

SD CABLE BASIC RECEIVER

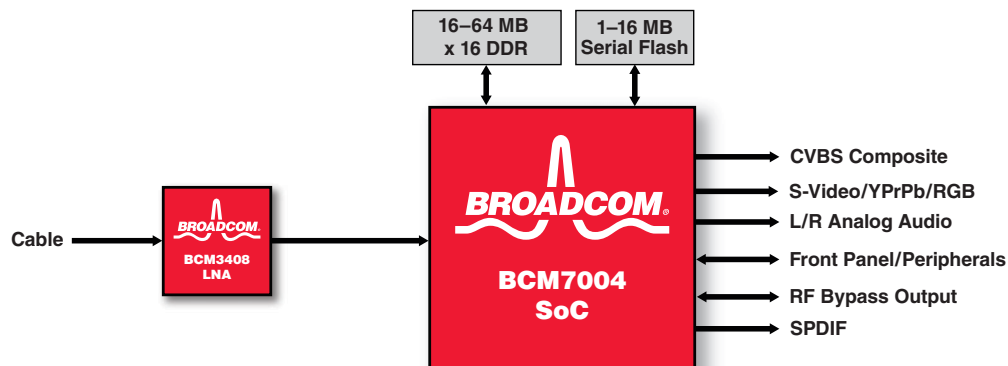
FEATURES

- Complete SD Cable System-on-a-Chip solution
- Integrated 866 MHz DVB-C Cable QAM Tuner
- Integrated QAM demodulator:
 - 4-1024 QAM receiver
 - 11-bit analog-to-digital converter (ADC) with internal AGC
 - All-digital clock and carrier recovery
- Digital video and audio capability:
 - MP@ML MPEG-2 SD video decoder
 - Dolby® Digital (AC-3) and MPEG-2 Audio Decode
 - High-quality graphics and video scaling capability
- NTSC and PAL SD Video Encoder
- Integrated Analog Circuitry:
 - On-chip ADCs for IF signals
 - Quad video DACs for simultaneous composite video broadcasting signal (CVBS) and either S-Video output or YPrPb
 - Dual-channel audio DACs for L-R audio
 - Dual linear voltage regulator controllers
- RF Output for bypass
- On-chip 450 DMIPS 32-bit CPU
- Extremely low power dissipation (<0.1W) in standby mode
- Total STB box system power less than 5W
- 340-PBGA optimized for two-layer PCB routing

