Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL Switches

Contents

Product overview

The Cisco Nexus® 3132Q, 3132Q-X, and 3132Q-XL Switches are dense, high-performance, 40-Gbps Layer 2 and 3 switches. They are members of the Cisco Nexus 3100 platform. These second-generation Cisco Nexus 3000 Series Switches offer improved port density, scalability, and features compared to the first-generation switches. The Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL come in a compact one-Rack-Unit (1RU) form factor and run the industry-leading Cisco® NX-OS Software operating system, providing customers with comprehensive features and functions that are widely deployed. They support both forward and reverse airflow (port-side exhaust and port-side intake) schemes with AC and DC power inputs. The Cisco Nexus 3132 are well suited for data centers that require a cost-effective, power-efficient line-rate Layer 2 and 3 access or leaf switch.

Three Cisco Nexus 3132 switches are available:

- The Cisco Nexus 3132Q (Figure 1) is a 40-Gbps Quad Small Form-Factor Pluggable (QSFP) switch with 32 Enhanced QSFP (QSFP+) ports. It also has 4 SFP+ ports that are internally multiplexed with the first QSFP port. Each QSFP+ port can operate in native 40-Gbps or 4 x 10-Gbps mode, with up to a maximum of 104 x 10-Gbps ports.

Figure 1.
Cisco Nexus 3132Q Switch

- The Cisco Nexus 3132Q-X (Figure 2) is a minor hardware revision of the Cisco Nexus 3132Q. Enhancements include the removal of retimers, a different port layout, and the addition of an LED lane selector. The Cisco Nexus 3132Q-X also consumes 40 watts (W) less power than the Cisco Nexus 3132Q and has increased CPU performance.

Figure 2.
Cisco Nexus 3132Q-X Switch

- The Cisco Nexus 3132Q-XL (Figure 3) is a minor hardware revision of the Cisco Nexus 3132Q-X. Enhancements include an additional 4 GB of memory (for a total of 8 GB). The Cisco Nexus 3132Q-XL also has a 16GB of Logflash and 2.5-GHz CPU.

Figure 3.
Cisco Nexus 3132Q-XL Switch

Main benefits

The Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL provide the following main benefits:

- Wire-rate Layer 2 and 3 switching on all ports[1]
  - Layer 2 and 3 switching of up to 2.5 Terabits per second (Tbps) and up to 1.4 billion packets per second (bpps) is provided in a compact 1RU form-factor switch.
- High availability
  - Virtual-Port-Channel (vPC) technology provides Layer 2 multipathing through the elimination of Spanning Tree Protocol and 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 and allows organizations to prevent network bottlenecks, increase resiliency, and add capacity with little network disruption.
  - The switches offer fast reboot capabilities.
  - Power-Supply Units (PSUs) and fans are hot swappable.
- Flexibility
  - The QSFP port can be configured to work as four 10-Gbps ports, offering deployment flexibility with maximum of 104 x 10-Gbps ports.
- High performance
  - Both switches deliver low nominal latency, which enables customers to implement high-performance infrastructure for High-Frequency Trading (HFT) workloads. Customers can also achieve faster application performance because of the serialization savings from switching at 40 Gigabit Ethernet speeds.
- Purpose-built NX-OS operating system with comprehensive, proven innovations
  - Power-On 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.
  - Ethanalyzer 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.
  - Precision Time Protocol (PTP; IEEE 1588) provides accurate clock synchronization and improved data correlation with network packet capture and system events.

[1] Wire rate on all ports for packets greater than 200 bytes

- 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

All three switches have the following configuration:

- 32 fixed 40 Gigabit Ethernet QSFP+ ports
- 4 SFP+ ports, which are multiplexed internally with the first QSFP+ port
- Locator LED
- Dual redundant power supplies
- Redundant (3+1) fans
- Support for forward (port-side exhaust) and reversed (port-side intake) airflow schemes

The Cisco Nexus 3132Q has the following configuration:

- One 10/100/1000-Mbps management port located on the front of the chassis
- One RS-232 serial console port located on the front of the chassis
- One USB port located on the front of the chassis

The Cisco Nexus 3132Q-X has the following configuration:

- Lane selector button and LED
- One 10/100/1000-Mbps management port located on the rear of the chassis
- One RS-232 serial console port on located on the rear of the chassis
- One USB port located on the rear of the chassis

