

# Cisco Nexus 3232C Switch

## Product Overview

The Cisco Nexus<sup>®</sup> 3232C Switch is a dense, high-performance, power efficient, 100-Gbps switch designed for the data center. This compact, 1-rack-unit (1RU) model offers wire-rate Layer 2 and Layer 3 switching on all ports. It is a member of the Cisco Nexus 3200 platform and runs the industry-leading Cisco<sup>®</sup> NX-OS Software operating system, providing customers with comprehensive features and functions that are widely deployed. The comprehensive programmability features help enable organizations to run today's applications while also preparing them for demanding and changing application needs such as big data, cloud, and virtualization. The Cisco Nexus 3232C supports both forward and reverse (port-side exhaust and port-side intake) airflow schemes with AC and DC power inputs.

The Cisco Nexus 3232C (Figure 1) is a Quad Small Form-Factor Pluggable (QSFP) based switch with 32 QSFP28 ports. Each QSFP28 port can operate at 10, 25, 40, 50, and 100 Gbps, up to a maximum of 96 25-Gbps ports<sup>1</sup>.

**Figure 1.** Cisco Nexus 3232C Switch



## Main Benefits

The Cisco Nexus 3232C provides the following:

- **Wire-rate Layer 2 and 3 switching on all ports**<sup>2</sup> up to 6.4 terabits per second (Tbps) and up to 3.8 billion packets per second (bps)
- **Rich Programmability**, with support for Cisco NX-API, Linux Containers, XML and /JavaScript Object Notation (JSON) APIs, OpenStack plug-in, Python, and Puppet and Chef configuration and automation tools.
- **High performance and scalability** with two-core CPU, 8 GB DRAM, and 16 Mb of dynamic buffer allocation, making the switch excellent for massively scalable data centers and big data applications
- **Flexibility**
  - The QSFP28 port can be configured to work as four 25-Gbps ports, offering deployment flexibility, up to a maximum of 96 25-Gbps ports.
  - Both fiber and copper cabling solutions are available for 10-, 25-, 40-, 50-, and 100-Gbps, including active optical cable (AOC) and direct-attached cable (DAC).

<sup>1</sup> 50-Gbps break-out switch coming soon with software release

<sup>2</sup> Wire rate on all ports for packets greater than 200 bytes

- **High availability**
  - Virtual PortChannel (vPC) technology provides Layer 2 multipathing through the elimination of Spanning Tree Protocol. It also enables fully utilized bisectional bandwidth and simplified Layer 2 logical topologies without the need to change the existing management and deployment models.
  - The 64-way equal-cost multipath (ECMP) routing enables the use of Layer 3 fat-tree designs. This feature allows organizations to prevent network bottlenecks, increase resiliency, and add capacity with little network disruption.
  - Advanced reboot capabilities include hot and cold patching and fast reboot capabilities.
  - The switch uses hot-swappable power-supply units (PSUs) and fans.
- **Purpose-built NX-OS operating system with comprehensive, proven innovations**
  - PowerOn Auto Provisioning (POAP) enables touchless bootup and configuration of the switch, drastically reducing provisioning time.
  - Cisco Embedded Event Manager (EEM) and Python scripting enable automation and remote operations in the data center.
  - Advanced buffer monitoring reports real-time buffer utilization per port and per queue, which allows organizations to monitor traffic bursts and application traffic patterns.
  - EtherAnalyzer is a built-in packet analyzer for monitoring and troubleshooting control-plane traffic and is based on the popular Wireshark open-source network protocol analyzer.
  - Complete Layer 3 unicast and multicast routing protocol suites are supported, including Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), 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).

## Configuration

The Cisco Nexus 3232C has the following configuration:

- 32 fixed 100 Gigabit Ethernet QSFP28 ports
- Locator LED
- Environment LED
- Status LED
- Dual redundant power supplies
- Redundant (3+1) fans
- Lane-selected LED
- One 10/100/1000-Mbps management port
- One RS-232 serial console port
- Two USB ports

## Transceiver and Cabling Options

The Cisco Nexus 3232C has 32 QSFP28 ports. QSFP28 technology allows a smooth transition from 40 to 100 Gigabit Ethernet infrastructure in data centers. Each of the Cisco Nexus 3232C Switch's QSFP28 ports can operate in either native 100 Gigabit Ethernet mode or 4 x 25 Gigabit Ethernet mode. This switch supports both fiber and copper cabling solutions for these two modes.

