

## Модуль Cisco 7600-ES20-10G3CXL

7600-ES20-10G3CXL

### Описание

Chassis compatibility	The 7603-S is fully supported.
Central forwarding engine compatibility	<ul style="list-style-type: none"> <li>• Supervisor Engine 720-3B, 720-3BXL, Route Switch Processor 720 (RSP720) and later.</li> <li>• ES20 requires dual-channel switch fabric connectivity; therefore, the 7600-ES20 is not supported with the Supervisor 32 or in slots 1 through 8 of the 7613 chassis.</li> </ul>
Distributed Forwarding Card (DFC)	<ul style="list-style-type: none"> <li>• Choice of DFC-3C or DFC-3CXL</li> <li>• Line-rate distributed forwarding with services enabled, up to ~30 mpps per line card</li> <li>• DFC-3C</li> <li>• Designed for Carrier Ethernet-based infrastructures</li> <li>• Up to 256K hardware-based forwarding entries with DFC-3C</li> <li>• Up to 128K Netflow entries with DFC-3C</li> <li>• DFC-3CXL</li> <li>• Optimized for IP/MPLS PE mid-size and small service providers offering multiple IP services such as Layer 3 VPNs, IPv6, and triple- or quad-play services</li> <li>• Up to 1 million hardware-based forwarding entries with DFC-3CXL</li> <li>• Up to 256K Netflow entries with DFC-3CXL</li> </ul>
Minimum software	
Packet memory	512 Megabytes for 200 ms of combined input and output buffering at 10 Gbps
Link encapsulations	Ethernet II and IEEE 802.1q encapsulations



Hardware queues	<ul style="list-style-type: none"><li>• 16,000 queues dynamically shared between ingress and egress processing</li><li>• Hierarchical QoS (H-QoS)</li></ul>
MAC addresses	<ul style="list-style-type: none"><li>• Up to 80,000 MAC Addresses per ES20 Line Card</li><li>• 16 K VLAN IDs per line card (within Flexible QinQ configuration guidelines)</li><li>• Hardware-based MAC learning at wire rate</li></ul>
Environmental conditions	Operating temperature: 32 to 104°F (0 to 40°C) Storage temperature: -40 to 167°F (-40 to 75°C) Relative humidity: 10 to 90 percent, noncondensing Operating altitude: -60 to 2000 m
MIBs	<ul style="list-style-type: none"><li>• Cisco Entity MIB (CISCO-ENTITY-MIB)</li><li>• Cisco Entity Asset MIB</li><li>• Cisco Entity Field-Replaceable Unit (FRU) Control MIB</li><li>• Cisco Entity Alarm MIB</li><li>• Interface IF MIB (RFC 2233)</li><li>• Definitions of Managed Objects for Bridges (RFC 1493)</li><li>• Evolution of Interfaces Group of MIB-II (RFC 1573)</li><li>• Simple Network Management Protocol (SNMP) MIB II (RFC 1213)</li><li>• Remote Monitoring (RMON) MIB (RFC 1757)</li><li>• Switch Monitoring (SMON) MIB</li></ul> <p>Operating temperature: 32 to 104°F (0 to 40°C) Storage temperature: -40 to 167°F (-40 to 75°C) Relative humidity: 10 to 90 percent, noncondensing Operating altitude: -60 to 2000 m</p>
Network management	Supported with CiscoWorks, CiscoView and CiscoWorks Resource Manager Essentials (RME) <ul style="list-style-type: none"><li>• Integrated Solution Center (ISC)</li><li>• Cisco Entity MIB (CISCO-ENTITY-MIB)</li><li>• Cisco Entity Asset MIB</li><li>• Cisco Entity Field-Replaceable Unit (FRU) Control MIB</li><li>• Cisco Entity Alarm MIB</li><li>• Interface IF MIB (RFC 2233)</li><li>• Definitions of Managed Objects for Bridges (RFC 1493)</li><li>• Evolution of Interfaces Group of MIB-II (RFC 1573)</li><li>• SNMP MIB II (RFC 1213)</li><li>• Remote Monitoring (RMON) MIB (RFC 1757)</li></ul>



