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(54) **MICROCONTROLLER WITH INTERNAL CLOCK FOR LIQUID CRYSTAL DISPLAY**

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(57) **ABSTRACT**

A device including a microcontroller fabricated on a semiconductor chip is used to control an LCD display of an external system intended to be controlled by the microcontroller. The microcontroller enters a sleep state in which it operates in a battery power conservation mode during periods of time when functional activity of the microcontroller is reduced. The microcontroller awakens from the sleep state for resumption of activity when such a period ends. Timing to the LCD is decoupled from the microcontroller's own internal clock when the independent internal on-chip clock, which may be an RC oscillator, is selected by the user of the device. This allows the chip to continue to drive the LCD display even though the microcontroller's internal clock has stopped during the sleep.

6 Claims, 11 Drawing Sheets

