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Single-Inductor Low V_{IN} Buck-Boost DC/DC Controller Optimized for Medium Power Outputs

MILPITAS, CA – October 3, 2007 – Linear Technology Corporation introduces the LTC3785, a 96% efficient buck-boost switching regulator controller that operates from input voltages above, below or equal to the output voltage for powering tablet PCs, handheld instruments, wireless modems, portable media players and a wide variety of single or dual-cell Li-Ion or multi-cell alkaline/NiMH powered devices.

Medium power buck-boost circuits have traditionally relied on transformers (SEPIC) or two cascaded DC/DC converters, one for the step-up (boost) and one for the step-down (buck) conversion. The LTC3785 requires only a single inductor from an input range of 2.7V to 10V, offers an identical output range, and can deliver up to 50W of output power. Operating with 4-switch synchronous rectification, the LTC3785 provides seamless transitions between the buck and boost operating modes.

The LTC3785's proprietary topology and control architecture employs MOSFET R_{DS} sensing for forward and reverse current limiting, yielding unrivaled efficiency. A sense resistor may be used when increased accuracy is desired. Moreover, the LTC3785 incorporates Burst Mode[®] operation which reduces light load quiescent current to less than 100uA, a valuable feature in battery powered systems. In addition, fault protection is provided for over voltage, over current and short circuit conditions in all operating modes. The operating frequency can be programmed from 100kHz to 1MHz with a single resistor and the LTC3785 also incorporates true output disconnect during shutdown.

The LTC3785 is offered in a 4mm x 4mm QFN-24 package. The 1,000-piece price is \$3.56 each.

Photo Caption: 10V Single Inductor Synchronous Buck-Boost Controller

Summary of Features: LTC3785

- Single Inductor Architecture Allows Operation with the Input Voltage Above, Below or Equal to the Output Voltage
- 2.7V to 10V Input and Output Voltage Range
- 4-Switch, Synchronous Operation for up to 96% Efficiency
- R_{DS} Current Sensing Enhances Efficiency
- 100uA No Load Quiescent Current
- 100kHz to 1MHz Programmable Constant Frequency Operation
- Over Voltage and Over Current Protection
- True Output Disconnect During Shutdown
- All N-Channel MOSFET Power Switches

About Linear Technology

Linear Technology Corporation, a manufacturer of high performance linear integrated circuits, was founded in 1981, became a public company in 1986 and joined the S&P 500 index of major public companies in 2000. Linear Technology products include high performance amplifiers, comparators, voltage references, monolithic filters, linear regulators, DC-DC converters, battery chargers, data converters, communications interface circuits, RF signal conditioning circuits, and many other analog functions. Applications for Linear Technology's high performance circuits include telecommunications, cellular telephones, networking products such as optical switches, notebook and desktop computers, computer peripherals, video/multimedia, industrial instrumentation, security monitoring devices, high-end consumer products such as digital cameras and MP3 players, complex medical devices, automotive electronics, factory automation, process control, and military and space systems. For more information, visit www.linear.com

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Press Contacts:

John Hamburger, Director Marketing Communications
jhamburger@linear.com
Tel: 408-432-1900 ext 2419

Doug Dickinson, Media Relations Manager
ddickinson@linear.com
Tel: 408-432-1900 ext 2233