

# Cisco Nexus 7700 Fabric-2 Modules Data Sheet

## Product Overview

The Cisco Nexus<sup>®</sup> 7000 Series Switches are the foundation of the Cisco<sup>®</sup> 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, or 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 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-2 modules (Figures 1, 2 and 3) 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 1.32 Tbps per slot. Through the parallel forwarding architecture, a system capacity of more than 42 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-2 Module



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**Figure 2.** Cisco Nexus 7700 10-Slot Fabric-2 Module



**Figure 3.** Cisco Nexus 7700 18-Slot Fabric-2 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, the supervisor 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. The fabric architecture also supports Fiber Channel over Ethernet (FCoE) capabilities. Table 1 summarizes the features and benefits of the Cisco Nexus 7700 Fabric-2 modules.

**Table 1.** Features and Benefits

Feature	Benefit
<b>High availability and redundancy</b>	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.
<b>Scalable fabric</b>	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, 384 x 40 Gigabit Ethernet, and 192 x 100 Gigabit Ethernet nonblocking ports.
<b>Non-disruptive addition and removal of fabric modules</b>	The switch capacity can scale as more fabric modules are added to the system, with transparent upgrades for continuous operations.
<b>Arbitrated crossbar for unicast</b>	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 FCoE requirements.
<b>VOQ</b>	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.
<b>Multistage crossbar fabric</b>	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.
<b>Super-framing and frame segmentation</b>	Crossbar efficiency is optimized by the use of super-framing and frame segmentation to provide deterministic latency and throughput.
<b>ID LED</b>	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 modules.

**Table 2.** Product Specifications

Item	Specification		
	Cisco Nexus 7700 6-Slot Fabric Module	Cisco Nexus 7700 10-Slot Fabric Module	Cisco Nexus 7700 18-Slot Fabric Module
<b>Product compatibility</b>	Supported in the Cisco Nexus 7706 Switch	Supported in the Cisco Nexus 7710 Switch	Supported in the Cisco Nexus 7718 Switch
<b>Software compatibility</b>	Cisco NX-OS Software Release 6.2.6 (minimum requirement)	Cisco NX-OS Software Release 6.2.2 (minimum requirement)	Cisco NX-OS Software Release 6.2.2 (minimum requirement)
<b>Performance</b>	<ul style="list-style-type: none"> <li>220 Gbps per slot per Fabric-2 module</li> <li>1.32 Tbps per slot for an aggregate of six Fabric-2 modules</li> </ul>	<ul style="list-style-type: none"> <li>220 Gbps per slot per Fabric-2 module</li> <li>1.32 Tbps per slot for an aggregate of six Fabric-2 modules</li> </ul>	<ul style="list-style-type: none"> <li>220 Gbps per slot per Fabric-2 module</li> <li>1.32 Tbps per slot for an aggregate of six Fabric-2 modules</li> </ul>
<b>Reliability and availability</b>	<ul style="list-style-type: none"> <li>Online insertion and retrieval (OIR) hot swappability</li> </ul>	<ul style="list-style-type: none"> <li>Online insertion and retrieval (OIR) hot swappability</li> </ul>	<ul style="list-style-type: none"> <li>Online insertion and retrieval (OIR) hot swappability</li> </ul>

