

Cisco 10000 Series Router

The Cisco® 10000 Series is an industry-leading service provider edge aggregation router that offers a single solution for leased-line, ATM, Frame Relay, and broadband aggregation while providing customers with high-performance IP services, maximum platform scalability, and high availability (Figure 1).

Key Features

- High-performance IP services
 - The Cisco 10000 Series helps enable service providers to deploy revenue-generating services without fearing performance degradation.
 - The Cisco 10000 Series supports Parallel Express Forwarding (PXF), patented by Cisco. PXF offers customers the ability to turn on multiple IP services while maintaining line-rate performance. PXF is software-based; customers can add new service functions without swapping out hardware.
 - The Cisco 10000 Series supports many critical edge services, including quality of service (QoS), Multiprotocol Label Switching (MPLS), Multilink Point-to-Point Protocol (MLPPP), broadband aggregation, and access control lists (ACLs).
- Carrier-class high availability
 - With its carrier-class high availability, the Cisco 10000 Series minimizes costly network outages and maximizes customer satisfaction.
 - The Cisco 10000 Series is the first Internet router designed for nonstop performance. Full hardware redundancy, online insertion and removal (OIR), Cisco Route Processor Redundancy Plus (RPR+), Cisco Stateful Switchover (SSO), and Cisco Nonstop Forwarding (NSF) are the key features of the Cisco 10000 Series that make it a premier Cisco carrier-class platform.
- Maximum scalability
 - With an 8-slot chassis that can hold as many as 16 line cards, the Cisco 10000 Series takes full advantage of service providers' current investments by enabling network growth while minimizing network complexity.

Figure 1
Cisco 10000 Series
Router





- The Cisco 10000 Series supports thousands of DS0, DS1, and E1 connections in a single system, enabling a service provider to increase its customer base. For broadband application, the Cisco 10000 Series supports up to 61,500 subscribers in a single system. Because the Cisco 10000 Series supports Frame Relay, ATM, leased-line, and broadband aggregation in a single platform, customers can provision multiple types of services to the end user without having to maintain multiple edge devices.

Hardware Specifications

Table 1 provides specifications for the Cisco 10008, an eight-slot chassis designed to meet the needs of large service providers.

Table 1 Cisco 10008 Chassis Specifications

| Specifications | Cisco 10008 |
|--|--|
| Modular slots | 8 slots for line cards; 16 slots for half-height line cards 2 slots for Cisco Performance Routing Engine (PRE) modules (1 active, 1 redundant) |
| Hot-swappable | Yes |
| Backplane capacity | 51.2 Gbps |
| Physical dimensions (H x W x D) | 21.75 x 17.5 x 12 in. (55.2 x 44.5 x 30.5 cm) |
| Weight | 130 lb (59.02 kg) fully configured chassis |
| Rack-mounting | 19 to 23 in. (48.3 to 58.4 cm) (front, middle, or back) |
| Power | <ul style="list-style-type: none">• DC input voltage: -48/-60 VDC• AC input voltage: 100-240 VAC, 50/60 Hz, single phase• Maximum power consumption: 1200W |

High-Availability Design

- Redundant AC or DC supplies
- Redundant cooling
- Redundant point-to-point backplane connections to each chassis (payload) slot
- Online OIR; full hot-swap for all system elements
- Automatic protection switching (APS) for all SONET modules
- Redundant PREs with advanced failover capabilities
- Error-Correcting Code (ECC) support on all PRE memory
- Engineered for 99.999-percent reliability

Product Regulatory Compliance

Environmental Conditions

- Storage temperature: -38 to 150 F (40 to 70 C)
- Operating temperature, nominal: -41 to 104 F (5 to 40 C)
- Operating temperature, short term: -23 to 131 F (5 to 55 C)



- Storage relative humidity: 5 to 95 percent
- Operating humidity, nominal: -5 to 85 percent relative humidity
- Operating humidity, short term: -5 to 90 percent relative humidity
- Operating altitude: 198 to 13,200 feet (60 to 4000 meters)

