



Complete Power Management IC Solutions for i.MX6, ARM Cortex & Other Advanced Portable Application Processor Systems

MILPITAS, CA – July 29, 2013 – Linear Technology Corporation announces the [LTC3676](#) and LTC3676-1, complete PMIC power management solutions for portable processors including Freescale's i.MX6 series, PXA, OMAP, ARM Cortex and other advanced portable microprocessor-based systems. The LTC3676 and LTC3676-1 contain four synchronous step-down DC/DC converters for core, memory, I/O and system on-chip (SoC) rails plus three 300mA low dropout (LDO) regulators for low noise analog supplies, with dynamic control & sequencing. The LTC3676-1 configures a 1.5A buck regulator for source/sink and tracking operation to support DDR memory termination and also adds a VTTR reference output for DDR. These two pin features replace the LDO4 enable and feedback pins of the LTC3676. Supporting the multiple regulators is a highly configurable power sequencing capability, dynamic voltage scaling output voltage control, a pushbutton interface controller, plus regulator control via an I²C interface with extensive status reporting and an interrupt output.

The LTC3676's four constant frequency current-mode buck switching regulators are internally compensated and provide up to 2.5A, 2.5A, 1.5A and 1.5A output currents, and have complete I²C-control, including selectable switching frequencies (2.25MHz or 1.125MHz) and phasing. The device's power-on default frequency is 2.25MHz with switch edge rate adjustment for reduced EMI. Each buck has a dynamically controlled DAC-based output reference and an external feedback pin to set the nominal output voltage range. Three operating modes can be set using the I²C interface: pulse-skipping (supports 100% duty cycle), Burst Mode[®] operation (advantageous for best efficiency at low output loads), or forced continuous (minimizes output voltage ripple at light loads and optimizes dynamic slew control between voltage output set points).

The LTC3676 also has four LDOs for low noise analog supplies, including three 300mA rails with different combinations of fixed and I²C-selectable voltage options; two of these regulators feature adjustable outputs. The other LDO is an always-on 25mA supply with a resistor-programmable output voltage.

The LTC3676's versatile I²C serial port is used to control regulator enables, output voltage levels, dynamic voltage scaling, operating modes and status reporting. Regulator start-up can be sequenced by connecting regulator outputs to enable pins in the desired order or via the I²C port. System power-on, power-off and reset functions are controlled by a pushbutton interface, pin inputs, or I²C interface. I²C-defined power-down sequencing allows each regulator to be assigned to any one of four turn-off time slots. Other features include adjustable temp warning and shutdown, adjustable undervoltage warning and lockout, power good, interrupt request output (/IRQ) and reset output (/RSTO), and interface signals such as the voltage standby (VSTB) pin that toggles between programmed run and standby output voltages on up to four rails simultaneously.

The LTC3676/-1 is available from stock in a thermally enhanced, low profile (0.75mm) 40-pin 6mm × 6mm exposed pad QFN package. 1000-piece pricing starts at \$5.50 each for the E grade. The E grade and I grade versions both have operating junction temperature ranges of -40°C to +125°C, and the H grade version has an operating junction temperature of -40°C to +150°C. For more information, visit www.linear.com/product/LTC3676


Photo Caption: High Power PMIC for Advanced Applications Processors

Summary of Features: LTC3676 & LTC3676-1

- Quad I²C Adjustable High Efficiency Step-Down DC/DC Converters: 2.5A, 2.5A, 1.5A, 1.5A
- Three 300mA LDO Regulators (Two Adjustable)
- DDR Power Solution with VTT & VTTR Reference
- Pushbutton ON/OFF Control with System Reset
- Independent Enable Pin-Strap or I²C Sequencing
- Programmable Autonomous Power-Down Control
- Dynamic Voltage Scaling
- Power Good and Reset Functions
- Selectable 2.25MHz or 1.12MHz Switching Frequency & Phase
- Always Alive 25mA LDO Regulator
- 12µA Standby Current
- Available in 40-Lead 6mm × 6mm QFN Package

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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