

Rise of Portable Devices a Powerful Concern

Battery life becomes a huge issue for consumers

By Marijana Vukicevic, iSuppli Corporation

Portable electronic devices, a huge part of our everyday lives, with most consumers toting at least one mobile phone and usually at least one other device. When adding notebook computers—which will represent 40 percent of total PC unit shipments by 2010, iSuppli Corp. predicts—this becomes a vast number of portable products. Because of this, several types of portable devices, including notebooks, mobile phones, MP3 players and Personal Digital Assistants (PDAs), have become significant drivers of the power-management market.

What distinguishes portable devices from other electronic products is that their power is supplied from a limited source: the battery. In such devices, battery life is a major concern for consumers.

This problem can be handled in three different ways: software, firmware and hardware, with a combination of all three approaches employed in order to ensure successful power management.

From the software side, Microsoft Corp.'s new Windows Vista operating system is one of the newest tools for managing power more efficiently.



Microsoft's previous operating system, Windows XP, was a big improvement over Windows NT in terms of power management, but Vista is steps beyond.

In portable devices such as mobile phones, there is a trend toward adding software performance analyzers that conserve power by optimizing code so that it takes less time to execute a given task. These analyzers are unique to specific operating systems and hardware.

However, software-driven improvements in power efficiency are meaningless unless they are accompanied by intelligent hardware designs. Such designs are cooperative and responsive to the software's commands to adjust the frequency or voltage—processes called voltage scaling and frequency scaling. These factors can be adjusted to save precious battery life with communication achieved via a variety of protocols, most commonly the Inter-Integrated Circuit (I2C) and Power Management Bus (PMBus) standard.

Improvements now

One trend among mobile-phone manufacturers is the integration of power-management functions into the analog baseband circuitry. Leading suppliers in this arena are Freescale Semiconductor Inc., Qualcomm Inc. and Texas Instruments Inc., with more companies expected to announce similar offerings later.

Notebook PCs have power-savings features implemented at all levels of their hardware. Microprocessor technology advancements are helping to save more energy. Advanced Micro Device Inc.'s PowerNow technology can throttle down the microprocessor to only 25 percent of its full potential, delivering power consumption savings. Meanwhile, Intel Corp.'s Centrino Duo platform operates with 28 percent less energy compared to the previous Centrino platform.

The key ICs in power management are voltage regulators. Because of this, the market is expected to grow at a rate of 16 percent during a five year period.

While there is plenty of work to be done to ease consumer concerns about battery life, companies are taking steps to make further strides in the future.

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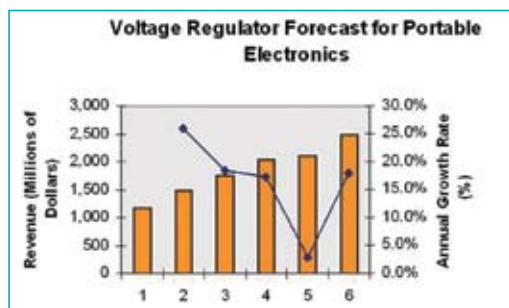


Figure 1 presents iSuppli's five-year forecast for voltage regulators in portable devices.