The Cisco Nexus 3132Q-XL has the following configuration:

- 8 GB of memory and 2.5-GHz CPU
- Lane selector button and LED
- One 10/100/1000-Mbps management port located on the rear of the chassis
- One RS-232 serial console port located on the rear of the chassis
- One USB port located on the rear of the chassis

Transceiver and cabling options

The Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL have 32 QSFP+ ports. QSFP+ technology allows a smooth transition from 10 to 40 Gigabit Ethernet infrastructure in data centers. Each of the switches' QSFP+ ports can operate in either native 40 Gigabit Ethernet mode or 4 x 10 Gigabit Ethernet mode. All switches support 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 QSFP+ 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/CSR4, or 4X10G-LR transceivers and procuring third-party fiber splitter MPO-to-LC cables in order to connect to SFP+ SR or SFP+ LR interfaces respectively.

In addition 1G and 10G interfaces are supported on native SFP ports, as well as on QSFP ports with the Cisco CVR-QSFP-SFP10G adapter.

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

For more information about the transceiver types, see https://www.cisco.com/en/US/products/hw/modules/ps5455/prod_module_series_home.html.

Cisco NX-OS Software Overview

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® 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.

Cisco NX-OS Software Benefits

Table 1 summarizes that benefits that NX-OS offers.

Table 1. 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).	• Simplification of data center operating environment • End-to-end Cisco Nexus and NX-OS fabric • No retraining necessary for data center engineering and operations teams
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.	• Transparent operation with existing network infrastructure • Open standards • No compatibility concerns

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.	• Robust software • Fault tolerance • Increased scalability • Increased network availability
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.	• Quick problem isolation and resolution • Continuous system monitoring and proactive notifications • Improved productivity of operations teams
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 Cisco NX-API and Linux Bash are now supported.	• Rapid development and creation of tools for enhanced management • Comprehensive SNMP MIB support for efficient remote monitoring
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.	• Tight access control mechanism based on user roles • Improved network device security • Reduction in network problems arising from human errors

Cisco NX-OS Software Packages for the Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL

The software packages available for the Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL offer flexibility and a comprehensive feature set as well as consistency with Cisco Nexus access switches. The default system software has a comprehensive Layer 2 feature set with robust security and management features. To enable Layer 3 IP unicast and multicast routing functions, additional licenses need to be installed. Table 2 summarizes the software packages. See Table 4 later in this document for a complete list of software features.

Table 2. Cisco NX-OS Software Packages Available for the Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL

Software Package	Features Supported
System default: Base license (N3K-BAS1K9) included; no purchase necessary	• 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) • 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) • Management features: Cisco Data Center Network Manager (DCNM) support, console, Secure Shell Version 2 (SSHv2) access, Cisco Discovery Protocol, SNMP, and syslog • 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) • Multicast: PIM SM, SSM, and MSDP
LAN Enterprise license (N3K-LAN1K9)	• Advanced Layer 3 IP routing: BGP, and Virtual Route Forwarding lite (VRF-lite) • VXLAN • Policy-Based Routing (PBR)

Cisco Data Center Network Manager

The Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL are supported in DCNM. DCNM is designed for hardware platforms enabled for NX-OS, which consist of the Cisco Nexus Family products. DCNM is a Cisco management solution that increases overall data center infrastructure uptime and reliability, hence improving business continuity. Focused on the management requirements of the data center network, DCNM provides a robust framework and comprehensive feature set that meets the routing, switching, and storage administration needs of present and future data centers. In particular, DCNM automates the provisioning process, proactively monitors the LAN by detecting performance degradation, secures the network, and simplifies the diagnosis of dysfunctional network elements.

Product specifications

Table 3 lists the specifications for the Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL; Table 4 lists software features; and Table 5 lists management standards and support.

