Cisco Nexus 7000 Series Chassis

Product Overview

The Cisco Nexus™ 7000 Series Switches combine the highest levels of scalability with operational flexibility.

The Cisco Nexus 7000 Series Switches comprise a modular data center-class product line designed for highly scalable 10 Gigabit Ethernet networks with a fabric architecture that scales beyond 15 terabits per second (Tbps). Designed to meet the requirements of the most mission-critical data centers, it delivers continuous system operation and virtualized, pervasive services. The Cisco Nexus 7000 Series is based on a proven operating system, with enhanced features to deliver real-time system upgrades with exceptional manageability and serviceability. Its innovative design is purpose built to support end-to-end data center connectivity, consolidating IP, storage, and interprocess communication (IPC) networks onto a single Ethernet fabric.

The first in the next generation of switch platforms, the Cisco Nexus 7000 Series (Figure 1) provides integrated resilience combined with features optimized specifically for the data center for availability, reliability, scalability, and ease of management.

Figure 1. Cisco Nexus 7000 Series.

Features and Benefits

Coupled with the Cisco® NX-OS Software, the Cisco Nexus 7000 Series delivers a rich set of features with nonstop operation. Two chassis form factors are available.

- Front-to-back airflow with 10 front-accessed vertical module slots and an integrated cable management system, facilitates installation, operation, and cooling in both new and existing facilities.
- 18 front-accessed module slots with side-to-side airflow in a compact horizontal form factor with purpose-built integrated cable management eases operations and reduces complexity.
- Designed for reliability and maximum availability, all interface and supervisor modules are accessible from the front, and the redundant power supplies, fan trays, and fabric modules are all accessible completely from the rear to ensure that cabling is not disrupted during maintenance.
- The system uses dual dedicated supervisor modules; a scalable, fully distributed fabric architecture composed of up to five rear-mounted fabric modules combined with the chassis midplane delivers up to 230 Gbps per slot for 4.1 Tbps of forwarding capacity in the 10-slot form factor and 7.8 Tbps in the 18-slot form factor.
- The midplane design supports flexible technology upgrades as your needs change and provides ongoing investment protection.

Cisco Nexus 7000 Series 10-Slot Chassis

- The Cisco Nexus 7000 Series 10-slot chassis with up to eight I/O module slots supports up to 256 10 Gigabit Ethernet or 384 Gigabit Ethernet ports, meeting the demands of large deployments.
- Front-to-back airflow helps ensure that use of the Cisco Nexus 7000 Series 10-slot chassis addresses the requirement for hot-aisle and cold-aisle deployments without additional complexity.
- The system uses dual system and fabric fan trays for cooling. Each fan tray is redundant and composed of independent variable-speed fans that automatically adjust to the ambient temperature, helping reduce power consumption in well-managed facilities while providing optimum operation of the switch. The system design increases cooling efficiency and provides redundancy capabilities, allowing hot swapping without affecting the system; if either a single fan or a complete fan tray fails, the system continues to operate without a significant degradation in cooling capacity.
- The integrated cable management system is designed for fully configured systems cabling to be groomed either to a single side or to both sides for maximum flexibility without obstructing any important components, which eases maintenance even when the system is fully cabled.
- The system supports an optional air filter to help ensure clean air flow through the system. The addition of the air filter satisfies Network Equipment Building Standards (NEBS) requirements.
- A series of LEDs at the top of the chassis provides a clear summary of the status of the major system components, alerting operators to the need to conduct further investigation. These LEDs report the power supply, fan, fabric, supervisor, and I/O module status.
- The cable management cover and optional front module doors provide protection from accidental interference with both the cabling and modules installed in the system. The transparent front door allows observation of cabling and module indicator and status lights.

Cisco Nexus 7000 Series 18-Slot Chassis

- The Cisco Nexus 7000 Series 18-slot chassis with up to 16 I/O module slots supports up to 512 10 Gigabit Ethernet or 768 Gigabit Ethernet ports, meeting the demands of the largest deployments.

