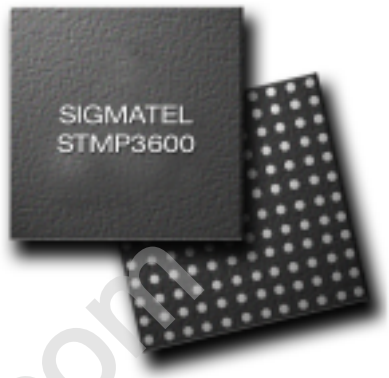
STMP3600

PRODUCT OVERVIEW

Summary

The SigmaTel STMP3600 System on Chip (SoC) provides customers the ability to design and develop digital multimedia players with longer battery life, smaller form factor designs and a higher level of processing power all at a lower overall system cost. An ideal solution for digital audio players, PDAs, voice recorders, cell phones, portable video players, and digital photo wallets, the STMP3600 is available with SigmaTel's world class software development platform for portable media players as well as through third parties who support alternative designs.



Low Power

The STMP3600 is designed to provide low power consumption for the longest possible battery life in portable applications. The integrated power management unit includes a high efficiency, on-chip DC-DC converter that supports various battery configurations including 1xAA, 1xAAA, and Li-Ion cells. It also includes an intelligent battery charger for Li-Ion batteries and is designed to support Adaptive Voltage Control (AVC), which can reduce system power consumption by 50% over competing designs. In addition, AVC allows the chip to operate at a higher peak CPU operating frequency than typical voltage control systems resulting in more MIPS per mW in any application.

Small Form Factor at a Lower System Cost

With high on-chip integration, the STMP3600 needs very few external components to complete the system. This feature allows manufacturers to meet the consumer market demand for smaller devices featuring more functionality at a lower system cost. The STMP3600 integrates the entire suite of analog components needed for a portable audio player which can result in Print Circuit Board (PCB) area reduction of up to 20%.

Application Flexibility

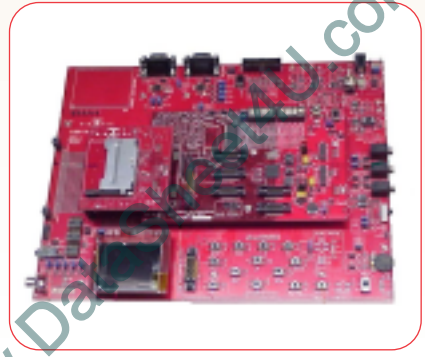
To provide the maximum application flexibility, the STMP3600 integrates a wide range of I/O peripherals. It can efficiently interface to nearly any type of flash memory, ATA drive, serial bus, or smart LCD. Moreover, it is ready for advanced connectivity applications such as Bluetooth and WiFi via its integrated high speed application UART and SDIO controller. This includes a high-resolution audio codec with headphone and speaker amplifiers, 8-channel low resolution ADC, high-current battery charger, linear regulators for 5-volt operation, high-speed USB 2.0 OTG with embedded PHY, and various system monitoring and infrastructure systems.

An ARM926EJ-S CPU with dual caches, embedded SRAM, and an integrated memory management unit serves as the central processor of the STMP3600 and provides the processing power needed to support advanced features such as audio cross-fading and post processing, MP3 and Windows Media Audio (WMA) encoding, and still and motion video decoding. The STMP3600 offers full Microsoft™ Windows Media Digital Rights Management 10 and supports the PlaysForSure™ logo license program. These and other advanced features are integrated into software development kits from SigmaTel that are coded specifically for the STMP3600 to enable faster time to market for many portable multimedia applications.

Tools Support

The SigmaTel portable multimedia SDK for the STMP3600 is built on Express Logic's ThreadX® RTOS from Green Hills® using the Multi® Integrated Development Environment and Slingshot™ debug probe. Other tool chains are also available for custom development.

