STMicroelectronics Introduces New Real-Time Clock Chips in QFN16 package with supply levels as low as 1.0V

July 1 2004

STMicroelectronics has announced three new Serial Real-Time Clocks (RTCs) for use in a broad range of applications from camcorders to electronic door locks. All are available in a lead-free 16-pin QFN package, just 3mm square, and as small a footprint as is available in an RTC.

The new devices - the M41T50 , M41T60 and M41T62-65 - provide date and time information, from seconds to centuries, over an I2C serial bus. All include automatic leap year compensation. They are designed for a bus operating voltage from 3.6V down to 1.3V (M41T50: 1.7V), but will maintain timekeeping at supply levels as low as 1.0V providing

more robust system performance. Operating current is just 350uA on a 3.0V supply, making the RTCs ideal for battery operation and handheld applications. Standby currents will be less than 650 nanoamps at 3.0V. All operate over the industrial temperature range of -40 to +85 degrees C.

The small size and low power requirement of these RTC chips means that they are good choices for applications such as cameras and camcorders, PDAs and other handheld products where space and power are at a premium, while the variety of features means they also suit medical and industrial systems as well as white goods.

Each clock chip offers a mix of operational features that will appeal to different types of applications. The M41T60 and M41T62/63/64/65 series each have built-in 32.768kHz oscillators, used with external crystals, and each includes an Oscillator Stop Detection feature to warn if the recorded time might be corrupted. Software clock calibration allows the host processor to compensate for variations in crystal frequency, and can achieve an accuracy of better than 2ppm at 25 degrees C.

Eight BCD (binary coded decimal) registers are used for the clock/calendar function, with additional registers used for status and control. The M41T60 provides crystal controlled time-of-day clock and calendar, while the M41T62/63/64/65 series adds a watchdog timer and various combinations of alarm interrupt, 32kHz output, programmable squarewave output, and watchdog output.

The M41T50 operates from either a 50Hz or a 60Hz input which can be derived from line power. In addition to the time-of-day clock and calendar, user functions include a programmable alarm interrupt, and a 1Hz squarewave output which minimizes the need for external circuitry.

Further information on these devices is available at www.st.com/rtc/