Cisco 8010 Series Small Density Fixed Routers



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The Cisco 8010 Series Small Density Fixed Access Routers deliver power-optimized, temperature-hardened, compact, 1G/10G aggregation powered by Cisco Silicon One A100 architecture, providing service providers and enterprise networks with a seamless migration path from legacy access platforms.

Product overview

The Cisco 8010 Series Fixed Routers are ultra-compact, high-performance 1RU fixed-configuration access routers designed to power next-generation CSR, CPE, Metro Access and Enterprise VPN networks. Built on the revolutionary Cisco Silicon One™ A100 Network Processing Unit (NPU), the 8010 Series Small Density Fixed Router delivers up to 100 Gbps of line-rate forwarding capacity and 240 Mpps of packet processing performance.

As bandwidth demands surge across 5G Open RAN and high-density metro access domains, service providers face the challenge of modernizing aging access infrastructure while keeping Capital Expenditures (CapEx) and Operational Expenditures (OpEx) under control. The 8010 Series Small Density Fixed Access Routers meet the service provider demand with carrier-grade platforms that offer versatile interface flexibility, compact form factor, industrial temperature support and Class C precision timing.

Key product highlights

1 Rack Unit (1RU) fixed form factor

- Flexible interface options: 1G Cu/1G/10G (Native Copper ports)
- G.8273.2 Class C Timing compliant
- MACsec and IPsec support (Post FCS) for secure data communication*
- Rich packet Ethernet Operations, Administration, and Management (OAM) capabilities, including Y.1564 SADT
- Power-optimized router with advanced algorithms for reduced Operating Expenses (OpEx)
- Designed for indoor or outdoor deployments, meeting European Telecommunications Standards Institute (ETSI) environmental standards
- Suitable for installation in sealed IP65/IP66 cabinets equipped with heat exchangers, conforming to GR-487 specifications for sufficient thermal management
- Industrial Temperature (I-Temp) for operation in extended temperature ranges
- Based on Cisco IOS XR Flexible Consumption Model (FCM) 2.0

***IPsec and WAN MACsec will be supported post-FCS**

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Figure 1. 8011-16G8X-A/D front and rear

Key attributes

Table 1. Key attributes of 8011-16G8X-A/D models

Chassis product ID	8011-16G8X-A 8011-16G8X-D
CPU	8 cores, 1.6 GHz
Memory	16GB DRAM
Storage	36GB eMMC
Interfaces	8 ports 1G/10G SFP10 12 ports 1G SFP 4 ports 10/100/1000M RJ-45
Maximum NIF	96G
Performance	Up to 240 Mpps
Power supplies	Fixed redundant (AC/DC)
Fans	Fixed fans with redundancy
Airflow	Side to side: right to left
Operating temperature range	-40° to +65°C (-40° to +149°F)
Nonoperating (storage) temperature	-40° to +70°C (-40° to +158°F)

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Chassis product ID	8011-16G8X-A 8011-16G8X-D
Operating humidity range	5% to 95% RH, noncondensing
Storage (relative) humidity	5% to 95% at 40°C (104°F) per NEBS GR-63-Core
Altitude	Up to 3960 meters (13,000 feet)
Power	Worldwide ranging AC (90 to 264V; 50 to 60 Hz) Worldwide ranging DC (–40.8V to –72V)
Surge rating*	8011-16G8X-A: 2kV CM, 1kV DM 8011-16G8X-D: 6kV CM, 3kV DM
Timing ports	Time of Day (ToD) 1 PPS 10 MHz
Physical specifications	Height: 43.6 mm (1.72 in.) Width: 439.4 mm (17.3 in.) Depth: 240 mm (9.45 in.) Weight: 3.9 kg (AC), 3.8 kg (DC)
Mounting options	19 in., 23 in., ETSI
Management interfaces	USB console port USB memory port RS-232 console port 10/100/1000M RJ-45 Ethernet out-of-band management port

* Requires external surge protection devices for installations where higher surge levels are expected. Failure to do so might lead to permanent damage.