Item	Specification		
<b>MIBs</b>	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))	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))
<b>Network management</b>	Cisco Data Center Network Manager (DCNM) 6.2.6 or later	Cisco Data Center Network Manager (DCNM) 6.2.2 or later	Cisco Data Center Network Manager (DCNM) 6.2.2 or later
<b>Programming interfaces</b>	<ul style="list-style-type: none"> <li>• XML</li> <li>• Scriptable command-line interface (CLI)</li> <li>• Cisco DCNM web services</li> <li>• Python</li> <li>• Tool Command Language (TCL)</li> <li>• Cisco IOS® Embedded Event Manager (EEM)</li> <li>• Cisco Open Network Environment (ONE) Platform Kit (OnePK)</li> <li>• OpenFlow</li> </ul>	<ul style="list-style-type: none"> <li>• XML</li> <li>• Scriptable command-line interface (CLI)</li> <li>• Cisco DCNM web services</li> <li>• Python</li> <li>• Tool Command Language (TCL)</li> <li>• Cisco IOS® Embedded Event Manager (EEM)</li> <li>• Cisco Open Network Environment (ONE) Platform Kit (OnePK)</li> <li>• OpenFlow</li> </ul>	<ul style="list-style-type: none"> <li>• XML</li> <li>• Scriptable command-line interface (CLI)</li> <li>• Cisco DCNM web services</li> <li>• Python</li> <li>• Tool Command Language (TCL)</li> <li>• Cisco IOS® Embedded Event Manager (EEM)</li> <li>• Cisco Open Network Environment (ONE) Platform Kit (OnePK)</li> <li>• OpenFlow</li> </ul>
<b>Physical specifications</b>	<ul style="list-style-type: none"> <li>• Occupies one fabric module slot in a Cisco Nexus 7706 Switch</li> <li>• Dimensions (H x W x D): 11.30 x 2.02 x 7.22 in. (28.69 x 5.13 x 18.34 cm)</li> <li>• Weight: 5.6 lb (2.51kg)</li> </ul>	<ul style="list-style-type: none"> <li>• Occupies one fabric module slot in a Cisco Nexus 7700 10-Slot Switch</li> <li>• Dimensions (H x W x D): 18.09 x 2.02 x 9.22 in. (45.95 x 5.13 x 23.42 cm)</li> <li>• Weight: 11 lb (4.99 kg)</li> </ul>	<ul style="list-style-type: none"> <li>• Occupies one fabric module slot in a Cisco Nexus 7700 18-Slot Switch</li> <li>• Dimensions (H x W x D): 32.40 x 2.02 x 10.22 in. (82.3 x 5.13 x 25.96 cm)</li> <li>• Weight: 20 lb (9.07 kg)</li> </ul>
<b>Environmental conditions</b>	<ul style="list-style-type: none"> <li>• Operating temperature: 32 to 104°F (0 to 40°C)</li> <li>• Operational relative humidity: 5 to 90%, noncondensing</li> <li>• Storage temperature: -40 to 158°F (-40 to 70°C)</li> <li>• Storage relative humidity: 5 to 95%, noncondensing</li> </ul>		
<b>Regulatory compliance</b>	<ul style="list-style-type: none"> <li>• EMC compliance</li> <li>• FCC Part 15 (CFR 47) (USA) Class A</li> <li>• ICES-003 (Canada) Class A</li> <li>• EN55022 (Europe) Class A</li> <li>• CISPR22 (International) Class A</li> <li>• AS/NZS CISPR22 (Australia and New Zealand) Class A</li> <li>• VCCI (Japan) Class A</li> <li>• KN22 (Korea) Class A</li> <li>• CNS13438 (Taiwan) Class A</li> <li>• CISPR24</li> <li>• EN55024</li> <li>• EN50082-1</li> <li>• EN61000-3-2</li> <li>• EN61000-3-3</li> <li>• EN61000-6-1</li> <li>• EN300 386</li> <li>• EN61000-4-5</li> </ul>		
<b>Environmental standards</b>	<ul style="list-style-type: none"> <li>• NEBS criteria levels<sup>*</sup> <ul style="list-style-type: none"> <li>◦ SR-3580 NEBS Level 3 (GR-63-CORE and GR-1089-CORE)</li> </ul> </li> <li>• Verizon NEBS compliance<sup>*</sup> <ul style="list-style-type: none"> <li>◦ Telecommunications Carrier Group (TCG) Checklist</li> </ul> </li> <li>• Century Link NEBS requirements<sup>*</sup> <ul style="list-style-type: none"> <li>◦ Telecommunications Carrier Group (TCG) Checklist</li> </ul> </li> <li>• ATT NEBS requirements<sup>*</sup> <ul style="list-style-type: none"> <li>◦ ATT TP76200 level 3</li> </ul> </li> <li>• ETSI<sup>*</sup> <ul style="list-style-type: none"> <li>◦ ETSI 300 019-2-1, Class 1.2 Storage</li> <li>◦ ETSI 300 019-2-2, Class 2.3 Transportation</li> <li>◦ ETSI 300 019-2-3, Class 3.2 Stationary Use</li> </ul> </li> </ul> <p><sup>*</sup> Validation in Progress</p>		

Item	Specification
<b>Safety</b>	<ul style="list-style-type: none"> <li>• UL/CSA/IEC/EN 60950-1</li> <li>• AS/NZS 60950</li> </ul>
<b>Warranty</b>	Cisco Nexus 7700 Switches come with the standard Cisco 1-year limited hardware warranty

## Software Requirements

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

- The Cisco Nexus 7700 6-Slot Switch Fabric-2 module requires Cisco NX-OS Software Release 6.2.6 or later
- The Cisco Nexus 7700 10-Slot Switch Fabric-2 module requires Cisco NX-OS Software Release 6.2.2 or later
- The Cisco Nexus 7700 18-Slot Switch Fabric-2 module requires Cisco NX-OS Software Release 6.2.2 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 3.** Ordering Information

Product Name	Part Number
<b>Cisco Nexus 7700 6-Slot Switch 220 Gbps/Slot Fabric Module (and Spare)</b>	N77-C7706-FAB-2 N77-C7706-FAB-2=
<b>Cisco Nexus 7700 10-Slot Switch 220 Gbps/Slot Fabric Module (and Spare)</b>	N77-C7710-FAB-2 N77-C7710-FAB-2=
<b>Cisco Nexus 7700 18-Slot Switch 220 Gbps/Slot Fabric Module (and Spare)</b>	N77-C7718-FAB-2 N77-C7718-FAB-2=

## 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 <http://www.cisco.com/go/dcservices>.

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### 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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