For low-cost cabling, copper-based 40-Gbps Twinax cables can be used, and for longer cable reaches, short-reach optical transceivers are excellent. Connectivity can be established from the QSFP28 ports to 10 Gigabit Ethernet switches or hosts using a splitter cable that has a QSFP+ transceiver on one end and four SFP+ transceivers on the other end. Similar capability can be achieved on the fiber solution by using QSFP+ SR4 transceivers on both ends and procuring third-party fiber splitter MPO-to-LC cables. Table 1 lists the transceiver types supported.

**Table 1.** Cisco Nexus 3232C QSFP28 Transceiver Support Matrix

Part Number	Description
<b>AOC (1-10m)</b>	QSFP28 100G Active Optical Cable 1 - 10mm
<b>AOC 4 x 25G Splitter (1-10m)</b>	QSFP to 4 x SFP 10Gbps Active Optical Cable 1m
<b>QSFP28 Twinax</b>	QSFP28 - QSFP28 100Gbps passive copper cable 1/3/5m
<b>QSFP28 Twinax Splitter</b>	QSFP28 - 4 x SFP+ passive copper splitter cable 1/3/5m
<b>QSFP28 SR4</b>	QSFP28 transceiver module with MPO connector
<b>QSFP28 LR4</b>	QSFP28 LR4 transceiver module for SMF

<sup>\*</sup> Coming soon with software release

For more information about the transceiver types, see

[http://www.cisco.com/en/US/products/hw/modules/ps5455/prod\\_module\\_series\\_home.html](http://www.cisco.com/en/US/products/hw/modules/ps5455/prod_module_series_home.html).

## Cisco NX-OS Software Benefits

NX-OS is a data center-class operating system built with modularity, resiliency, and serviceability at its foundation. NX-OS helps ensure continuous availability and sets the standard for mission-critical data center environments. The self-healing and highly modular design of NX-OS makes zero-impact operations a reality and enables exceptional operation flexibility.

Focused on the requirements of the data center, NX-OS provides a robust and comprehensive feature set that meets the networking requirements of present and future data centers. With an XML interface and a command-line interface (CLI) like that of Cisco IOS<sup>®</sup> Software, NX-OS provides state-of-the-art implementations of relevant networking standards as well as a variety of true data center-class Cisco innovations.

Table 2 summarizes that benefits that NX-OS offers. Table 3 lists NX-OS packages available for the Cisco Nexus 3232C.

**Table 2.** Benefits of Cisco NX-OS Software

Feature	Benefit
Common software throughout the data center: NX-OS runs on all Cisco data center switch platforms (Cisco Nexus 9000, 7000, 6000, 5000, 4000, and 3000 Series Switches; Cisco Nexus 1000V Switches; and Cisco Nexus 2000 Series Fabric Extenders).	<ul style="list-style-type: none"><li>• Simplification of data center operating environment</li><li>• End-to-end Cisco Nexus and NX-OS fabric</li><li>• No retraining necessary for data center engineering and operations teams</li></ul>
Software compatibility: NX-OS interoperates with Cisco products running any variant of Cisco IOS Software and also with any networking OS that conforms to the networking standards listed as supported in this data sheet.	<ul style="list-style-type: none"><li>• Transparent operation with existing network infrastructure</li><li>• Open standards</li><li>• No compatibility concerns</li></ul>

