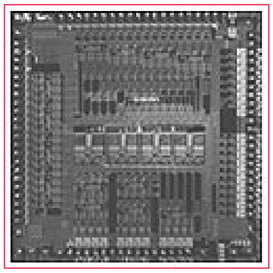
BROADCOM®

BCM3300
PRODUCT Brief



BCM3300 QAMLINK™ SINGLE CHIP MCNS/DOCSIS CABLE MODEM

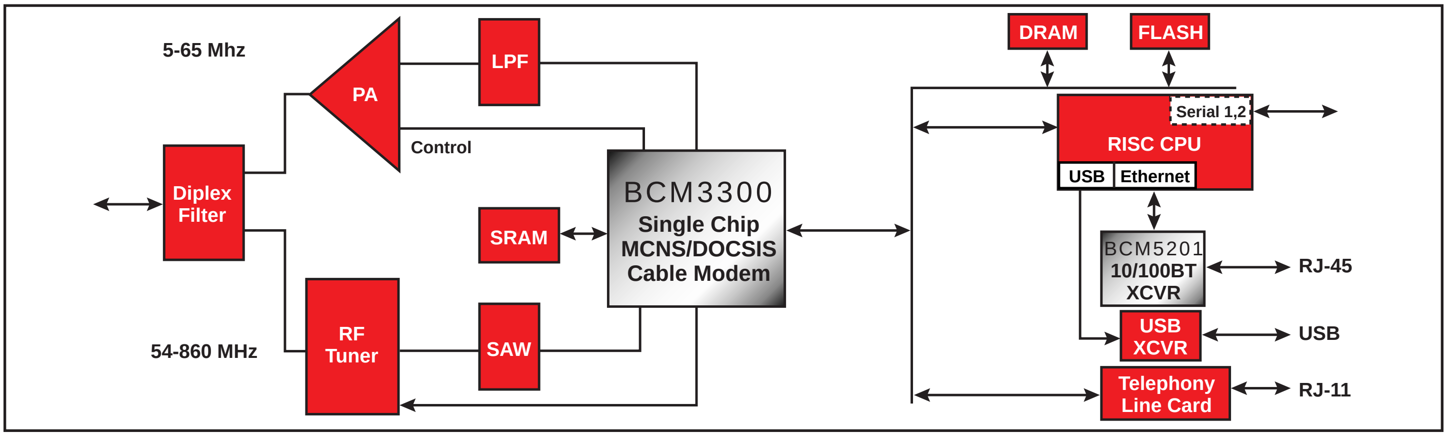
BCM3300 FEATURES

- **Integrated QAMLink Receiver**
  - 10-bit A/D converter with input AGC amplifier
  - Variable symbol rate 256QAM receiver
  - Digital demodulator, Nyquist filters, tracking loops and 32-tap adaptive decision feedback equalizer
  - ITU-T J.83 Annex A/B/C compatible FEC
- **Integrated Upstream Transmitter:**
  - Programmable FEC encoder
  - Pre-equalizer filter
  - QPSK/16QAM burst modulator
  - 10-bit D/A converter with output power control
- **Integrated MCNS/DOCSIS Media Access Controller (MAC)**
  - MCNS/DOCSIS ver. 1.0 compliant
  - Extensions for fragmentation and concatenation
  - Supports enhanced Quality of Service (QoS) for Voice over IP (VoIP) applications
  - Support for 16 destination address and 256 multicast address filters
  - Four simultaneous upstream SIDS multiplexed to 16
- **CPU interfaces**
  - Motorola MC68360, MPC850 PowerPC
  - IDT79R3081 MIPS
- **3.3V**
- **256-pin BGA package**

