

Cisco Nexus 7700 Switches

Product Overview

The Cisco Nexus[®] 7000 Series Switches are the foundation of the Cisco[®] Unified Fabric solution. Designed to meet the requirements of mission-critical data centers, these switches deliver exceptional availability, outstanding scalability, and the proven and comprehensive Cisco NX-OS Software data center switching feature set.

The Cisco Nexus 7700 Switches are the latest extension to the Cisco Nexus 7000 Series modular switches. With more than 83 terabits per second (Tbps) of overall switching capacity, the Cisco Nexus 7700 Switches delivers the highest-capacity 10, 40, and 100 Gigabit Ethernet ports in the industry, with up to 768 native 10-Gbps ports, 384 40-Gbps ports, and 192 100-Gbps ports. This high system capacity is designed to meet the scalability requirements of the largest cloud environments.

The Cisco Nexus 7700 switches (Figure 1) have operational and feature consistency with the existing Cisco Nexus 7000 Series Switches, using a common system architecture, the same application-specific integrated circuit (ASIC) technology, and the same proven Cisco NX-OS Software releases.

Figure 1. Cisco Nexus 7700 Switches



Features and Benefits

Powered by Cisco NX-OS, the Cisco Nexus 7700 Switches delivers a comprehensive set of features with nonstop operations in two chassis form factors:

- Cisco Nexus 7700 18-Slot Switch: An 18-slot switch with 18 front-accessible module slots and front-to-back airflow with integrated cable management
- Cisco Nexus 7700 10-Slot Switch: A 10-slot switch with 10 front-accessible module slots with front-to-back airflow and an integrated cable management system

A scalable, fully distributed fabric architecture uses up to six fabric modules to deliver up to 1.32 Tbps per slot of bandwidth in the Cisco Nexus 7700 10 and 18-Slot Switches on day one. The midplane design on the 10-slot and 18-slot chassis supports flexible technology upgrades as your needs change, providing ongoing investment protection. Future fabric modules will allow higher bandwidth capabilities on the platform.

Cisco Nexus 7700 10-Slot Switch

- The Cisco Nexus 7700 10-Slot Switch, with up to eight I/O module slots, supports up to 384 x 1 and 10 Gigabit Ethernet ports, 192 x 40 Gigabit Ethernet ports, and 96 x 100 Gigabit Ethernet ports, meeting the demands of large data center deployments.
- The Cisco Nexus 7700 10-Slot Switch has two dedicated half-slot supervisors to provide full redundancy, stateful supervisor switchover, and hitless In-Service Software Upgrade (ISSU) capabilities.
- The Cisco Nexus 7710 has six fabric module slots to provide simultaneously active fabric channels to each of the I/O and supervisor modules. Through the parallel forwarding fabric architecture, the Cisco Nexus 7710 can achieve 21 Tbps of forwarding capacity or more.
- Front-to-back airflow helps ensure that the Cisco Nexus 7710 addresses the requirement for hot-aisle and cold-aisle deployments to help provide efficient cooling.
- The system uses three redundant fan trays for cooling. Each fan tray is composed of independent variable-speed fans that automatically adjust to the ambient temperature, helping reduce power consumption in well-managed facilities while helping enable optimum operation of the switch. The system also allows hot swapping of fan trays without negatively affecting the system.
- The system supports an optional door and air filter to help ensure clean airflow through the system. The addition of the air filter satisfies Network Equipment Building Standards (NEBS) requirements.
- The Cisco Nexus 7700 10-Slot Switch can have up to eight 3-kilowatt (kW) power supplies. The smaller power supply configuration provides more flexibility and greater control in power provisioning. The eight power supply bays are designed for future growth, and most common configurations do not require the use of all power supply units for redundant power configurations.
- I/O modules, supervisor modules, and power supplies are accessible from the front, and fabric modules and fan trays are accessible from the back of the chassis.

Cisco Nexus 7700 18-Slot Switch

- The Cisco Nexus 7700 18-Slot Switch, with up to 16 I/O module slots, supports up to 768 x 1 and 10 Gigabit Ethernet ports, 384 x 40 Gigabit Ethernet ports, and 192 x 100 Gigabit Ethernet ports, meeting the demands of the largest data center deployments.
- The Cisco Nexus 7700 18-Slot Switch has two dedicated half-slot supervisors to provide full redundancy, stateful supervisor switchover, and hitless In-Service Software Upgrade (ISSU) capabilities.
- The Cisco Nexus 7700 18-Slot Switch has six fabric module slots to provide simultaneously active fabric channels to each of the I/O and supervisor modules. Through the parallel forwarding fabric architecture, the Cisco Nexus 7700 18-Slot Switch can achieve 42 Tbps of forwarding capacity or more.
- Front-to-back airflow helps ensure that the Cisco Nexus 7700 18-Slot Switch addresses the requirement for hot-aisle and cold-aisle deployments to help provide efficient cooling.

