



## WCDMA (UMTS) FDD BASEBAND COPROCESSOR

### FEATURES

- Integrated digital and analog baseband solution for W-CDMA (UMTS)/FDD
- Designed for rapid integration with existing GSM/GPRS/EDGE baseband solutions
- 3GPP Release 99 compliant
- WCDMA (UMTS) 850 MHz, 1900 MHz, and 2100 MHz
- 384-kbps class modem in downlink and uplink
- Inter-frequency handover, inter-RAT handover
- Circuit-switched voice and data, packet-switched data
- Firmware suite including PHY layer and layer 1
- Programmable RF interface to enable various RF transceiver solutions
- On-chip A/D and D/A to reduce parts count, size, and power consumption
- Low-power architecture—on-chip, programmable power management
- Supply voltage: 1.8V/3.0V
- Support for single-antenna or dual-antenna architecture for GSM/GPRS and UMTS
- Patented smart diversity support providing an increase in block error rate (BLER) performance (multi-antenna)
- F8/F9 ciphering/integrity protection
- USIM interface
- 10-mm x 10-mm, 180-pin TFBGA 0.5-mm pitch package
- Supports standard 13-MHz/19.2-MHz/26-MHz reference frequencies

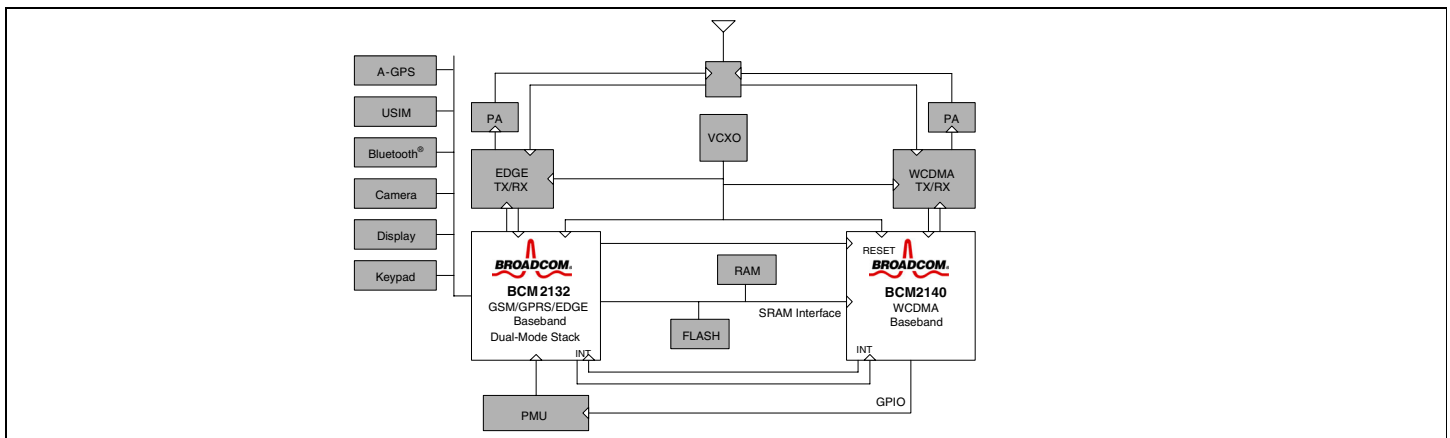
### SUMMARY OF BENEFITS

- Rapid upgrade to 3G by reusing investment in 2G/2.5G solutions
- Reduced time-to-market and cost savings (shorter development cycle, rapid integration, and reduced certification burden)
- Comprehensive development package that includes:
  - BCM2140 evaluation board
  - All layer-1 firmware
  - Production calibration tools
  - Field test and trace tools
  - Comprehensive technical documentation
  - Applications notes for writing custom RF drivers
- Extensive range of test and debug tools:
  - L1 trace software (enables system level debugging and IOT support)
  - GUI-based RF test and production calibration
  - ATE calibration interface

