

SINGLE-CHIP SATELLITE SET-TOP BOX DECODER

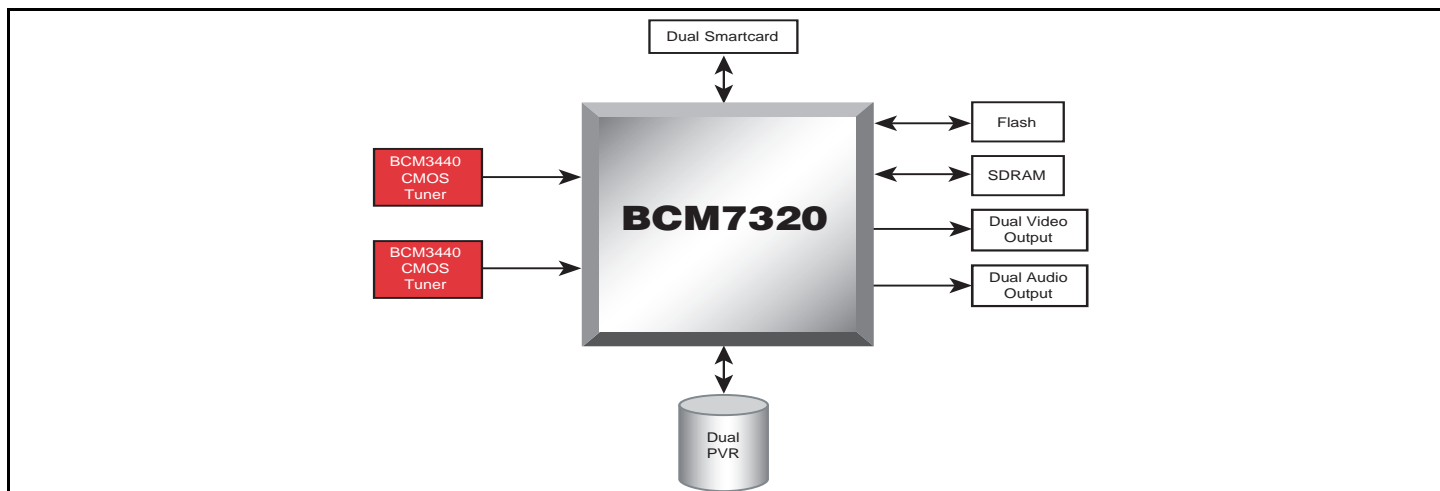
FEATURES

- **Dual 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
 - Dual 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
- **MIPS64™ CPU Core @ 200–250 MHz**
 - IEEE 754 compliant floating point unit
 - EJTAG debug support
- **IDE Host Adapter**
 - ATA5 command set, Ultra ATA/66 I/F

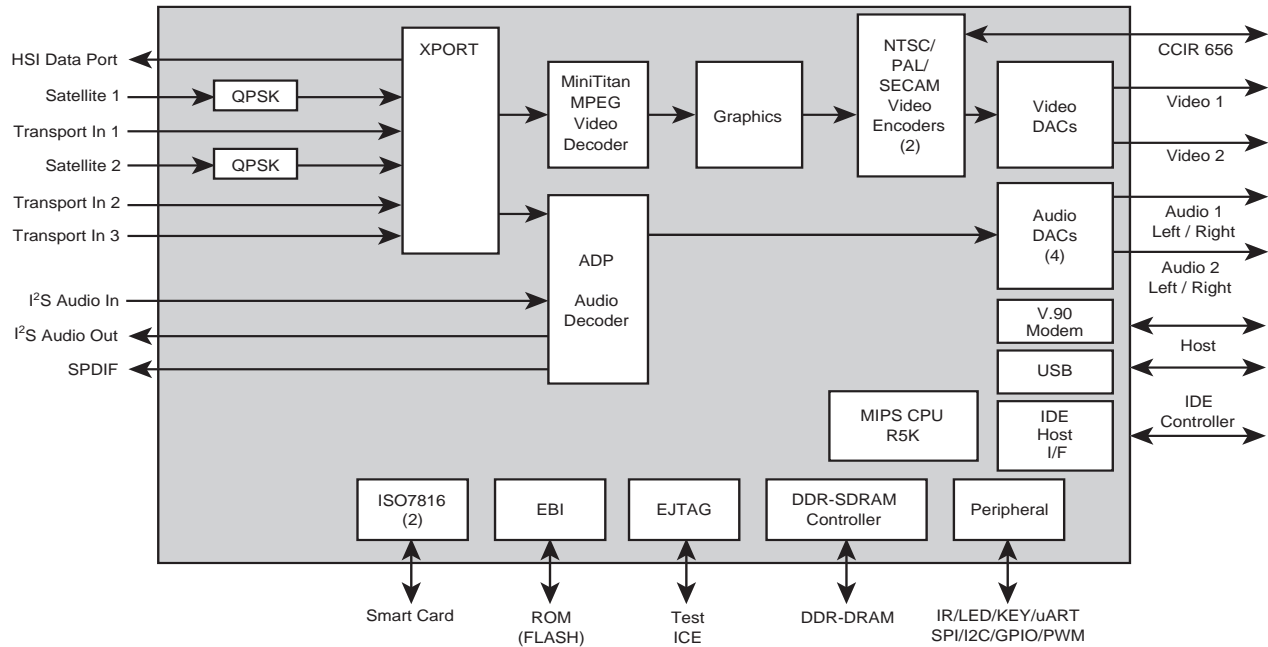
SUMMARY OF BENEFITS

- Provides a cost-effective solution for direct broadcast satellite (DBS) applications
- Fully integrated dual QPSK receivers, MPEG-2 A/V decoder, MIPS64™ CPU and peripherals for complete set-top box system
 - Simultaneously supports two TVs with independent programming and on-screen graphics displays
- 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 dual stream Record & 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.

BCM7320 Single-Chip System Block Diagram



OVERVIEW



The **BCM7320** is a satellite set-top box system on a chip, integrating Broadcom's field-proven BCM4500 QPSK demodulator technology, as well as technology derived from Broadcom's cable products (such as the BCM7115 cable single chip device).

The **BCM7320** is designed based on a unified memory architecture, (UMA), utilizing double data rate (DDR) memory, either 16-bit or 32-bit wide, depending on required performance.

The **BCM7320** is the first complete single chip that can decode two transport streams, delivered either via the external dual BCM3440 CMOS tuners or via the IDE host I/F from an external hard disk drive, (or combination), 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 **BCM7320** includes Broadcom's advanced 2D graphics engine, offering true studio quality text and graphics with extremely efficient use of memory and bandwidth.

The **BCM7320** also incorporates a complete MIPS64-based microprocessor subsystem, including 32-KB Instruction cache, 32-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 **BCM7320**, including UARTs, dual ISO7816 smart card I/F's, GPIO, counters/ timers, IR Tx/Rx, I2C and SPI controllers.

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7320-PB02-R 12/29/03

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