

DVB-T SINGLE-CHIP DIGITAL TV RECEIVER

FEATURES

- **Multiband**
 - VHF III (170 MHz – 240 MHz)
 - UHF IV, V (470 MHz – 862 MHz)
- **Standards compliance**
 - ETSI EN 300 744
 - IEC-62002 (MBRAI)
 - Nordig Unified v1.0.3
- **Low power**
 - 209 mW in continuous operation with significant margin over MBRAI specifications
- **High integration**
 - RF and digital sections on a monolithic 65-nm digital CMOS die
 - PID filtering and table ID all on-chip
 - Integrated low-noise amplifiers
 - Fractional-N synthesizer supports 10 MHz – 66 MHz crystal
- **Excellent Doppler performance**
 - $F_{D,max} = 80 \text{ Hz}$ in 8K mode, 16QAM $2/3$, GI $1/4$, ESR < 5%
- **High quality tuner section**
 - High linearity: MBRAI specifications exceeded by wide margin
 - Noise figure of 3 dB in both VHF and UHF bands
 - Ultra-low phase noise: < 0.5° RMS for UHF results in SNR > 35 dB
- **Wide range of interfaces**
 - SPI slave and master
 - SDIO device
 - 8-bit asynchronous parallel port
 - USB 2.0 high-speed (device)
 - MPEG-2 Transport Stream
 - I²C, UART, and JTAG for development
- **Package options**
 - 169-pin FBGA 8 mm x 8 mm, 0.5 mm pitch

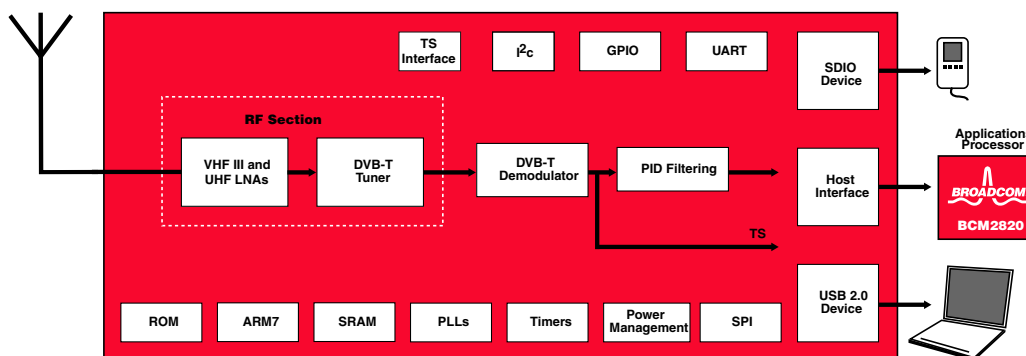
SUMMARY OF BENEFITS

- Single chip mobile DVB-T from antenna to transport stream.
- Standard 65-nm CMOS process for low bill-of-materials (BOM) cost.
- Ideal for TV on mobile phones, portable media players, and notebook PCs.
- Small footprint fits onto 30 mm x 26.8 mm half minicard for laptops.
- Allows DVB-T viewing at up to 100 Km/h in a channel at 600 MHz.
- High performance, low power and on-chip USB 2.0 enables both encrypted and free-to-air DVB-T reception on portable devices.
- Appears as ethernet device, simplifying PCTV applications and driver development for Windows®, Mac® OS, and Linux®.
- All DVB-T bands supported.
- **Minimum external components:**
 - No IF filters or RF tracking filters are required.
 - LNAs for all bands are on-chip.
 - No external SRAM or DRAM is needed.
- Supports both single-ended RF input or differential RF input operation, selectable by software and external components. Single-ended operation eliminates external baluns.
- No calibration is needed on production.