Feature	Benefit
Modular software design: NX-OS is designed to support distributed multithreaded processing. NX-OS modular processes are instantiated on demand, each in a separate protected memory space. Thus, processes are started and system resources allocated only when a feature is enabled. A real-time preemptive scheduler that helps ensure timely processing of critical functions governs the modular processes.	<ul style="list-style-type: none"> <li>• Robust software</li> <li>• Fault tolerance</li> <li>• Increased scalability</li> <li>• Increased network availability</li> </ul>
Troubleshooting and diagnostics: NX-OS is built with unique serviceability functions to enable network operators to take early action based on network trends and events, enhancing network planning and improving network operations center (NOC) and vendor response times. Cisco Smart Call Home and Cisco Online Health Management System (OHMS) are some of the features that enhance the serviceability of NX-OS.	<ul style="list-style-type: none"> <li>• Quick problem isolation and resolution</li> <li>• Continuous system monitoring and proactive notifications</li> <li>• Improved productivity of operations teams</li> </ul>
Ease of management: NX-OS provides a programmatic XML interface based on the NETCONF industry standard. The NX-OS XML interface provides a consistent API for devices. NX-OS also provides support for Simple Network Management Protocol (SNMP) Versions 1, 2, and 3 MIBs. In addition NX-API and Linux Bash are now supported.	<ul style="list-style-type: none"> <li>• Rapid development and creation of tools for enhanced management</li> <li>• Comprehensive SNMP MIB support for efficient remote monitoring</li> </ul>
Role-based access control (RBAC): With RBAC, NX-OS enables administrators to limit access to switch operations by assigning roles to users. Administrators can customize access and restrict it to the users who require it.	<ul style="list-style-type: none"> <li>• Tight access control mechanism based on user roles</li> <li>• Improved network device security</li> <li>• Reduction in network problems arising from human errors</li> </ul>

**Table 3.** Cisco NX-OS Software Packages Available for Cisco Nexus 3232C

Software Package	Features Supported
<b>System default</b>	<ul style="list-style-type: none"> <li>• Comprehensive Layer 2 feature set: VLAN, IEEE 802.1Q Trunking, vPC, Link Aggregation Control Protocol (LACP), Unidirectional Link Detection (UDLD: standard and aggressive), Multiple Spanning Tree Protocol (MSTP), Rapid Spanning Tree Protocol (RSTP), spanning-tree guards, and Transparent VLAN Trunk Protocol (TVTP)</li> <li>• Security: Authentication, authorization, and accounting (AAA); access control lists (ACLs); Dynamic Host Configuration Protocol (DHCP) snooping; storm control; private VLAN (PVLAN); and configurable Control-Plane Policing (CoPP)</li> <li>• Management features: Cisco Data Center Network Manager (DCNM) support, console, Secure Shell Version 2 (SSHv2) access, Cisco Discovery Protocol, SNMP, and syslog</li> <li>• Layer 3 IP routing: inter-VLAN routing (IVR), static routes, RIPv2, ACLs, OSPFv2, EIGRP stub, Hot Standby Router Protocol (HSRP), Virtual Router Redundancy Protocol (VRRP), and Unicast Reverse-Path Forwarding (uRPF)</li> <li>• Multicast: PIM SM, SSM, and MSDP</li> </ul>
<b>LAN Enterprise license (N3K-LAN1K9)</b>	<ul style="list-style-type: none"> <li>• Advanced Layer 3 IP routing: BGP, and Virtual Route Forwarding lite (VRF-lite)</li> <li>• Virtual Extensible LAN (VXLAN)</li> <li>• Policy-Based Routing (PBR)</li> </ul>

## Product Specifications

Table 4 lists the specifications for the Cisco Nexus 3232C, and Table 5 lists software features, and Table 6 lists management standards and support.

**Table 4.** Specifications

Description	Specification	
<b>Physical</b>	<ul style="list-style-type: none"> <li>• 1RU fixed form-factor switch</li> <li>• 32 QSFP28 ports; each supports native 100 Gigabit Ethernet and 4 x 25 Gigabit Ethernet modes</li> <li>• 2 redundant power supplies</li> <li>• 4 redundant (3+1) fans</li> <li>• Management, console, and USB flash-memory ports</li> </ul>	
<b>Performance</b>	<ul style="list-style-type: none"> <li>• 6.4-Tbps switching capacity</li> <li>• Forwarding rate up to 1.4 bpps</li> <li>• Line-rate traffic throughput (both Layer 2 and 3) on all ports</li> <li>• Configurable maximum transmission unit (MTU) of up to 9216 bytes (jumbo frames)</li> </ul>	
<b>Hardware tables and scalability</b>	Number of MAC addresses	136,000
	Number of VLANS	4096