- Side-to-side airflow increases the system density within a 25 rack-unit (25RU) footprint, optimizing the use of rack space. The optimized density provides more than 16RU of free space in a standard 42RU rack for cable management and patching systems.
- The integrated cable management system is designed to support the cabling requirements of a fully configured system to either or both sides of the switch, allowing maximum flexibility. All system components can easily be removed with the cabling in place, providing ease of maintenance tasks with minimal disruption.
- A series of LEDs at the top of the chassis provides a clear summary of the status of the major system components, alerting operators to the need to conduct further investigation. These LEDs report the power supply, fan, fabric, supervisor, and I/O module status.
- The purpose-built optional front module door provides protection from accidental interference with both the cabling and modules installed in the system. The transparent front door allows easy observation of cabling and module indicators and status lights without any need to open the doors, reducing the likelihood of faults caused by human interference. The door supports a dual-opening capability for flexible operation and cable installation while fitted. The door can be completely removed easily for both initial cabling and day-to-day management of the system.
- Independent variable-speed system and fabric fans provide efficient cooling capacity to the entire system. Fan tray redundancy features help ensure reliability of the system and support for hot swapping of fan trays.

Energy Efficient Design

The Cisco Nexus 7000 Series uses power supplies that are up to 90 percent efficient, so less power is wasted as heat and more power is available for the system to use than with typical power supplies.

The fan modules in the chassis adjust to compensate for changing thermal characteristics. At the lower speeds, they use less power.

Consolidation of multiple switches in the Cisco Nexus 7000 Series is enabled by the powerful combination of high density and performance, support for device virtualization, and comprehensive reliability and availability features. This consolidation increases the power efficiency by reducing wasted power from multiple partially loaded and inflexible systems.

Product Specifications

Table 1 lists the product specifications for the Cisco Nexus 7000 Series 10-slot chassis.

Table 1. Product Specifications

Item	Specification	
	Cisco Nexus 7000 Series 10 Slot Chassis	**Cisco Nexus 7000 Series 18**
Product compatibility	Supports all Cisco Nexus 7000 Series modules	Supports all Cisco Nexus 7000 Series modules
Software compatibility	Cisco NX-OS Software Release 4.0 or later (minimum requirement)	Cisco NX-OS Software Release 4.1 or later (minimum requirement)
Options	• Air filter • Lockable front module doors	Lockable front module door
Performance	480 million packets per second (Mpps) (IPv4 unicast) in combination with supervisor and fabric modules	960 (Mpps) (IPv4 unicast) in combination with supervisor and fabric modules
Reliability and availability	• Mean time between failure (MTBF): 264,552 hours • Online insertion and removal (OIR) of all redundant components: Supervisor, fabric, power supply, and fan trays	• MTBF: 206,038 hours • OIR of all redundant components: supervisor, fabric, power supply, and fan trays
MIBs	Supports Simple Network Management Protocol (SNMP) Versions 3, 2c, and 1 (see Cisco NX-OS Software release notes for details about specific MIB support)	Supports SNMPv3, v2c, and v1 (see Cisco NX-OS Software release notes for details about specific MIB support)