- The system uses three redundant fan trays for cooling. Each fan tray is composed of independent variable-speed fans that automatically adjust to the ambient temperature, helping reduce power consumption in well-managed facilities while helping enable optimum operation of the switch. The system also allows hot swapping of fan trays without negatively affecting the system.
- The system supports an optional door and air filter to help ensure clean airflow through the system. The addition of the air filter satisfies NEBS requirements.
- The Cisco Nexus 7700 18-Slot Switch can have up to sixteen 3-kW power supplies. The smaller power supply configuration provides more flexibility and greater control in power provisioning. The 16 power supply bays are designed for future growth, and most common configurations do not require the use of all power supply units for redundant power configurations.
- I/O modules, supervisor modules, and power supplies are accessible from the front, and fabric modules and fan trays are accessible from the back of the chassis.

Common Components on Cisco Nexus 7700 Switches

All Cisco Nexus 7700 Switches have the following components:

- An Integrated cable management system, custom designed for the 10-slot and for the 18-slot switches, supports the cabling requirements of a fully configured system at either or both sides of the switch, providing outstanding flexibility. All system components can easily be removed with the cabling in place, providing ease of maintenance with no disruption.
- A series of LEDs at the top of the chassis provide 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.

Energy-Efficient Design

The Cisco Nexus 7700 Switches use 3-kW power supplies that are 90 percent efficient or greater, so less power is dissipated as heat, and more power is available for the system to use than with typical power supplies. The high-efficiency 3-kW power supplies allow smaller power configuration and provide flexible power provisioning.

The fan trays in the switches adjust to compensate for changing thermal characteristics. At typical operating conditions, they use less power. The optimized front-to-back airflow reduces the space requirements.

Consolidation of multiple switches in the Cisco Nexus 7700 Switches is made possible by the high density of ports on the switches combined with high-performance, device virtualization, comprehensive reliability, and availability features. This consolidation capability provides multiple benefits such as reduced power, cooling, and space requirements, saving costs.

Product Specifications

Table 1 lists the product specifications for the Cisco Nexus 7700 Switches.

Table 1. Product Specifications

Item	Specification	
	Cisco Nexus 7700 10-Slot Switch	Cisco Nexus 7700 18-Slot Switch
Port count	384 x 10 Gbps, 192 x 40 Gbps, and 96 x 100 Gbps	768 x 10 Gbps, 384 x 40 Gbps, and 192 x 100 Gbps
Product compatibility	<ul style="list-style-type: none"> • Supports all Cisco Nexus 7700 switch modules • Supports Cisco Nexus 7700 Fabric-2 modules 	<ul style="list-style-type: none"> • Supports all Cisco Nexus 7700 switch modules • Supports Cisco Nexus 7700 Fabric-2 modules
Software compatibility	Cisco NX-OS Software Release 6.2 or later	Cisco NX-OS Software Release 6.2 or later

