N9K-C9316D-GX Datasheet

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Overview

N9K-C9316D-GX is the Cisco Nexus 9316D Spine switch with 16p 400/100G QSFP-DD. Based on Cisco® Cloud Scale technology, the Cisco Nexus® 9300-GX switches are the next generation of fixed Cisco Nexus 9000 Series Switches. The platform introduces a fully backward-compatible 400G optical interface Quad Small Form-Factor Pluggable – Double Density (QSFP-DD) to transparently migrate existing data center fabrics from 40-Gbps and 100-Gbps speeds to 400 Gbps. The platform provides investment protection for customers, delivering highly flexible layer 2 and layer 3 scalability, and performance to meet the changing needs of virtualized data centers and automated cloud environments.

Cisco provides two modes of operation for Cisco Nexus 9000 Series Switches. Organizations can deploy Cisco Application Centric Infrastructure (Cisco ACI™) or Cisco Nexus switch environments (Cisco NX-OS mode). The Cisco ACI solution is a holistic, intent-driven architecture with centralized automation and policy-based application profiles. It provides a robust, transport network for dynamic workloads and is built on a network fabric that combines time-tested protocols with new innovations to create a highly flexible, scalable, and resilient architecture of low-latency, high-bandwidth links. This fabric delivers a network that can support the most demanding and flexible data center environments.

Quick Spec

Figure 1 shows the Cisco Nexus 9316D Switch.

Table 1 shows the quick spec.

SKU	N9K-C9316D-GX
Ports	16 x 400/100/40-Gbps QSFP-DD ports
System memory	16 GB NX-OS, 24 GB ACI
Solid-State Disk (SSD)	128 GB
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
Dimensions (H x W x D)	3.38 x 17.37 x 22.27 in. (8.59 x 44.13 x 56.58 cm)

Product Details

Cisco ACI overview

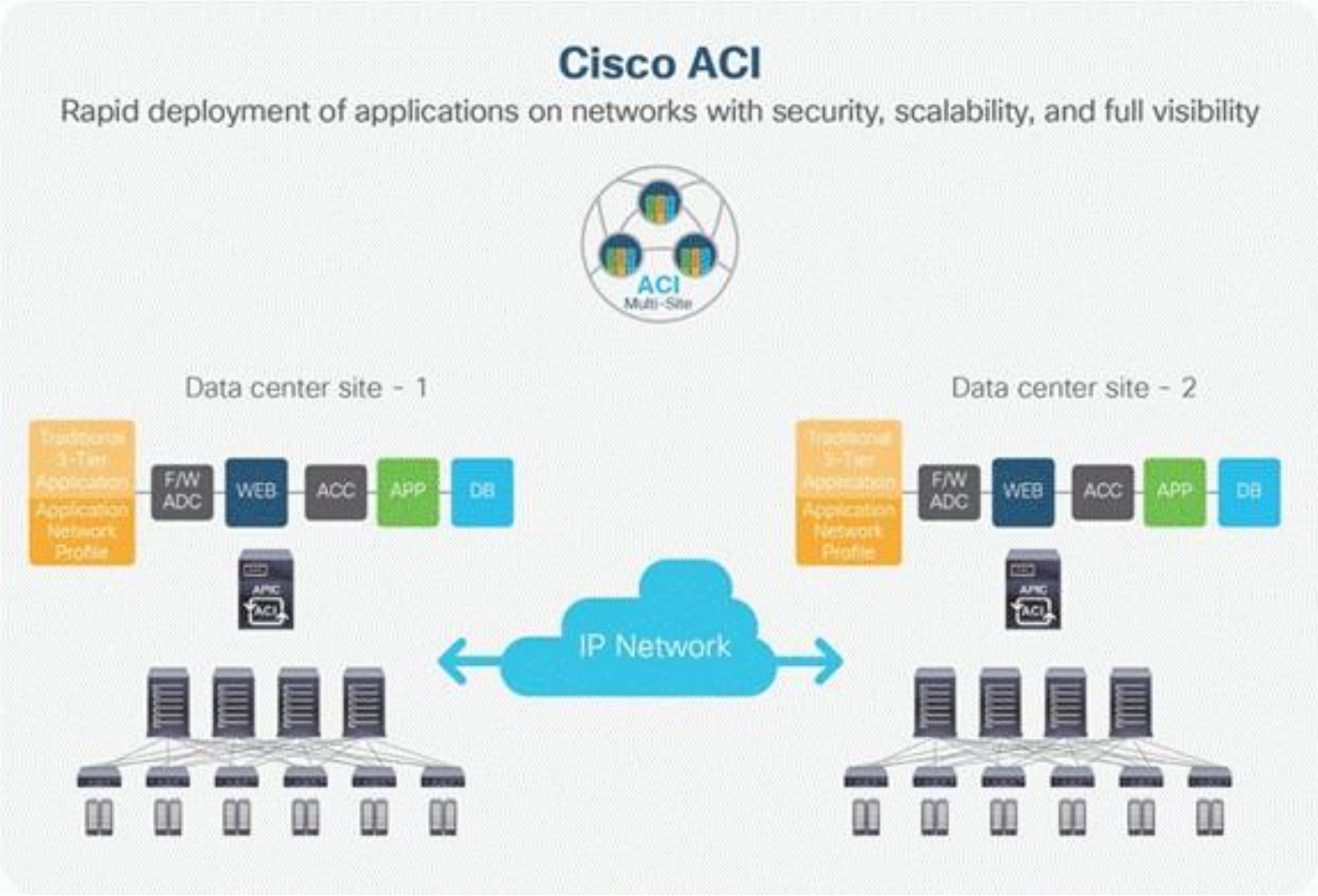
Cisco ACI is an industry-leading secure, open, and comprehensive Software-Defined Networking (SDN) solution. It radically simplifies, optimizes, and accelerates infrastructure deployment and governance and expedites the application deployment lifecycle. Cisco ACI provides policy-driven automation through an integrated underlay and overlay, is hypervisor-agnostic; and extends policy automation to any workload, including virtual