Item	Specification	
Network management	Cisco Data Center Network Manager (DCNM) 4.0	Cisco DCNM 4.1
Programming interfaces	• XML • Scriptable command-line interface (CLI) • Cisco DCNM 4.0 Web Services	• XML • Scriptable CLI • Cisco DCNM 4.1 Web Services
Physical specifications	• Usable rack space: 21RUs • 10-slot chassis: 2 dedicated supervisors and 8 I/O modules • 5 fabric module slots • 3 power supply slots • Dimensions (H x W x D): 36.5 x 17.3 x 33.1 in. (92.7 x 43.9 x 84.1 cm) • Chassis depth including cable management and chassis doors is 38 in. (96.5 cm) • Unit is rack mountable in a standard 19-inch (482.6mm) Electronic Industries Alliance (EIA) rack • Weight • Chassis only: 200 lb (90 kg) • Fully configured: 516 lb (235 kg) • Power requirements: 110 to 240 VAC	• Usable rack space: 25RUs • 18-slot chassis: 2 dedicated supervisors and 16 I/O modules • 5 fabric module slots • 4 power supply slots • Dimensions (H x W x D): 43.5 x 17.3 x 33.1 in. (110.5 x 43.9 x 84.1 cm) • Chassis depth including cable management and chassis doors is 38 in. (96.5 cm) • Unit is rack mountable in a standard 19-inch (482.6mm) EIA rack • Weight • Chassis only: 187 lb (85 kg) • Fully configured: 696 lb (316 kg) • Power requirements: 110 to 240 VAC
Mean time between failure (MTBF)	• 264,652 hours	• 206,038 hours
Environmental specifications	• Airflow direction: Bottom front of chassis to top back • Operating temperature: 32 to 104℉ (0 to 40℃) • Operational relative humidity: 5 to 90%, noncondensing • Operating altitude: –500 to 13,123 ft (agency certified 0 to 6500 ft) • Seismic: Zone 4 per GR63 • Floor loading: 190 lb per sq ft • Operational vibration • GR63, Section 5.4.2 • ETS 300 019-1-3, Class 3.1, Section 5.5 • Storage altitude: 1000 to 30,000 ft • Storage temperature: —40 to 158℉ (–40 to 70℃) • Storage relative humidity: 5 to 95%, noncondensing • Heat dissipation: Maximum –12,000W per chassis (actual dissipation will be lower, depending on the chassis configuration)	• Airflow direction: Side to side • Operating temperature: 32 to 104℉ (0 to 40℃) • Operational relative humidity: 5 to 90%, noncondensing • Operating altitude: –500 to 13,123 ft (agency certified 0 to 6500 ft) • Seismic: Zone 4 per GR63 • Floor loading: 190 lb per sq ft • Operational vibration • GR63, Section 5.4.2 • ETS 300 019-1-3, Class 3.1, Section 5.5 • Storage altitude: 1000 to 30,000 ft • Storage temperature: –40 to 158℉ (–40 to 70℃) • Storage relative humidity: 5 to 95%, noncondensing • Heat dissipation: Maximum –18,000W per chassis (actual dissipation will be lower, depending on the chassis configuration)
Regulatory compliance	• EMC compliance • FCC Part 15 (CFR 47) (USA) Class A • ICES-003 (Canada) Class A • EN55022 (Europe) Class A • CISPR22 (International) Class A • AS/NZS CISPR22 (Australia and New Zealand) Class A • VCCI (Japan) Class A • KN22 (Korea) Class A • CNS13438 (Taiwan) Class A • CISPR24 • EN55024 • EN50082-1 • EN61000-3-2 • EN61000-3-3 • EN61000-6-1 • EN300 386	
Environmental standards	• NEBS criteria levels • SR-3580 NEBS Level 3 (GR-63-CORE, issue 3, and GR-1089-CORE, issue 4) • Verizon NEBS compliance • Telecommunications Carrier Group (TCG) Checklist • Qwest NEBS requirements • Telecommunications Carrier Group (TCG) Checklist	

Item	Specification
	• ATT NEBS requirements • ATT TP76200 level 3 and TCG Checklist • ETSI • ETSI 300 019-1-1, Class 1.2 Storage • ETSI 300 019-1-2, Class 2.3 Transportation • ETSI 300 019-1-3, Class 3.2 Stationary Use • Reduction of Hazardous Substances (ROHS) 5
Safety	• UL/CSA/IEC/EN 60950-1 • AS/NZS 60950
Warranty	Cisco Nexus 7000 Series Switches come with the standard Cisco 1-Year Limited Hardware Warranty

Software Requirements

The Cisco Nexus 7000 Series 10-slot chassis is supported in the Cisco NX-OS Software. The minimum software version is Cisco NX-OS Software Release 4.0 or later.