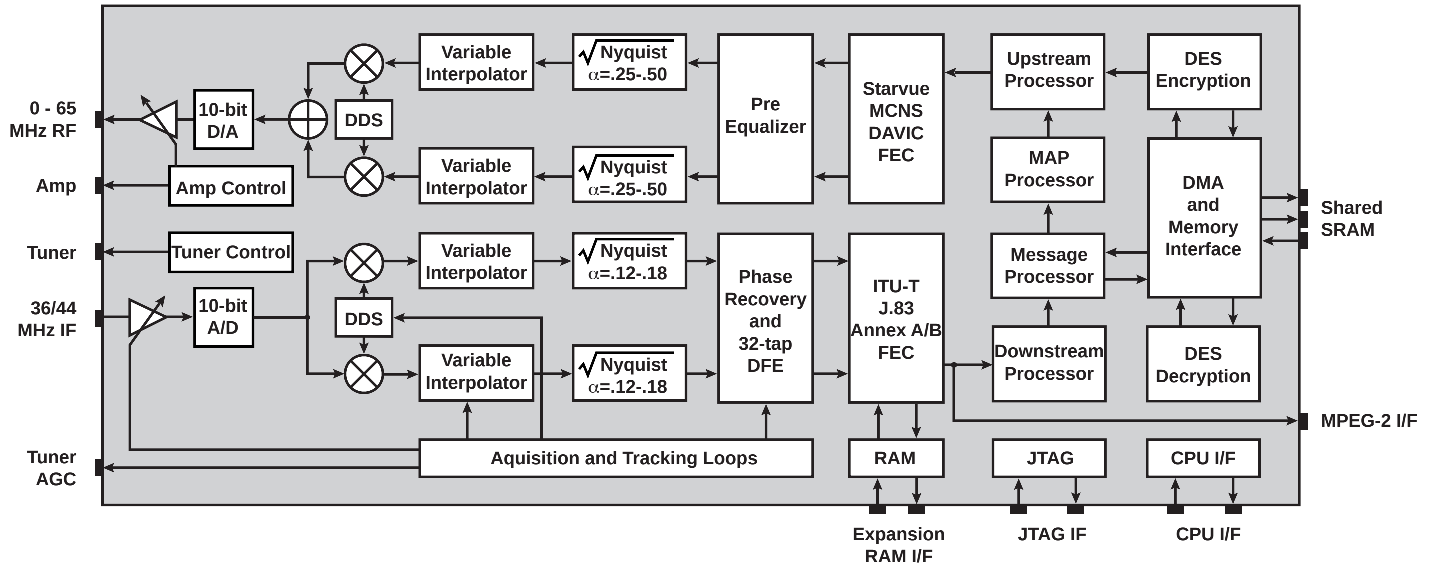
SUMMARY OF BENEFITS

- **Fully-integrated, MCNS/DOCSIS-compliant PHY/ MAC integrated circuit.**
  - Reduces overall system cost
  - Simplifies system, board and software design
  - Reduces power consumption
- **Single crystal design with direct IF sampling**
- **Complete Media Access Control (MAC) function for MCNS-compliant cable modem.**
  - Ensures interoperability in consumer-grade products.
- **Baseline privacy encryption and decryption**
  - Support for up to 16 SIDs and 16 56-bit DES encryption keys with initialization vectors
  - 40-bit DES version available for export
- **Hardware processing, enabling real-time:**
  - Termination of MPEG-2 transmission convergence sublayer
  - Generation/verification of CRC and HCS
  - Extraction and processing of time stamps and system timing
  - MAP message handling and upstream bandwidth requests
  - MAC layer fragmentation in hardware
  - Extensive address filtering

MCNS/DOCSIS-Compliant External Cable Modem



BCM3300 OVERVIEW



The Broadcom® **BCM3300** combines a 256-QAM receiver, a 4/16-QAM burst transmitter and a complete MCNS/DOCSIS compliant MAC integrated into a single chip. The **BCM3300** is the world's first and only single chip, MCNS/DOCSIS version 1.0 compliant solution with extensions for fragmentation and Quality of Service (QoS).

The receiver directly samples a tuner output, digitally resamples and demodulates the signal with recovered clock and carrier timing, filters and equalizes the data, passing soft decisions to an ITU-T J.83 Annex A/B/C compatible decoder.

The upstream transmitter takes burst or continuous data, provides FEC encoding and pre-equalization for MCNS/DOCSIS or DVB/DAVIC applications, filters and modulates the data stream and provides a direct 0 - 65 MHz analog output.

The MAC includes baseline privacy encryption and decryption, transmission convergence sub-layer support, a TDM/D TMA framer and a scatter/gather DMA interface. The MAC in the **BCM3300** is also the only DOCSIS compliant device which implements version 1.0 functionality and provides extended functions which include fragmentation, concatenation and multiple SIDs enabling full support for Quality of Service applications such as Voice over IP.

The **BCM3300** represents the first silicon solution which integrates the key DOCSIS physical and MAC layer functions into a single integrated chip, enabling the the lowest cost system implementation in the industry

Ordering Information:

BCM3300KTB	56-bit DES version
BCM3300KTB40	40-bit DES version

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