Description	Specification	
	Number of spanning-tree instances	<ul style="list-style-type: none"> <li>• RSTP: 512</li> <li>• MSTP: 64</li> </ul>
	Number of ACL entries	<ul style="list-style-type: none"> <li>• 4000 ingress</li> <li>• 1000 egress</li> </ul>
	Routing table	<ul style="list-style-type: none"> <li>• 16,000 prefixes and 16,000 host entries*</li> <li>• 8000 multicast routes*</li> </ul>
	Number of EtherChannels	64 (with vPC)
	Number of ports per EtherChannel	16
	Buffer size	16 MB shared
	Boot-flash memory	8 GB
<b>Power</b>	Frequency	50 to 60 Hz
	Power supply types	<ul style="list-style-type: none"> <li>• AC (forward and reversed airflow)</li> <li>• DC (forward and reversed airflow)</li> </ul>
	Typical operating power	310W with optics at 100% load; 2 PSUs)
	Maximum power	470 watts (W)
	AC PSUs <ul style="list-style-type: none"> <li>• Input voltage</li> <li>• Frequency</li> <li>• Efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• 100 to 240 VAC</li> <li>• 50 to 60 Hz</li> <li>• 89 to 91% at 220V</li> </ul>
	DC PSUs <ul style="list-style-type: none"> <li>• Input voltage</li> <li>• Maximum current</li> <li>• Efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• -40 to -72 VDC</li> <li>• 33A</li> <li>• 85 to 88%</li> </ul>
	Power-supply efficiency	89 to 91% at 220V
	Typical heat dissipation	<ul style="list-style-type: none"> <li>• 717 BTU/hr (with Twinax at 100% load)</li> <li>• 819 BTU/hr (with SR4 optics at 100% load)</li> </ul>
	Maximum heat dissipation	1160 BTU/hr
	<b>Cooling</b>	<ul style="list-style-type: none"> <li>• Forward and reversed airflow schemes <ul style="list-style-type: none"> <li>◦ Forward airflow: Port-side exhaust (air enters through fan tray and power supplies and exits through ports); supported with AC and DC power supplies</li> <li>◦ Reversed airflow: Port-side intake (air enters through ports and exits through fan tray and power supplies); supported with AC power supply only</li> </ul> </li> <li>• Redundant fans</li> <li>• Hot swappable (must swap within 1 minute)</li> </ul>
<b>Sound</b>	Measured sound power (maximum)	<ul style="list-style-type: none"> <li>• 66.1 dBA</li> <li>• 70.6 dBA</li> <li>• 76.9 dBA</li> </ul>
	<ul style="list-style-type: none"> <li>• Fan speed: 40% duty cycle</li> <li>• Fan speed: 70% duty cycle</li> <li>• Fan speed: 100% duty cycle</li> </ul>	
<b>Environment</b>	Dimensions (height x width x depth)	1.72 x 17.3 x 19.7 in. (4.4 x 43.9 x 50.5 cm)
	Weight	21.5 lb (9.3 kg)
	Operating temperature	32 to 104°F (0 to 40°C)
	Storage temperature	-40 to 158°F (-40 to 70°C)
	Operating relative humidity	<ul style="list-style-type: none"> <li>• 10 to 85% noncondensing</li> <li>• Up to 5 days at maximum (85%) humidity</li> <li>• Recommend ASHRAE data center environment</li> </ul>
	Storage relative humidity	5 to 95% noncondensing
	Altitude	0 to 10,000 ft (0 to 3000m)

\* Please refer to Cisco Nexus 3000 Series Verified Scalability Guide documentation for exact scalability numbers validated on for specific software releases:  
[http://www.cisco.com/en/US/products/ps11541/products\\_installation\\_and\\_configuration\\_guides\\_list.html](http://www.cisco.com/en/US/products/ps11541/products_installation_and_configuration_guides_list.html).