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Key software feature support

Table 2. Key software feature support

Specification	Description
Layer 3	IPv4 and IPv6 unicast routing Virtual Routing and Forwarding (VRF) Open Shortest Path First (OSPF) v2, v3 Intermediate System to Intermediate System (IS-IS) for IPv4 and IPv6 Equal-Cost Multipath (ECMP) Virtual Router Redundancy Protocol (VRRP) Hot Standby Router Protocol (HSRP) Generic Routing Encapsulation (GRE) Policy-Based Routing (PBR) ACL-based Forwarding (ABF) Layer 3 Virtual Private Network (L3VPN)
Layer 2	Ethernet Flow Point (EFP) Bridge Domains Virtual Private Wire Service (VPWS) Virtual Private LAN Service (VPLS) Ethernet VPN (EVPN) Ethernet VPN Virtual Private Wire Service (EVPN-VPWS)
Integrated Routing and Bridging (IRB)	Bridge Virtual Interfaces (BVI) Ethernet VPN IRB (EVPN-IRB)
MPLS	Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP) MPLS Traffic Engineering (MPLS-TE) with RSVP-TE

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Specification	Description
Segment Routing (SR)	Segment Routing with MPLS data plane (SR-MPLS) Segment Routing with IPv6 data plane (SRv6) Segment Routing Traffic Engineering (SR-TE) Segment Routing Path Computation Element (SR-PCE) Topology-Independent Loop-Free Alternate (TI-LFA) Segment Routing On-Demand Next-Hop (SR-ODN) Segment Routing Performance Management (SR-PM) Segment Routing v6 Performance Management (SRv6-PM) Segment Routing Data Plane Monitoring (SR-DPM) Tree-SID Integrated Performance Monitoring (IPM)
Multicast	IPv4 and IPv6 multicast routing Protocol Independent Multicast – Sparse Mode (PIM-SM) PIM – Source Specific Multicast (PIM-SSM) Internet Group Management Protocol (IGMP) v3 Multicast Listener Discovery (MLD) v2 Multicast Label Distribution Protocol (mLDP) MPLS Point-to-Multipoint Traffic Engineering (MPLS P2MP-TE) Next Generation multicast VPN (NG mVPN)
Quality of service (QoS)	Virtual Output Queueing (VOQ) with deep packet buffering Class-based 3-level hierarchical QoS Policing, shaping, remarking Multilevel priority queuing Random Early Detection (RED), Weighted RED (WRED) Dual Queue Limit (DQL)
Timing	Enhanced Synchronous Ethernet (eSyncE) Enhanced Ethernet Synchronization Message Channel (eESMC) IEEE 1588-2008 Precision Time Protocol (PTP) G.8275.1, G.8275.2, G.8265.1, G.8273.2 Class C Network Time Protocol (NTP)

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Specification	Description
Security	MACsec and IPsec (post-FCS) Control Plane Protection (CoPP) Management Plane Protection (MPP) Local Packet Transport Services (LPTS) Authentication, Authorization, and Accounting (AAA) Access Control Lists (ACL) for IPv4, IPv6, and L2 Border Gateway Protocol (BGP) FlowSpec Unicast Reverse Path Forwarding (uRPF) 802.1X
OAM	Link Layer Discovery Protocol (LLDP) Cisco Discovery Protocol(CDP) Internet Control Message Protocol (ICMP) Dynamic Host Configuration Protocol (DHCP), DHCP Relay Bidirectional Forwarding Detection (BFD) v4, v6 MPLS OAM Connectivity Fault Management (CFM) Y.1731 Delay Measurement (DM) Y.1731 Synthetic Loss Measurement (SLM) Two-Way Active Measurement Protocol (TWAMP, TWAMP Lite) IP SLA (Service-Level Agreement) NetFlow, sFlow, IPFIX 315 Switch Port Analyzer (SPAN, ERSPAN, SPAN to file) Dying Gasp
Manageability	Command-Line Interface (CLI) SSH, Telnet, SCP, FTP, TFTP Simple Network Management Protocol (SNMP) Network Configuration Protocol (NETCONF) gRPC (Remote Procedure Calls) YANG models (OpenConfig, IETF) Model/event-Driven Telemetry (MDT) RPM-based software infrastructure Embedded Event Manager (EEM) Zero-Touch Provisioning (ZTP) Secure Zero-Touch Provisioning (sZTP)

