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BCM7317
PRODUCT Brief
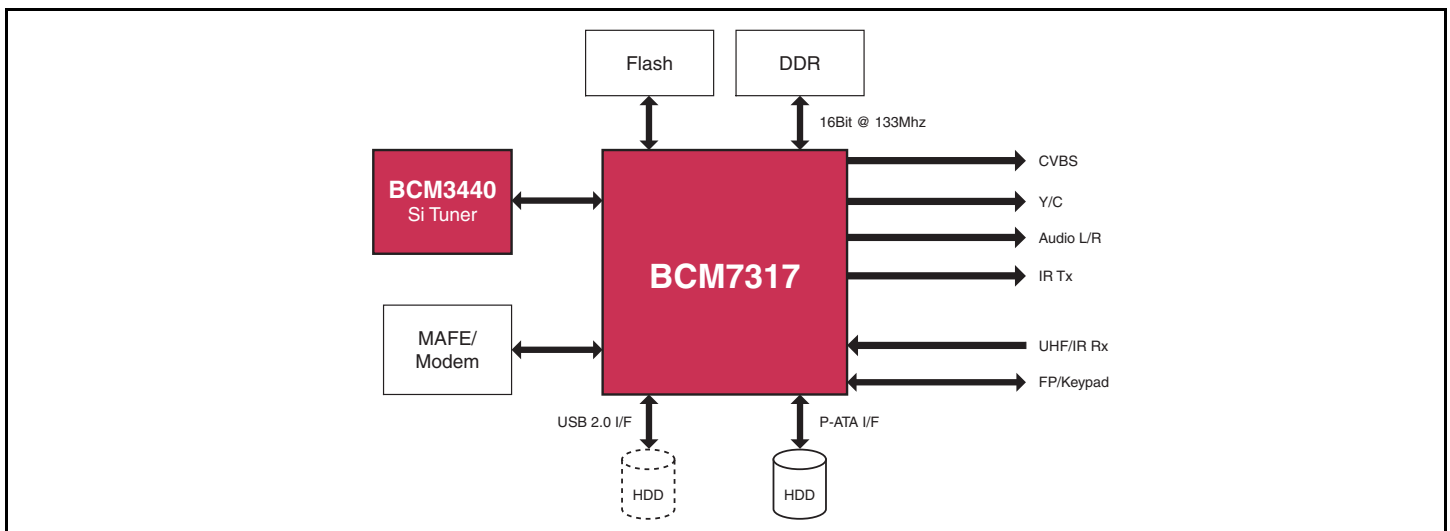
SINGLE-CHIP SATELLITE SET-TOP BOX DECODER

