BatterySmart® Power Management System

With the latest in advanced power management and performance turning built-in, BatterySmart® enables you to fully optimize both the run-time performance and the battery life of your Marvell PXA-based handheld and wireless devices.

The patented BatterySmart software suite and application programming interface (API) is designed to help OEM developers comprehend and adjust the computational performance and battery life of their handheld device applications. Combined with our handheld platforms, developers automatically gain the advantages of tightly integrated hardware and software and improved power supply designs that can substantially boost battery life.

BatterySmart allows users to...

- Automatically and dynamically adjust CPU clock speed based on the operating bandwidth requirements of your handheld device.
- Understand the differences in power consumption at 100MHz vs. 520MHz.
- Determine required computational bandwidth of your application software at different CPU clock speeds.
- Understand how battery life is affected by plugging in a PCMCIA peripheral.
- Reduce the computational bandwidth and power consumption while connecting to multiple peripheral devices.

BatterySmart® Standard Features

Start-up CPU Speed Adjustment	At device start-up, the BatterySmart software retrieves the desired base CPU clock speed and operating system timer tick interval and adjusts the core CPU clock speed and memory timings accordingly. Base CPU speed can be set from below 60MHz to over 200MHz, and timer tick interval can be adjusted to trade off device power consumption with device performance.
Advanced Idle Mode	In addition to providing support for the standard CPU Idle modes, BatterySmart incorporates accurate OS kernel-level Idle measurements, which are used to measure CPU computational bandwidth and other parameters.
Dynamic CPU Speed Adjustment	OEMs can set parameters that dictate run-time, on-the-fly adjustment of CPU clock speed. For example, parameters can be used to set the CPU for: full-speed always, half-speed always or full-speed unless CPU bandwidth drops below a specified threshold for a specified period of time.
Performance-Turned Core Software Drivers	Those software drivers that use CPU clock speed to set up timings (such as PCMCIA, Compact Flash and LCD display drivers) are architected to dynamically adjust their settings at startup, as a function of base CPU clock speed.
Optimized Peripheral Software Drivers	Serial port (RS-232, SPI, audio codec) software drivers access a kernel-level system-wide resource manager that is designed to intelligently share CPU hardware resources. The result is peripheral software drivers that reduce both power consumption and CPU computational bandwidth simultaneously, while allowing multiple peripherals to be active at the same time.
Run-Time Power/Performance Measurement Utilites	The BatterySmart control panel applet demonstrates access to the BatterySmart API and, additionally, adds application-level utilities for graphing and logging device performance and power consumption.

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InHand Electronics, Inc. • 30 West Gude Drive • Suite 550 • Rockville, MD 20850 • v: 800.983.8441 • f: 240.558.2019 • **www.inhand.com**