

TI REDEFINES MOBILE APPLICATION DESIGN WITH THREE NEW LOW-POWER DSPs AND NEW LOW-POWER DESIGN TOOLS

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New TMS320C5509A, C5507 and C5503 DSPs deliver integrated USB and 114x lower standby power than competitors for portable applications

HOUSTON (June 28, 2004) — Continuing to help designers maximize battery life and reduce costs in portable applications, Texas Instruments Incorporated (TI) announced today the availability of three new low-power digital signal processors (DSP) and new eXpressDSP™ power design tools that together enable developers to optimize power consumption to previously unattainable levels. Where other vendors can only show typical power consumption of core and memory, TI is the first company to 'tell the rest of the power story' with design tools that show detailed and modular power information of a DSP chip core, memory and peripherals and a methodology for measuring power running under real-world conditions. The combination of the industry's lowest power DSPs and the essential tools to optimize power consumption and maximize battery life gives TI's customers the competitive edge they need when creating best-of-class portable, multimedia products.

New DSPs offer the Industry's Lowest Standby Power

The new TMS320C5503, TMS320C5507 and TMS320C5509A DSPs

offer an ideal combination of low power, performance, memory and peripherals for mobile, portable and other low-power, real-time signal processing applications. These devices enable advanced low power consumption through:

The industry's lowest standby power (0.12 mW) – 114x lower than nearest competition

Very low core and memory operating power - for example, 58 mW at 108 MHz

Dynamic frequency and voltage scaling

Multiple standby modes with ability to turn individual peripherals and internal functional units on and off

Multiple SRAM options (64 KB, 128 KB, and 256 KB RAM) for efficient code fit

The C5503 is optimized for low-cost, low-power devices such as portable biometric or medical devices and handheld wireless applications. The C5507 is for applications such as wireless gateways, Voice over Internet Protocol (VoIP), GPS and wireless speakerphones and offers a 500 microseconds 10-bit ADC as well as USB 2.0 full-speed port for PC connectivity. The C5509A is optimized for multimedia-rich, mobile devices such as MP3 audio jukeboxes and infotainment devices and offers two MMC/SD ports, as well as a 500 microseconds 10-bit ADC and USB 2.0 full-speed port. Standard peripherals for all include three MCBSP ports, three timers, I2C bus, six-channel DMA, 16-bit EMIF, 16-bit EHPI and 36 GPIO. These are the first devices with integrated USB at this low a level of power consumption for this class of DSP.

Advanced Power Design Tools

Determining accurate power consumption early in the design process is essential for making the right tradeoffs in performance, peripherals activity and external memory use in order to maximize battery life and

reduce cost. With the new eXpressDSP power design tools, TI will be the first to “tell the rest of the power story” by eliminating the guesswork of determining actual power consumption and giving developers previously inaccessible visibility into devices. These tools allow developers to consume only as much power as is actually necessary by dynamically turning off all peripherals and internal functional units when they are not needed and developers can now optimally configure devices based on accurate and detailed power consumption information, rather than blindly guess at how much power a device consumes. The four tools included in this eXpressDSP power design package are:

- Power planning tools: These planning tools include an easy “how to” application note and a spreadsheet for easy trial configurations. These tools give detailed internal functional unit and peripheral power consumption data specific to a particular DSP. Developers are able to easily and quickly create trial configurations to determine "net" power consumption for various memory and peripheral combinations.
- Power Manager in DSP/BIOS™: Through intimate integration with TI's DSP/BIOS real-time kernel, and delivered to Code Composer Studio™ (CCStudio) Integrated Development Environment via Update Advisor, this software module enables developers to automatically implement power saving strategies at an operating system level, resulting in more efficient boot-time power savings, automatic management of clock domains and sleep states, supervision and control of power scaling and central registry management for power event notifications.
- Power Scaling Library: Delivered to CCStudio™ via Update Advisor, this software tool implements an EVM320C5509A compatible power scaling configuration that supports dynamic control of run-time core frequency and voltage based on application mode and performance requirements. It allows callbacks to user code before/after scaling operations to accommodate voltage and frequency changes and supports query operations to determine current frequency, voltage, supported frequencies and scaling latencies.

- LabView-based Power Measurement Tool from National Instruments: Developers are now able to accurately profile power consumption based on actual application behavior. They can visually measure and analyze power by using the power measurement tool from National Instruments connected to the EVM320C5509A evaluation module (EVM) from Spectrum Digital or target prototypes. Measurements include total energy, max/average power, CPU and memory, peripheral and I/O power usage. Power/peripheral data can be viewed in tabular or graphical views forward or backward through time, as well as saved for future use.

For more information, please see: visit www.ti.com/powerefficientperformance.

The original press releas can be found [here](#).

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