Product Regulatory Approvals

- UL60950/CAN/CSA-C22.2 No. 60950-00, Third Edition, December 1, 2000, with no deviation considered to be less stringent than IEC 60950
- EN60950 with Amendments 1–4, for CE marking to the LVD directive
- IEC 60950, Third Edition, with Amendments 1–4, including all national and group deviations
- AS/NZS 60950:2000
- AS/NZS 3260-1993 with Amendments 1–4
- ACA TS001-1997
- NOM-019-SCFI-1998

Electromagnetic Emissions Certification

- AS/NZ 3548:1995 (including AMD I + II) Class B
- EN55022:1998 Class B
- CISPR 22:1997
- EN55022:1994 (including AMD I + II)
- 47 CFR Part 15:2000 (FCC) Class B
- VCCI V-3/01.4 Class 2
- CNS-13438:1997 Class B
- GR1089:1997 (including Revision 1: 1999)

Immunity

- EN300386:2000—Telecommunications Network Equipment (TNE) EMC requirements; product family standard; high priority of service; central office and non-central office locations
- EN50082-1:1992/1997
- EN50082-2:1995-Generic Immunity Standard, Heavy Industrial
- CISPR24:1997
- EN55024:1998-Generic ITE Immunity Standard
- EN61000-4-2:1995+AMD I + II-ESD, Level 4, 8-kV contact, 15-kV air
- IEC-1000-4-3:1995+AMD 1-Radiated Immunity, 10 V/m
- IEC-1000-4-4:1995-Electrical Fast Transients, Level 4, 4 kV/B
- IEC-1000-4-5:1995+AMD 1-DC surge Class 3; AC surge Class 4
- EN61000-4-6:1996+AMD 1-RF Conducted Immunity, 10V rms
- EN61000-4-11:1995-Voltage Dips and Sags
- ETS300 132-2:1996+corregendum, December 1996
- GR1089:1997 (including Revision 1: 1999)



Network Equipment Building Standards

- Level 3 compliant
- Telcordia SR-3580 Criteria Levels, November 1995
- GR1089-Core: Electromagnetic Compatibility and Electrical Safety, February 1999
- GR63-Core: Physical Protection Requirements, April 2002
- SBC equipment requirements: TP76200 MP and TP76400 MP
- Verizon equipment requirements: SIT.NEBS.TE.NPI.2002.010

Product System Requirements and Compatibility

Hardware Requirements

- PREs—The Cisco 10008 chassis supports all PREs available on the Cisco 10000 Series.
- Line cards—The Cisco 10008 chassis supports all line cards available on the Cisco 10000 Series.

Ordering Information

Table 2 provides part numbers and descriptions of the Cisco 10000 Series Router.

Table 2 Part Numbers for the Cisco 10000 Series Router

| Part Number | Description |
|----------------|--|
| ESR10008-1P1DC | Cisco 10000 8-slot chassis, 1 PRE-1, 1 DC power entry module (PEM) |
| ESR10008-1P1AC | Cisco 10000 8-slot chassis, 1 PRE-1, 1 AC PEM |
| ESR10008-2P2DC | Cisco 10000 8-slot chassis, 2 PRE-1s, 2 DC PEMs |
| ESR10008-2P2AC | Cisco 10000 8-slot chassis, 2 PRE-1s, 2 AC PEMs |
| 10000-1P2-1DC | Cisco 10000 8-slot chassis, 1 PRE-2, 1 DC PEM |
| 10000-1P2-1AC | Cisco 10000 8-slot chassis, 1 PRE-2, 1 AC PEM |
| 10000-2P2-2DC | Cisco 10000 8-slot chassis, 2 PRE-2s, 2 DC PEMs |
| 10000-2P2-2AC | Cisco 10000 8-slot chassis, 2 PRE-2s, 2 AC PEMs |

Migration Program

A Cisco Technology Migration Plan (TMP) has been established for this product. The Cisco TMP is a sales program that allows customers to trade in Cisco products to receive a trade-in credit toward the purchase of any new Cisco product. The program underscores the Cisco commitment to the customer for providing end-to-end product solutions and effective migration options to adapt to ever-changing network requirements. More specifics about this program are available at:

<http://www.cisco.com/go/tradein>.

Service and Support

Cisco Systems® offers a wide range of service and support options for its customers. More information about Cisco service and support programs and benefits are available at:

<http://www.cisco.com/en/US/support/index.html>



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