**Table 5.** Software Features

Description	Specification
<b>Layer 2</b>	<ul style="list-style-type: none"> <li>• Layer 2 switch ports and VLAN trunks</li> <li>• IEEE 802.1Q VLAN encapsulation</li> <li>• Support for up to 4096 VLANs</li> <li>• Rapid Per-VLAN Spanning Tree Plus (PVRST+) (IEEE 802.1w compatible)</li> <li>• MSTP (IEEE 802.1s): 64 instances</li> <li>• Spanning Tree PortFast</li> <li>• Spanning Tree Root Guard</li> <li>• Spanning Tree Bridge Assurance</li> <li>• Cisco EtherChannel technology (up to 16 ports per EtherChannel)</li> <li>• LACP: IEEE 802.3ad</li> <li>• vPC</li> <li>• Advanced PortChannel hashing based on Layer 2, 3, and 4 information</li> <li>• Jumbo frames on all ports (up to 9216 bytes)</li> <li>• Storm control (unicast, multicast, and broadcast)</li> <li>• Private VLANs</li> <li>• NVGRE entropy</li> <li>• Resilient hashing</li> </ul>
<b>Layer 3</b>	<ul style="list-style-type: none"> <li>• Layer 3 interfaces: Routed ports on interfaces, switch virtual interfaces (SVIs), PortChannels, and subinterfaces (total: 1024)</li> <li>• 64-way ECMP</li> <li>• 4000 ingress and 1000 egress ACL entries</li> <li>• Routing protocols: Static, RIPv2, EIGRP, OSPFv2, and BGP</li> <li>• Bidirectional Flow Detection (BFD) for BGP</li> <li>• HSRP and VRRP</li> <li>• ACL: Routed ACL with Layer 3 and 4 options to match ingress and egress ACLs</li> <li>• VRF: VRF-lite (IP VPN), VRF-aware unicast (BGP, OSPF, and RIP), and VRF-aware multicast</li> <li>• uRPF with ACL; strict and loose modes</li> <li>• Jumbo frame support (up to 9216 bytes)</li> <li>• Advanced BGP features including BGP add-path for eBGP and iBGP, remove-private-as enhancements, and eBGP next-hop unchanged</li> <li>• IP-in-IP tunnel support</li> <li>• VXLAN</li> </ul>
<b>Multicast</b>	<ul style="list-style-type: none"> <li>• Multicast: PIMv2, PIM-SM, and PIM-SSM</li> <li>• Bootstrap router (BSR), Automatic Rendezvous Point (Auto-RP), and Static RP</li> <li>• Multicast Source Discovery Protocol (MSDP) and Anycast RP</li> <li>• Internet Group Management Protocol (IGMP) Versions 2 and 3</li> </ul>
<b>Quality of service (QoS)</b>	<ul style="list-style-type: none"> <li>• Layer 2 IEEE 802.1p (class of service [CoS])</li> <li>• 8 unicast and 8 multicast hardware queues per port</li> <li>• Per-port QoS configuration</li> <li>• CoS trust</li> <li>• Port-based CoS assignment</li> <li>• Modular QoS CLI (MQC) compliance</li> <li>• ACL-based QoS classification (Layers 2, 3, and 4)</li> <li>• MQC CoS marking</li> <li>• Differentiated services code point (DSCP) marking</li> <li>• Weighted Random Early Detection (WRED)</li> <li>• CoS-based egress queuing</li> <li>• Egress strict-priority queuing</li> <li>• Egress port-based scheduling: Weighted Round-Robin (WRR)</li> <li>• Explicit Congestion Notification (ECN)</li> </ul>

Description	Specification
	<ul style="list-style-type: none"> <li>• Priority Flow Control (with 3 no-drop queues and 1 default queue with strict priority scheduling between queues)</li> <li>• PBR</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• Ingress ACLs (standard and extended) on Ethernet</li> <li>• Standard and extended Layer 3 to 4 ACLs: IPv4, Internet Control Message Protocol (ICMP), TCP, User Datagram Protocol (UDP), etc.</li> <li>• VLAN-based ACLs (VACLs)</li> <li>• Port-based ACLs (PACLs)</li> <li>• Named ACLs</li> <li>• ACLs on virtual terminals (vty)</li> <li>• DHCP snooping with Option 82</li> <li>• Port number in DHCP Option 82</li> <li>• DHCP relay</li> <li>• Dynamic Address Resolution Protocol (ARP) inspection</li> <li>• Configurable CoPP</li> <li>• Cisco Switched Port Analyzer (SPAN) with ACL filtering</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>• Switch management using 10/100/1000-Mbps management or console ports</li> <li>• CLI-based console to provide detailed out-of-band management</li> <li>• In-band switch management</li> <li>• Locator and beacon LEDs</li> <li>• Port-based locator and beacon LEDs</li> <li>• Configurable CoPP</li> <li>• Configuration rollback</li> <li>• SSHv2</li> <li>• Telnet</li> <li>• AAA</li> <li>• AAA with RBAC</li> <li>• RADIUS</li> <li>• TACACS+</li> <li>• Syslog</li> <li>• Syslog generation on system resources (for example, FIB tables)</li> <li>• Embedded packet analyzer</li> <li>• SNMP v1, v2, and v3</li> <li>• Enhanced SNMP MIB support</li> <li>• XML (NETCONF) support</li> <li>• Remote monitoring (RMON)</li> <li>• Advanced Encryption Standard (AES) for management traffic</li> <li>• Unified username and passwords across CLI and SNMP</li> <li>• Microsoft Challenge Handshake Authentication Protocol (MS-CHAP)</li> <li>• Digital certificates for management between switch and RADIUS server</li> <li>• Cisco Discovery Protocol Versions 1 and 2</li> <li>• RBAC</li> <li>• Cisco SPAN on physical, PortChannel, VLAN, and Fibre Channel interfaces</li> <li>• ERSPAN</li> <li>• Ingress and egress packet counters per interface</li> <li>• Precision Time Protocol (PTP; IEEE 1588) boundary clock</li> <li>• Network Time Protocol (NTP)</li> <li>• Cisco OHMS</li> <li>• Comprehensive bootup diagnostic tests</li> <li>• Cisco Call Home</li> <li>• Cisco DCNM</li> <li>• Advanced buffer monitoring</li> <li>• Linux Bash</li> <li>• NX-API</li> </ul>

