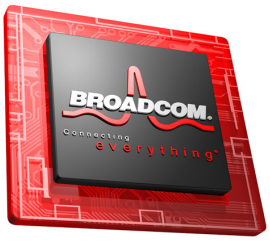
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BCM7315 PRODUCT Brief



SINGLE-CHIP SATELLITE SET-TOP BOX DECODER

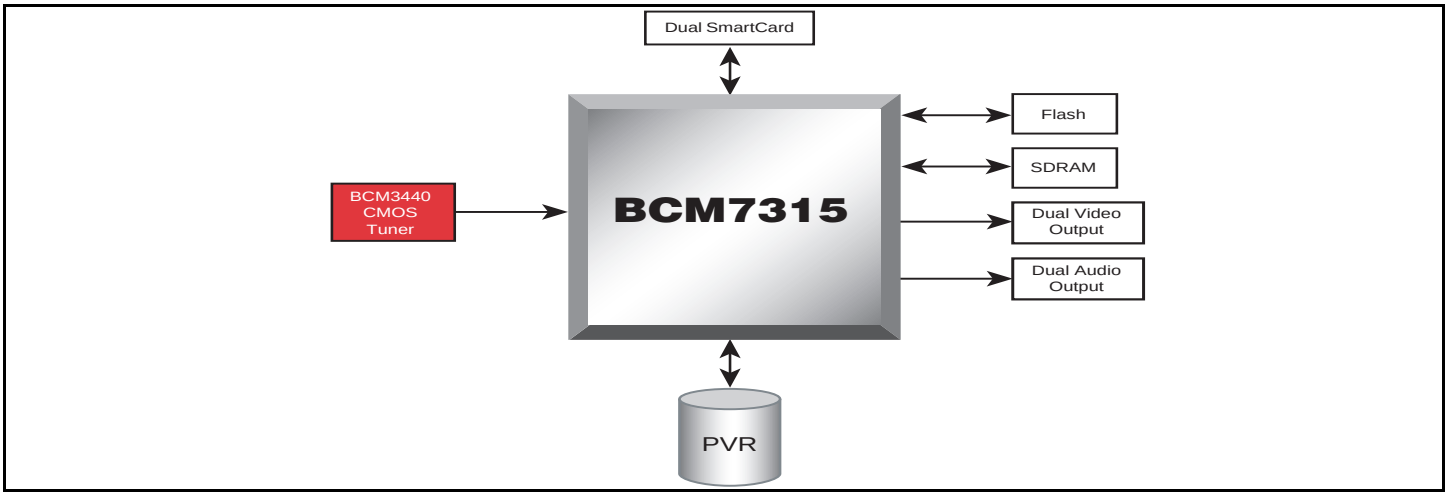
FEATURES

- **All-Digital Satellite Receivers**
  - 1–45 Mbaud variable rate receiver
  - Integrated 7-bit A/D converters
  - Complies with DVB/DIRECTV®/Digicipher II™ FEC Decoder
- **Data Transport Processor**
  - Support for DIRECTV® and MPEG transport streams
  - DES/DVB descrambler
  - Support for 64 PIDs and 64 section filters
  - Support for play/record from/to hard disk
- **MPEG-ATSC Compliant Audio/Video Decoders**
  - MP@ML MPEG-2 video decoder
  - Decode of MPEG Layer 1 and Layer 2 Audio
  - Support for Dolby® AC-3 and compressed PCM
- **Broadcom Graphics Engine (BGE)**
  - Supports 3 Graphics, 1 x video and H/W cursor planes
  - 2D video scaling support
  - Integrated PAL/NTSC/SECAM encoder
  - ITU-656 input support
- **MIPS32TM CPU Core @ 175 MHz**
  - MMU Support
  - EJTAG debug support
- **IDE Host Adapter**
  - ATA5 command set, Ultra ATA/66 I/F

