

Cisco uBR10012 Universal Broadband Router

Evolving the Cable IP Network

The Cisco uBR10012 Universal Broadband Router is a communications-grade cable modem termination system (CMTS) that evolves the cable IP network with superior reliability, performance, scale, and density. The Cisco uBR10012 (Figure 1) supports large-scale delivery of advanced, revenue-generating IP services. The unique architecture of the Cisco uBR10012 brings unparalleled flexibility and intelligence to the cable network with consistent high performance and sophisticated routing capabilities.

Figure 1

Cisco uBR10012, for superior reliability, scalability, and performance



Next-Generation Technology Today

The Cisco uBR10012, which is qualified for PacketCable 1.0, Data over Cable Service Interface Specifications (DOCSIS) 1.1 and EuroDOCSIS 1.1, is built to meet the current and future needs of multiple system operators (MSOs). With full Layer 3 routing capabilities and industry-leading capacity and scalability, the Cisco uBR10012 delivers the highest level of performance for mass deployment of next-generation IP services.

The Cisco uBR10012 is designed to meet the services, performance, and reliability required for large-scale multiservice applications. The Cisco uBR10012 allows cable providers to deliver value-added IP services with consistent high performance. Based on Cisco IOS[®] Software—the standard in routing technology—the Cisco uBR10012 offers the most advanced networking and routing options available.

Communications-Grade Reliability

The Cisco uBR10012 delivers the highest availability with fully redundant components, redundant backplane connections, N+1 RF line card redundancy and stateful switchover support that ensures uninterrupted service (Figure 2). All platforms are compliant with Network Equipment Building Standards (NEBS), the European Telecommunications Standards Institute (ETSI), and the American National Standards Institute (ANSI). The Cisco uBR10012 is remotely manageable and features field-upgradeable software and hot-swappable components.

Figure 2

Cisco uBR10012, featuring fully redundant components and connections



The Cisco uBR10012 features these components:

- Eight cable line cards to connect to the cable plant
- Four high-performance WAN interfaces to connect to the IP backbone and external networks
- Two Cisco Timing, Communication, and Control Plus (TCC+) cards to monitor the line cards and power supply
- Two Cisco Performance Routing Engine (PRE) modules with Parallel Express Forwarding (PXF) processors for consistent, high-performance throughput, even with multiple services enabled
- Two Power Entry Modules (PEMs) for uninterrupted power supply

Modular Design for Investment Protection

The Cisco uBR10012 enables cable service providers to deliver feature-rich, high-speed data, voice, and video services to very high subscriber penetrations, typically 1,000 to 80,000 subscribers per chassis. With a standards-based, modular design and upgrade flexibility, the Cisco uBR10012 provides service providers with a quick return on investment and an easy migration path for future growth.

The Cisco uBR10012 supports Cisco Broadband Processing Engines (BPEs), including the new Cisco 5X20U BPE—the highest-density line card in the industry that supports DOCSIS and EuroDOCSIS channel plans, as well as DOCSIS operations in Japan that extend the supported upstream frequency range. With Cisco BPEs, MSOs can now offer a broad range of reliable, value-added IP services to as many as 80,000 subscribers per chassis, with guaranteed performance at line rate with leading RF capabilities. The Cisco uBR10012 also supports Cisco uBR7246VXR Universal Broadband Router cable line cards for simple upgrade migration.

The Cisco uBR10012 also supports up to four high-performance WAN interfaces, including Gigabit Ethernet and the new Cisco OC-48 Dynamic Packet Transport (DPT) interface module set, the first integrated high-speed optical interface for a CMTS.

All cable line cards and WAN interfaces are optimized for terminating large numbers of subscriber circuits and for handling physical-layer conversions unique to each kind of interface.

Consistent High Performance with Value-Added IP Services

Supporting multiple services can strain existing cable networks. Providers must often make significant trade-offs on throughput, capacity, or service mix that can lower operating margins and create inconsistent service characteristics. With the Cisco uBR10012, multiple revenue-generating cable IP services can be deployed reliably and with consistent performance.

