



Samsung S3C6410 Mobile Processor

POWERING ADVANCED PERSONAL NAVIGATION DEVICES
AND SMARTPHONES RUNNING DEMANDING 3D APPLICATIONS

The 65nm S3C6410 reduces power requirements and also includes interfaces for low-power memory while supporting DVFS. The processor's capabilities enable on-screen, hardware-accelerated 3D graphics.

Unequalled Graphics Performance with Low Power Requirements

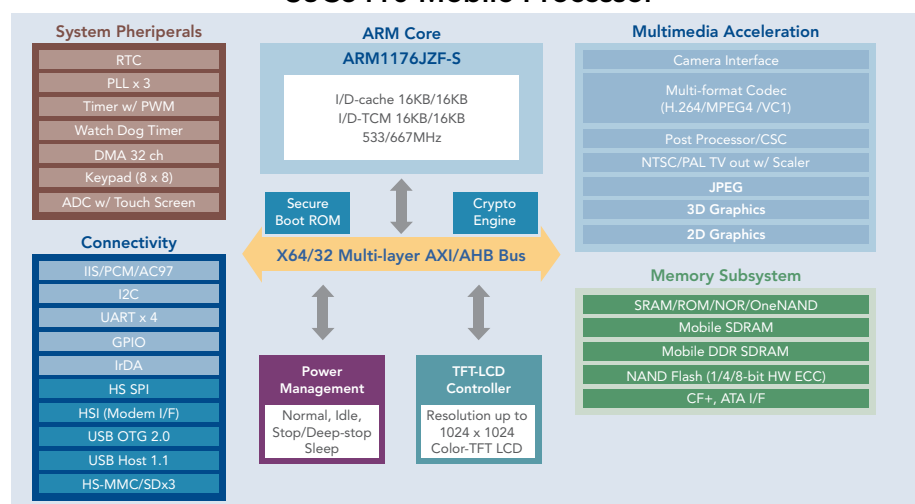
The Samsung S3C6410 mobile processor gives designers an unbeatable combination of 3D performance and low power in a cost-effective package. This 32-bit ARM11 RISC microprocessor with AXI 64-bit bus delivers up to 667MHz of processing performance. With its 3D hardware accelerator—handling 4 million polygons/second—it can power next-generation handhelds, such as mobile Internet devices and 3D UI-enhanced multimedia phones, as well as Personal Navigation Devices that display detailed images like buildings and landmarks.


This sophisticated processor enables the integration of various functions – wireless communication, navigation, camera, gaming,

music/video playing, mobile TV and PDA applications – into one device. An integrated Multi-Format Codec allows SD-quality video capture and playback at 30 frames/second as well as real-time video conferencing, with support of 5.1-channel Dolby sound. However, the S3C6410 also extends battery life because it was built using Samsung's 65nm low-power process.

Samsung's memory leadership is an advantage in giving the processor many options to handle the demanding memory bandwidths of high-end communications services. Memory support includes dual DRAM and flash/ROM external memory ports for parallel access. The DRAM port can support mobile DDR, standard SDRAM or integrated OneDRAM™ memory while the flash/ROM port supports NAND flash, NOR flash, OneNAND™ and ROM.

S3C6410 Mobile Processor





With its breakthrough 3D graphics capabilities and cost-effective price point, the Samsung S3C6410 is an ideal solution for next-generation handhelds such as PNDs that can display detailed images like buildings and landmarks.

Enables Broad Feature Sets and Small Device Designs

The Samsung S3C6410 is one of the highest-performance mobile processors available today. Along with its speed, 2D/3D multimedia capabilities and rich memory support, it offers the industry's broadest set of on-chip peripheral interfaces, including TFT-LCD 24-bit true-color controller, system manager for power management, 32-channel DMA, 4-channel timers and 12-bit ADC for touch-screen applications. All the major high-level operating systems are accommodated. The new processor is both pin and software compatible with the S3C6400 and S3C6430, facilitating development of a tiered product family from a single platform. For extremely small device designs, the Samsung S3C6410 is available in a Package-on-Package configuration.

Samsung S3C6410 Key Features

- ARM1176ZJF 533/667MHz VFP/SIMD
- 65nm low-power process
- DVFS power management
- Dedicated x32 mDDR/DDR, x32 mSDR/SDR
- WVGA or higher display resolution
- Hard-wired 3D GFX accelerator
 - 4M triangles/second
 - OpenGL ES 1.1/2.0

- Hard-wired multimedia (>WVGA)
 - MPEG-4 SP codec: SD/D1 >30fps
 - H.264/263 BP codec: SD/D1 >30fps
 - VC-1 (WMV9) decoder: SD/D1 >30fps
 - JPEG/2D hardware
 - Hardware rotator & post processor
 - TV-out (DAC + image enhancer)
- 32-channel DMA
- Security hardware: DES/3DES, AES, SHA-1
- High-speed connectivity
 - UART interfacing BT EDR 2.0 up to 3Mbps
 - High-speed SPI, 50Mbps for mobile TV
 - USB 2.0 OTG
 - High-speed MMC 8-bit 50MHz MMC+/eMMC
 - SDHC 4-bit 50MHz for high-density SD cards/iNAND 2.0 and WiFi 802.11a/b/g
 - I2S for 5.1-channel Dolby and stereo audio
- BOM cost savings by integrating:
 - USB host 1.1/USB 2.0 OTG PHYs
 - 12-bit ADC with TS + built-in FETs
 - Direct boot/NAND FS for NAND SLC/MLC, moviNAND, iNAND, OneNAND
 - TV-out DAC integration
 - Built-in keypad controller
- Pin compatible with S3C6400 & S3C6430
- Package: 424 pins, 13x13, 0.5mm pitch FBGA

Samsung Semiconductor, Inc.

3655 North First St., San Jose, CA 95134-1713
TEL: 408-544-4000 FAX: 408-544-4950
www.usa.samsungsemi.com



© 2008. The appearance of all products, dates, figures, diagrams and tables are subject to change at any time without notice. Samsung, Samsung Semiconductor, Inc., OneDRAM and OneNAND are trademarks of Samsung Electronics Co., Ltd. All other names and brands are the property of their respective owners.

DS-08-SLSI-001 Printed 4/08