MSP430 MICROCONTROLLER BASICS

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Description
The MSP430 is a simple 16-bit microcontroller with a compact and economical CPU containing only 27 instructions and 16 registers. It offers other advantages which make it suitable for low power applications: a rich variety of peripherals for analog input and output; rapid processing wake up time; the treatment of data and address on equal footing. Introduction to the MSP430 combines a tutorial approach with a description of the CPU and main peripherals. The tutorial builds from a basic program for lighting LEDs to the use of a timer. It uses the C programming language from the start but programs are also developed in assembly language to show how a program interacts with the hardware. To demonstrate the special features of the MSP430 full coverage is given to the instruction set, sigma-delta analog-digital converters and timers. Finally, the book gives an introduction to the MSP430 which extends the architecture to address more memory and which provides a bridge to the ARM 7 processor. Contents: 1. Embedded electronic systems and microcontrollers; 2. Texas MSP430; 3. Development; 4. A simple tour of the MSP430; 5. Architecture of the MSP430; 6. Functions, interrupts and low-power modes; 7. Digital input, output and displays; 8. Timers; 9. Mixed-signal systems: Analog input and output; 10. Communication; 11. The future: MSP430X; Appendices.

Audience
Professional embedded systems engineers, hobbyists and engineering undergraduates.

Contents
1. Embedded electronic systems and microcontrollers 1.1. What (and where) are embedded systems?

**Bibliographic details**

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