



# Cisco uBR-MC3G60V Broadband Processing Engine for the Cisco uBR10012 Universal Broadband Router

At-A-Glance

## Product Overview

The Cisco® uBR-MC3GX60V Broadband Processing Engine (BPE) is a high-capacity, DOCSIS® 3.0-capable line card for the Cisco uBR10012 Universal Broadband Router. With 72 DOCSIS downstream and 60 upstream channels per card, the uBR-MC3GX60V BPE sets a new benchmark for scalable, faster, and cost-effective DOCSIS 3.0 cable modem termination system (CMTS) solutions. With the addition of the uBR-MC3GX60V BPE, the Cisco uBR10012 platform scales to an industry-leading **576 modular DOCSIS downstream channels and 480 upstream channels**, or approximately 24 Gbps of downstream throughput and 14.4 Gbps of upstream throughput, in a single, carrier-class chassis.

The Cisco uBR10012 CMTS with the uBR-MC3GX60V BPE delivers 10 times the capacity and 20 times the speed of DOCSIS 2.0 solutions at only a tenth of the cost. Because it bonds 24 DOCSIS channels (or 18 EuroDOCSIS channels) per bonding group, the solution allows cable operators to deliver ultra-broadband services with maximum downstream speeds approaching 1.0 Gbps per subscriber. A fully loaded Cisco uBR10012 CMTS with the Cisco uBR-MC3GX60V BPE can deliver 500 HDTV channels, video-on-demand (VoD), and ultra-broadband services to 20,000 homes.

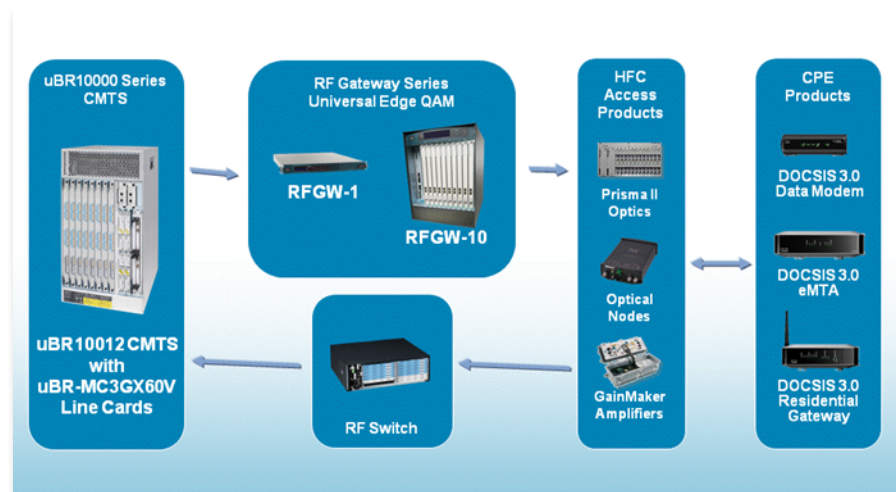
## Extending the Cisco DOCSIS 3.0 Solution

The Cisco uBR10012 CMTS and uBR-MC3GX60V BPE are part of the Cisco DOCSIS 3.0 solution portfolio. The uBR10012 supports both of the CableLabs-specified CMTS architectures – integrated and modular – in the same chassis. In this way, the uBR10012 provides a broad range of configuration options, allowing cable operators to select the CMTS design that best meets their specific requirements. The addition of the Cisco uBR-MC3GX60V BPE to the solution portfolio adds exceptional scalability while significantly reducing the per-channel cost of the CMTS.

The combination of the Cisco uBR10012 CMTS equipped with the uBR-MC3GX60V BPE and the Cisco RFGW-10 Universal Edge QAM provides impressive capacity while maintaining the highest standards of reliability and availability because of comprehensive line card and supervisor redundancy on both platforms. In addition, this solution enables cable operators to converge their IP and digital video services on the

RFGW-10, thereby lowering the cost per QAM channel and reducing the rack space, power, cooling and other environmental requirements for delivering all services.

