

SINGLE-CHIP SATELLITE SET-TOP BOX DECODER

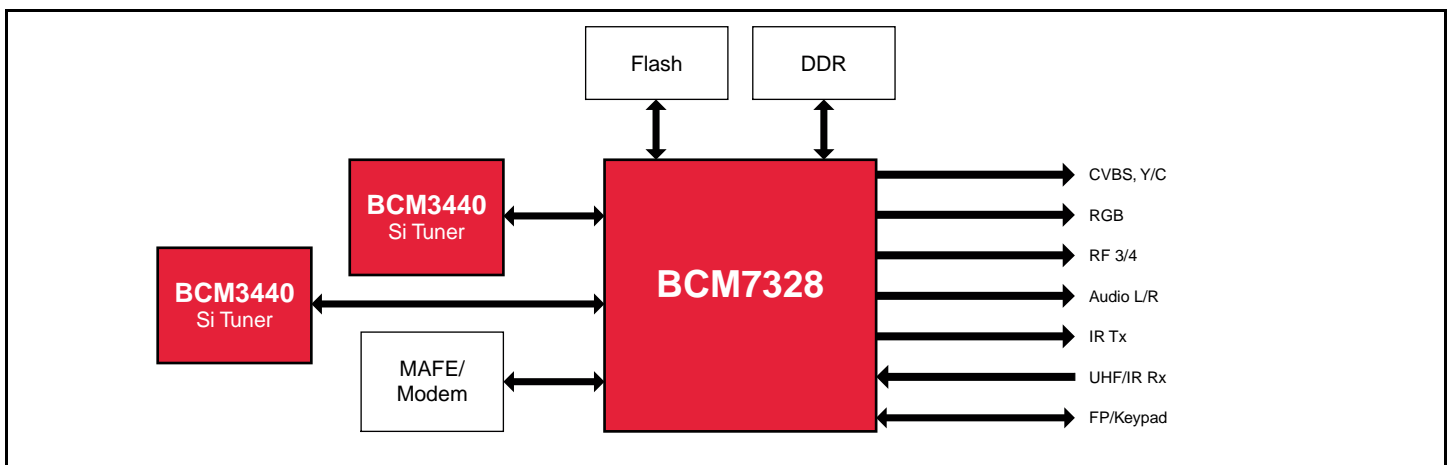
FEATURES

- **Dual On-Chip 8PSK/ Turbo Code Demodulators**
 - 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
 - Support for 64 PIDs and 64 Section Filters
 - Support for Play/ Record from/to Hard Disk
- **Dual MPEG-ATSC Compliant Audio/Video Decoders**
 - MP@ML MPEG2 Video Decoder
 - Dual decode of MPEG Layer 1 & Layer 2 Audio
 - Support for Dolby AC-3 and Compressed PCM
- **Dual Broadcom Graphics Engine (BGE)**
 - Supports 3 Graphics, 1 x Video & H/W Cursor planes
 - 2D Video Scaling support
 - Integrated PAL/NTSC/SECAM Encoder
- **MIPS64™ CPU Core @ 250 MHz**
 - MMU
 - EJTAG Debug Interface

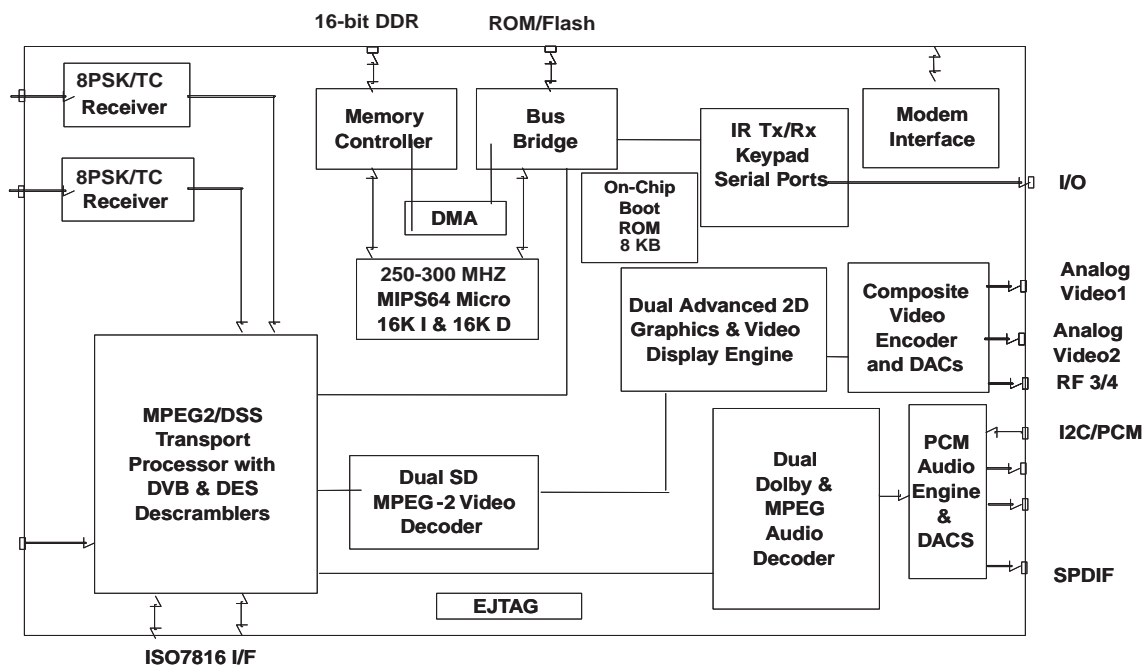
SUMMARY OF BENEFITS

- Provides a cost-effective solution for Dual Decode, Direct Broadcast Satellite (DBS) applications
- **Fully Integrated Dual 8PSK/ TC Receivers, MPEG2 A/V decoder, MIPS CPU and peripherals for complete Set-Top Box system**
 - Simultaneously supports two TVs with independent programming and On-Screen Graphics displays
- **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 system**

BCM7328 Single-Chip System Block Diagram



OVERVIEW



The **BCM7328** is the second-generation of Broadcom's Dual Decode/Dual TV set-top box system on a chip. The **BCM7328** integrates Broadcom's field-proven BCM4500 8PSK/TC Demodulator technology, as well as technology derived from Broadcom's cable products (such as the BCM7115 cable single-chip).

The **BCM7328** memory subsystem is a unified memory architecture, (UMA), utilizing a 150-MHz Double Data Rate (DDR) memory interface that supports either 16-bit or 32-bit wide, depending on required system performance.

The **BCM7328** single chip can decode two transport streams, delivered either via the external dual BCM3440 CMOS Tuners and display the resulting decoded audio and video on two independent TV monitors,

connected to the set-top box. A channel 3-4 RF modulator is also included on-chip. The video encoder supports NTSC, PAL & SECAM with optional Macrovision 7.1.

The **BCM7328** includes dual implementations of Broadcom's advanced 2D graphics engine, offering true studio quality text and graphics with extremely efficient use of memory and bandwidth

The **BCM7328** also incorporates a complete MIPS64-based microprocessor subsystem, including 16-KB Instruction cache, 16-KB Data cache and 2-KB Read Ahead cache. The CPU runs at 250 offering over 250-DMIPS rating.

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