**Table 6.** Management and Standards Support

Description	Specification	
<b>MIB support</b>	<p>Generic MIBs</p> <ul style="list-style-type: none"> <li>• SNMPv2-SMI</li> <li>• CISCO-SMI</li> <li>• SNMPv2-TM</li> <li>• SNMPv2-TC</li> <li>• IANA-ADDRESS-FAMILY-NUMBERS-MIB</li> <li>• IANAifType-MIB</li> <li>• IANAiprouteprotocol-MIB</li> <li>• HCNUM-TC</li> <li>• CISCO-TC</li> <li>• SNMPv2-MIB</li> <li>• SNMP-COMMUNITY-MIB</li> <li>• SNMP-FRAMEWORK-MIB</li> <li>• SNMP-NOTIFICATION-MIB</li> <li>• SNMP-TARGET-MIB</li> <li>• SNMP-USER-BASED-SM-MIB</li> <li>• SNMP-VIEW-BASED-ACM-MIB</li> <li>• CISCO-SNMP-VACM-EXT-MIB</li> <li>• CISCO-CLASS-BASED-QOS-MIB</li> </ul> <p>Ethernet MIBs</p> <ul style="list-style-type: none"> <li>• CISCO-VLAN-MEMBERSHIP-MIB</li> <li>• LLDP-MIB</li> <li>• IP-MULTICAST-MIB</li> </ul> <p>Configuration MIBs</p> <ul style="list-style-type: none"> <li>• ENTITY-MIB</li> <li>• IF-MIB</li> <li>• CISCO-ENTITY-EXT-MIB</li> <li>• CISCO-ENTITY-FRU-CONTROL-MIB</li> <li>• CISCO-ENTITY-SENSOR-MIB</li> <li>• CISCO-SYSTEM-MIB</li> <li>• CISCO-SYSTEM-EXT-MIB</li> <li>• CISCO-IP-IF-MIB</li> <li>• CISCO-IF-EXTENSION-MIB</li> <li>• CISCO-NTP-MIB</li> <li>• CISCO-IMAGE-MIB</li> <li>• CISCO-IMAGE-UPGRADE-MIB</li> </ul>	<p>Monitoring MIBs</p> <ul style="list-style-type: none"> <li>• NOTIFICATION-LOG-MIB</li> <li>• CISCO-SYSLOG-EXT-MIB</li> <li>• CISCO-PROCESS-MIB</li> <li>• RMON-MIB</li> <li>• CISCO-RMON-CONFIG-MIB</li> <li>• CISCO-HC-ALARM-MIB</li> </ul> <p>Security MIBs</p> <ul style="list-style-type: none"> <li>• CISCO-AAA-SERVER-MIB</li> <li>• CISCO-AAA-SERVER-EXT-MIB</li> <li>• CISCO-COMMON-ROLES-MIB</li> <li>• CISCO-COMMON-MGMT-MIB</li> <li>• CISCO-SECURE-SHELL-MIB</li> </ul> <p>Miscellaneous MIBs</p> <ul style="list-style-type: none"> <li>• CISCO-LICENSE-MGR-MIB</li> <li>• CISCO-FEATURE-CONTROL-MIB</li> <li>• CISCO-CDP-MIB</li> <li>• CISCO-RF-MIB</li> </ul> <p>Layer 3 and Routing MIBs</p> <ul style="list-style-type: none"> <li>• UDP-MIB</li> <li>• TCP-MIB</li> <li>• OSPF-MIB</li> <li>• BGP4-MIB</li> <li>• CISCO-HSRP-MIB</li> </ul>
<b>Standards</b>	<ul style="list-style-type: none"> <li>• IEEE 802.1D: Spanning Tree Protocol</li> <li>• IEEE 802.1p: CoS Prioritization</li> <li>• IEEE 802.1Q: VLAN Tagging</li> <li>• IEEE 802.1s: Multiple VLAN Instances of Spanning Tree Protocol</li> <li>• IEEE 802.1w: Rapid Reconfiguration of Spanning Tree Protocol</li> <li>• IEEE 802.3z: Gigabit Ethernet</li> <li>• IEEE 802.3ad: Link Aggregation Control Protocol (LACP)</li> <li>• IEEE 802.3ae: 10 Gigabit Ethernet</li> <li>• IEEE 802.1ab: LLDP</li> <li>• IEEE 1588-2008: Precision Time Protocol (Boundary Clock)</li> </ul>	
<b>RFC</b>	<p>BGP</p> <ul style="list-style-type: none"> <li>• RFC 1997: BGP Communities Attribute</li> <li>• RFC 2385: Protection of BGP Sessions with the TCP MD5 Signature Option</li> <li>• RFC 2439: BGP Route Flap Damping</li> <li>• RFC 2519: A Framework for Inter-Domain Route Aggregation</li> <li>• RFC 2545: Use of BGPv4 Multiprotocol Extensions</li> <li>• RFC 2858: Multiprotocol Extensions for BGPv4</li> <li>• RFC 3065: Autonomous System Confederations for BGP</li> </ul>	



