency, congestion-management mechanisms, and telemetry to meet the requirements of those applications. The Cisco Nexus 9000 Series Switches address the need for high-performance, power-efficient, compact switching in the networking infrastructure and are designed to support 100G fabrics for next-generation leaf and spine designs.

Large-cloud and data-center networking teams require a flexible, reliable solution that efficiently manages, troubleshoots, and analyzes their IT infrastructure. In addition, they need security, automation, visibility, analytics, and assurance. Coupled with tools such as Cisco Nexus Dashboard, Cisco Nexus 9000 Series Switches are ideal platforms for building a high-performance AI/ML network fabric.

Based on the Cisco Silicon One E100 ASIC, the Cisco Nexus 9336C-SE1 is a new 36-port 100G switch. The platform supports cost-effective large-scale deployments, an increased number of endpoints, and is capable of wire-rate encryption. 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.

Designed for the programmable network, the Cisco NX-OS operating system automates configuration and management for customers who want to take advantage of the DevOps operation model and tool sets. Cisco Nexus 9336C-SE1 supports Cisco NX-OS and will support VxLAN, L2/L3 (base features) and IPFM use-cases in the first release (10.6.1).

Cisco Nexus 9300 SE1 Switches Capabilities

Note: This datasheet describes hardware capabilities only. Please refer to Cisco Nexus 9336C-SE1 Readme document, NX-OS software release notes and appropriate feature documentation for more details on software support.

Table 1. Cisco Nexus 9300 SE1 Switches Capabilities

Features and benefits	Description
Architectural flexibility	• Cisco Nexus 9000 Series Switches support Cisco NX-OS VXLAN EVPN, Cisco IP Fabric for Media, Cisco Nexus Dashboard, and IP routed or Ethernet-switched Layer-2 fabrics using a comprehensive set of unicast and multicast IPv6/IPv4 and Ethernet protocols. • Purpose-built Cisco NX-OS Software operating system with comprehensive, proven innovations. The operating system is modular, with a dedicated process for each routing protocol: a design that isolates faults while increasing availability. • Support for standards-based VXLAN EVPN fabrics, inclusive of hierarchical multisite support. • Three-tier BGP architectures, enabling horizontal, nonblocking IPv6 network fabrics at web scale. • Comprehensive protocol support for Layer-3 (v4 and v6) unicast and multicast routing protocol suites, including BGP, Open Shortest Path First (OSPF), Interior System to Interior System (IS-IS), Enhanced Interior Gateway Routing Protocol (EIGRP), Routing Information Protocol Version 2 (RIPv2), Protocol Independent Multicast Sparse Mode (PIM-SM), Source-Specific Multicast (SSM), and Multicast Source Discovery Protocol (MSDP). • Segment Routing (SR) allows the network to forward Multiprotocol Label Switching (MPLS) packets and engineer traffic without Resource Reservation Protocol (RSVP) Traffic Engineering (TE). It provides a control-plane alternative for increased network scalability and virtualization. • Cisco IP Fabric for Media helps you migrate from an SDI router to an IP-based infrastructure. In an IP-based infrastructure, a single cable has the capacity to carry multiple bidirectional traffic flows and can support different flow sizes without requiring changes to the physical infrastructure. • Cisco Nexus Dashboard provides customers with complete observability across their network and solution(s) that can help them identify and mitigate security threats, realize and remediate performance bottlenecks, adhere to data compliance, and have insight into capacity-planning operations.

Features and benefits	Description
Extensive programmability	• Day-0 automation through Power On Auto Provisioning (POAP), drastically reducing provision time. • Industry-leading integrations for leading DevOps configuration management applications, such as Ansible. Extensive Native YANG, and industry-standard OpenConfig model support through RESTCONF/NETCONF/gNMI. • REST API interacting with Cisco NX-OS Software Data Management Engine (DME). • Model-driven telemetry enhances network observability. • Third-party application-hosting using Cisco Application Framework (CAF).
High scalability, flexibility, and security	• IEEE 802.1ae MAC security (MACsec) capability on all ports, which allows traffic encryption at the physical layer and provides secure server, border leaf, and leaf-to-spine connectivity.
AI/ML networking	• Cisco Nexus 9000 Series Switches support innovative congestion management and flow control algorithms along with the latency and telemetry needed to meet the design requirements of AI/ML fabrics. Refer to Cisco NX-OS release notes to check features supported.
Hardware and software high availability	• Virtual Port-Channel (vPC) technology provides Layer-2 multipathing through the elimination of Spanning Tree Protocol (STP). • Can-do fabric link in the VXLAN environment, eliminating the need for peer-to-peer VPC • The Equal-Cost Multipath (ECMP) routing enables the use of Layer-3 fat-tree designs. This feature helps organizations prevent network bottlenecks, increase resiliency, and add capacity with little network disruption. • Software Maintenance Upgrades (SMUs) contain fixes for a specific defect and provide a quick resolution of critical issues. • The switches use hot-swappable Power-Supply Units (PSUs) and fans with N+1 redundancy.
Cisco Nexus Dashboard	• Cisco Nexus Dashboard is a platform that transforms data-center networks through simplicity, automation, and analytics. Cisco Nexus Dashboard is a central management console for multiple data center sites and a common platform for hosting Cisco data center operation services. These services are available for all the data center fabrics and provide real-time analytics, visibility, assurance for network policies and operations, as well as policy orchestration for the data center fabrics, such as NX-OS deployments spanning LAN Fabric, SAN, and IP Fabric for Media (IPFM) networks. • Cisco Nexus Dashboard 4.1 integrates multiple services like Insights, Orchestrator, and Fabric Controller into a single, seamless platform for data center operations.

