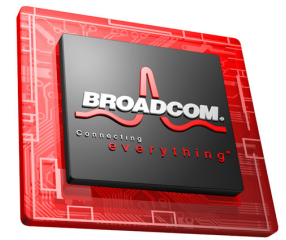




# BCM2152 PRODUCT Brief



## HSDPA/WCDMA AND EDGE/GPRS/GSM "HEDGE" SINGLE-CHIP MULTIMEDIA BASEBAND PROCESSOR

### FEATURES

- **General Characteristics**
  - Single-chip, mixed signal, 484-pin FBGA package (14 mm × 14 mm)
  - EDGE/GPRS/GSM: 850, 900, 1800, and 1900 MHz
  - HSDPA/WCDMA: 850, 1900, and 2100 MHz
  - FR/HR/EFR/WB + NB-AMR speech coding
  - EDGE/GPRS Class 12
  - WCDMA Class 3, 384 Kbps full duplex
  - HSDPA category 7 and category 8 support, 7.2 Mbps, Release 5
  - ARM9™ for WCDMA modem and DSP for GSM modem
  - ARM1136J-S™ @ 208 MHz for stack, applications, and UI
  - Inter-RAT operation in idle and active modes
  - OTP ROM for DRM and IMEI security
  - ARM® boot options: ROM/UART/NOR/NAND/Secure
- **Multimedia Capabilities**
  - 5-megapixel camera support with wideband digital interface
  - Serial or parallel LCD interface
  - Color display support (up to 262K colors) for two panels
  - CCIR601 digital video output for TV
  - 30 FPS CIF video record, playback, and streaming over WCDMA, H.264 QCIF 15 FPS decode
  - 2D graphics, video, and JPEG hardware acceleration
- **Improved Audio**
  - SAIC for voice + data, echo canceling, noise suppression, and internal CTM
  - Proprietary M-Stream™ technology improves handset reception and voice quality.
  - Download code capability for audio codecs/processing
  - Integrated 64-tone polyphonic ringer
  - Integrated MP3, AAC, AAC+ eAAC+
  - Multiple speaker drivers (headset, handset, speaker, speakerphone, microphone, IIS), amplifier for hands-free or push to talk

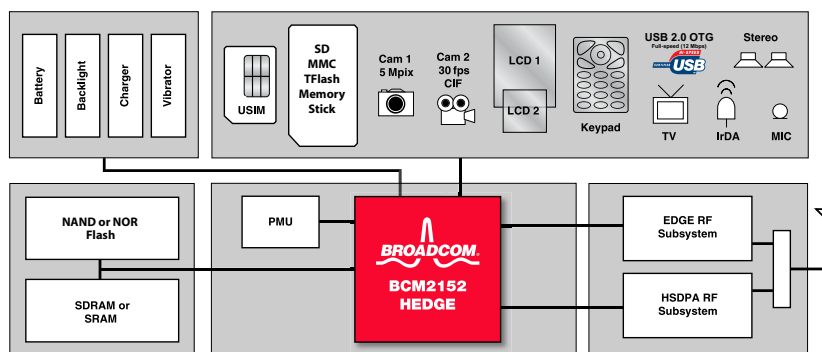
### SUMMARY OF BENEFITS

- **Comprehensive HEDGE System Design**
  - Proven reference designs for bar and flip-type handsets
  - ARM RealView® debugging environment
  - TeakLite® debugging environment
- **Upgraded ARM® Memory Bus Interface (Eight Chip Selects)**
  - Various combo or discrete memories @ 1.8V
  - NOR flash: 512 Mb with 52 MHz burst read, page modes
  - SRAM: 128 Mb with 52 MHz burst read and write
  - SDRAM: 512 Mb @ 104-MHz clock, 16- and 32-bit
  - NAND flash
- **Enhanced Interfaces**
  - USB 2.0 OTG Full-speed (12 Mbps)
  - Three UARTs @ 3.6 Mbps and IrDA
  - SDIO interface @ 416 Mbps (8-bit I/F) and 208 Mbps (4-bit I/F)
  - Hard disk (CE-ATA)/SD/MMC and T-Flash
  - Memory Stick PRO™
  - USIM connections @ both 3V and 1.8V
  - 16-bit ETM and JTAG for software debug
  - Bluetooth®, Wi-Fi®, DVB-H, FM radio, and GPS support
  - GMSK APCDAC mixed-multislot transmission
  - Two DACs; GMSK RF power control DAC and RF frequency control DAC
  - 8PSK via 3-wire interface
  - Analog or digital interface support for RFIC, DigRF for digital mode

