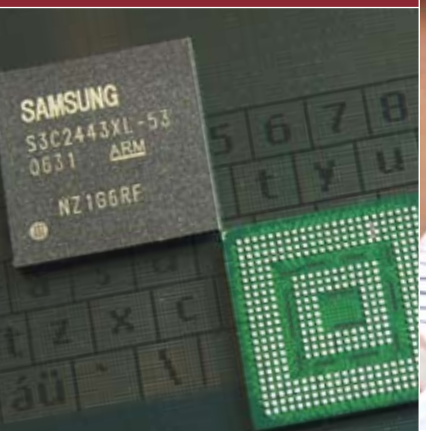
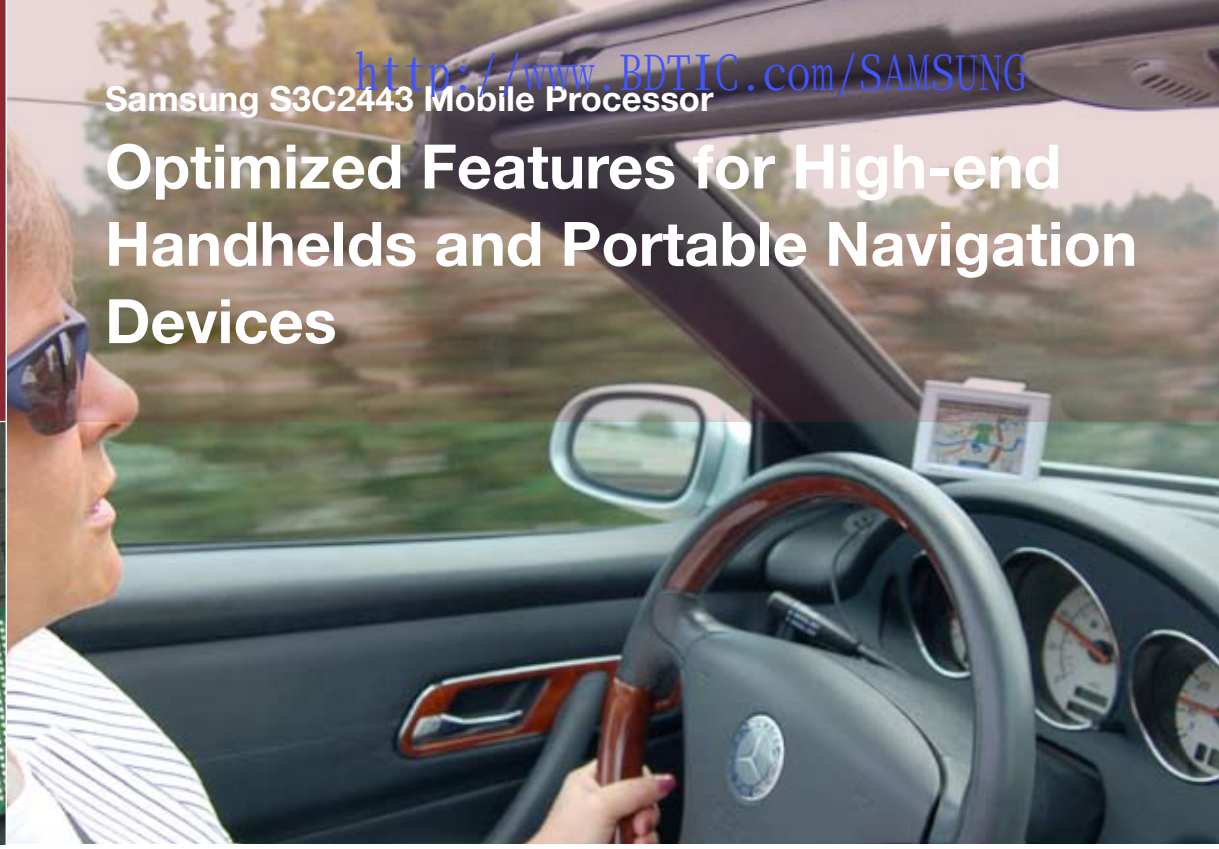
SAMSUNG

Samsung S3C2443 Mobile Processor

Optimized Features for High-end Handhelds and Portable Navigation Devices





Mobile device designs built on the Samsung S3C2443 have the flexibility to support multiple storage formats including NAND flash and mini hard disk drives.

