

## HIGH-DEFINITION PVR SATELLITE SYSTEM-ON-CHIP

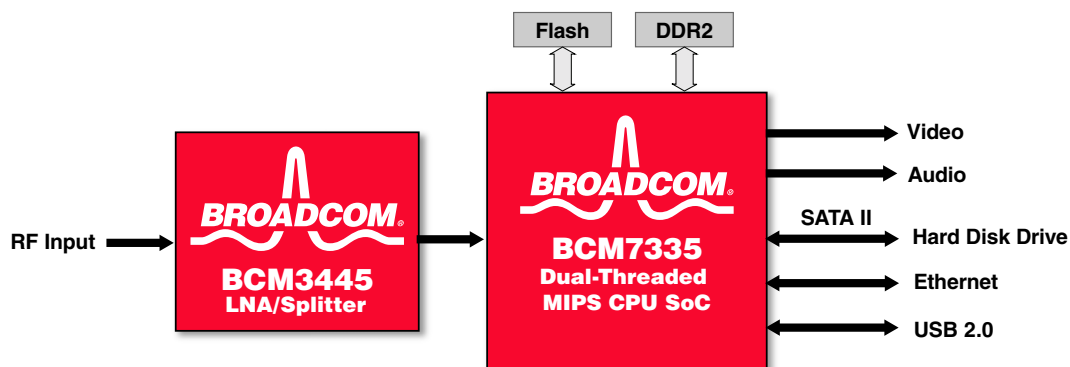
### FEATURES

- Dual-integrated wide-band silicon tuners with DiSEqC 2.x and programmable FSK transceiver
- Integrated demods
  - Dual DVB-S2 8PSK Demods
  - QPSK demod (market-dependant)
- AVC-compliant video decoder for MPEG-4 Parts 2 and 10, MPEG-2, VC-1, ATSC, DivX, Xvid
- Programmable decoder supports multiple formats including MPEG Layers 1 and 2, AC3, AAC, PCM Audio
- Multi-threaded MIPS CPU
  - 450 MHz, 32-KB I/D, 128-KB L2
  - MMU and FPU support, EJTAG debug interface
- 400-MHz Clock (800-MHz Data) rate DDR2 memory configurable in UMA and non-UMA modes
- NAND/NOR flash support
- Rich 2D graphics based on Broadcom® Graphics Engine
- Dual SATA-2 with eSATA support
- Dual 10/100 Ethernet with PHY and MII
- Three USB 2.0 ports
- On-chip Security Processor
- Low cost DVB-CI support