machines, physical bare-metal servers, and containers.

Cisco ACI delivers an intent-based networking framework to enable agility in the data center. It captures higher-level business and user intent in the form of a policy and translates this intent into the network constructs necessary to dynamically provision the network, security, and infrastructure services. It uses a holistic systems-based approach, with tight integration between hardware and software and physical and virtual elements, an open ecosystem model, and innovative Cisco custom ASICs to enable unique business value for modern data centers. This unique approach uses a common, policy-based operating model across the network, drastically reducing the cost and complexity in operating your network.

Cisco "ACI Anywhere" is a comprehensive solution: with one intent, using any hypervisor, for any workload, in any location, and in any cloud. Cisco "ACI Anywhere" offers a set of capabilities that enable seamless connectivity between an on-premises data center, remote, small-scale data centers, and geographically dispersed multiple data centers under a single-pane-of-policy orchestration. In future, these capabilities will extend to public cloud as well.

Figure 2 shows the Cisco ACI architectural building blocks.



The Cisco Nexus GX Series also introduces support of single-chip ACI spine-and-leaf functionality to enable customers to use a given GX series device, either in ACI spine or ACI leaf deployment for fully flexible deployments.

Table 2 shows the ACI support.

Item	N9K-C9316D-GX	**N9K-C93600CD-GX**
ACI spine	Yes	Future
ACI leaf	Future	Yes

The Accessories

Table 3 shows the recommended accessories.

Part number	**Product description**
Fan options	
NXA-FAN-35CFM-PI	Nexus Fan, Nexus 2000, 3000, 9000 Single Fan, 35CFM, port side intake airflow
NXA-FAN-35CFM-PE	Nexus Fan, Nexus 2000, 3000, 9000 Single Fan, 35CFM, port side exhaust airflow

Power supply options	
NXA-PAC-1100W-PI2	Nexus AC 1100W PSU Spare - port side intake
NXA-PAC-1100W-PE2	Nexus AC 1100W PSU Spare - port side exhaust
NXA-PDC-1100W-PI	Nexus 1100W Platinum DC PS, port side intake
NXA-PDC-1100W-PE	Nexus 1100W Platinum DC PS, port side exhaust
NXA-PHV-1100W-PI	Nexus 1100W Platinum HV-AC-DC PS, port side intake
NXA-PHV-1100W-PE	Nexus 1100W Platinum HV-AC-DC PS, port side exhaust
Accessories	
N9K-C9300-RMK	Nexus 9000 Fixed Rack Mount Kit
N9K-C9300-ACK	Nexus 9000 Fixed Accessory Kit

Compare to Similar Item

Table 4 shows the comparison.