### APPLICATIONS

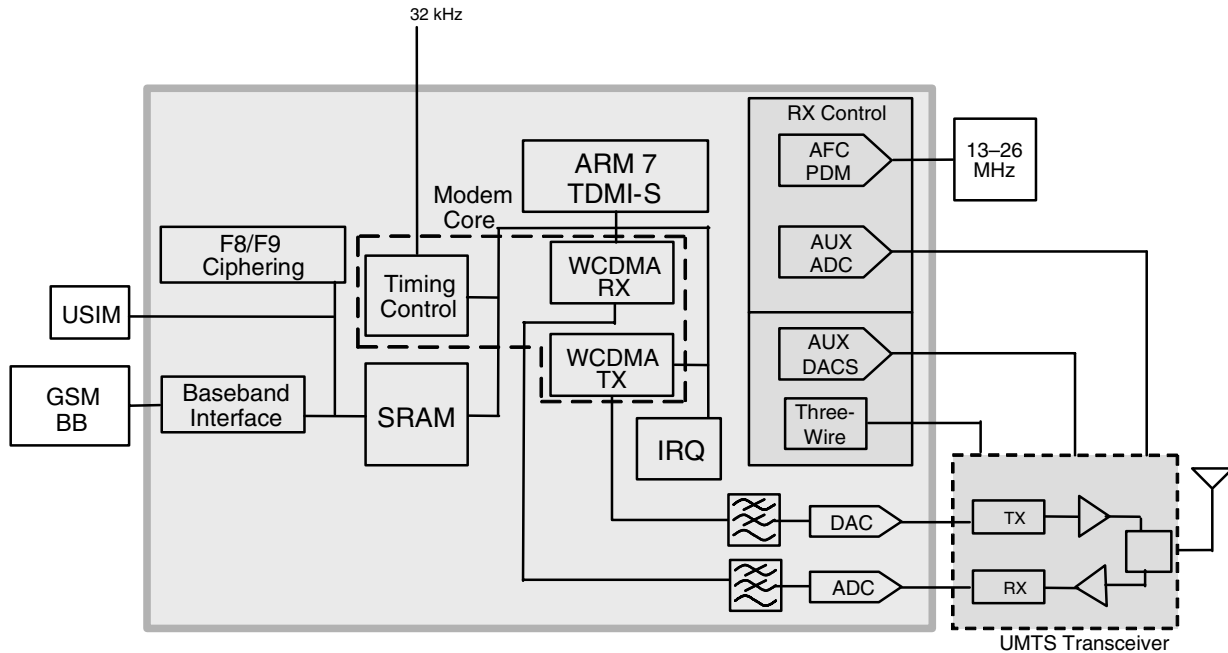
- A variety of platforms including handsets, smartphones, wireless PDAs, PC cards, and other mobile devices capable of:
  - Rich 3G multimedia applications including video, polyphonic audio, interactive 3D gaming, music, and location-based services
  - Seamless global roaming on GSM/GPRS/EDGE and WCDMA (UMTS) networks worldwide

### BCM2132 Baseband and BCM2140 Coprocessor



# OVERVIEW

## Block Diagram



The BCM2140 WCDMA (UMTS) baseband coprocessor enables a modular approach to mobile device design. The BCM2140 efficiently adds 3GPP WCDMA (UMTS) capability to a GSM/GPRS/(EDGE) host baseband processor using Broadcom's flexible standard SRAM memory interface.

Figure on page 1 shows the BCM2140 integrated with Broadcom's BCM2132 GSM/GPRS/EDGE baseband subsystem, which provides a complete multimode WCDMA and EDGE (WEDGE) solution.

All WCDMA (UMTS) layer-1 functions are performed by the BCM2140, with layer-2 and higher protocol stack functions for WCDMA (UMTS) executing on the host GSM/GPRS/(EDGE) processor. The enhanced system performance of the BCM2140 relies on a hardware-centric architecture that retains flexibility via on-chip programmability.

Based on an industry-standard ARM7TDMI-S microcontroller core, the BCM2140 integrates all digital and analog functionality required for WCDMA (UMTS) operation into a single chip, including support for WCDMA ciphering. The BCM2140 provides all WCDMA (UMTS) modem capability and features a programmable analog I/Q RF interface that supports multiple industry-leading WCDMA (UMTS) transceiver solutions.

The BCM2140 is supported by a comprehensive development package and a complete suite of test and debug tools.

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2140-PB02-R 02/24/05

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