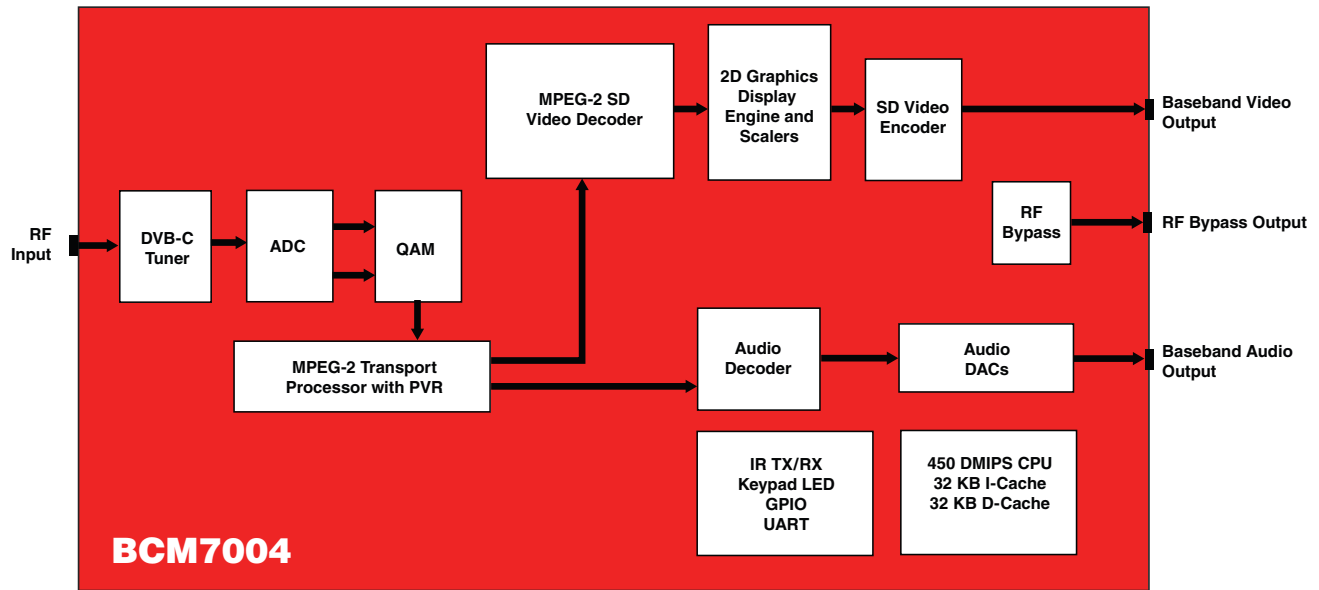
SUMMARY OF BENEFITS

- Highly integrated solution combining the functionality of a complete Cable Tuner-to-NTSC/PAL converter on a single chip.
- Integration of field-proven DVB-C Tuner and QAM receivers.
- Complete solution, including BCM3408 LNA, that meets or exceeds DVB-C RF performance requirements.
- All-silicon solution minimizes parts count and provides ease of manufacturing.
- Integrated advanced security, including ISO 7816 SmartCard interface, DVB-CSA, support for NDS, Nagra, Conax, Irdeto, Latens, 3DES key management, JTAG lock, and secure bootloader ROM.
- Comprehensive integration of ADCs and DACs simplifies system design and cost.
- Full peripheral support eliminates the need for additional components, including LED/Keypad, BSC/SPI master, IR receiver/blaster, PWM, and dual UARTs.
- Broadcom-provided embedded software and PCB schematics enables quick time-to-market.

BCM7004 System Block Diagram



OVERVIEW



BCM7004 Block Diagram

The BCM7004 is a highly integrated low-power solution combining the functionality of a complete Cable Tuner-to-NTSC/PAL converter on a single chip. It provides DVB-C QAM signal reception, with functionality targeted at SD Cable zapper and basic applications.

This all-silicon solution minimizes part count and provides ease of manufacturing. The comprehensive integration of the 866 MHz Cable Tuner, ADCs, and DACs simplifies system design and cost and has direct interfaces to all other system components, including serial Flash (SPI), tuner (I²C), push buttons, and an infrared (IR) demodulator.

The BCM7004 supports advanced security including Nagra, NDS, Irdeto, Latens, and Conax. The BCM7004 has a toolkit of security components to meet a wide range of conditional access requirements, including ISO 7816 SmartCard interface, DVB-CSA, 3DES key management, and bootloader ROM. Each BCM7004 will be factory OTP-programmed with its unique private password. JTAG and

Broadband Studio ports may be OTP-locked at the stage of product factory test. A single high-fidelity fixed 54 MHz crystal clock is used to clock in the entire SoC.

The BCM7004 has an MPEG-2 Digital Video Broadcasting (DVB)-compliant transport processor with advanced section-filtering capability, MPEG-2 (MP@ML profile) video decoder, a Dolby AC3/MPEG-2 audio decoder, a pair of analog audio outputs (L-R), and a single NTSC/PAL video encoder with analog output.

The BCM7004 incorporates a complete MIPS32[®]-based microprocessor subsystem, including caches with bridging-to-memory and a local bus, where integrated peripherals can be attached. Integrated peripherals include universal asynchronous receiver/transmitters (UART), counter/timers, general-purpose input/output (GPIO), IR transmit (TX)/receive (RX), Broadcom Serial Control (BSC), and Serial Peripheral Interface (SPI) controllers.

Broadcom[®], the pulse logo, **Connecting everything**[®], and the Connecting everything logo are among the trademarks of Broadcom Corporation and/or its affiliates in the United States, certain other countries and/or the EU. Any other trademarks or trade names mentioned are the property of their respective owners.

Connecting
everything[®]



BROADCOM CORPORATION

5300 California Avenue
Irvine, California 92617

© 2009 by BROADCOM CORPORATION. All rights reserved.

7004-PB01-R 02/16/09

Phone: 949-926-5000
Fax: 949-926-5203
E-mail: info@broadcom.com
Web: www.broadcom.com