Note: Some features are not supported at FCS.

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Supported transceiver modules

Please refer to the Transceiver Module Group (TMG) Compatibility Matrix for the transceivers supported by the 8010 Series.

Regulatory standards compliance

Table 3. Regulatory standards compliance

Specification	8010 Series Small Density Routers
Regulatory compliance	Products comply with CE Markings according to directives 2014/30/EU and 2014/35/EU
Network Equipment Building Standards (NEBS)	GR-63-CORE GR-1089-CORE GR-3108 Class-2
ATIS TEER certification	ATIS-0600015.03.2009
Safety	ANSI / UL 60950-1 CAN/CSA C22.2 No. 60950-1 ANSI / UL 62368-1 CAN/CSA C22.2 No. 62368-1 EN / IEC 62368-1
EMC standards (Emissions)	47 CFR Part 15:2016 CISPR32:2012:Ed:1 CISPR32:2015:Ed:2 CNS 15936:2016 EN 55032:2012 EN 55032:2015 EN 61000-3-3:2013+A1:2019 EN IEC 61000-3-2:2019+A1:2020 EN300 386:2012:V1.6.1 EN300 386:2021:V2.1.23 ICES-003:2020:Iss:7 KS C 9610-3-2:2020 KS C 9610-3-3:2020 KS C 9832:2019

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Specification	8010 Series Small Density Routers
	VCCI-CISPR 32:2016 1TR9:2016 EN50121-4:2016 EN50121-4:2016:A1:2019 IEC62236-4:2018:Ed:3.0 TEC 11016:2016_TEC/SD/DD/EMC-221/05/OCT16 EN 301 489-1:2019:V2.2.3 EN 301 489-19:2022:V:2.2.1
EMC standards (Immunity)	CISPR24:2010+A1:2015 CISPR35:2016:Ed:1 EN 55035:2017 EN IEC61000-6-1:2019 EN300 386:2012:V1.6.1 EN300 386:2021:V2.1.23 EN61000-6-1:2007 EN61000-6-2:2005 EN61000-6-2:2019 IEC61000-6-1:2016:Ed:3 IEC61000-6-2:2016:Ed:3 KS C 9835:2019 1TR9:2005 1TR9:2016 EN50121-4:2016 EN50121-4:2016:A1:2019 IEC62236-4:2018:Ed:3.0 TEC 11016:2016_TEC/SD/DD/EMC-221/05/OCT16 EN 301 489-1:2019:V2.2.3 EN 301 489-19:2022:V:2.2.1
ETSI	ETS/EN 300 119 Part 4 ETS/EN 300 019 – Storage: Class 1.2, Transportation: Class 2.3, In-Use/Operational: Class 3.2 ETS/EN 300 753
RoHS	The product is RoHS-6 compliant with exceptions for leaded-Ball Grid-Array (BGA) balls and lead press-fit connectors.