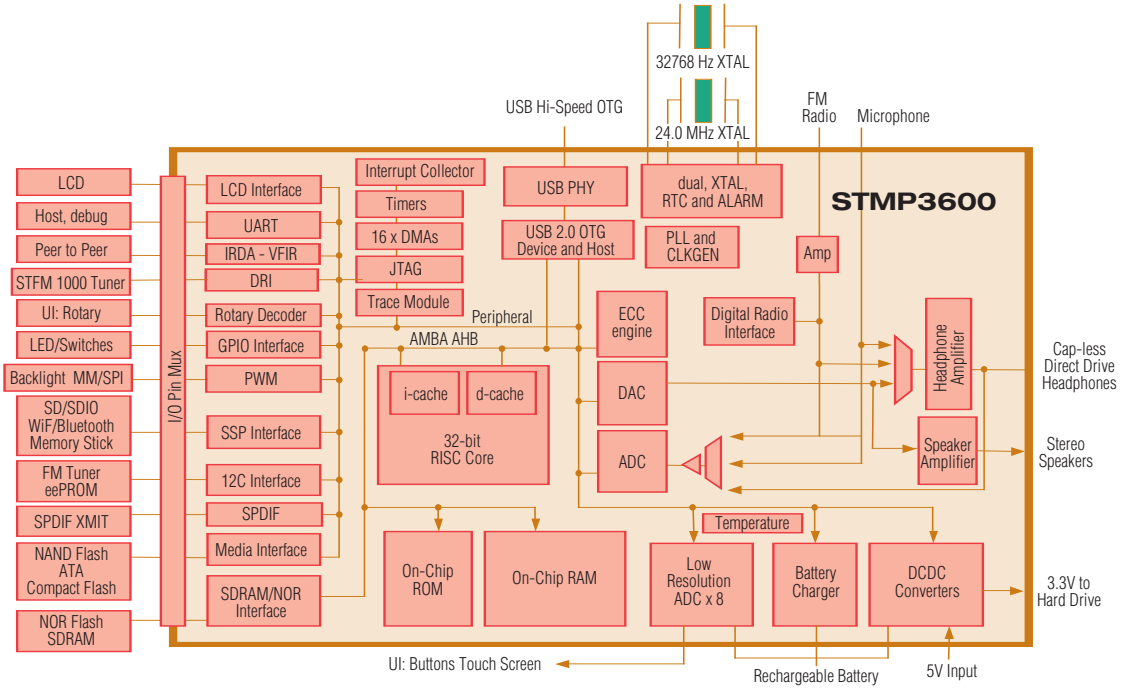
For more information on software development kits, application notes, reference schematics and sample PCB layouts available for the STMP3600, contact SigmaTel at sales@sigmatel.com.



SIGMATEL®
MIXED-SIGNAL MULTIMEDIA SEMICONDUCTORS

HARDWARE FEATURES

- ARM926EJ-S CPU WITH 200 MHZ OPERATING FREQUENCY
- 256KB INTEGRATED LOW POWER ON-CHIP RAM
- OPTIMIZED FOR VERY LONG BATTERY LIFE
  - —Less than 45 mW total system power consumption while playing 128-kbps MP3
- UNIVERSAL SERIAL BUS (USB) 2.0 HIGH-SPEED ON-THE-GO (OTG)
  - —Supports high speed USB 2.0 device, host, and OTG functions
  - —Fully integrated high-speed Physical Layer Protocol (PHY)
- POWER MANAGEMENT UNIT
  - —Multi-channel DC-DC converter supports all common battery configurations
  - —Improved, high-current battery charger
  - —Direct power from 5-V source (USB, wall power, or other source)
- HIGH PERFORMANCE AUDIO CODEC
  - —99dB SNR Stereo DAC
  - —90dB SNR Stereo ADC
  - —Stereo headphone amplifier with direct drive to eliminate bulky capacitors
  - —Integrated speaker amplifier
  - —Microphone input
- 8-CHANNEL A/D CONVERTER
  - —6 external channels, 2 internal channels
  - —Resistive touch screen controller
  - —Temperature sensor controller
- SECURITY FEATURES
  - —Read-only unique ID for digital rights management algorithms
  - —Secure boot support
- EXTERNAL MEMORY INTERFACE (EMI)
  - —Supports SDRAM and NOR flash
- WIDE ASSORTMENT OF EXTERNAL MEDIA INTERFACES
  - —ATA hard drive
  - —Up to four NAND flash with hardware management of device interleaving
- SDIO INTERFACE FOR HIGH SPEED CARDS AND WIFI MODULES
  - —High-speed SD/MMC, TriFlash and SDIO peripheral device support
- LIQUID CRYSTAL DISPLAY INTERFACE WORKS WITH ALL STANDARD 8 OR 16-BIT LCD MODULES
- HIGH SPEED UART OPERATING AT UP TO 1.5MB/S FOR BLUETOOTH SUPPORT
- I2C MASTER/SLAVE
- SYNCHRONOUS SERIAL PORT
- 4-CHANNEL 16-BIT TIMER WITH ROTARY DECODER
- 5-CHANNEL PULSE WIDTH MODULATOR (PWM)
- REAL-TIME CLOCK
  - —Uses the existing 24 MHz XTAL for low cost or 32.768 kHz for low power
- FLEXIBLE I/O PINS
  - —All digital pins have drive strength (4mA, 8mA) controls
  - —Almost all digital pins have General-Purpose Input/Output (GPIO) mode
- OFFERED IN 100-PIN THIN QUAD FLAT PACK (TQFP) AND 169 BALL GRID ARRAY (BGA) PACKAGES



www.sigmatel.com
email: sales@sigmatel.com

SIGMATEL®
MIXED-SIGNAL MULTIMEDIA SEMICONDUCTORS