Silicon Labs Launches the World's Most Energy-Friendly MCUs Based on the ARM Cortex-M0+ Core

October 9, 2013 11:00 AM EDT

EFM32 Zero Gecko MCU Family Delivers Industry-Leading Energy Efficiency and 32-bit Performance at Very Friendly Prices

AUSTIN, Texas--(BUSINESS WIRE)-- Silicon Labs (NASDAQ: SLAB), a leader in high-performance, analog-intensive, mixed-signal ICs, today introduced the industry's most energy-friendly 32-bit microcontrollers (MCUs) based on the ARM® Cortex®-M0+ processor. The EFM32™ Zero Gecko MCU family is designed to achieve the lowest system energy consumption for a wide range of battery-powered applications such as mobile health and fitness products, smart watches, activity trackers, smart meters, security systems and wireless sensor nodes, as well as battery-less systems powered by harvested energy. The new Zero Gecko family is the latest addition to the EFM32 Gecko portfolio pioneered by Energy Micro. The family includes 16 cost-effective MCU products designed from the ground up to enable the lowest possible energy consumption for connected devices enabling the Internet of Things (IoT).

The EFM32 Zero Gecko MCUs feature the industry's most sophisticated energy management system with five energy modes that enable applications to remain in an energy-optimal state, spending as little time as possible in the energy-hungry active mode. In deep-sleep mode, Zero Gecko MCUs have an industry-leading 0.9 µA standby current consumption with a 32.768 kHz RTC, RAM/CPU state retention, brown-out detector and power-on-reset circuitry active. Active-mode power consumption scales down to 110 µA/MHz at 24 MHz with real-world code (prime number search algorithm) executed from flash. Current consumption is less than 20 nA in shut-off mode. The EFM32 MCUs further reduce power consumption with a 2-microsecond wakeup time from standby mode.

Like all EFM32 Gecko products, the Zero Gecko MCUs include a best-in-class energy-saving feature called the Peripheral Reflex System (PRS) that significantly enhances system-level energy efficiency. The PRS monitors complex system-level events and allows different MCU peripherals to communicate directly with each other and autonomously without involving the CPU. Leveraging the PRS, an EFM32 MCU can watch for a series of specific events to occur before waking the CPU, thereby keeping the Cortex-M0+ processor core in an energy-saving standby mode as long as possible and reducing overall system power consumption.

The EFM32 Zero Gecko MCUs feature many of the same power-saving precision analog peripherals included in Silicon Labs' popular Tiny Gecko, Giant Gecko and Wonder Gecko devices. These low-energy peripherals include an analog comparator, a supply voltage comparator, an on-chip temperature sensor and a 12-bit analog-to-digital converter (ADC) with 350 µA current consumption at a 1 MHz sample rate.

The EFM32 Zero Gecko devices are the only Cortex-M0+ MCUs on the market that integrate a programmable current digital-to-analog converter (IDAC). This on-chip precision-analog IDAC generates a biasing current from 0.05-64 µA with only 10 nA overhead. The IDAC provides an accurate bias and/or control capability for companion ICs and other external circuits including amplifiers, sensors, Wheatstone bridges and resistor ladders, thereby eliminating the need for external power amplifier components for many cost-sensitive applications.

The Zero Gecko devices are also the only Cortex-M0+ MCUs containing a 128-bit Advanced Encryption Standard (AES) hardware block. With this built-in hardware AES encryption acceleration support, the Zero Gecko MCUs provide an ideal companion for RF transmitters and transceivers used in connected device applications for the Internet of Things.

"The Internet of Things is a huge and exciting market made possible by low-cost, battery-powered connected devices and wireless sensor nodes that sip nanoamps of energy," said Geir Førre, senior vice president and general manager of Silicon Labs' microcontroller products. "The IoT market requires battery-friendly Cortex-M0+ based MCUs that save both energy and system cost. Our new EFM32 Zero Gecko MCUs — shipping now at very cost-competitive prices — enable developers to create embedded systems that are four times more energy-efficient than possible with other Cortex-M0/0+ MCUs."

The EFM32 Zero Gecko family is pin- and software-compatible with Silicon Labs' broad portfolio of nearly 250 EFM32 Gecko MCU products. This compatibility provides developers with a cost-effective, energy-friendly entry point to higher-performance Gecko devices including the new Wonder Gecko based on the ARM Cortex-M4 core featuring a full DSP instruction set and dedicated floating point unit (FPU).

Complimentary Software Tools for Faster Time to Market

To speed time to market and reduce development cost, the EFM32 Zero Gecko family is supported by the complimentary Simplicity Studio software suite, a comprehensive graphical user interface environment for all major computing platforms including Microsoft® Windows®, Linux and Mac/OS X. Available with the Zero Gecko starter kit at no charge, Simplicity Studio provides developers with one-click access to all the information, documentation, energyAware tools, and software and source code libraries needed to quickly develop energy-friendly applications.

Key elements of Simplicity Studio include the energyAware Profiler, a powerful yet easy-to-use debugging tool for low-energy embedded system development, and the energyAware Designer, a tool that eases the traditionally time-consuming task of debugging I/O pin conflicts. Using these energyAware tools, developers can quickly drill down to the exact lines of code that are consuming the most power. Simplicity Studio also includes an energyAware software library built around ARM's standard CMSIS abstraction layer and supported by leading tool chains. Third-party tools support includes IAR's Embedded Workbench, Keil's MDK-ARM and CrossWorks from Rowley Associates.

Pricing and Availability

Samples of Silicon Labs' EFM32 Zero Gecko MCUs are available now in QFN and QFP packages with 4 to 32 kB flash sizes, and production quantities are planned for Q4 2013. Product pricing for the Zero Gecko MCUs in 100,000-unit quantities begins at $0.49 (USD). The easy-to-use, cost-effective EFM32ZG-STK3200 starter kit is available now and priced at $69 (USD MSRP). For additional EFM32 Zero Gecko MCU product information, samples and development tools, please visit www.silabs.com/zero-gecko.

Silicon Labs

Silicon Labs is an industry leader in the innovation of high-performance, analog-intensive, mixed-signal ICs. Developed by a world-class engineering team with unsurpassed expertise in mixed-signal design, Silicon Labs' diverse portfolio of patented semiconductor solutions offers customers

significant advantages in performance, size and power consumption. For more information about Silicon Labs, please visit www.silabs.com.

Cautionary Language

This press release may contain forward-looking statements based on Silicon Labs' current expectations. These forward-looking statements involve risks and uncertainties. A number of important factors could cause actual results to differ materially from those in the forward-looking statements. For a discussion of factors that could impact Silicon Labs' financial results and cause actual results to differ materially from those in the forward-looking statements, please refer to Silicon Labs' filings with the SEC. Silicon Labs disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Follow Silicon Labs on Twitter at http://twitter.com/silabs and on Facebook at http://www.facebook.com/siliconlabs.

Explore Silicon Labs' diverse product portfolio at www.silabs.com/parametric-search.

Photos/Multimedia Gallery Available: http://www.businesswire.com/multimedia/home/20131009005010/en/

Silicon Laboratories Inc.
Dale Weisman, +1-512-532-5871
dale.weisman@silabs.com

Source: Silicon Laboratories Inc.

News Provided by Acquire Media