The Cisco Nexus 7000 Series 18-slot chassis is supported in the Cisco NX-OS Software. The minimum software version is Cisco NX-OS Software Release 4.1 or later.

Ordering Information

To place an order, visit the Cisco Ordering homepage. To download software, visit the Cisco Software Center. Table 2 provides ordering information.

Table 2. Ordering Information

Product Name	Part Number
System	
Cisco Nexus 7000 Series 10-Slot chassis including Fan Trays, No Power Supply Cisco Nexus 7000 Series 10-Slot chassis including Fan Trays, No Power Supply	N7K-C7010 N7K-C7010=
Cisco Nexus 7000 Series-10-Slot System Fan Tray Spare	N7K-C7010-FAN-S=
Cisco Nexus 7000 Series-10-Slot Fabric Fan Tray Spare	N7K-C7010-FAN-F=
Cisco Nexus 7000 Series 18-Slot chassis including Fan Trays, No Power Supply Cisco Nexus 7000 Series 18-Slot chassis No Fan Trays, No Power Supply	N7K-C7018 N7K-C7018=
Cisco Nexus 7000 Series-18-Slot Fan Tray Spare	N7K-C7018-FAN=
Cisco Nexus 7000 Series 10-Slot Accessories	
Cisco Nexus 7010-Air Filter	N7K-C7010-AFLT=
Cisco Nexus 7000-Rack Mount Kit	N7K-RMK=
Cisco Nexus 7010-EMI Inlet Screen Kit	N7K-C7010-EMI-SC=
Cisco Nexus 7010 Front Door Top Section-including Cable Management Kit	N7K-C7010-FD-TOP=
Cisco Nexus 7010 Front Door-Kit	N7K-C7010-FD-MB=
Cisco Nexus 7000 Bottom Support Kit	N7K-BSK=
Cisco Nexus 7010 Fabric Module Blank	N7K-FAB-BLANK=
Cisco Nexus 7000 Series 18-Slot Accessories	
Cisco Nexus 7018 Rack Mount Kit	N7K-C7018-RMK=
Cisco Nexus 7018 Front Top Section and Cable Mgmt Kit	N7K-C7018-CAB-TOP=
Cisco Nexus 7018 Front Door Kit	N7K-C7018-FD-MB
Cisco Nexus 7018 Bottom Support Kit	N7K-C7018-BSK
Cisco Nexus 7018 Fabric Module Blank	N7K-C7018-F-BLANK=
Blank Panel Covers	
Cisco Nexus 7000 Series Supervisor Blank Slot Cover	N7K-SUP-BLANK=

Cisco Nexus 7000 Series Module Blank Slot Cover	N7K-MODULE-BLANK=
Cisco Nexus 7010 Chassis Power Supply Blank Slot Cover	N7K-PS-BLANK=
Cisco Nexus 7018 Chassis Power Supply Blank Slot Cover with Handle	N7K-PS-BLANK-H=
Cisco Nexus 7000 Series Network Clock Card Blank	N7K-CLK-BLANK=

Service and Support

Cisco offers a wide range of services to help accelerate your success deploying and optimizing Cisco Nexus 7000 Series Switches in your data center. Our innovative services are delivered through a unique combination of people, processes, tools, and partners, and are focused on helping you increase operational efficiency and improve your data center network. Cisco Advanced Services use an architecture-led approach to help you align your data center infrastructure to your business goals and provide long-term value. Cisco SMARTnet® Service helps you resolve mission critical problems with direct access anytime to Cisco network experts and award-winning resources. With this service, you can take advantage of the Smart Call Home service capability that offers proactive diagnostics, and real-time alerts on your Cisco Nexus 7000 switches. Spanning the entire network lifecycle, Cisco Services help maximize investment protection, optimize network operations, provide migration support, and strengthen your IT expertise. For more information about Cisco Data Center Services, visit: http://www.cisco.com/go/dcservices.

For More Information

For more information about the Cisco Nexus 7000 Series, visit the product homepage at: http://www.cisco.com/go/nexus or contact your local account representative.

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Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

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