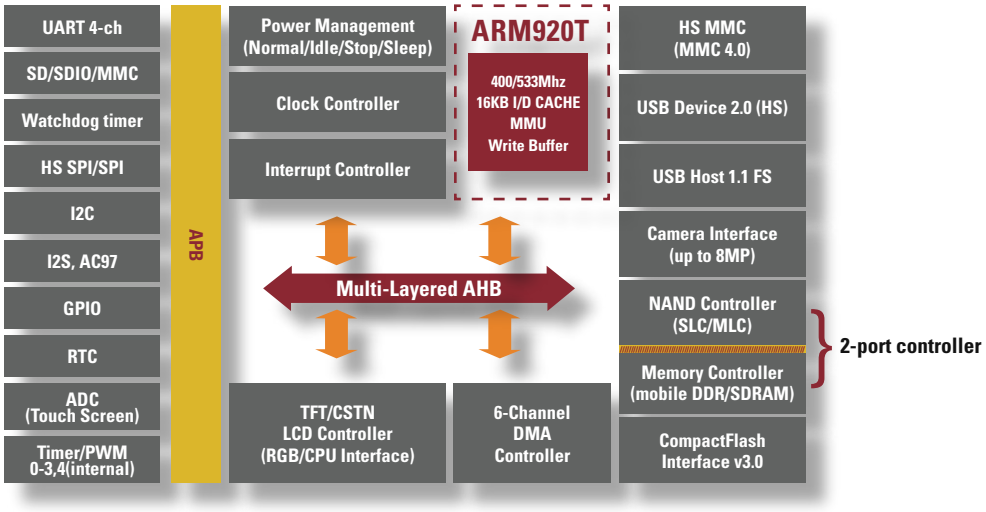
Highest-speed ARM9 Core Available Today

The new Samsung S3C2443 Mobile Application Processor has the performance and features required by advanced handheld devices. The S3C2443 has been optimized for demanding applications such as portable GPS, drawing on Samsung's industry-leading semiconductor expertise and track record supporting major worldwide customers for GPS devices, smartphones and other multimedia and graphics-intensive applications.

At up to 533MHz, the processor's advanced ARM920T core is the fastest on the market. The S3C2443 also has a multilayered memory bus architecture with bus speed up to 133MHz that allows simultaneous data transfer between processor, memory and peripherals, enabling designers to create devices with high performance and responsiveness. For example, in the case of portable GPS, the device can simultaneously display maps on the display and access map data from memory without compromising the user's experience.

The S3C2443 provides maximum flexibility, with features like a two-port memory controller that allows designers to choose different DRAM and SROM memory types. The new Samsung processor also includes broad, high-bandwidth connectivity via high-speed USB 2.0 and MMC 4.0 interfaces, along with built-in interfaces to cameras, screens, storage and other peripherals. Included are fast CE ATA for connection to mobile hard drives and high-speed SPI that can be used for even more connectivity.

Samsung S3C2443 Block Diagram



The Samsung S3C2443 mobile application processor has the performance, features and small footprint needed for small, dense devices such as a portable GPS, PMP or PDA.

Performance and Flexibility

The Samsung S3C2443 mobile processor enables designers to build the small, high-performance, feature-rich devices that have great consumer appeal. For example, by the inclusion of fast interfaces like USB 2.0, mobile devices are assured of the quick downloads required by high-speed media.

The new processor gives designers maximum flexibility, such as a broad choice of memory types to accommodate many different device designs. The S3C2443 supports MLC, SLC or OneNAND™ Flash as well as different kinds of mobile SDRAM, both single- and double-data rate. In addition, its flexible LCD controller enables designers to specify many different displays, such as 4-bit black and white, 12-bit CSTN or 24-bit TFT.

Also Available in Stacked Package with Memory

For extremely small device designs, the Samsung S3C2443 is also available in a Package-on-Package (PoP) configuration, including 64 megabytes of mobile SDRAM and 256 megabytes of NAND flash. Whether as a single chip or PoP, the new mobile processor utilizes Samsung's broad semiconductor expertise and extensive, proven IP library. The S3C2443's highly integrated, multi-feature design is based on Samsung's advanced, 130-nanometer process technology.

S3C2443 Key Features

- Fast ARM920T core
  - 400/533 MHz
  - 16KB I/D cache
- 133MHz multilayer memory bus with 2-channel controller
  - DRAM – up to 1GB of mobile DDR/SDRAM
  - SROM – NAND flash (SLC/MLC/OneNAND™)
- Flexible arbitration scheme with priority and round robin
- Low power management
  - Normal, slow, idle, stop and sleep modes
  - Clock control of each peripheral
- LCD display for STN/TFT panels
  - 4K color STN
  - 24-bit non-palletized TFT with OSD
- High-speed (480Mbps) USB 2.0 device (+PHY)
- Full-speed USB 1.1 host (+PHY)
- HS MMC v4.0 (8-bit data, up to 52MHz) and SD/SDIO/MMC
- 6-channel DMA
- PC card and ATA controller
  - PC card memory and I/O mode
  - True IDE mode with PIO and UDMA
- Support of Windows CE, Windows Mobile, Linux
- PoP or 400-pin FBGA

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