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Ordering information

Table 4. Ordering information

Router product ID	8011-16G8X-A 8011-16G8X-D
Description	Cisco 8011 4x1G Cu, 12x1G, 8x10G
FCS software	Cisco IOS XR 27.1.1

Table 5. Accessory kit for 8011-16G8X-A and 8011-16G8X-D

Accessories	Description
CBL-BRKT-V1	Cable Management Bracket for 8010 Series
RCKMT-19-A	19-inch Rack Mounting Kit for 8010 Series for AC variant
RCKMT-19-D	19-inch Rack Mounting Kit for 8010 Series for DC variant
RCKMT-ETSI-A	21-inch (ETSI) Rack Mounting Kit for 8010 Series for AC variant
RCKMT-ETSI-D	21-inch (ETSI) Rack Mounting Kit for 8010 Series for DC variant
RCKMT-23-A	23-inch Rack Mounting Kit for 8010 Series for AC variant
RCKMT-23-D	23-inch Rack Mounting Kit for 8010 Series for DC variant

Table 6. Ordering information for software licenses available on Cisco 8010 Series

Product ID	Description
ESS-NGA-10G-RTU	Access Network SW&Autom Ess 1.0 Perp RTU (per 10G)
ADN-NGA-10G-RTU	Access Network SW&Autom Adn 1.0 Perp RTU (per 10G)
PRM-NGA-10G-RTU	Access Network SW&Autom Prm 1.0 Perp RTU (per 10G)
NGA-S-SIA-3	SIA per system for 3 years – Small
NGA-S-SIA-5	SIA per system for 5 years – Small
NGA-PRM-S-RTU-P	Premiere-Small Perpetual License
NGA-ADN-S-RTU-P	Advantage-Small Perpetual License
NGA-ESS-S-RTU-P	Essential-Small Perpetual License

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Table 7. Ordering information for power cables supported

Part number	Description
CAB-AC-SA	Power Cord - South Africa, 16/10A, 250V, 1830mm, -40C to +85C
CAB-AC-ARG	Power Cord - Argentina, 10A, 250V, 2500mm, -40C to +85C
CAB-AC-ISR	Power Cord - Israel, 16/10A, 250V, 2500mm, -40C to +85C
CAB-AC-TAI	Power Cord - Taiwan, 15/10A, 125V, 2500mm, -40C to +85C
CAB-AC-CHI	Power Cord - China, 10A, 250V, 2500mm, -40C to +85C
CAB-AC-KOR	Power Cord - Korea, 16/10A, 125V, 2500mm, -40C to +85C
CAB-AC-EUR	Power Cord - Europe, 16/10A, 250V, 2500mm, -40C to +85C
CAB-AC-ITL	Power Cord - Italy, 10A, 250V, 2500mm, -40C to +85C
CAB-AC-UK	Power Cord - UK, 13/10A, 250V, 2500mm, -40C to +85C
CAB-AC-AUS	Power Cord - Australia, 10A, 250V, 2500mm, -40C to +85C
CAB-AC-US	Power Cord - US, 15A, 125V, 2500mm, -40C to +85C
CAB-AC-BRA	Power Cord - Brazil, 10A, 250V, 2500mm, -40C to +85C
CAB-AC-IND	Power Cord - India, 16/10A, 250V, 2500mm, -40C to +85C
CAB-AC-SUI	Power Cord - Swiss, 10A, 250V, 2500mm, -40C to +85C

Service and support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco 8010 Series. These innovative Cisco Customer Experience (CX) offerings are delivered through a unique combination of people, processes, tools, and partners, and they are focused on helping you increase operating efficiency and improve your network operation. Cisco CX helps you resolve mission-critical problems with direct access at any time to Cisco network experts and award-winning resources. Spanning the entire network lifecycle, Cisco CX offerings help increase investment protection, optimize network operations, support migration operations, and strengthen your IT expertise.

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Warranty information

The Cisco 8010 Series Small Density Fixed Routers have a 1-year limited hardware warranty. The warranty includes hardware replacement with a 10-day turnaround from receipt of a Return Materials Authorization (RMA).

Product sustainability

Information about Cisco's Environmental, Social, and Governance (ESG) initiatives and performance is provided in Cisco's CSR and sustainability reporting.

Table 8. 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
Material	Product packaging weight and materials	Contact: environment@cisco.com

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