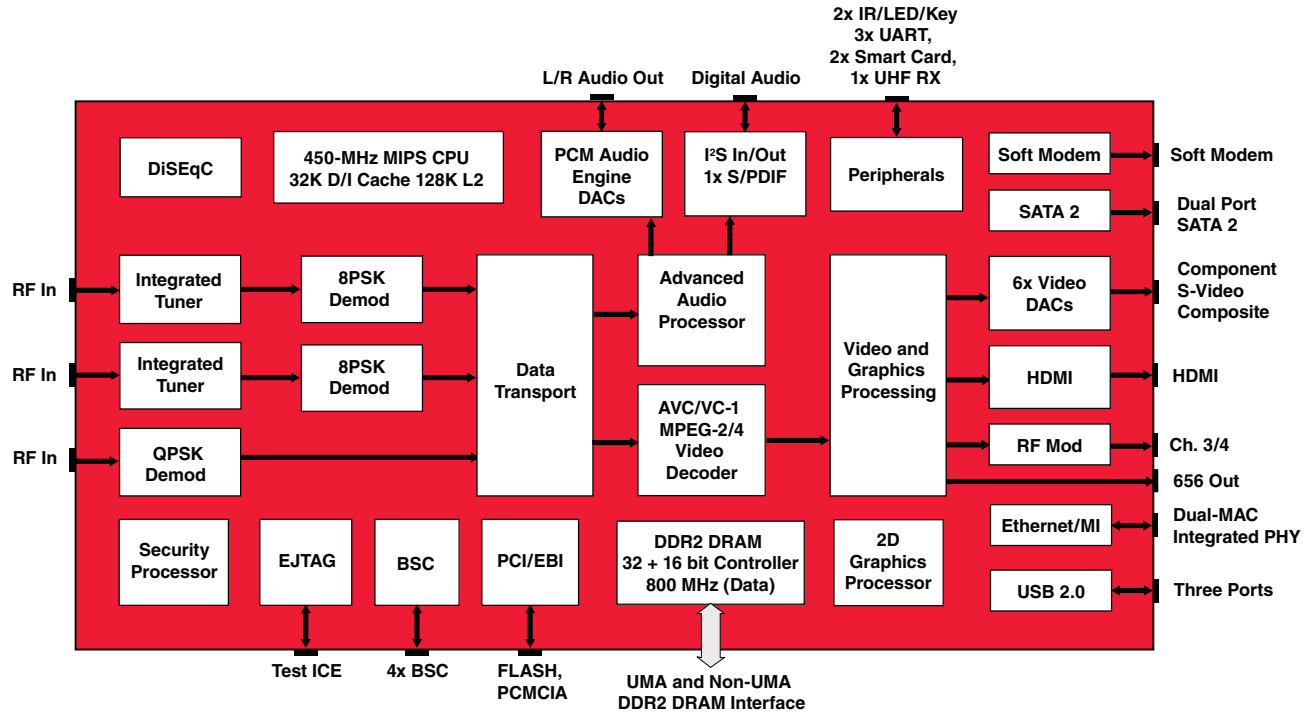
### SUMMARY OF BENEFITS

- Provides a cost-effective single-chip solution for high-definition Direct Broadcast Satellite (DBS) applications with watch-and-record capabilities.
- Based on field-proven and production-ready subsystems offering energy-efficient performance.
- Feature-rich, fully integrated SoC reduces the external components needed and reduces PCB real-estate.
- Allows cost-effective DDR2-based memory with support for UMA and non-UMA modes.
- Advanced 2D-graphics system allows a variety of applications to deliver studio-quality text and graphics on television screens.
- Broadcom-developed device drivers enable rapid software development cycles with support of industry-standard operation systems.
- Industry-leading third party operating systems, toolchains and middleware supported.
- 65 nm process technology offers low power and lower cost.

**BCM7335 Single-Chip System Block Diagram**



# OVERVIEW



## BCM7335 Reference Design

The BCM7335 is Broadcom's next-generation satellite PVR set-top box system on a single chip in 65-nm process. It integrates the dual-tuner/demodulator BCM4506 front-end technology and the latest generation of AVC decoder that supports multiple video formats. The BCM7335 supports worldwide standards for DBS transmission systems based on DVB-S2, 8PSK, and is backward compatible with the DVB-S standards.

The BCM7335 operates on a dual-threaded MIPS CPU core running at 450-MHz and yielding over 950 DMIPS in performance. The BCM7335 is designed to support UMA and non-UMA memory architectures, utilizing a 400-MHz clock, 32 + 16-bit wide Double Data Rate (DDR2) memory I/F for enhanced performance and allows cost-effective memory solutions.

The BCM7335 is a true single chip that can decode transport streams delivered via the integrated DBS front ends. In addition, it is capable of

decoding external TS input from 10/100 Ethernet port or via the dual SATA interface for DVR applications with full trick mode support.

Several interfaces required for TV output are integrated on-chip including the HDMI, baseband composite, component, or S-Video. An RF channel 3/4 modulated output is also integrated on chip. An HD video encoder with copy protection that supports NTSC, PAL, and SECAM with simultaneous SD output and optional Macrovision/DCS support is integrated on chip as well.

The BCM7335 incorporates Broadcom's advanced 2D graphics engine, offering true studio-quality text and graphics with extremely efficient use of memory and bandwidth.

A full range of peripheral devices is supported on the BCM7335, including UARTs, dual ISO7816 smart card interfaces, GPIO, counters/timers, IR Tx/Rx, UHF Rx, I<sup>2</sup>C, and SPI controllers.

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7335-PB01-R 12/05/07

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