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Cisco Nexus 7700 Fabric-3 Modules Data Sheet

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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 an 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 deliver the highest-capacity 10-, 40-, and 100-Gigabit Ethernet ports in the industry, with up to 768 native 10-Gbps ports, 480 40-Gbps ports, or 480 100-Gbps ports. This high-system capacity is designed to meet the scalability requirements of the largest cloud environments.

The Cisco Nexus 7700 switches have operational and feature consistency with the existing Cisco Nexus 7000 Series Switches, using common system architecture, the same Application-Specific Integrated Circuit (ASIC) technology, and the same proven Cisco NX-OS Software releases.

The Cisco Nexus 7700 Fabric-3 modules (Figures 1 and 2) for the Cisco Nexus 7700 Series Switches are separate fabric modules that provide parallel fabric channels to each I/O and supervisor module slot. Up to six simultaneously active fabric modules work together, delivering up to 2.8 Tbps per slot. Through the parallel forwarding architecture, a system capacity of nearly 90 Tbps is achieved with the six fabric modules. The fabric module provides the central switching element for fully distributed forwarding on the I/O modules.



Figure 1.
Cisco Nexus 7700 6-Slot Fabric-3 module



Figure 2.
Cisco Nexus 7700 10-Slot Fabric-3 module

Features and benefits

Switch fabric scalability is made possible through the support up to six concurrently active fabric modules for increased performance as your needs grow. All fabric modules connect to all module slots. The addition of each fabric module increases the bandwidth to all module slots up to the system limit of six fabric modules. The architecture supports lossless fabric failover, with the remaining fabric modules load balancing the bandwidth to all the I/O module slots, helping ensure graceful removal and insertion.

The combination of the Cisco Nexus 7700 fabric module, supervisor module, and I/O modules supports the Virtual Output Queue (VOQ) feature and credit-based arbitration to the crossbar switch to increase the performance and efficiency of the distributed forwarding system. VOQ and credit-based arbitration facilitate fair sharing of resources when a speed mismatch or contention for an uplink interface exists. Table 1 summarizes the features and benefits of the Cisco Nexus 7700 Fabric-3 modules.

Table 1. Features and benefits

Feature	Benefit
High availability and redundancy	The fabrics support multilevel redundancy, in which all available fabrics are active, and provide redundancy for all other fabric modules. All I/O module slots receive a fair share of the total fabric bandwidth, helping ensure lossless forwarding in the event of failover.
Scalable fabric	The combined fabric modules deliver 24 channels per I/O module and 12 channels per supervisor module, for a scalable capacity of more than 42 Tbps for forwarding performance, which can provide up to 768 x 1 and 10 Gigabit Ethernet, 480 x 40 Gigabit Ethernet, and 480 x 100 Gigabit Ethernet nonblocking ports.

Feature	Benefit
Nondisruptive addition and removal of fabric modules	The switch capacity can scale as more fabric modules are added to the system, with transparent upgrades for continuous operations.
Arbitrated crossbar for unicast	Class-of-service-aware forwarding is delivered in a fully distributed forwarding system that allows fair scheduling in the event of congestion as well as lossless Ethernet capabilities for Fibre Channel over Ethernet (FCoE) requirements.
VOQ	In conjunction with the supervisor module, VOQ provides a Quality-of-Service (QoS)-aware lossless fabric, avoiding the problems associated with head-of-line blocking.
Multistage crossbar fabric	System forwarding performance is enhanced by a combination of local fabric switching between ports on the same module and centralized forwarding through the fabric for ports on different modules.
Super-framing and frame segmentation	Crossbar efficiency is optimized by the use of super-framing and frame segmentation to provide deterministic latency and throughput.
ID LED	Using the beacon feature, the administrator can clearly identify the chassis and fabric module.

Product specifications

Table 2 lists the product specifications for the Cisco Nexus 7700 Fabric-3 modules.