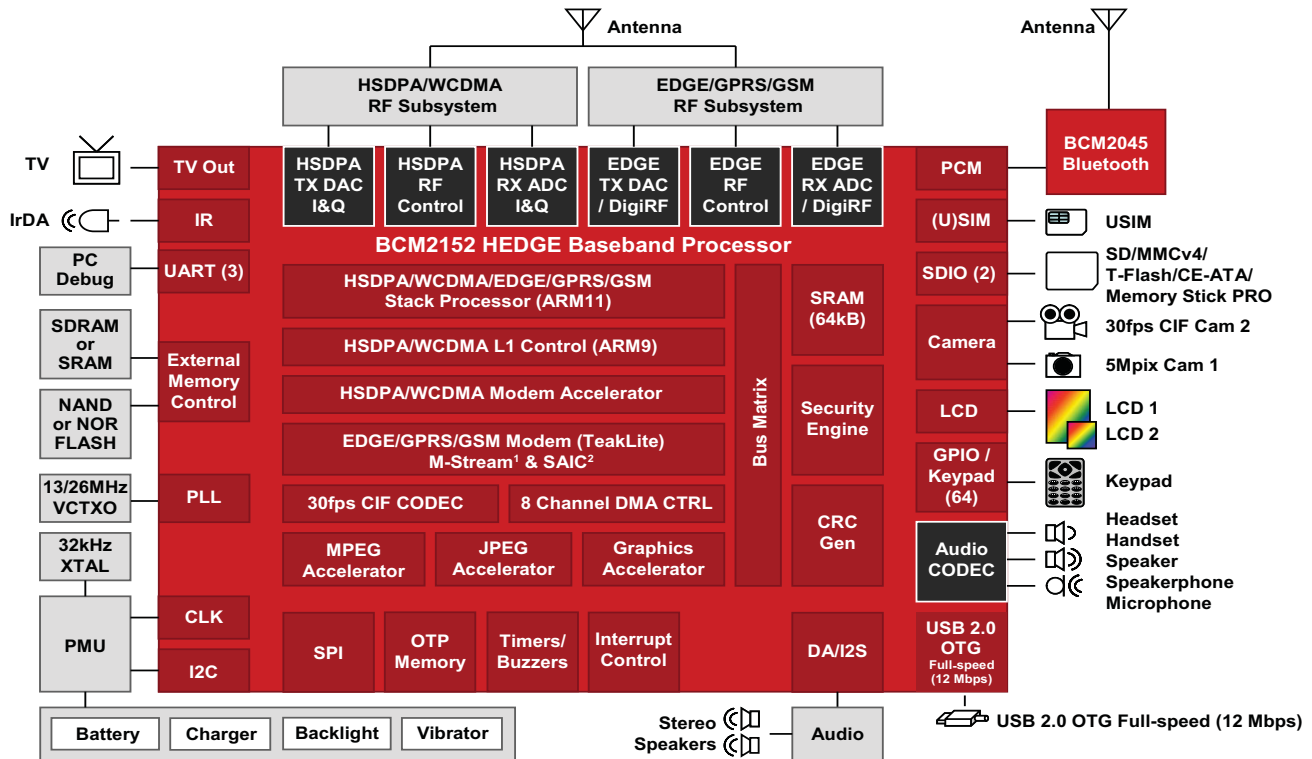
### APPLICATIONS

- High-end and midrange feature and multimedia phones
- High-end smartphones
- Suitable for operators in Europe and UK, the Americas, and Asia

### System Block Diagram



# OVERVIEW



<sup>1</sup>M-Stream is an additive technology that enhances *downlink voice quality* in the presence of noise.

<sup>2</sup>SAIC (Single Antenna Interference Cancellation) is an additive technology that improves downlink quality in the presence of interference and noise.

## Functional Block Diagram

### Overview

The BCM2152 dual-mode HSDPA/WCDMA and EDGE/GPRS/GSM multimedia baseband processor features 384 Kbps WCDMA, 7.2 Mbps HSDPA Category 7 and Category 8, and EDGE Class 12 capability to achieve broadband-like connectivity.

Full inter-RAT operation is supported for seamless global roaming on EDGE/GPRS/GSM and HSDPA/WCDMA networks worldwide.

Interface functions and drivers are integrated to enable auxiliary components, such as handset, headset, microphone, and speakerphone speaker (up to 400 mW into 8Ω) and 3V/1.8V switching SIM to connect directly to the chip.

Separate parallel LCD and ARM memory busses allow the user interface to be updated without impacting the real-time radio operations.

### Security

The embedded one-time programmable (OTP) bits allow the software to boot securely and check IMEI security prior to network activation. OTP bits can also be used by high-level applications to verify the integrity of Digital Rights Management (DRM) functions.

**Broadcom**<sup>®</sup>, the pulse logo, M-Stream<sup>™</sup>, StrataXGS<sup>®</sup>, **Connecting everything**<sup>®</sup>, and the Connecting everything logo are trademarks of Broadcom Corporation and/or its subsidiaries in the United States and certain other countries. All other trademarks mentioned are the property of their respective owners. Bluetooth<sup>®</sup> is a trademark of the Bluetooth SIG.

Connecting  
**everything**<sup>®</sup>



**BROADCOM CORPORATION**  
16215 Alton Parkway, P.O. Box 57013  
Irvine, California 92619-7013

© 2006 by BROADCOM CORPORATION. All rights reserved.

2152-PB03-R

05/05/06

Phone: 949-450-8700  
Fax: 949-450-8710  
E-mail: info@broadcom.com  
Web: www.broadcom.com