**Figure 1 Cisco DOCSIS 3.0 Solution with Cisco uBR-MC3GX60V**



The standards-based modular solution also permits cable operators to utilize third-party edge QAM products that comply with the CableLabs M-CMTS specifications.

## Delivering Cost-Effective Video Over DOCSIS

To enable the transition to an all-IP network, including managed and unmanaged IP video services, the Cisco DOCSIS 3.0 solution provides a highly scalable, highly available converged network optimized for video. Cisco IOS® software offers a comprehensive feature set for efficient IP video delivery over the DOCSIS network.

- High Quality: Advanced QoS features such as dynamic bandwidth sharing and admission control for bandwidth reservation to ensure video quality and enable convergence with high-speed data services.



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- Cost Effective: IP Multicast and RF Spanning for scalable and cost-effective delivery of linear TV services.
- Efficient: IP Statistical Multiplexing with VBR video allows better utilization of CMTS resources to deliver more video streams in less bandwidth and spectrum.

## Flexibility with Cisco Software Licensing

The Cisco uBR-MC3GX60V provides true cost flexibility for operators with licensing options that offer a pay-as-you-grow model. The software licensing capability combined with the adaptability of the modular CMTS architecture allows customers to turn up and move ports and bandwidth to different service groups as needed, without fear of stranding downstream or upstream ports.

- Base Hardware and 16 upstream and 16 downstream channel licenses constitute the minimum configuration.
- Additional optional licenses are available for purchase up to the full capacity of 72 DOCSIS downstream (or 54 EuroDOCSIS downstream) and 60 upstream channels
- Cisco Software Licensing (CSL) infrastructure provides an operationally simple licensing experience. The ability to purchase and activate downstream and upstream channels as needed through software licensing allows cable operators to closely match their capital expenditures to their growth requirements.

## Features and Benefits

- DOCSIS line-rate operation for all downstream channels (72 at 256QAM Annex B or 54 at 256QAM Annex A) and all 60 upstream channels (up to 64QAM/6.4 MHz) in bonded and non-bonded modes
- From eight- to more than 32-channel downstream bonding capable; four-channel upstream bonding capable
- Six Small Form-Factor Pluggable (SFP) ports (three active and three standby)
- 20 upstream ports (identical to MC20X20V), providing up to 12 frequency stacking per port

- Flexibility in assigning upstream channels to upstream ports; upstream frequency of up to 85 Mhz
- Full DOCSIS 3.0 CMTS and downstream external PHY interface (DEPI) capability
- Superior RF performance with enhanced full-feature tap (FFT), ingress cancellation, and impulse noise detection capability
- Time Division Multiple Access (TDMA), Advanced Time Division Multiple Access (A-TDMA), and Synchronous Code Division Multiple Access (S-CDMA) supported
- Simultaneous operation of Cisco uBR-MC3GX60V, as well as Cisco 5x20H, Cisco 5x20U, Cisco MC20X20V, and Cisco DOCSIS 3.0 Wideband shared port adapter (SPA) in the same uBR10012 chassis

## Why Cisco?

Cisco has years of experience, leadership, a record of industry-defining innovation, and commitment to the cable industry. This background uniquely positions Cisco to understand the needs of cable operators and to design products to meet those needs. Our goal is to help cable operators deliver superior service while reducing operating expenses. The Cisco uBR-MC3GX60V provides investment protection for customers who have already deployed the Cisco uBR10012 successfully. In addition, the Cisco uBR-MC3GX60V offers customers a proven path to deliver carrier-class multiservice data, voice, and video services to subscribers. Together, the Cisco uBR-MC3GX60V line card and the Cisco uBR10012 platform provide a pioneering and cost-effective solution for the move to DOCSIS 3.0 and video over DOCSIS.