Table 2. Product specifications

Item	Specifications	
	Cisco Nexus 7700 6-Slot Fabric-3 Module	Cisco Nexus 7700 10-Slot Fabric-3 Module
Product compatibility	Supported in the Cisco Nexus 7706 Switch	Supported in the Cisco Nexus 7710 Switch
Software compatibility	Cisco NX-OS Software Release 8.3.1 (minimum requirement)	Cisco NX-OS Software Release 8.3.1 (minimum requirement)
Performance	<ul style="list-style-type: none"> • 464 Gbps per slot per Fabric-3 module • 2.64 Tbps per slot for an aggregate of six Fabric-3 modules 	<ul style="list-style-type: none"> • 464 Gbps per slot per Fabric-3 module • 2.64 Tbps per slot for an aggregate of six Fabric-3 modules
Reliability and availability	<ul style="list-style-type: none"> • Online Insertion and Retrieval (OIR) hot swappability 	<ul style="list-style-type: none"> • Online Insertion and Retrieval (OIR) hot swappability
MIBs	Supports Simple Network Management Protocol Version 1 (SNMPv1, v2c, and v3 (See the Cisco NX-OS Software release notes for details about specific MIB support.)	Supports Simple Network Management Protocol Version 1 (SNMPv1, v2c, and v3 (See the Cisco NX-OS Software release notes for details about specific MIB support.)
Network management	Cisco Data Center Network Manager (DCNM) 11.0 or later	Cisco Data Center Network Manager (DCNM) 11.0 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) 	<ul style="list-style-type: none"> • XML • Scriptable Command-Line Interface (CLI) • Cisco DCNM web services • Python • Tool Command Language (TCL)

Item	Specifications	
	<ul style="list-style-type: none"> • Cisco IOS® Embedded Event Manager (EEM) • OpenFlow 	<ul style="list-style-type: none"> • Cisco IOS® Embedded Event Manager (EEM) • OpenFlow
Physical specifications	<ul style="list-style-type: none"> • Occupies one fabric module slot in a Cisco Nexus 7706 Switch • Dimensions (H x W x D): 11.30 x 2.02 x 7.22 in. (28.69 x 5.13 x 18.34 cm) • Weight: 5.6 lb (2.51kg) 	<ul style="list-style-type: none"> • Occupies one fabric module slot in a Cisco Nexus 7710 10-Slot Switch • Dimensions (H x W x D): 18.09 x 2.02 x 9.22 in. (45.95 x 5.13 x 23.42 cm) • Weight: 11 lb (4.99 kg)
Environmental conditions	<ul style="list-style-type: none"> • Operating temperature: 32 to 104°F (0 to 40°C) • Operational relative humidity: 5 to 90%, noncondensing • Storage temperature: -40 to 158°F (-40 to 70°C) • Storage relative humidity: 5 to 95%, noncondensing 	
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 • EN61000-4-5 	
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>	

Item	Specifications
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

* Please refer to Nexus 7000 NX-OS Release Notes.

Software requirements

All Cisco Nexus 7700 fabric modules are supported in Cisco NX-OS Software.

- The Cisco Nexus 7700 6-Slot Switch Fabric-3 module requires Cisco NX-OS Software Release 8.3.1 or later.
- The Cisco Nexus 7700 10-Slot Switch Fabric-3 module requires Cisco NX-OS Software Release 8.3.1 or later.

Ordering information

To place an order, visit the [Cisco Ordering homepage](#). To download software, visit the [Cisco Software Center](#). Table 3 provides ordering information.

Table 3. Ordering information

Product name	Part number
Cisco Nexus 7700 6-Slot Switch 464 Gbps/Slot Fabric Module (and Spare)	N77-C7706-FAB-3 N77-C7706-FAB-3=
Cisco Nexus 7700 10-Slot Switch 464 Gbps/Slot Fabric Module (and Spare)	N77-C7710-FAB-3 N77-C7710-FAB-3=

Service and support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco Nexus 7700 Switches in your data center. Cisco's innovative services are delivered through a unique combination of people, processes, tools, and partners and are focused on helping you increase operating 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 Smart Net Total Care™ 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 diagnostics and real-time alerts on your Cisco Nexus 7700 Switches. Spanning the entire network lifecycle, Cisco Services help increase investment protection, optimize network operations, provide migration support, and strengthen your IT expertise. For more information about Cisco Data Center Services, visit <https://www.cisco.com/go/dcservices>.

Product sustainability

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

Table 4. Cisco environmental sustainability information

Sustainability topic		Reference
General	Information on product-material-content laws and regulations	Materials
	Information on electronic waste laws and regulations, including our products, batteries, and packaging	WEEE Compliance
	Information on product takeback and reuse program	Cisco Takeback and Reuse Program
	Sustainability inquiries	Contact: csr_inquiries@cisco.com
	Environmental conditions	Table 2. Product specifications
	Regulatory compliance, environmental standards, and safety	Table 2. Product specifications
Material	Product packaging weight and materials	Contact: environment@cisco.com
	Physical specifications	Table 2. Product specifications

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For more information

For more information about the Cisco Nexus 7000 Series, visit the product homepage at <https://www.cisco.com/go/nexusor> contact your local account representative.

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