Table 3. Specifications

Description	Specification	
Physical	• 1RU fixed form-factor switch • 32 QSFP+ ports; each supports native 40 Gigabit Ethernet and 4 x 10 Gigabit Ethernet modes • 4 SFP+ ports • 2 redundant power supplies • 4 redundant (3+1) fans • Management, console, and USB flash-memory ports	
Performance	• 2.5-Tbps switching capacity • Forwarding rate up to 1.4 bpps • Line-rate traffic throughput (both Layer 2 and 3) on all ports • Configurable Maximum Transmission Units (MTUs) of up to 9216 bytes (jumbo frames)	
Hardware tables and scalability*	Number of MAC addresses	288,000
	Number of VLANS	4096
	Number of spanning-tree instances	• RSTP: 512 • MSTP: 64
	Number of ACL entries	• 4000 ingress • 1000 egress
	Routing table	• 16,000 prefixes and 16,000 host entries* • 8000 multicast routes*
	Number of EtherChannels	64 (with vPC)
	Number of ports per EtherChannel	16
	System memory	4 GB (3132Q and 3132Q-X)
		8 GB (3132Q-XL)
	Buffer size	12 MB shared

Description	Specification	
	Boot-flash memory	4 GB (3132Q and 3132Q-X)
		16 GB (3132Q-XL)
Power	Frequency	50 to 60 Hz
	Power supply types	• AC (forward and reversed airflow) • DC (forward and reversed airflow)
	Typical operating power	• 3132Q: 210W • 3132QX and 3132Q-XL: 170W
	Maximum power	• 3132Q: 340W • 3132QX and 3132Q-XL: 290W
	AC PSUs • Input voltage • Frequency • Efficiency	• 100 to 240 VAC • 50 to 60 Hz • 89 to 91% at 220V
	DC PSUs • Input voltage • Maximum current (PSU output – System input) • Efficiency	• -40 to --72 VDC • 33A (400W unit) • 85 to 88%
	Power-supply efficiency	89 to 91% at 220V
	Typical heat dissipation	• 3132Q: 717 BTU/hr • 3132QX and 3132Q-XL: 580 BTU/hr
	Maximum heat dissipation	• 3132Q: 1160 BTU/hr • 3132QX and 3132Q-XL: 989 BTU/hr
Cooling	• Forward and reversed airflow schemes ◦ Forward airflow: Port-side exhaust (air enters through fan tray and power supplies and exits through ports); supported with AC and DC power supplies ◦ Reversed airflow: Port-side intake (air enters through ports and exits through fan tray and power supplies); supported with AC power supply only • Redundant fans • Hot swappable (must swap within 1 minute)	
Sound	Measured sound power (maximum) • Fan speed: 40% duty cycle • Fan speed: 70% duty cycle • Fan speed: 100% duty cycle	• 66.1 dBA • 70.6 dBA • 76.9 dBA

Description	Specification	
Environment	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	• 10 to 85% noncondensing • Up to 5 days at maximum (85%) humidity • Recommend ASHRAE data center environment
	Storage relative humidity	5 to 95% noncondensing
	Altitude	0 to 10,000ft (0 to 3000m)

* Please refer to Cisco Nexus 3000 Series Verified Scalability Guide documentation for exact scalability numbers validated on for specific software releases: https://www.cisco.com/en/US/products/ps11541/products_installation_and_configuration_guides_list.html.

Table 4. Software Features

Description	Specification
Layer 2	• Layer 2 switch ports and VLAN trunks • IEEE 802.1Q VLAN encapsulation • Support for up to 4096 VLANs • Rapid Per-VLAN Spanning Tree Plus (PVRST+) (IEEE 802.1w compatible) • MSTP (IEEE 802.1s): 64 instances • Spanning Tree PortFast • Spanning Tree Root Guard • Spanning Tree Bridge Assurance • Cisco EtherChannel technology (up to 16 ports per EtherChannel) • LACP: IEEE 802.3ad • vPC • Advanced port-channel hashing based on Layer 2, 3, and 4 information • Jumbo frames on all ports (up to 9216 bytes) • Storm control (unicast, multicast, and broadcast) • Private VLANs • NVGRE entropy • Resilient hashing
Layer 3	• Layer 3 interfaces: Routed ports on interfaces, Switch Virtual Interfaces (SVIs), port channels, and subinterfaces (total: 1024) • 64-way ECMP • 4000 ingress and 1000 egress ACL entries • Routing protocols: Static, RIPv2, EIGRP, OSPFv2, and BGP • Bidirectional Flow Detection (BFD) for BGP • HSRP and VRRP • ACL: Routed ACL with Layer 3 and 4 options to match ingress and egress ACLs • VRF: VRF-lite (IP VPN), VRF-aware unicast (BGP, OSPF, and RIP), and VRF-aware multicast

