



MULTIMEDIA PROCESSOR FOR MOBILE PHONE HANDSETS

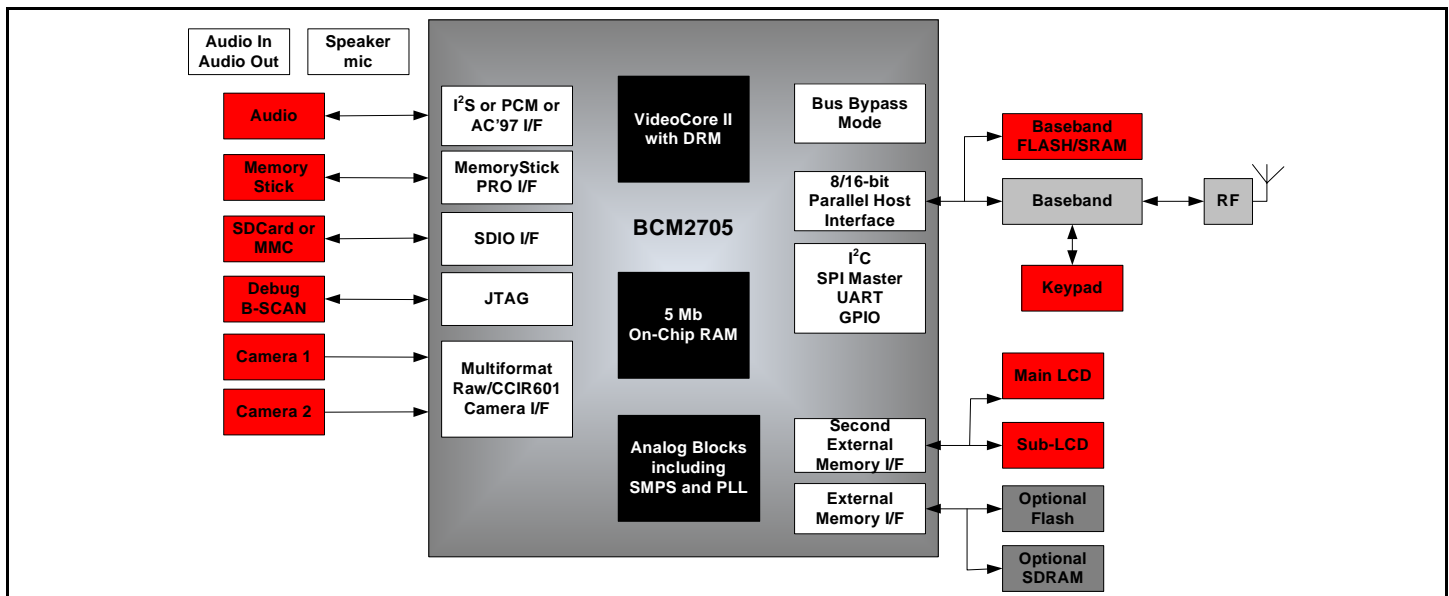
FEATURES

- Very Low Power: MPEG-4 encode from only 10mW
- VGA MPEG-4 encode/decode at 30 fps with audio
- 4 megapixel JPEG encode and decode
- Ability to process raw Bayer camera data
- 3GP and MP4 file streaming and MMS support
- Multiple format audio recording and playback
- DRM ready
- 64 polyphony MIDI player and music synthesizer
- 640 KB of on-chip SRAM
- High quality graphics acceleration for 3D games
- SD, MMC, SDIO, and Memory Stick interfaces
- 100% programmable
- Forward-compatible with high-performance BCM2702

SUMMARY OF BENEFITS

- The BCM2705 is the world's most power-efficient, high-performance mobile multimedia processor optimized for mobile phone handsets.
- Based on VideoCore® II processor for maximum performance and software compatibility with the BCM2702.
- The BCM2705's fully programmable architecture enables:
 - A range of software multimedia functions
 - Greater flexibility
 - Improved time-to-market
- **Multimedia coprocessor:**
 - Simplifies system partitioning
 - Allows the DSP core in the cellular baseband chipset to be optimized for modem function only.
 - Preserves software investment already made on baseband.
- **Pin-compatible with the advanced BCM2702:** same package outline makes it interchangeable during development.
- Broadcom provides all the necessary middleware and services for rapid and seamless integration with a host processor, as well as a complete development kit with a fully featured toolchain for rapid development of applications.

BCM2705 Block Diagram



OVERVIEW

Specifications

Processor

- 150-MHz dual-ALU VideoCore®II
- 128 Kb instruction and data caches
- 5 Mb of on-chip SRAM

Camera Interface

- Programmable 8/16-bit CMOS/CCD camera input port
- Supports up to two 4-megapixel image sensors
- YUV CCIR 601/656
- Raw Bayer RGB format (8/10/12/16-bit data)
- Windowing and subsampling functions
- Can be used to connect to mobile TV front end

Host Interface

- Appears as memory-mapped peripheral to host
- Programmable industry-standard interfaces
- 3 bit address and 8/16-bit data bus
- Dual software channel

Audio Interfaces

- AC '97
- I²S
- PCM audio

General Purpose and Debug Interfaces

- 30 pins of GPIO
- JTAG and emulation interface for boundary scan

Display

- Support for multiple memory-mapped displays up to XGA resolution
- Up to 24 bit internal precision (16M colors)
- Scalable image output with pixel level interpolation
- Configurable refresh rate

Serial Interfaces

- I²C master
- SPI master
- UART for Bluetooth®, IrDA

External Memory/Card Interfaces

- High-speed memory interface (connection to SDRAM, SRAM, Flash and external peripherals)
- Secondary memory interface (e.g., for connection to memory-mapped LCD and external peripherals)
- Programmable chip select and address lines
- MemoryStick PRO™
- SD, MMC, and SDIO
- Support for NAND/NOR Flash including boot-from-NAND
- High speed DMA

Clock and Power Management

- On-chip SMPS controller
- Four power modes: Run, Sleep, Hibernate, and Power-Down
- 0.8V - 1.2V core operation and 0.6V in hibernation mode
- Programmable I/O 1.5V - 2.8V
- Bypass mode allows host access to memory-mapped peripherals with BCM2705 in Power-Down
- Clock manager: three PLLs generate 195-KHz – 200-MHz clocks for external devices

DRM

- DRM-capable
- Unique chip ID code
- Encrypted code with freely programmable key
- CPRM encryption for SD card, AES, 3DES, RSA, etc.

Technology

- 281-pin TFBGA package (10.1mm x 10.9mm)
- 0.13 micron CMOS

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