# Cisco Nexus 9364E-SG2 Switches

# Contents

Cisco Nexus® 9364E-SG2 switches are 64-port 800G fixed switches.

## Product overview

Artificial-Intelligence and Machine-Learning (AI/ML) applications are being used increasingly in today's data centers, and 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. Cisco Nexus 9000 Series Switches address the need for high-performance, power-efficient, compact switching in network infrastructures and are designed to support high-density 800G 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 Insights for visibility and Cisco Nexus Dashboard Fabric Controller for automation, Cisco Nexus 9000 Series Switches are ideal platforms to build a high-performance AI/ML network fabric.

Cisco Nexus 9364E-SG2 switches introduce high-density 800G aggregation for the data center fabric. They also offer various lower port speeds and densities, including 400, 200, and 100 Gbps. The Cisco Nexus 9364E-SG2 switch is based on Cisco® Silicon One® technology, equipped to support next-generation cloud architecture.

The Cisco Nexus 9364E-SG2 are 2-Rack-Unit (2RU) 64-port 800 Gigabit Ethernet switches available in both QSFP-DD and OSFP form factors. They support 51.2 Tbps of bandwidth and provide 256MB of on-die packet buffer.

## Features and benefits

**Table 1.**     Features and benefits

| Feature | Benefit |
|---|---|
| **Architectural flexibility** | • Cisco Nexus 9000 Series Switches support Cisco NX-OS VXLAN EVPN, Cisco IP Fabric for Media, Cisco Nexus Data Broker, and IP routed on 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 (Refer to VXLAN network with MP-BGP EVPN control plane for more information.) |
| | • 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. |
| | • Cisco Nexus Dashboard Data Broker provides customers complete observability into 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. |

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| **Extensive programmability** | • Day-0 automation through Power On Auto Provisioning (POAP), drastically reducing provision time<br><br>• 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<br><br>• REST API interacting with Data Management Engine (DME)<br><br>• Model-driven telemetry, which enhances network observability<br><br>• Third-party application-hosting using Cisco Application Framework (CAF) |
| **High scalability, flexibility, and security** | • Flexible forwarding tables that support up to 512,000 shared entries<br><br>• Flexible shared ingress and egress of a maximum of 1536 ingress ACL/1024 egress ACL entries |
| **AI/ML networking** | Cisco Nexus 9000 Series Switches support innovative congestion management and flow-control algorithms along with the right latency and telemetry to meet the design requirements of AI/ML fabrics.<br><br>• Dynamic Load Balancing (DLB) distributes traffic across multiple paths or links that have the same cost in terms of routing metrics.<br><br>• Priority Flow Control (PFC) is a key capability supported on Cisco Nexus 9000 Series Switches that prevents Ethernet frame drops by signaling, controlling, and managing Ethernet flows along a path by sending pause frames to appropriate senders.<br><br>• The platform also supports Explicit Congestion Notification (ECN), which provides end-to-end notification per IP flow by marking packets that experienced congestion, without dropping traffic. The platform is capable of tracking ECN statistics, including the number of marked packets that have experienced congestion.<br><br>• The platform offers lossless transport for Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) with support of Data-Center-Bridging (DCB) protocols:<br><br>  ◦ Enhanced Transmission Selection (ETS) reserves bandwidth per priority class in network contention situations.<br><br>  ◦ Data Center Bridging Exchange Protocol (DCBX) can discover and exchange priority and bandwidth information with endpoints.<br><br>• Weighted Random Early Detection (WRED) is a congestion-avoidance technique that allows Cisco Nexus 9000 Series Switches to detect and react to congestion in the network by marking flows that could cause congestion.<br><br>• The platform offers Cisco's innovative intelligent buffer management, which offers the capability to distinguish between mice and elephant flows and apply different queue-management schemes to them based on their network-forwarding requirements in the event of link congestion. |
| **Hardware and software high availability** | • Virtual Port-Channel (vPC) technology provides Layer-2 multipathing through the elimination of Spanning Tree Protocol (STP).<br><br>• Capability to link fabrics in a VXLAN environment, eliminating the need for peer-to-peer vPC. The 128-way 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. |

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|---|---|
| | - Software-Maintenance Upgrades (SMUs) contain fixes for specific defects. They provide a quick resolution of critical issues.<br><br>- In-Service Software Upgrades (ISSUs) allow upgrades of device software while the switch continues to forward traffic. ISSUs reduce or eliminate the downtime typically caused by software upgrades.<br><br>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 and cloud-network operations through simplicity, automation, and analytics. Cisco Nexus Dashboard Fabric Controller (NDFC), Cisco Nexus Dashboard Insights (NDI), Cisco Nexus Dashboard Orchestrator (NDO), and Cisco Nexus Dashboard Data Broker (NDDB) are integrated as services into Cisco Nexus Dashboard.<br><br>- Cisco Nexus Dashboard is included with all Cisco Nexus 9000 switch tiered licenses. Cisco Nexus Dashboard Fabric Controller requires a Cisco Data Center Networking (DCN) Essentials license, Cisco Nexus Dashboard Orchestrator requires a Cisco DCN Advantage license, and Cisco Nexus Dashboard Insights requires a Cisco DCN Premier or a Cisco DCN Day-2 Ops add-on license. |

## Licensing

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 Cisco Nexus 9364E-SG2 switch uses the XF3 class Cisco Data Center Network (Cisco DCN) Premier, Advantage, and Essentials subscription 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 release notes.