Description	Specification
	• uRPF with ACL; strict and loose modes • Jumbo frame support (up to 9216 bytes) • Advanced BGP features including BGP add-path for eBGP and iBGP, remove-private-as enhancements, and eBGP next-hop unchanged • IP-in-IP tunnel support • VXLAN
Multicast	• Multicast: PIMv2, PIM-SM, and PIM-SSM • Bootstrap Router (BSR), Automatic Rendezvous Point (Auto-RP), and Static RP • MSDP and Anycast RP • Internet Group Management Protocol (IGMP) Versions 2 and 3
Quality of Service (QoS)	• Layer 2 IEEE 802.1p (Class of Service [CoS]) • 8 unicast and 8 multicast hardware queues per port • Per-port QoS configuration • CoS trust • Port-based CoS assignment • Modular QoS CLI (MQC) compliance • ACL-based QoS classification (Layers 2, 3, and 4) • MQC CoS marking • Differentiated Services Code Point (DSCP) marking • Weighted Random Early Detection (WRED) • CoS-based egress queuing • Egress strict-priority queuing • Egress port-based scheduling: Weighted Round-Robin (WRR) • Explicit Congestion Notification (ECN) • Priority Flow Control (with 3 no-drop queues and 1 default queue with strict priority scheduling between queues • PBR
Security	• Ingress ACLs (standard and extended) on Ethernet • Standard and extended Layer 3 to 4 ACLs: IPv4, Internet Control Message Protocol (ICMP), TCP, User Datagram Protocol (UDP), etc. • VLAN-based ACLs (VACLs) • Port-based ACLs (PACLs) • Named ACLs • ACLs on virtual terminals (vtys) • DHCP snooping with Option 82 • Port number in DHCP Option 82 • DHCP relay • Dynamic Address Resolution Protocol (ARP) inspection • Configurable CoPP • Switched Port Analyzer (SPAN) with ACL filtering

Description	Specification
Management	• Switch management using 10/100/1000-Mbps management or console ports • CLI-based console to provide detailed out-of-band management • In-band switch management • Locator and beacon LEDs • Port-based locator and beacon LEDs • Configurable CoPP • Configuration rollback • SSHv2 • Telnet • AAA • AAA with RBAC • RADIUS • TACACS+ • Syslog • Syslog generation on system resources (for example, FIB tables) • Embedded packet analyzer • SNMP v1, v2, and v3 • Enhanced SNMP MIB support • XML (NETCONF) support • Remote Monitoring (RMON) • Advanced Encryption Standard (AES) for management traffic • Unified username and passwords across CLI and SNMP • Microsoft Challenge Handshake Authentication Protocol (MS-CHAP) • Digital certificates for management between switch and RADIUS server • Cisco Discovery Protocol Versions 1 and 2 • RBAC • Cisco SPAN on physical, port-channel, VLAN, and Fibre Channel interfaces • ERSPAN • Ingress and egress packet counters per interface • PTP (IEEE 1588) boundary clock • Network Time Protocol (NTP) • Cisco OHMS • Comprehensive bootup diagnostic tests • Cisco Call Home • Cisco DCNM • Advanced buffer monitoring • Linux Bash • Cisco NX-API

Table 5. Management and Standards Support

Description	Specification	
MIB support	Generic MIBs • SNMPv2-SMI • CISCO-SMI • SNMPv2-TM • SNMPv2-TC • IANA-ADDRESS-FAMILY-NUMBERS-MIB • IANAifType-MIB • IANAiprouteprotocol-MIB • HCNUM-TC • CISCO-TC • SNMPv2-MIB • SNMP-COMMUNITY-MIB • SNMP-FRAMEWORK-MIB • SNMP-NOTIFICATION-MIB • SNMP-TARGET-MIB • SNMP-USER-BASED-SM-MIB • SNMP-VIEW-BASED-ACM-MIB • CISCO-SNMP-VACM-EXT-MIB • CISCO-CLASS-BASED-QOS-MIB Ethernet MIBs • CISCO-VLAN-MEMBERSHIP-MIB • LLDP-MIB • IP-MULTICAST-MIB Configuration MIBs • ENTITY-MIB • IF-MIB • CISCO-ENTITY-EXT-MIB • CISCO-ENTITY-FRU-CONTROL-MIB • CISCO-ENTITY-SENSOR-MIB • CISCO-SYSTEM-MIB • CISCO-SYSTEM-EXT-MIB • CISCO-IP-IF-MIB • CISCO-IF-EXTENSION-MIB • CISCO-NTP-MIB • CISCO-IMAGE-MIB • CISCO-IMAGE-UPGRADE-MIB	Monitoring MIBs • NOTIFICATION-LOG-MIB • CISCO-SYSLOG-EXT-MIB • CISCO-PROCESS-MIB • RMON-MIB • CISCO-RMON-CONFIG-MIB • CISCO-HC-ALARM-MIB Security MIBs • CISCO-AAA-SERVER-MIB • CISCO-AAA-SERVER-EXT-MIB • CISCO-COMMON-ROLES-MIB • CISCO-COMMON-MGMT-MIB • CISCO-SECURE-SHELL-MIB Miscellaneous MIBs • CISCO-LICENSE-MGR-MIB • CISCO-FEATURE-CONTROL-MIB • CISCO-CDP-MIB • CISCO-RF-MIB Layer 3 and Routing MIBs • UDP-MIB • TCP-MIB • OSPF-MIB • BGP4-MIB • CISCO-HSRP-MIB

