MCUs Operate Down To 0.9V Enable Portables to Derive Power from a Single-cell Battery

Silicon Laboratories introduced microcontrollers (MCUs) capable of operating down to 0.9V, enabling portable devices to derive power from a single-cell battery. The C8051F9xx family's 8-bit architecture with an integrated high-efficiency DC/DC boost converter, which can supply up to 65 mW of power for both internal MCU use and to drive other components, creates a true single-cell battery system solution. For products powered by user-replaceable batteries, the family enables small form factor products, long battery life and low overall system cost in both single- and dual-cell modes. In many low-power applications, operating from 0.9V up to 3.6V, the MCU is in sleep mode for the majority of the time, waking up periodically to capture data. The MCU's design techniques deliver a typical sleep-mode current of <50 nA. It can wake-up from its low-power sleep mode with the CPU operating at 25 MIPS and ready to make an analog-to-digital converter (ADC) measurement within 2 µs. This allows the MCU to spend a minimum amount of time performing measurements and algorithms. To save battery life in active mode, the C8051F9xxx's power-efficient architecture yields an active-mode current as low as 170 µA/MHz. The C8051F9xx family is the first MCU to integrate 64 kB of Flash and 4 kB of RAM into a 4 mm × 4 mm package, providing customers with increased memory for typical applications such as data logging.

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Links:

[1] http://www.silabs.com/