FEATURES

- **All-digital satellite receivers**
  - 1 45-Mbaud variable rate receiver
  - DVB/DIRECTV®/Digicipher® II compliant FEC decoder
- **Data transport processor**
  - Support for DIRECTV and MPEG transport streams
  - DES/DVB descrambler
  - NDS ICAM and XTV compliant
  - Support for play/record from/to hard disk
- **MPEG-ATSC compliant audio/video decoders**
  - MP@ML MPEG2 video decoder
  - Decode of MPEG layer-1 and layer-2 audio
  - Support for Dolby® AC-3 and compressed PCM
- **Broadcom Graphics Engine (BGE)**
  - Supports three graphics, 1 video, and hardware cursor planes
  - 2D video scaling support
  - Integrated PAL/NTSC/SECAM encoder
  - ITU-656 input support
- **MIPS32™ CPU core at 242 MHz**
  - MMU support
  - EJTAG debug support
- **IDE host adapter**
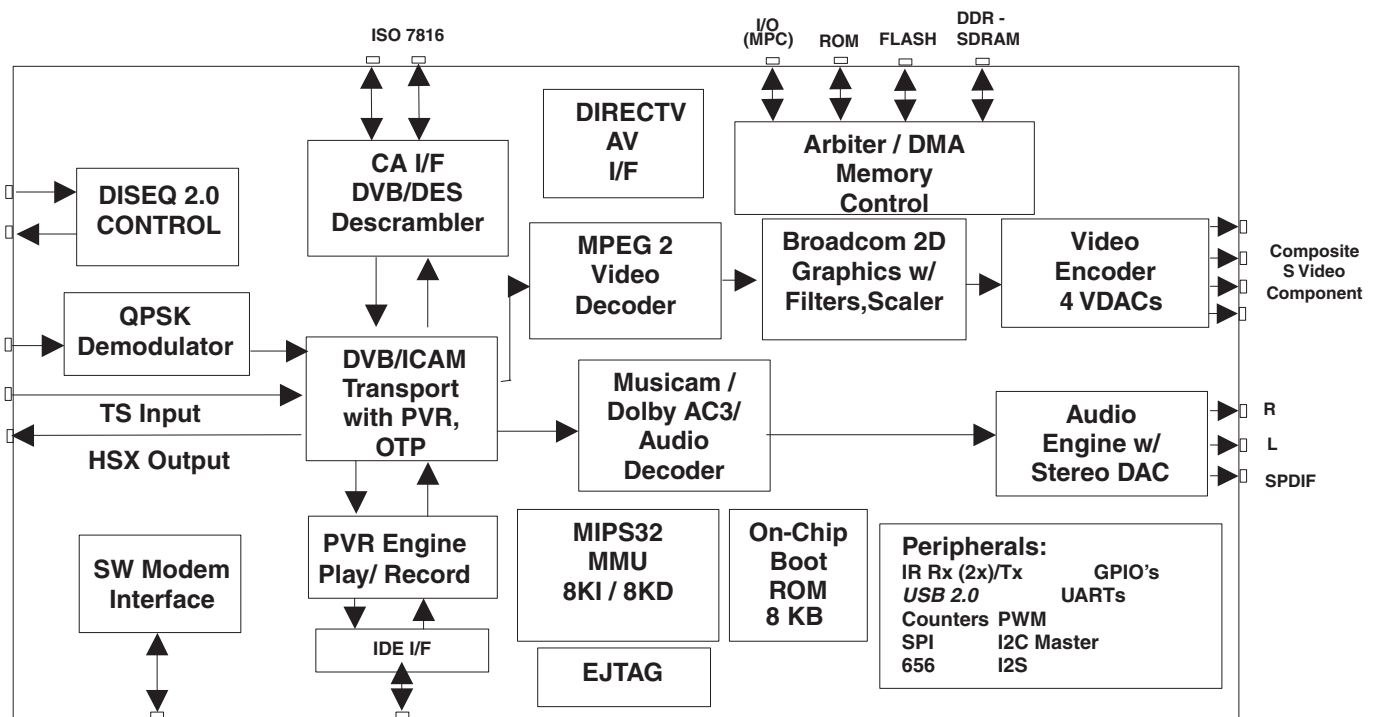 - ATA5 command set, Ultra ATA/66 I/F

SUMMARY OF BENEFITS

- **Provides a cost-effective solution for direct broadcast satellite (DBS) applications**
- **Fully integrated QPSK receiver, MPEG2 A/V decoder, MIPS CPU and peripherals for a complete set-top box system**
  - Low-cost solution for next generation Set-Top boxes
- **Fully integrated USB 2.0 host controller with two-port physical interface on-chip**
- **PVR capability enables personal viewing and scheduling, video-on-demand (VOD), and VCR "trick mode" effects on any video stream**
  - Encryption ensures copy protection of recorded programming content
  - Simultaneous support for record and playback
- **Advanced 2D graphics system allows applications such as internet browsers and electronic program guides to deliver studio-quality text and graphics on television monitors**
- **Broadcom-developed device drivers enable rapid software development cycle with support of industry-standard operation systems**
- **Industry-leading third-party operating systems, tool chains and middleware supported, including OpenTV, NDS's XTV PVR systems**

BCM7317 Single-Chip System Block Diagram

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The BCM7317 is a satellite set-top box system on a single-chip, integrating Broadcom's field-proven BCM4500 QPSK Demodulator technology, as well as technology derived from Broadcom's existing cable products (such as the BCM7115 Cable STB single chip).

The BCM7317 is a design based on a unified memory architecture, (UMA), utilizing a 133-MHz, 16-bit-wide double data rate (DDR) memory interface for added system performance.

The BCM7317 is a complete single-chip that can decode transport streams, delivered either via the external BCM3430/40 CMOS Tuner or via the IDE host I/F from an external hard disk drive (or combination). It can display the resulting decoded audio and video on a television monitor connected to the set-top box.

The on-chip video encoder supports NTSC, PAL, and SECAM with optional Macrovision 7.1 support.

The BCM7317 includes Broadcom's advanced 2D graphics engine, offering true studio quality text and graphics with extremely efficient use of memory and bandwidth.

The BCM7317 also incorporates a complete industry-standard MIPS32™-based microprocessor subsystem, including an 8-KB instruction cache and 8-KB data cache. Internal bridges to memory and local busses provide support for external peripherals on-chip as well as off-chip.

A full range of peripheral devices is supported on the BCM7317, including UARTs, dual ISO7816 smart cards I/F, GPIO, counters/timers, IR Tx/Rx, I^2C and SPI controllers, and a USB 2.0 host controller with two ports and integrated physical I/F, saving the cost of an external physical interface design.

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