

NEWS RELEASE

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Summit Precision Programmable Power Supply Margining Device Optimizes Next-Generation Digital Systems

*Servers and communication equipment benefit from “ultra-accurate”
regulation, convenient margining and flexible I²C digital control*

San Jose, Calif. -- February 2, 2005 -- Summit Microelectronics has announced a solution to improve the performance and reliability of enterprise server, data communications and telecommunications equipment through precision power subsystem control. The SMM150 is a digital power supply marginer that can easily be designed to work with either point-of-load (POL) DC-DC power modules or monolithic embedded DC-DC converters. The device margins the output voltage of the power supply, above or below the nominal set-point from +300mV to V_{DD} , at +/-0.75% accuracy.

Designed for applications where product quality is paramount to avoid costly downtime, the SMM150 is ideal for servers, switches, routers, and base stations.

The SMM150 uses a highly accurate on-board reference, a 10-bit ADC and control loop to measure and control the output voltage of the DC-DC converter. When a margin request is received, the SMM150 will adjust the trim pin or feedback pin of the converter, to provide the correct margined output voltage from +300mV to V_{DD} . During this period the SMM150 controls the output voltage very accurately to +/-0.75%. The SMM150 can margin by either a remote I²C command or by driving the margin up/down pins. Additionally the SMM150 provides status flags- 'Ready' provides an indication if the margined voltage has been reached, and 'Fault' provides an error flag.

Accurate Power Regulation and Control are Vital in Digital Systems

Accurate power regulation and control in advanced digital systems is more critical than ever because the signal integrity of high-performance digital semiconductors is increasingly dependent on the quality of associated power supplies. Unfortunately, most off-the-shelf power supplies cannot provide this level of performance on their own. High-accuracy voltage margining is needed to extract the most performance and reliability from these digital systems. For example, if a DC-DC converter is 2% below its nominal set point due to inherent error and then it is margined to -5%, the test will be conducted at -7% instead of the -5%, as specified.

Additionally, as the number of voltage rails for these systems continue to increase, the difficulty in testing for worst-case combinations of power supply tolerances is dramatically compounded. Finding components and/or subsystems that do not meet these worst-case conditions in development or production is becoming vital to ensure product quality, and reducing field failure return rates.

Control and Monitoring Via I²C Bus

The SMM150 is programmed via the I²C bus to set margin high and low voltages. These values are held in a nonvolatile store on the device and are absolute values. By storing absolute values and having a digital control loop, the engineer can guarantee the board is tested to the correct voltage unlike other passive solutions on the market. The 10-bit ADC can be used to monitor the absolute value of the DC-DC output via the I²C bus for system diagnosis purposes. The I²C bus is also used to access the E² Memory integrated into the SMM150.

Evaluation Support

Summit provides an evaluation system SMM150EV which comprises an evaluation board, a programming cable, and Graphic User Interface Software that is downloadable from the Summit website.

Price and Availability

The SMM150 operates directly from +2.7V to +5.5V and the operating temperature range is +0C to +70C. It is available in 5mm X 5mm QFN-28 and a 2.7mm X 3.6mm CSP packages that are lead-free and RoHS-standard compliant. Available now in production

quantities, the device is priced at \$2.60 for QFN-28 packaged units in quantities of 1,000 units (CSP package pricing available from factory).

About Summit Microelectronics -- "*Programmable analog for a digital world*"

Summit Microelectronics supplies semiconductors that manage and provide power functions in networking/communications, storage/computing, industrial, military, and consumer products. Customers can very rapidly tailor Summit's programmable analog technology to multiple applications by programming the same part.

Founded in 1997, Summit is headquartered in San Jose, California. The Company is ISO 9001 certified.

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