Item	Specification	
Options	<ul style="list-style-type: none"> • Door air filter • Lockable front module doors 	<ul style="list-style-type: none"> • Door air filter • Lockable front module doors • Power supply center cable management
System forwarding capacity	42 Tbps	83 Tbps
Reliability and availability	Online insertion and removal (OIR) of all redundant components: supervisor and fabric modules, power supplies, and fan trays	OIR of all redundant components: supervisor and fabric modules, power supplies, and fan trays
MIBs	Supports Simple Network Management Protocol Version 3 (SNMPv3), v2c, and v1 (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)
Network management	Cisco Data Center Network Manager (DCNM) 6.2.2 or later	Cisco DCNM 6.2.2 or later
Programming interfaces	<ul style="list-style-type: none"> • XML • Scriptable command-line interface (CLI) • Cisco DCNM web services • Python • Tool Command Language (TCL) • Cisco IOS® Embedded Event Manager (EEM) • Cisco Open Network Environment (ONE) Platform Kit (OnePK) • OpenFlow 	<ul style="list-style-type: none"> • XML • Scriptable CLI • Cisco DCNM web services • Python • TCL • Cisco IOS EEM • Cisco OnePK • OpenFlow
Physical specifications	<ul style="list-style-type: none"> • Required rack space: 14 rack units (14RU) • 10-slot switch: 2 dedicated supervisor modules and 8 I/O modules • 6 fabric module slots • 8 power supply slots • Dimensions (H x W x D): 24.35 x 17.3 x 34 in. (61.85 x 43.9 x 86.4 cm) • Chassis depth including cable management and chassis doors is 40 in. (101.6 cm) • Unit is rack mountable in a standard 19-inch (482.6-mm) EIA rack • Weight <ul style="list-style-type: none"> ◦ Chassis only: 160 lb ◦ Fully configured: 438 lb • Power requirements: 110 to 240 VAC • Supports 3-kW AC and DC power supplies 	<ul style="list-style-type: none"> • Required rack space: 26RU • 18-slot switch: 2 dedicated supervisor modules and 16 I/O modules • 6 fabric module slots • 16 power supply slots • Dimensions (H x W x D): 45.25 x 17.3 x 35 in. (114.9 x 43.9 x 88.9 cm) • Chassis depth including cable management and chassis doors is 41 in. (104.1 cm) • Unit is rack mountable in a standard 19-inch (482.6-mm) EIA rack • Weight <ul style="list-style-type: none"> ◦ Chassis only: 300 lb ◦ Fully configured: 900 lb • Power requirements: 110 to 240 VAC • Supports 3-kW AC and DC power supplies
Environmental specifications	<ul style="list-style-type: none"> • Airflow direction: Front to back • Operating temperature: 32 to 104°F (0 to 40°C) • 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: 122 lb per sq. ft • Operational vibration • GR63, Section 5.4.2 • ETS 300 019-1-3, Class 3.1, Section 5.5 • Storage altitude: -1,000 to 30,000 ft. • Storage temperature: -40 to 158°F (-40 to 70°C) • Storage relative humidity: 5 to 95%, noncondensing • Heat dissipation: Maximum 52,500 BTUs per hour (actual dissipation will be lower, depending on the chassis configuration) 	<ul style="list-style-type: none"> • Airflow direction: Front to back • Operating temperature: 32 to 104°F (0 to 40°C) • 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: 230 lb per sq. ft • Operational vibration • GR63, Section 5.4.2 • ETS 300 019-1-3, Class 3.1, Section 5.5 • Storage altitude: -1,000 to 30,000 ft. • Storage temperature: -40 to 158°F (-40 to 70°C) • Storage relative humidity: 5 to 95%, noncondensing • Heat dissipation: Maximum 96,160 BTUs per hour (actual dissipation will be lower, depending on the chassis configuration)

Item	Specification
Regulatory compliance	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • NEBS criteria levels* <ul style="list-style-type: none"> ◦ SR-3580 NEBS Level 3 (GR-63-CORE and GR-1089-CORE) • Verizon NEBS compliance* <ul style="list-style-type: none"> ◦ Telecommunications Carrier Group (TCG) Checklist • Century Link NEBS requirements* <ul style="list-style-type: none"> ◦ Telecommunications Carrier Group (TCG) Checklist • ATT NEBS requirements* <ul style="list-style-type: none"> ◦ ATT TP76200 level 3 • ETSI* <ul style="list-style-type: none"> ◦ ETSI 300 019-2-1, Class 1.2 Storage ◦ ETSI 300 019-2-2, Class 2.3 Transportation ◦ ETSI 300 019-2-3, Class 3.2 Stationary Use <p>* Validation in progress</p>
Safety	<ul style="list-style-type: none"> • UL/CSA/IEC/EN 60950-1 • AS/NZS 60950
Warranty	Cisco Nexus 7700 Switches come with the standard Cisco 1-year limited hardware warranty

Software Requirements

All Cisco Nexus 7000 Series Switches are supported by Cisco NX-OS Software.

- The 10-slot switch requires Cisco NX-OS Software Release 6.2 or later.
- The 18-slot switch requires Cisco NX-OS Software Release 6.2 or later.

For the latest information about recommended releases, see

http://www.cisco.com/en/US/docs/switches/datacenter/sw/nx-os/recommended_releases/recommended_nx-os_releases.html.