	<ul style="list-style-type: none"> <li>• Switch Monitoring (SMON) MIB</li> <li>• IEEE 802.1ag, Connectivity Fault Management</li> </ul>	
Physical specifications	<ul style="list-style-type: none"> <li>• Occupies one slot in a Cisco 7600 Series</li> <li>• Up to eight (8) ES20s in a Cisco 7609 or 7609-S 9-slot chassis</li> <li>• Requires Supervisor 720-3B, or 3BXL, RSP720 or later</li> <li>• Dimensions (H x W x D): 1.75 x 15.375 x 16 in.</li> <li>• Weight: 16 lbs.</li> <li>• Mean Time Between Failure (MTBF) 80,000 hours</li> </ul>	
Power	340.2 W	
Indicators	Status: green (operational); orange (faulty)	
Regulatory compliance	CE Marking	
Safety	<ul style="list-style-type: none"> <li>• UL 60950</li> <li>• CSA C22.2 No. 60950</li> <li>• EN60950</li> <li>• TS001</li> <li>• IEC 60950</li> <li>• AS/NZS3260</li> </ul>	
Electromagnetic compatibility	<ul style="list-style-type: none"> <li>• FCC Part 15 Class A</li> <li>• ICES-003 Class A</li> <li>• VCCI Class A</li> <li>• EN55022 Class A</li> <li>• CISPR22 Class A</li> <li>• AS/NZS3548 Class A</li> <li>• EN61000-3-2</li> <li>• EN61000-3-3</li> <li>• EN61000-3-1</li> <li>• EN55024</li> <li>• EN50082-1</li> <li>• EN300 386</li> <li>• FCC Part 15 Class A</li> <li>• ICES-003 Class A</li> <li>• VCCI Class A</li> </ul>	<ul style="list-style-type: none"> <li>• EN55022 Class A</li> <li>• CISPR22 Class A</li> <li>• AS/NZS CISPR 22 Class A</li> <li>• EN61000-3-2</li> <li>• EN61000-3-3</li> <li>• EN61000-6-1</li> <li>• EN55024</li> <li>• EN50082-1</li> <li>• EN300 386</li> <li>• UL 60950</li> <li>• CSA C22.2 No. 60950</li> <li>• EN60950</li> <li>• TS001</li> <li>• IEC 60950</li> <li>• AS/NZS3260</li> </ul>