Description	Specification
	<ul style="list-style-type: none"> <li>• RFC 3392: Capabilities Advertisement with BGPv4</li> <li>• RFC 4271: BGPv4</li> <li>• RFC 4273: BGPv4 MIB: Definitions of Managed Objects for BGPv4</li> <li>• RFC 4456: BGP Route Reflection</li> <li>• RFC 4486: Subcodes for BGP Cease Notification Message</li> <li>• RFC 4724: Graceful Restart Mechanism for BGP</li> <li>• RFC 4893: BGP Support for Four-Octet AS Number Space</li> <li>• RFC 5549: BGP Ipv4 NLRIs with an IPv6 next hop</li> </ul> <p>OSPF</p> <ul style="list-style-type: none"> <li>• RFC 2328: OSPF Version 2</li> <li>• RFC 3101: OSPF Not-So-Stubby-Area (NSSA) Option</li> <li>• RFC 3137: OSPF Stub Router Advertisement</li> <li>• RFC 3509: Alternative Implementations of OSPF Area Border Routers</li> <li>• RFC 3623: Graceful OSPF Restart</li> <li>• RFC 4750: OSPF Version 2 MIB</li> </ul> <p>RIP</p> <ul style="list-style-type: none"> <li>• RFC 1724: RIPv2 MIB Extension</li> <li>• RFC 2082: RIPv2 MD5 Authentication</li> <li>• RFC 2453: RIP Version 2</li> </ul> <p>IP Services</p> <ul style="list-style-type: none"> <li>• RFC 768: User Datagram Protocol (UDP)</li> <li>• RFC 783: Trivial File Transfer Protocol (TFTP)</li> <li>• RFC 791: IP</li> <li>• RFC 792: ICMP</li> <li>• RFC 793: TCP</li> <li>• RFC 826: ARP</li> <li>• RFC 854: Telnet</li> <li>• RFC 959: FTP</li> <li>• RFC 1027: Proxy ARP</li> <li>• RFC 1305: Network Time Protocol (NTP) Version 3</li> <li>• RFC 1519: Classless Interdomain Routing (CIDR)</li> <li>• RFC 1542: BootP Relay</li> <li>• RFC 1591: Domain Name System (DNS) Client</li> <li>• RFC 1812: IPv4 Routers</li> <li>• RFC 2131: DHCP Helper</li> <li>• RFC 2338: VRRP</li> </ul> <p>IP Multicast</p> <ul style="list-style-type: none"> <li>• RFC 2236: Internet Group Management Protocol, version 2</li> <li>• RFC 3376: Internet Group Management Protocol, Version 3</li> <li>• RFC 3446: Anycast Rendezvous Point Mechanism Using PIM and MSDP</li> <li>• RFC 3569: An Overview of SSM</li> <li>• RFC 3618: Multicast Source Discovery Protocol (MSDP)</li> <li>• RFC 4601: Protocol Independent Multicast - Sparse Mode (PIM-SM): Protocol Specification (Revised)</li> <li>• RFC 4607: Source-Specific Multicast for IP</li> <li>• RFC 4610: Anycast-RP using PIM</li> <li>• RFC 5132: IP Multicast MIB</li> </ul>