Description	Specification
Standards	• IEEE 802.1D: Spanning Tree Protocol • IEEE 802.1p: CoS Prioritization • IEEE 802.1Q: VLAN Tagging • IEEE 802.1s: Multiple VLAN Instances of Spanning Tree Protocol • IEEE 802.1w: Rapid Reconfiguration of Spanning Tree Protocol • IEEE 802.3z: Gigabit Ethernet • IEEE 802.3ad: Link Aggregation Control Protocol (LACP) • IEEE 802.3ae: 10 Gigabit Ethernet • IEEE 802.1ab: LLDP • IEEE 1588-2008: Precision Time Protocol (Boundary Clock)
RFC	BGP • RFC 1997: BGP Communities Attribute • RFC 2385: Protection of BGP Sessions with the TCP MD5 Signature Option • RFC 2439: BGP Route Flap Damping • RFC 2519: Framework for Interdomain Route Aggregation • RFC 2545: Use of BGPv4 Multiprotocol Extensions • RFC 2858: Multiprotocol Extensions for BGPv4 • RFC 3065: Autonomous System Confederations for BGP • RFC 3392: Capabilities Advertisement with BGPv4 • RFC 4271: BGPv4 • RFC 4273: BGPv4 MIB: Definitions of Managed Objects for BGPv4 • RFC 4456: BGP Route Reflection • RFC 4486: Subcodes for BGP Cease Notification Message • RFC 4724: Graceful Restart Mechanism for BGP • RFC 4893: BGP Support for 4-Octet Autonomous System Number (ASN) Space • RFC 5549: BGP IPv4 Network Layer Reachability Information (NLRI) with IPv6 Next Hop OSPF • RFC 2328: OSPF Version 2 • 8431RFC 3101: OSPF Not-So-Stubby-Area (NSSA) Option • RFC 3137: OSPF Stub Router Advertisement • RFC 3509: Alternative Implementations of OSPF Area Border Routers • RFC 3623: Graceful OSPF Restart • RFC 4750: OSPF Version 2 MIB RIP • RFC 1724: RIPv2 MIB Extension • RFC 2082: RIPv2 MD5 Authentication • RFC 2453: RIP Version 2 • IP Services • RFC 768: User Datagram Protocol (UDP) • RFC 783: Trivial File Transfer Protocol (TFTP) • RFC 791: IP • RFC 792: ICMP • RFC 793: TCP • RFC 826: ARP

Description	Specification
	• RFC 854: Telnet • RFC 959: FTP • RFC 1027: Proxy ARP • RFC 1305: Network Time Protocol (NTP) Version 3 • RFC 1519: Classless Interdomain Routing (CIDR) • RFC 1542: BootP Relay • RFC 1591: Domain Name System (DNS) Client • RFC 1812: IPv4 Routers • RFC 2131: DHCP Helper • RFC 2338: VRRP IP Multicast • RFC 2236: IGMPv2 • RFC 3376: IGMPv3 • RFC 3446: Anycast Rendezvous Point Mechanism Using PIM and MSDP • RFC 3569: Overview of SSM • RFC 3618: MSDP • RFC 4601: PIM-SM: Protocol Specification (Revised) • RFC 4607: SSM for IP • RFC 4610: Anycast-RP using PIM • RFC 5132: IP Multicast MIB

Software requirements

Cisco Nexus 3100 platform switches are supported by Cisco NX-OS Software Release 6.0(2)U2(1) and later. Cisco Nexus 3100-XL series switches are supported by Cisco NX-OS software Release NXOS-703I2.2 and later. Cisco NX-OS interoperates with any networking OS, including Cisco IOS Software, that conforms to the networking standards mentioned in this data sheet.

