

GPRS/GSM SINGLE-CHIP MULTIMEDIA BASEBAND PROCESSOR

BCM2122 FEATURES

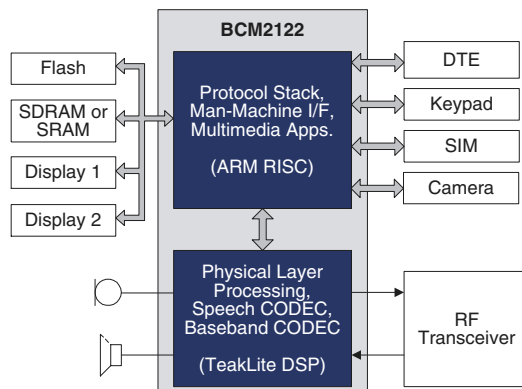
- Single 256-pin FBGA device—14 x 14 mm, optional 12 x 12 mm
- GSM voice handset capabilities: FR/EFR/HR/AMR
- GSM850, E-GSM900, GSM1800, and GSM1900 bands
- GPRS Mobile Class B (multi-slot Class 12)
- All data modes for GPRS and HSCSD
- ARM926EJ with support for Jazelle KVM acceleration
- Standard CCIR-656 video port/camera interface
- Color LCD parallel interface with graphics accelerator and video postprocessor
- Multi Media Card (MMC) and Secure Digital (SD) I/F
- High resolution stereo audio DAC I/F
- USB 1.1 interface
- Low-power design: 3V I/O and 2.5V core
- Flexible audio circuitry
 - Noise suppression and echo cancellation for car/speaker phone
 - Sidetone/microphone amplification control
 - High output speaker driver
- Real-time clock and alarm
- DMA controller (2-channel)
- NOR Flash and SRAM, or NAND Flash and SDRAM I/F

APPLICATIONS

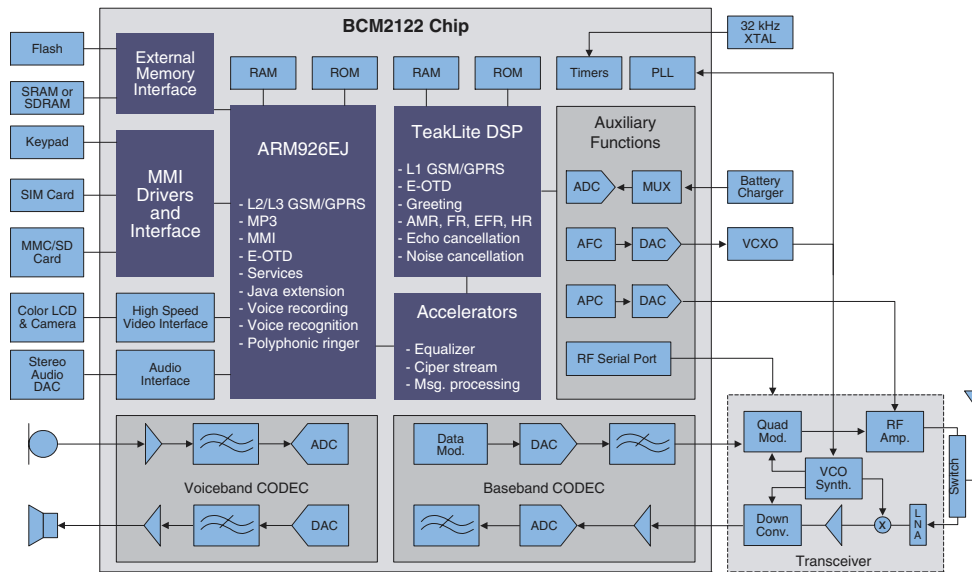
- GSM and GPRS *always-on* multimedia handsets
- Wireless Internet (high-speed multi-slot GPRS)
- Modems for wireless mobile computing

COMPLETE HANDSET SOFTWARE

- **Comprehensive GPRS/GSM system design**
 - Layers 2/3 protocol stack with complete GCF/IOT certification
 - Proven reference designs for bar-type and flip-type handsets
 - Color display support (up to 262K colors) for two panels
 - MIDI-based polyphonic ringer with wave table synthesis
 - MP3 player
 - Bluetooth interface (with GAP, SDAP, HP, PAN, SPP, DNP, OBEX profiles and others optional)
 - Multicolored LED notifications/backlight
 - Fully functional GSM handset user interface
 - Foreign language fonts, including Chinese
 - Startup animations, songs, games, and ring tones
 - Unicode SMS and full EMS messaging
 - SIM Application Toolkit (SATK) and E-OTD over SMS or RRLP
- **Fully integrated Layer 1, including device drivers for peripherals**
- **AT commands (GSM 07.05 and 07.07) with 07.10 mux**
- **Phase 2+ supplemental services**
- **Transparent Class 2 and 2.0 fax (Group 3)**
- **Error correction:**
 - V.42, MNP2-4
 - Radio Link Protocol (RLP)
- **Compression: IP header for GPRS and V.42bis in all modes**
- **Rapid prototyping development system available**



BCM2122 OVERVIEW



The BCM2122 GSM/GPRS baseband processor offers a high level of system integration, performance, and features for next generation wireless multimedia handsets and GPRS data modules. For low-power consumption, accelerators are extensively used for certain necessary compute-intensive functions.

The BCM2122 contains all analog and digital GSM/GPRS baseband processing functions on a single CMOS chip. Interface functions and drivers are integrated to enable auxiliary components such as microphone, speaker, and SIM to connect directly to the chip.

The Broadcom reference design is based on the industry-proven ARM9 RISC and TeakLite DSP cores, and Type Approved protocol stack software. The platform is well suited for support of multimedia handset features, such as MMS, WAP2.0 browser, and Java applications.

To accelerate the product development cycle, Broadcom can support the design of handset system solutions, including complete handset or modem software, evaluation boards, and reference designs. Extensive integration support through GSM Certification Forum (GCF), Inter-Operability Testing (IOT), and worldwide network testing can also be provided.

Processors

- ARM926EJ embedded RISC core, up to 78 MHz
 - Memory Management Unit (MMU)
 - 8 KB/8 KB instruction/data cache
 - 24 KB tightly coupled data memory
 - Page mode Flash memory interface
- TeakLite embedded DSP core, up to 78 MHz
- JTAG debug and ETM trace ports

Interfaces

- Three UART serial ports for data/testing/Bluetooth
- USB (version 1.1)
- Analog interface to speaker, microphone, and headset
- Keypad
- MMC/SD Flash card I/F
- Color LCD parallel I/F
- Camera I/F via CCIR-656 video port
- Multi-voltage SIM, PCMCIA, and IrDA compliant I/Fs
- Control interface to Power Management Unit
- Four-channel ADC for system monitoring
- Flexible RF transceiver control interface:
 - PA ramping RAM and DAC
 - Programmable schedule-based control
 - Supports straight or multiplexed I&Q interface
 - AFC DAC, APC DAC, and serial control

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