

Broadband News Update



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10, JUNE 2008 Summit Micro's Multi-Output Programmable Power Manager Combines Advanced Power Delivery with Digital Power Control

Single-chip solution targets portable applications, maximizing design flexibility while reducing system cost, size and development time

Summit Microelectronics Microelectronics has announced the latest addition to the company's family of multi-output programmable power manager ICs. The SMB119 is targeted at portable consumer equipment and integrates seven precision programmable regulators and a wide range of digital power control functions. This "one-chip" solution offers the highest design flexibility in the industry, while reducing system solution size and cost.

Summit Micro's easy-to-use PC-based graphical (GUI) development environment lets system designers digitally program the entire multiple output power supply and associated power management functions with a few clicks of a mouse. In high-volume production Summit provides product that is pre-programmed with the customer's "custom configuration" at no extra cost. Compared to inflexible conventional analog power ICs, the SMB119 yields optimized power system designs in significantly shorter development time.

Features

The SMB119 incorporates three synchronous step-down converters, two step-up converters, one configurable step-up or step-down converter, and one low-dropout (LDO) linear regulator. Also included is a fully programmable system supervisor that monitors all channels for under-voltage and over-voltage events. The user can select how the SMB119 should react under abnormal conditions (assertion of RESET output, power-down in sequencing order or force shutdown), thereby maximizing system reliability.

The power manager operates at a switching frequency of 1MHz, allowing for space-saving system components. DC-DC Power conversion efficiency of up to 95 percent reduces thermal dissipation and improves battery life in portable systems. Further enhancing battery life, a shutdown mode reduces current consumption to 0.1µA while automatic PWM/PFM operation improves light load efficiency. A PWM-override mode is also available for noise sensitive RF or audio applications. Short circuit current limiting and thermal protection safety circuits are also built-in to enhance reliability. The power manager operates at a switching frequency of 1MHz, allowing for space-saving system components. DC-DC Power conversion efficiency of up to 95 percent reduces thermal dissipation and improves battery life in portable systems. Further enhancing battery life, a shutdown mode reduces current consumption to 0.1µA while automatic PWM/PFM operation improves light load efficiency. A PWM-override mode is also available for noise sensitive RF or audio applications. Short circuit current limiting and thermal protection safety circuits are also built-in to enhance reliability.

Programmability

The SMB119 provides Digital Power Management via an I2C interface and non-volatile memory allowing the user to configure power functions and parameters for each channel: individual channel enabling/disabling, power-up/down sequencing, power-up slew rate control, static and dynamic output voltage control (Dynamic Voltage Management). A broad range of intelligent

power system diagnostics and monitoring functions can be easily accessed via the I2C serial interface and digital status outputs. These include input and output monitoring for under/over-voltage/over-current (UV/OV/OC) and integrated RESET control. Enhancing flexibility even further, the device can be programmed during development and then used in a "fixed" configuration, or it may be re-programmed in-system via the I2C interface.

"Conventional discrete and hard-wired power management ICs cannot cope with the increasing sophistication of feature-rich consumer electronics and shorter time-to-market cycles," stated George Paparrizos, Summit marketing director. "The SMB119's digital power control functionality and operational versatility deliver high performance and flexibility. At the same time, the device's high efficiency meets Summit Micro's commitment to offer 'green' systems solutions."

Applications

The SMB119 is ideal for a wide range of portable consumer electronics such as digital still cameras/camcorders (DSC/DCC), portable media players (MP3/MPEG4), GPS terminals, portable medical equipment, personal digital assistants (PDAs), as well as the next generation of "smart" mobile phones. The dynamic voltage management feature is particularly useful in Xscale™ and ARM™ CPU applications and where LED backlight brightness control is desired

The SMB119 operates directly from +2.7V to +6.0V input making it ideal for 1-cell Li-Ion (+3.0V to +4.2V) battery applications, although line-powered applications are readily supported as well. The device has an operating temperature range of +0oC to +70oC or -40oC to +85oC and is available in the 7mm x 7mm 48-pad QFN package that is lead-free and RoHS-standard compliant.

Read more about Summit Micro >> <http://www.bt2000.co.uk/page29.htm>