Switch model

Table 2. Cisco Nexus 9300-SE1 Series Switches

Model	Description
Cisco Nexus 9336C-SE1 Switch	36 x 40/100-Gbps QSFP28 ports

The **Cisco Nexus 9336C-SE1** Switch (Figure 1) is a 1RU switch that supports 3.6 Tbps of bandwidth and over 2.1 bpps. The switch can be configured to work as 1/10/25/40/50/100-Gbps offering flexible options in a compact form factor. Breakout is supported on all ports. Please see feature table below for more information.

Figure 1. Cisco Nexus 9336C-SE1 Switch

Product specifications

Table 3. Cisco Nexus 9300-SE1 Series Switch specifications

Feature	Cisco Nexus 9336C-SE1
Ports	36 x 40/100-Gbps QSFP28 ports
CPU	6 cores
System memory	Default: 32GB Expandable: 32GB
SSD drive	128 GB
System buffer	64 MB
Management ports	2 ports: 1 RJ-45 and 1 SFP
USB ports	1
RS-232 serial ports	1

Feature	Cisco Nexus 9336C-SE1
Power supplies	750W/1100W AC port-side intake and port-side exhaust 1100W DC port-side intake and port-side exhaust 1100W HVAC/HVDC port-side intake and port-side exhaust
Typical power (AC/DC)	320W
Maximum power (AC/DC)	450W
Input voltage (AC)	100–240V
Input voltage (High-Voltage AC [HVAC])	100–277V
Input voltage (DC)	48V to 60V
Input voltage (High-Voltage DC [HVDC])	240–360 V
Frequency (AC)	50 to 60 Hz
Fans	6
Airflow	Port-side intake and exhaust
Physical dimensions (H x W x D)	1.72”x17.3”x22.47”
Acoustics	Port-side intake: • 71.6 dBA at 50% fan speed, • 79.8 dBA at 70% fan speed, • 87.6 dBA at 100% fan speed Port-side exhaust: • 71.2 dBA at 50% fan speed, • 77.8 dBA at 70% fan speed, • 86.1 dBA at 100% fan speed
RoHS compliance	Yes
MTBF	282,250 Hours
Minimum NX-OS image	10.6.1

Table 4 presents the power supply part numbers compatible with Cisco Nexus 9300-SE1 Series Switches.

Table 4. Power-supply compatibility

Cisco Nexus 9300-SE1 Series Switches	Power-supply part number
N9336C-SE1	NXA-PAC-750W-PE
	NXA-PAC-750W-PI
	NXA-PAC-1100W-PE
	NXA-PAC-1100W-PI
	NXA-PDC-1100W-PE
	NXA-PDC-1100W-PI
	NXA-PHV-1100W-PE
	NXA-PHV-1100W-PE

Table 5 presents the fan part numbers compatible with Cisco Nexus 9300-SE1 Series Switches.

Table 5. Fan Compatibility

Cisco Nexus 9300-SE1 Series Switches	Fan-part number
N9336C-SE1	NXA-SFAN-35CFM-PI
	NXA-SFAN-35CFM-PE

Table 6 lists the performance and scalability specifications for the Cisco Nexus 9300-SE1 Series Switch. (Check the software release notes for feature support information.)

Table 6. Hardware performance and scalability specifications[1]

Item	Cisco Nexus 9300-SE1 Series Switches
Maximum number of IPv4 Longest Prefix Match (LPM) routes	2M
Maximum number of IPv4 host entries	1.25M
Maximum number of IPv6 Longest Prefix Match (LPM) routes	1M
Maximum number of IPv6 host entries	640K
Maximum number of MAC address entries	1.25M
Maximum number of multicast routes	128K
Number of Internet Group Management Protocol (IGMP) snooping groups	128K

[1] Refer to the documentation for scalability numbers validated for specific software releases.

Item	Cisco Nexus 9300-SE1 Series Switches
Maximum number of Access Control List (ACL) entries ingress/egress	136K/136K
Maximum number of VLANs	4096[2]
Number of Virtual Routing and Forwarding (VRF) instances	2044
Maximum number of ECMP paths	128-way
Maximum number of port channels	5000
Maximum number of links in a port channel	4000
Number of active SPAN sessions	24
Maximum number of VLANs in Rapid per-VLAN Spanning Tree (RPVST) instances	4000
Maximum number of Hot-Standby Router Protocol (HSRP) groups	1000
Number of Network Address Translation (NAT) entries	8000
Maximum number of Multiple Spanning Tree (MST) instances	64
Number of queues	8

[2] 27 VLANs out of 4096 are reserved.