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 7700 Switches 10-Slot chassis including Fan Trays, No Power Supply	N77-C7710
Cisco Nexus 7700 Switches 10-Slot chassis including Fan Trays, No Power Supply Spare	N77-C7710=
Cisco Nexus 7700 Switches -10-Slot Fan Tray	N77-C7710-FAN
Cisco Nexus 7700 Switches -10-Slot Fan Tray Spare	N77-C7710-FAN=
Cisco Nexus 7700 Switches 18-Slot chassis including Fan Trays, No Power Supply	N77-C7718
Cisco Nexus 7700 Switches 18-Slot chassis including Fan Trays, No Power Supply Spare	N77-C7718=
Cisco Nexus 7700 Switches -18-Slot Fan Tray	N77-C7718-FAN
Cisco Nexus 7700 Switches -18-Slot Fan Tray Spare	N77-C7718-FAN=
Cisco Nexus 7700 Switches 10-Slot Accessories	
Cisco Nexus 7710 Front Door Air Filter Spare	N77-C7710-FDAFLT=
Cisco Nexus 7710 Front & Side Air Filter	N77-C7710-AFLT
Cisco Nexus 7710 Front & Side Air Filter Spare	N77-C7710-AFLT=
Cisco Nexus 7710-Rack Mount Kit	N77-C7710-RMK
Cisco Nexus 7710-Rack Mount Kit Spare	N77-C7710-RMK=
Cisco Nexus 7710 Cable Management and top LED Kit	N77-C7710-CAB-TOP
Cisco Nexus 7710 Cable Management and top LED Kit Spare	N77-C7710-CAB-TOP=
Cisco Nexus 7710 Front Door-Kit	N77-C7710-FDK
Cisco Nexus 7710 Front Door-Kit Spare	N77-C7710-FDK=
Cisco Nexus 7710 Bottom Support Kit	N77-C7710-BSK
Cisco Nexus 7710 Bottom Support Kit Spare	N77-C7710-BSK=
Cisco Nexus 7710 Accessory Kit	N77-C7710-ACC-KIT
Cisco Nexus 7710 Accessory Kit Spare	N77-C7710-ACC-KIT=
Cisco Nexus 7710 Shipping Package	N77-C7710-SHPPKG
Cisco Nexus 7710 Shipping Package Spare	N77-C7710-SHPPKG=
Cisco Nexus 7700 Switches 18-Slot Accessories	
Cisco Nexus 7718 Power Cable Management	N7K-C7718-PCM
Cisco Nexus 7718 Power Cable Management Spare	N7K-C7718-PCM=
Cisco Nexus 7718 Front Door Air Filter Spare	N77-C7718-FDAFLT=
Cisco Nexus 7718 Front & Side Air Filter	N77-C7718-AFLT
Cisco Nexus 7718 Front & Side Air Filter Spare	N77-C7718-AFLT=
Cisco Nexus 7718-Rack Mount Kit	N77-C7718-RMK
Cisco Nexus 7718-Rack Mount Kit Spare	N77-C7718-RMK=
Cisco Nexus 7718 Cable Management and top LED Kit	N77-C7718-CAB-TOP
Cisco Nexus 7718 Cable Management and top LED Kit Spare	N77-C7718-CAB-TOP=
Cisco Nexus 7718 Front Door-Kit	N77-C7718-FDK
Cisco Nexus 7718 Front Door-Kit Spare	N77-C7718-FDK=
Cisco Nexus 7718 Bottom Support Kit	N77-C7718-BSK

Product Name	Part Number
Cisco Nexus 7718 Bottom Support Kit Spare	N77-C7718-BSK=
Cisco Nexus 7718 Accessory Kit	N77-C7718-ACC-KIT
Cisco Nexus 7718 Accessory Kit Spare	N77-C7718-ACC-KIT=
Cisco Nexus 7718 Shipping Package	N77-C7718-SHPPKG
Cisco Nexus 7718 Shipping Package Spare	N77-C7718-SHPPKG=
Blank Panel Covers	
Cisco Nexus 7700 Switches Supervisor Blank Slot Cover	N77-SUP-BLANK
Cisco Nexus 7700 Switches Supervisor Blank Slot Cover Spare	N77-SUP-BLANK=
Cisco Nexus 7700 Switches Module Blank Slot Cover	N77-MODULE-BLANK
Cisco Nexus 7700 Switches Module Blank Slot Cover Spare	N77-MODULE-BLANK=
Cisco Nexus 7700 Switches 3 KW Power Supply Blank Slot Cover with Handle	N77-3KPS-BLANK-H
Cisco Nexus 7700 Switches 3 KW Power Supply Blank Slot Cover with Handle Spare	N77-3KPS-BLANK-H=

Service and Support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco Nexus 7700 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 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 provide 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. With this service, you can take advantage of the Cisco Smart Call Home service capability, which offers proactive diagnostic information and real-time alerts for your Cisco Nexus 7700 switches. Spanning the entire network lifecycle, Cisco Services helps increase 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 7700 Switches, visit the product homepage at <http://www.cisco.com/go/nexus> or contact your local account representative.



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