Device	N9K-C9316D-GX	N9K-C93600CD-GX
Ports	• 16 x 400/100/40-Gbps QSFP-DD ports	•28 x 100/40-Gbps QSFP28 ports and 8 x 400/100-Gbps QSFP-DD ports
Physical	• System memory: 16 GB NX-OS, 24 GB ACI • Solid-State Disk (SSD): 128 GB • 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 • Dimensions (H x W x D): 3.38 x 17.37 x 22.27 in. (8.59 x 44.13 x 56.58 cm)	• System memory: 16 GB NX-OS, 24 GB ACI • Solid-State Disk (SSD): 128 GB • 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 • Dimensions (H x W x D): 1.72 x 17.37 x 25.5 in. (4.37 x 44.13 x 64.8 cm)
Packet buffer	• 80 MB centralized buffer	• 80 MB centralized buffer

Get More Information

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Specification

N9K-C9316D-GX Specification	
Ports	• 16 x 400/100/40-Gbps QSFP-DD ports
Physical	• System memory: 16 GB NX-OS, 24 GB ACI • Solid-State Disk (SSD): 128 GB • 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 • Dimensions (H x W x D): 3.38 x 17.37 x 22.27 in. (8.59 x 44.13 x 56.58 cm)
Packet buffer	• 80 MB centralized buffer

Cooling	● Fans: NXA-FAN-35CFM-PI and NXA-FAN-35CFM-PE ● 5+1 redundancy ● Port-side intake or port-side exhaust airflow direction ● Hot swappable: Yes
Power	● AC: ◦ 1100 Watt (W) AC power supplies (up to 2) ◦ 1+1 redundancy ◦ 80 Plus Platinum-rated power supplies with efficiency of 90% or greater (20 to 100% load) ◦ Frequency: 50 to 60 Hz (AC) ◦ RoHS compliance: Yes ◦ Hot swappable: Yes ◦ Port-side intake or port-side exhaust options ◦ Typical power: 650W (AC) ● DC: ◦ 1100 Watt (W) DC power supplies (up to 2) ◦ 1+1 redundancy ◦ 80 Plus Platinum-rated power supplies with efficiency of 90% or greater (20 to 100% load) ● High-voltage AC/DC ◦ Power: 1200W AC, 930W DC, or 1200W HVAC/HVDC ◦Input voltage: 100 to 240V * AC or –40 to –72V DC (minimum and maximum), –48 to –60V DC (nominal)
Environmental	● Operating temperature: 32 to 104°F (0 to 40°C) ● Nonoperating (storage) temperature: -40 to 158°F ● (-40 to 70°C) ● Humidity: 5 to 85% (noncondensing) ● Altitude: 0 to 13,123 ft (0 to 4000m)
Maximum number of IPv4 Longest Prefix Match (LPM) routes	896,000
Maximum number of IPv4 host entries	896,000
Maximum number of MAC address entries	256,000
Maximum number of multicast routes	32,000
Number of Interior Gateway Management Protocol (IGMP) snooping groups	Shipping: 8000 Maximum: 32,000
Maximum number of Access-Control-List (ACL) entries	Per slice of the forwarding engine: ● 5000 ingress ● 2000 egress ● Max: 20,000 ingress, 8000 egress
Maximum number of VLANs	3967
Number of Virtual Routing and Forwarding (VRF) instances	Shipping: 1000 Maximum: 16,000
Maximum number of ECMP paths	64
Maximum number of port channels	512
Maximum number of links in a port channel	32
Number of active SPAN sessions	4
Maximum number of VLANs in 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
Flow-table size used for Cisco Tetration Analytics platform	64,000
Number of Network Address Translation (NAT) entries	1023

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
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 Note: Cisco Nexus N9K-C9364C passes EMC Radiated Emissions standards in all configurations, with the only exception being if more than 40 pluggable optics of Cisco part number 10-3142-02 (or 10-3142-01) are used.
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.

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Support and Resources

Cisco Nexus GX Series Terabit-Scale Switches Data Sheet

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