Table 7 lists the environmental properties, and Table 8 lists the weights of the Cisco Nexus 9300-SE1 Series Switch.

Table 7. Environmental properties

Property	Description
Operating temperature	32 to 104°F (0 to 40°C)
Nonoperating (storage) temperature	-40 to 158°F (-40 to 70°C)
Humidity	5 to 95% (noncondensing)
Altitude	0 to 13,123 ft (0 to 4000m)

Table 8. Weight

Component	Weight
Cisco Nexus 9336C-SE1 without power supplies or fans	17.4 lb (7.9kg)
750W AC power supply	2.1lb (0.95kg)
1100W AC power supply	2.3 lb (1kg)
1100W DC power supply	2.3 lb (1kg)
1100W HVDC/HVAC power supply	2.3 lb (1kg)
Fan tray: NXA-SFAN-35CFM-PE or NXA-SFAN-35CFM-PI	0.27 lb (0.12kg)

Table 9 summarizes regulatory standards compliance for the Cisco Nexus 9300-SE1 Series Switches.

Table 9. Regulatory standards compliance: safety and EMC

Specification	Description
Regulatory compliance	Complies with CE markings according to directives 2004/108/EC and 2006/95/EC.
Safety	NEBS • 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
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.

Software licensing and Cisco Optics supported

The software packaging for Cisco Nexus 9000 Series Switches 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. To meet customer requirements, licensing is available as both subscription and perpetual. 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.

For details about Cisco Optics modules that are available and the minimum software release required for each supported module, visit https://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html.

Ordering information

Table 10 presents ordering information for the Cisco Nexus 9300-SE1 Series Switches.

Table 10. Ordering information

Part number	Product description
Base part numbers	
N9336C-SE1	Cisco Nexus 9300 with 36p 40G/100G QSFP28 ports
Power supplies	
NXA-PAC-750W-PE	Cisco Nexus 9000 7650W AC power supply, port-side exhaust
NXA-PAC-750W-PI	Cisco Nexus 9000 7650W AC power supply, port-side intake
NXA-PAC-1100W-PE	Cisco Nexus 9000 1100W AC power supply, port-side exhaust
NXA-PAC-1100W-PI	Cisco Nexus 9000 1100W AC power supply, port-side intake
NXA-PDC-1100W-PE	Cisco Nexus 9000 110930W DC power supply, port-side exhaust
NXA-PDC-1100W-PI	Cisco Nexus 9000 110930W DC power supply, port-side intake
NXA-PHV-1100W-PE	Cisco Nexus 9300 110350W power supply, supports HVAC/HVDC, port side exhaust
NXA-PHV-1100W-PI	Cisco Nexus 9300 110350W power supply, supports HVAC/HVDC, port side intake

Part number	Product description
Fans	
NXA-SFAN-35CFM-PE	Cisco Nexus fan, 35CFM, port-side exhaust airflow
NXA-SFAN-35CFM-PI	Cisco Nexus fan, 35CFM, port-side intake airflow
Accessories	
NXK-ACC-KIT-1RU	Cisco Nexus fixed accessory kit for 4-post rack
NXK-ACC-KIT-2P	Cisco Nexus fixed accessory kit for 2-post rack

Warranty, service, and support

The Cisco Nexus 9300-SE1 Switch has a one-year limited hardware warranty. The warranty includes hardware replacement with a 10-day turnaround from receipt of a Return Materials Authorization (RMA).

Cisco offers a range of professional, solution, and product support services for each stage of your Cisco Nexus 9300-SE1 Switch deployment:

- Cisco Data Center Quick Start Service for Cisco Nexus 9000 Series Switches: This offering provides consulting services that include technical advice and assistance to help deploy Cisco Nexus 9000 Series Switches.
- Cisco Data Center Accelerated Deployment Service for Cisco Nexus 9300 SE1 Switches: This service delivers planning, design, and implementation expertise to bring your project into production. The service also provides recommended next steps, an architectural high-level design, and operation-readiness guidelines to scale the implementation to your environment.
- Cisco Migration Service for Cisco Nexus 9300 Switches: This service helps you migrate from Cisco Catalyst® 6000 Series Switches to Cisco Nexus 9300 SE1 Switches.
- Cisco Product Support: This support service is available globally 24 hours a day, seven days a week, for Cisco software and hardware products and technologies associated with Cisco Nexus 9300 SE1 Switches. Enhanced support options delivered by Cisco also include solution support for Cisco ACI®, Cisco SMARTnet™ service, and Cisco Smart Net Total Care®* service.
- For more information, visit https://www.cisco.com/go/services.

*** For Cisco products only.**

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 10. Safety and compliance information
Power	
Power supply	Table 3. Product specifications: power supplies, typical and maximum power specifications
Material	
Unit weight	Table 9. Weight
Dimensions and mean time between failures metrics	Table 3. 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.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital® makes it easier to get the right technology to achieve your objectives, enable business transformation, and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. Learn more.

For more information

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

C78-5304601-00 08/25