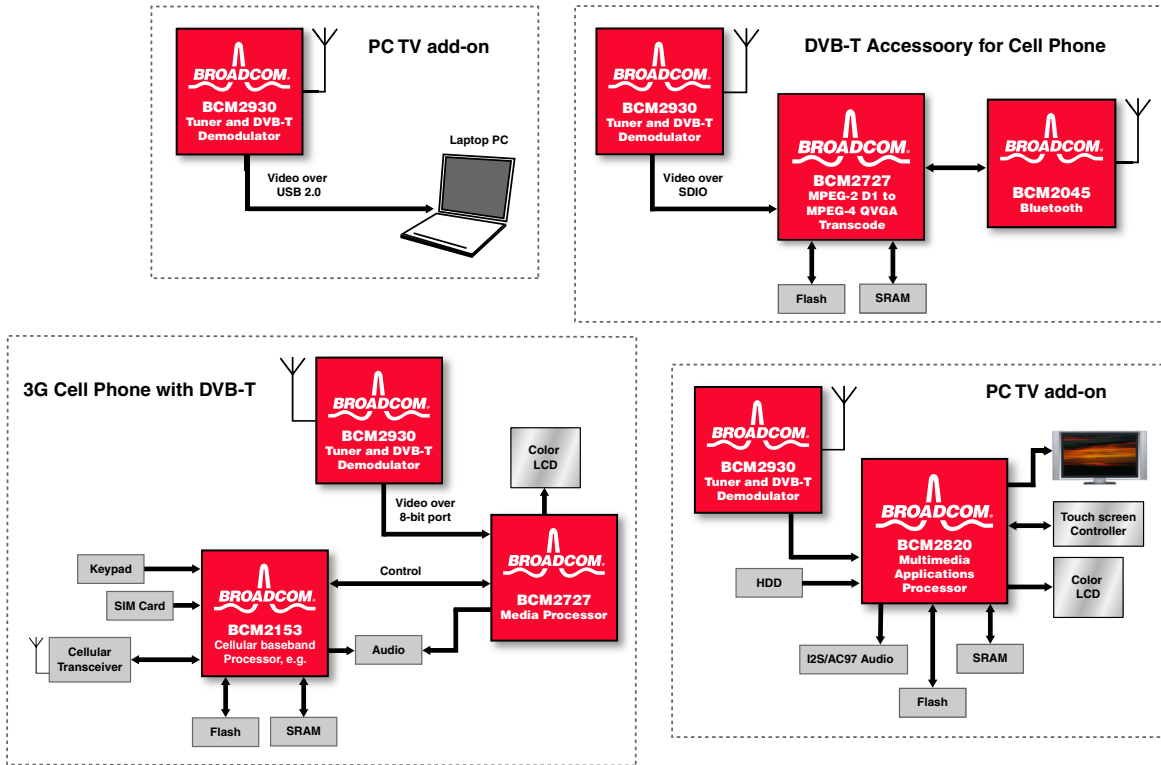
APPLICATIONS

- DVB-T on laptop PCs
- Portable media and DVD players with digital TV
- DVB-T enabled mobile handsets – embedded or accessory feature
- DVB-T on set-top boxes

Block Diagram



OVERVIEW



Cell Phone, Accessory, Media Player and PC Application Diagrams

The Broadcom BCM2930 is a monolithic 65-nm single-chip mobile digital TV receiver for the DVB-T standard. Combining a high-quality RF tuner with a complete DVB-T digital baseband on a single monolithic CMOS IC, the BCM2930 sets new standards for integration and mobile performance. Supporting the VHF III, UHF IV and UHF V bands, it is suitable for digital TV reception on laptop computers, portable media players and, by virtue of its low power consumption, on cellular phones and phone accessories.

Designed for integration with digital logic, the direct conversion tuner architecture doesn't require any external IF components, image-reject filters or tuner components. With on-chip demodulation, PID filtering and SI/PSI table assembly, the BCM2930 has everything required to receive an RF signal and to output Digital TV. Video and audio are sent either as PID-filtered program streams or as a complete MPEG-2

transport stream and can be handled over a variety of physical interfaces including SPI, SDIO, and USB 2.0.

Digital TV is becoming ubiquitous and is increasingly appearing on handheld devices. Portable media players are starting to emerge with screens large enough for standard definition TV but still small enough to fit in the pocket. TV add-ons for notebook PCs are increasing in popularity, particularly supporting the ubiquitous DVB-T standard with its free-to-air transmissions. Mobile phones are also becoming available with high-resolution screens able to display terrestrial digital TV broadcasts.

With its low power, small size, excellent performance, and high level of integration, the BCM2930 is the ideal choice for portable digital TV applications. When used together with Broadcom's multimedia processors and wireless communications chipsets, it forms a complete platform solution for TV-enabled laptops and portable media players.

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

© 2008 by BROADCOM CORPORATION. All rights reserved.

2930-PB03-R 02/07/08

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