SUMMARY OF BENEFITS

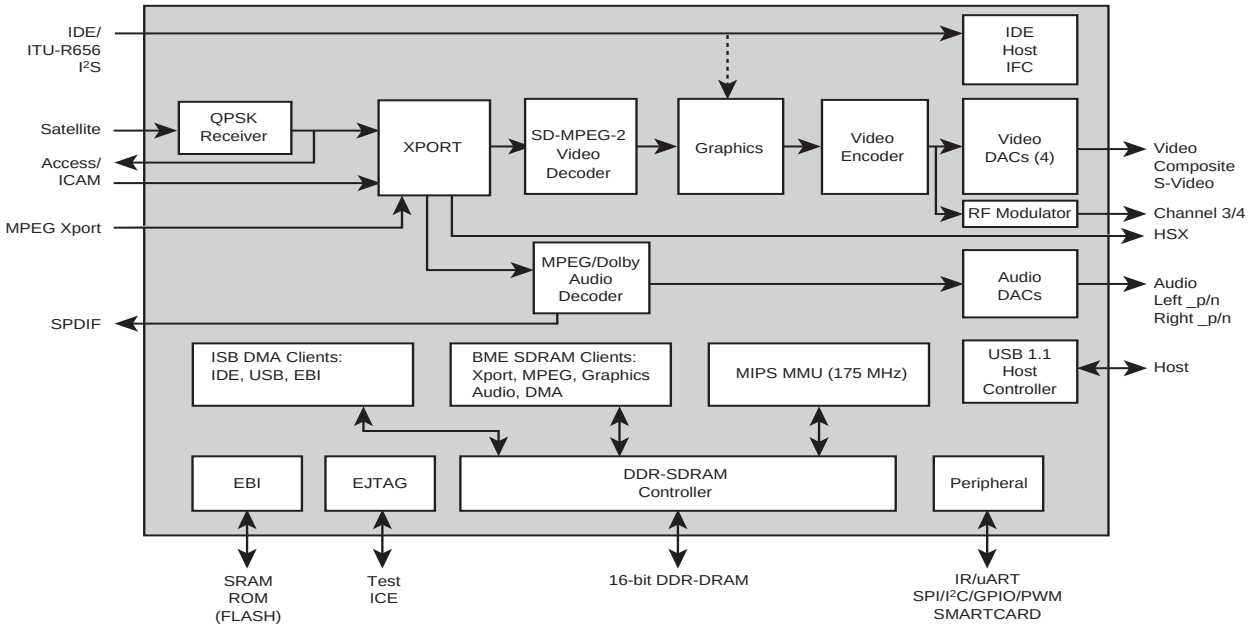
- **Provides a cost-effective solution for direct broadcast satellite (DBS) applications**
- **Fully integrated QPSK receiver, MPEG-2 A/V decoder, MIPSTM CPU and peripherals for complete set-top box system**
  - Low cost solution for next generation set-top boxes
- **PVR capability enables personal viewing 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 operating systems**
- **Subsystems are based on Broadcom's field-proven production-available technologies**

BCM7315 Single-Chip System Block Diagram



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OVERVIEW



The **BCM7315** 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 device).

The **BCM7315** is designed based on a unified memory architecture, (UMA), utilizing 16-bit wide double data rate (DDR) memory for added performance.

The **BCM7315** is a complete single chip that can decode transport streams, delivered either via the external BCM3440 CMOS tuner or via the IDE host I/F from an external hard disk drive, (or combination), and display the resulting decoded audio and video on a television monitor connected to the set-top box. A channel 3–4 RF modulator is also included on-chip to further reduce system design complexity. The on-chip video encoder supports NTSC/PAL and SECAM with optional Macrovision 7.1 on the output.

The **BCM7315** includes Broadcom's advanced 2D graphics engine, offering true studio quality text and graphics with extremely efficient use of memory and bandwidth

The **BCM7315** also incorporates a complete industry standard MIPS32™ based microprocessor subsystem, including 8-KB Instruction cache, 8-KB Data cache and 2-KB read ahead 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 are supported on the **BCM7315**, including UARTs, dual ISO7816 smart card I/Fs, GPIOs, counters/ timers, IR Tx/Rx, I2C and SPI controllers.

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