## Product specifications

**Table 2.**     Cisco Nexus 9364E-SG2 Switches Specifications

| Item | Cisco Nexus 9364E-SG2 switch |
|---|---|
| **Technical** | - 64-port 800G QSFP-DD ports (N9364E-SG2-Q)<br>- 64-port 800G OSFP ports (N9364E-SG2-O)<br>- Supports 2x400, and 8x100 breakout<br>- On-die buffer: 256MB fully shared<br>- System memory: 64GB<br>- SSD: 240 GB<br>- USB: 1 port<br>- RS-232 serial console ports: 1<br>- Management ports: 1<br>- CPU (N9364E-SG2-Q)<br>    ◦  Intel® Broadwell 4-core 2.4 GHz CPU |

| Item | Cisco Nexus 9364E-SG2 switch |
|---|---|
| | • CPU (N9364E-SG2-O)<br>  ◦ Intel Broadwell 8-core 2 GHz CPU |
| **Power and cooling** | • Power: 3000W HVAC/HVDC<br>• Hot-swappable, 4 fans, 3+1 redundancy<br>• Typical power: TBD<br>• Maximum power: 3000 W |
| **Physical and environmental** | • Dimensions (H x W x D): 3.43 x 17.3 x 24.7 in. (8.76 x 44.0 x 62.7 cm)<br>• Acoustics:<br>  ◦ Port-side intake:<br>    ◦ at 50% fan speed: 78.3 dBA<br>    ◦ at 70% fan speed: 86.9 dBA<br>    ◦ at 90% fan speed: 92.6 dBA<br>    ◦ at 100% fan speed: 93 dBA<br>• Operating temperature: 32 to 104F (0 to 40C)<br>• Nonoperating (storage temperature): -40 to 158F (-40 to 70C)<br>• Humidity: 5 to 95% (non-condensing)<br>• Altitude: 0 to 9,842 ft (0 to 3000m)<br>• Mean time between failure (MTBF): 129,110 hours |

**Table 3.**    Cisco Nexus 9364E-SG2 switches power-supply specifications

| Model | Cisco HVAC/HVDC |
|---|---|
| **Output power** | 3000 W |
| **Input voltage** | 90-140 AC<br>180-305 AC<br>190-400 DC |
| **Input frequency** | 47-63 Hz |
| **Connector** | APP SAF-D-GRID Ultra Short 2006 |
| **Efficiency** | 80PLUS Platinum |

**Table 4.**    Cisco Nexus 9364E-SG2 weight

| Part number | Weight |
|---|---|
| N9364E-SGE2-Q/O without power supplies or fans | 37.0 lbs (16.8 kg) |
| N9364E-SGE2-Q/O with power supplies and fans | 45.5 lbs (20.6 kg) |
| PSU3KW-HVPI | 1.75 lbs (0.79 kg) |
| FAN-PI-V4 | 1.25 lbs (0.57 kg) |

## Supported optics modules

For details on the optical modules available and the minimum software release required for each supported optical module, visit here.

## Ordering information

**Table 5.**    Ordering information

| Part # | Product Description |
|---|---|
| N9364E-SG2-Q | Cisco Nexus 9300 64p 800G switch w/ QSFP-DD |
| N9364E-SG2-Q= | Cisco Nexus 9300 64p 800G switch w/ QSFP-DD w/o power supply, fans |
| N9364E-SG2-O | Cisco Nexus 9300 64p 800G switch w/ OSFP |
| N9364E-SG2-O= | Cisco Nexus 9300 64p 800G switch w/ OSFP w/o power supply, fans |
| PSU3KW-HVPI | Cisco 3000W HV power module with port-side intake |
| PSU3KW-HVPI= | Cisco 3000W HV power module with port-side intake, spare |
| FAN-PI-V4 | Cisco fan tray, port-side intake airflow |
| FAN-PI-V4= | Cisco fan tray, port-side intake airflow, spare |
| 8K-2RU-KIT-S | Cisco 2RU fixed system installation kit short |
| 8K-2RU-KIT-S= | Cisco 2RU fixed system installation kit short, spare |
| 8K-2RU-KIT-L | Cisco 2RU fixed system installation kit long |
| 8K-2RU-KIT-L= | Cisco 2RU fixed system installation kit long, spare |
| 8K-2RU-2P-KIT | Cisco installation kit 2 posts |
| 8K-2RU-2P-KIT= | Cisco installation kit 2 posts, spare |

## Warranty information

The Cisco Nexus 9364E-SG2 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).

## Product sustainability

Information about Cisco's environmental, social and governance (ESG) initiatives and performance is provided in Cisco's CSR and sustainability [reporting](#).

**Table 6.**     Cisco environmental sustainability information

| Sustainability topic | | Reference |
|---|---|---|
| **General** | Information on product-material-content laws and regulations | [Materials](#) |
| | Information on electronic waste laws and regulations, including our products, batteries, and packaging | [WEEE Compliance](#) |
| | Information on product takeback and reuse program | [Cisco Takeback and Reuse Program](#) |
| | Sustainability inquiries | Contact: [csr_inquiries@cisco.com](#) |
| | Countries and regions supported | [Table 6: Regulatory compliance](#) |
| **Power** | Power | [Table 3: Power-supply specifications](#) |
| **Material** | Product packaging weight and materials | Contact: [environment@cisco.com](#) |
| | Weight | [Table 4. Weight](#) |

## Cisco and partner services

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. The Cisco SMARTnet® service helps you resolve mission-critical problems with direct access at any time to Cisco network experts and award-winning resources.

## Cisco Capital

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