The Cisco uBR10012's PXF-based architecture ensures consistent line-rate throughput with multiple IP services enabled. A comprehensive suite of value-added IP services, such as quality of service (QoS), Multiprotocol Label Switching (MPLS), and access control lists (ACLs) have been performance-optimized to deliver exceptional throughput to every subscriber.

In contrast to other CMTS products that support only distributed processing or only centralized processing, the Cisco uBR10012 supports a mix of distributed, centralized, and parallel processing. This ensures optimized performance to a comprehensive suite of line-rate IP services.

Cisco uBR10012 Applications

With the Cisco uBR10012, MSOs and other service providers can roll out advanced cable IP services while supporting a large variety of applications, including:

- High-speed data (HSD)
- Managed access and tiered services
- Commercial services
- Voice over IP (VoIP)
- Video over IP
- Virtual private networks (VPNs)

The Cisco uBR10012's high density and high reliability contributes to high service margins. The Cisco uBR10012 offers an optimal solution to expand services and penetrate new markets. A mix of VoIP, VPN, IP multicast and basic HSD services are consistently, efficiently, and optimally supported throughout the network. No other CMTS offers the combination of density, reliability, flexibility, and performance found in the Cisco uBR10012 (Table 1).

Table 1 Cisco uBR10012 Universal Broadband Router Features and Benefits

Feature	Benefits
PacketCable 1.0, as well as DOCSIS and EuroDOCSIS 1.1 qualified	<ul style="list-style-type: none">• Protects investment and ensures compatibility with next-generation multiservice networks• Provides QoS support, access lists, multicast, MPLS traffic engineering
Highest density and scalability in the industry	<ul style="list-style-type: none">• Reduces capital expenses• Protects existing capital investment
High availability	<ul style="list-style-type: none">• Reduces operational expenses• Increases customer satisfaction• Enables service level agreements• Enables delay-sensitive applications, such as voice and video
Proven design platform, leveraging Cisco uBR7200 Series and Cisco 10000 Series routers, Cisco IOS Software, and management systems common to other Cisco cable products	<ul style="list-style-type: none">• Provides a dependable and proven operating platform• Offers backward compatibility with Cisco uBR7200 Series line cards• Enables operators to rapidly and easily deploy the product through common CLI, GUIs, SNMP, and maintenance procedures• Preserves existing capital assets• Reduces operational costs associated with new platforms
Advanced, PXF-optimized IP services	<ul style="list-style-type: none">• Consistent high throughput, even with multiple, simultaneous services enabled

Table 2 provides technical specifications for the Cisco uBR10012.

Table 2 Technical Specifications

Feature	Specification
Chassis	18 rack units with two chassis per 7-foot rack; fully configured chassis weight is 235 lb (106.6 kg); each chassis is 31.25 in. (79.4 cm) high, 17.2 in. (43.7 cm) wide, and 22.75 in. (57.8 cm) deep
Power	DC input voltage of -48 VDC to -60 VDC with 2400W maximum power consumption, 240 VAC option
Temperature	41 to 104°F (5 to 40°C) operating and -40 to 158°F (-40 to 70°C) nonoperating
Interfaces	Eight line card slots; four LAN/WAN interface slots; interfaces include the Cisco OC-12 packet over SONET (POS) and Gigabit Ethernet
Backplane capacity	51.2 Gbps
Compliance and emissions	UL 1950, CAN/CSA 22.2 No. 950-95, EN60950, IEC 60950, ACA TS001, AS/NZS3260, 47CFR Class B (FCC), CISPR22 Class B, EN55022 Class B, AS/NZS 3548 Class B, ICES-003 Class B, VCCI Class B, BSMI (CNS 13438) Class B, IEC1000-3-2, IEC1000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-5, EN61000-4-11, NEBS Level 3, Bellcore: GR-63-CORE, GR-1089-CORE, SR-3580, ETS 300 386-1, ETS 300 386-2, ETS 300 132-2
Software support	Cisco IOS Software Release 12.2(11)BC1 minimum

For more information about the Cisco uBR10012, please contact your local Cisco account representative or visit <http://www.cisco.com/en/US/products/hw/cable/ps2209/index.html>



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