## Regulatory Standards Compliance

Table 7 summarizes regulatory standards compliance for the Cisco Nexus 3200 platform.

**Table 7.** Regulatory Standards Compliance: Safety and EMC

Specification	Description
<b>Regulatory Compliance</b>	Products should comply with CE Markings according to directives 2004/108/EC and 2006/95/EC.
<b>Safety</b>	<ul style="list-style-type: none"> <li>• UL 60950-1</li> <li>• CAN/CSA-C22.2 No. 60950-1EN 60950-1</li> <li>• IEC 60950-1AS/NZS 60950-1GB4943</li> </ul>

Specification	Description
<b>EMC: Emissions</b>	<ul style="list-style-type: none"> <li>• 47CFR Part 15 (CFR 47) Class A</li> <li>• AS/NZS CISPR22 Class A</li> <li>• CISPR22 Class A</li> <li>• EN55022 Class A</li> <li>• ICES003 Class A</li> <li>• VCCI Class A</li> <li>• EN61000-3-2</li> <li>• EN61000-3-3</li> <li>• KN22 Class A</li> <li>• CNS13438 Class A</li> </ul>
<b>EMC: Immunity</b>	<ul style="list-style-type: none"> <li>• EN50082-1</li> <li>• EN61000-6-1</li> <li>• EN55024</li> <li>• CISPR24</li> <li>• EN300386</li> <li>• KN 61000-4 series</li> </ul>
<b>RoHS</b>	The Cisco Nexus 3232C is RoHS-6 compliant.

## Ordering Information

Table 8 provides ordering information for the Cisco Nexus 3232C.

**Table 8.** Ordering Information

Part Number	Description
<b>Chassis</b>	
<b>N3K-C3232C</b>	Nexus 3232C 32 x 100G, 1RU switch
<b>NXA-FAN-30CFM-F</b>	Nexus 9300 Fan, Forward airflow (Port-side Exhaust)
<b>NXA-FAN-30CFM-B</b>	Nexus 9300 Reverse airflow (Port-side Intake)
<b>N9K-PAC-650W</b>	Nexus 9300 650W AC PS, Port-side Intake
<b>N9K-PAC-650W-B</b>	Nexus 9300 650W AC PS, Port-side Exhaust
<b>Software Licenses</b>	
<b>N3K-LAN1K9</b>	Nexus 3164 Layer 3 LAN Enterprise License
<b>Spares</b>	
<b>N3K-C3232C=</b>	Nexus 3232C 32 x 100G, 1RU switch, Spare
<b>NXA-FAN-30CFM-F=</b>	Nexus 9300 Fan, Forward airflow (Port-side Exhaust)
<b>NXA-FAN-30CFM-B=</b>	Nexus 9300 Reverse airflow (Port-side Intake)
<b>N9K-PAC-650W=</b>	Nexus 9300 650W AC PS, Port-side Intake
<b>N9K-PAC-650W-B=</b>	Nexus 9300 650W AC PS, Port-side Exhaust

## Services and Support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco Nexus 3200 platform switches 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 use 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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With this service, you can take advantage of the Cisco Smart Call Home service capability, which offers proactive diagnostics and real-time alerts on your Cisco Nexus 3200 platform switches. Spanning the entire network lifecycle, Cisco Services help increase investment protection, optimize network operations, support migration operations, and strengthen your IT expertise.

### For More Information

For more information, please visit <http://www.cisco.com/go/nexus3000>.



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