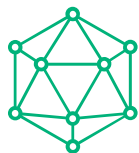


Telecommunications standards	<ul style="list-style-type: none"><li>• ITU-T G.691</li><li>• ITU-T G.707</li><li>• ITU-T G.783 Sections 9-10</li><li>• ITU-T G.784</li><li>• ITU-T G.803</li><li>• ITU-T G.813</li><li>• ITU-T G.825</li><li>• ITU-T G.826</li><li>• ITU-T G.841</li><li>• ITU-T G.957 Table 3</li><li>• ITU-T G.958 FCC Part 15 Class A</li><li>• ICES-003 Class A</li><li>• VCCI Class A</li><li>• EN55022 Class A</li><li>• CISPR22 Class A</li><li>• AS/NZS3548 Class A</li><li>• EN61000-3-2</li></ul>	<ul style="list-style-type: none"><li>• EN61000-3-3</li><li>• EN61000-3-1</li><li>• EN55024</li><li>• EN50082-1</li><li>• EN300 386</li><li>• FCC Part 15 Class A</li><li>• ICES-003 Class A</li><li>• VCCI Class A</li><li>• EN55022 Class A</li><li>• CISPR22 Class A</li><li>• AS/NZS CISPR 22 Class A</li><li>• EN61000-3-2</li><li>• EN61000-3-3</li><li>• EN61000-6-1</li><li>• EN55024</li><li>• EN50082-1</li><li>• EN300 386</li></ul>
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Carrier Ethernet and IP/MPLS network protocols	<ul style="list-style-type: none"><li>• IPv4 unicast and multicast</li><li>• IPv6 unicast and multicast</li><li>• Multiprotocol Label Switching (MPLS) Provider Edge (PE) L2 and L3 VPNs</li><li>• Multiprotocol Label Switching Traffic Engineering (MPLS-TE)</li><li>• Multiprotocol Label Switching (MPLS) Fast Reroute (FRR)</li><li>• Diff-Serv aware MPLS TE</li><li>• GRE and IP-in-IP tunneling</li><li>• Ethernet Bridging and Ethernet Multipoint Bridging (E-MPB)</li><li>• Ethernet switching</li><li>• Ethernet over MPLS (EoMPLS)</li><li>• Switch port: access and trunk</li><li>• QinQ termination</li><li>• Selective QinQ</li><li>• Flexible QinQ</li><li>• VLAN translation</li><li>• Private VLAN</li><li>• VPLS and H-VPLS</li></ul>
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	<ul style="list-style-type: none"><li>• VLAN and Spanning Tree Protocols</li><li>• Per VLAN Spanning Tree (PVST)</li><li>• Virtual Switch Tagging (VST)</li><li>• Rapid Spanning Tree Protocol (RSTP)</li><li>• Multiple Spanning Tree (MST) Protocol: IEEE 802.1s</li><li>• VACL and VTP</li></ul>
QoS	<ul style="list-style-type: none"><li>• Modular QoS CLI (MQC)</li><li>• Policing granularity down to ingress, egress, physical interfaces, and VLAN</li><li>• Access control lists</li><li>• Classification, marking, policing, and queuing</li><li>• Diff-Serv Code Point (DSCP)</li><li>• Complex re-marking of Ethernet and IP/MPLS headers</li></ul>
Congestion avoidance	Weighted Random Early Detection (WRED) based on IP Prec, DSCP, MPLS EXP
Queuing and shaping	<ul style="list-style-type: none"><li>• Enhanced Class-based Weighted Fair Queuing (CBWFQ)</li><li>• Egress low-latency queuing (LLQ); Traffic inside LLQ may be shaped</li><li>• Two levels of queuing hierarchy</li><li>• Egress Shaping</li></ul>
Traffic classification and bandwidth policing	Classification based on: <ul style="list-style-type: none"><li>• Extended ACL</li><li>• IP Precedence/IP DSCP</li><li>• MPLS Experimental Bits (EXP)</li><li>• VLAN</li><li>• Input VLAN</li><li>• Policer: Ingress single and dual-rate, three color</li></ul>
ACLs and security	<ul style="list-style-type: none"><li>• Up to 32,000 access list entries with no forwarding degradation</li><li>• HW counters for ACL hits</li></ul>
Layer 2 and Layer 3 VPNs	<ul style="list-style-type: none"><li>• Layer 2 VPNs</li><li>• EoMPLS with MAC learning</li><li>• H-VPLS (MPLS Edge or IEEE 802.1ad Edge)</li><li>• Flexible QinQ</li><li>• Layer 3 VPNs</li><li>• MPLS VPN (RFC 2547-bis)</li><li>• Inter-AS and Carrier-Supporting-Carrier</li></ul>



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	<p>... and carrier supporting carrier:</p> <ul style="list-style-type: none"><li>• Multicast VPN</li></ul>
Protection and bundling	<ul style="list-style-type: none"><li>• MPLS Fast Reroute</li><li>•</li></ul>

[Спецификация.](#)

[Таблица памяти Cisco \(Router Memory\)](#)

[Таблица производительности \(Router performance\)](#)

Производитель: [Cisco](#)

## Общие

Тип устройства

Поддерживаемый тип интерфейсов маршрутизатора

Линейка Cisco

Карты расширения

Интерфейсы 10GBase-X XFP

7600