Regulatory standards compliance

Table 6 summarizes regulatory standards compliance for the Cisco Nexus 3100 platform.

Table 6. Regulatory standards compliance: Safety and EMC

Specification	Description
Regulatory compliance	• Products should comply with CE Markings per 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 • KN24

Ordering information

Table 7 provides ordering information for the Cisco Nexus 3132Q, 3132Q-X, and 3132Q-XL.

Table 7. Ordering information

Part Number	Description
Chassis	
N3K-C3132Q-40GE	Nexus 3132Q, 32 QSFP+ ports, 1RU switch
N3K-C3132Q-40GX	Nexus 3132Q-X, 32 QSFP+ ports, 1RU switch
N3K-C3132Q-XL	Nexus 3132Q-XL, 32 QSFP+ ports, 1RU switch
N3K-C3064-FAN	Nexus 3064 Fan Module, Forward airflow (port side exhaust)
N3K-C3064-FAN-B	Nexus 3064 Fan Module, Reversed airflow (port side intake)
N2200-PAC-400W	N2K/3K 400W AC Power Supply, Forward airflow (port side exhaust)
N2200-PAC-400W-B	N2K/3K 400W AC Power Supply, Reversed airflow (port side intake)
N2200-PDC-400W	N2K/3K 400W DC Power Supply, Forward airflow (port side exhaust)
N3K-PDC-350W-B	N3K Series 350W DC Power Supply, Reversed airflow (port side intake)
Software Licenses	
N3K-BAS1K9*	Nexus 3000 Layer 3 Base License
N3K-LAN1K9*	Nexus 3000 Layer 3 LAN Enterprise License (Requires N3K-BAS1K9 License)

Part Number	Description
Spares	
N3K-C3064-FAN=	Nexus 3064 Fan Module, Forward airflow (port side exhaust), Spare
N3K-C3064-FAN-B=	Nexus 3064 Fan Module, Reversed airflow (port side intake), Spare
N2000-PAC-400W=	N2K/3K 400W AC Power Supply, Forward airflow (port side exhaust), Spare
N2000-PAC-400W-B=	N2K/3K 400W AC Power Supply, Reversed airflow (port side intake). Spare
N2200-PDC-400W=	N2K/3K 400W DC Power Supply, Forward airflow (port side exhaust), Spare
N3K-PDC-350W-B=	N3K Series 350W DC Power Supply, Reversed airflow (port side intake), Spare
N3K-C3064-ACC-KIT=	Nexus 3064PQ Accessory Kit
Bundles	
N3K-C3132Q-FA-L3	Nexus 3132Q, AC, Forward Airflow (port side exhaust), Base & LAN Ent Lic Bundle
N3K-C3132Q-BA-L3	Nexus 3132Q, AC, Reversed Airflow (port side intake), Base & LAN Ent Lic Bundle
N3K-C3132Q-FD-L3	Nexus 3132Q, DC, Forward Airflow (port side exhaust), Base & LAN Ent Lic Bundle
N3K-C3132Q-BD-L3	Nexus 3132Q, DC, Reversed Airflow (port side intake), Base & LAN Ent Lic Bundle
N3K-C3132Q-X-FA-L3	Nexus 3132Q-X, AC, Forward Airflow (port side exhaust), Base & LAN Ent Lic Bundle
N3K-C3132Q-X-BA-L3	Nexus 3132Q-X, AC, Reversed Airflow (port side intake), Base & LAN Ent Lic Bundle
N3K-C3132Q-X-FD-L3	Nexus 3132Q-X, DC, Forward Airflow (port side exhaust), Base & LAN Ent Lic Bundle
N3K-C3132Q-X-BD-L3	Nexus 3132Q-X, DC, Reversed Airflow (port side intake), Base & LAN Ent Lic Bundle

* When switch is used in Nexus 9000 mode, N3K-BAS1K9 license is not applicable. In that case, N3K-LAN1K9 is required for any L3 feature and will cover all L3 features supported by the device.

Service and Support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco Nexus 3100 platform 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.

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