



# Samsung S3C24A0 Application Processor

## System-On-Chip Solution for High-End, Multimedia Handsets

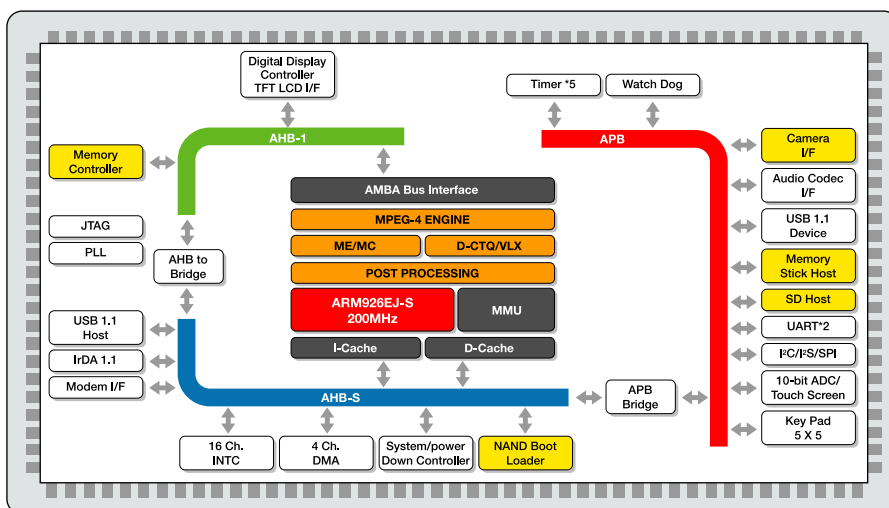
### Design Innovation for Mobile Computing

Samsung's S3C24A0 is a 16/32-bit RISC microprocessor solution for multimedia handsets. The S3C24A0 has a 32-bit internal bus architecture and a MPEG-4 hardware accelerator to support high-performance encoding and decoding of video. The MPEG-4 hardware accelerator includes Motion Estimation (ME), Motion Compensation (MC) and video post-processing.

### Low-Power Multimedia Support

To reduce total system cost and enhance multimedia functionality, the S3C24A0 includes a full set of peripherals that include a camera interface that supports up to 16-megapixel resolution input, and memory interfaces to 1.8 and 2.5 low-power SDRAM.

- Samsung's S3C24A0 Application Processor is ideal for 3GPP-compliant handsets that support MPEG-4 video format.



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## The Cost-Effective Solution

Samsung's S3C24A0 minimizes system cost and eliminates the need to configure additional components. This is accomplished by providing a complete set of common system peripherals.

### Features

#### ARM926EJ-S CPU Core

- Single-Chip MCU and JAVA Solution
- I-Cache (16KB) & D-Cache (16KB)
- ARM's Jazzelle JAVA technology embedded
- MMU supports Microsoft® WinCE®, Linux Palm and Symbian operating systems
- Maximum CPU Clock: 200MHz @ 1.2V

#### System Manager

- Address space: 1GB
- Little endian support
- NOR / Strata Flash, ROM, SRAM and FP / EDO / SDRAM / Mobile SDRAM
- NAND Flash bootloader

#### Operating Conditions

- Internal: 1.2V
- External I/O: 3.3V
- Maximum: 200MHz @ 1.2V
- 1.8V / 2.5V / 3.3V Memory interface

#### Package

- 337-FBGA, 13 x 12mm, 0.5mm pitch

### Benefits

- Highly integrated design
- Readily interfaces to leading baseband modems
- Reference board with leading OS support
- JAVA-enabled microprocessor
- Low-power, high-performance MPEG-4 Encoder / Decoder
- Built-in NAND Flash bootloader

### Applications

- Smartphones
- Wireless PDAs
- 2.5G / 3G Mobile Phones
- Telematics
- Multimedia Handsets



For more information on Samsung's S3C24A0 Application Processor, visit: [www.samsungsemi.com](http://www.samsungsemi.com)

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### On-Chip Peripherals

- Power management: normal, idle, stop & sleep
- Modem interface
- 4-Channel DMA, INTC
- 10-bit 8-channel ADC / touch screen
- Watch dog timer, 4-channel timer, UART\*2, I<sup>2</sup>C, I<sup>2</sup>S, GPIO\*32, SPI
- TFT-LCD I/F, OSD, YUV2RGB, scalar
- Hardware acceleration of JPEG encode / decode
- USB Host (2 port) / Device
- SD Host (4-bit SDIO support) / MMC V2.11
- Memory Stick Host Controller
- AC97 Audio Codec interface
- Camera interface: Camera input up to 4096 x 4096 resolution X, Y Mirror / digital zoom, window cut
- MPEG-4:

#### Hardware accelerated MPEG-4 video encoding / decoding

- AMBA AHB interface
  - Real-time MPEG-4 video encoding and decoding
  - Up to simple profile at level 3 (352 x 288 at 30fps)
  - Supports H.263 baseline
- #### ME (Motion Estimation) / MC (Motion Compensation)
- Highly optimized hardwired engine
  - Unrestricted mode and advanced prediction mode (4MV)
  - Programmable image size (up to 2048 x 2048)

#### DCTQ

- DCT / IDCT / Q / IQ operations
- Supports MPEG-4 simple profile level 3 / H263 baseline
- Supports image formats up to 4096 x 4096
- Supports JPEG (DCT / IDCT)

#### VLX

- VLC / VLD Hardware acceleration

#### Post Processor

- Format conversion for video signal
- Color space conversion (YcbCr2RGB)
- Input image resolution (4096 x 4096)
- Output image resolution (2048 x 2048)



- Samsung's S3C24A0 Application Processor, with a 32-bit internal bus architecture and MPEG-4 hardware accelerator, supports high-performance encoding and decoding of video.

**SAMSUNG**

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