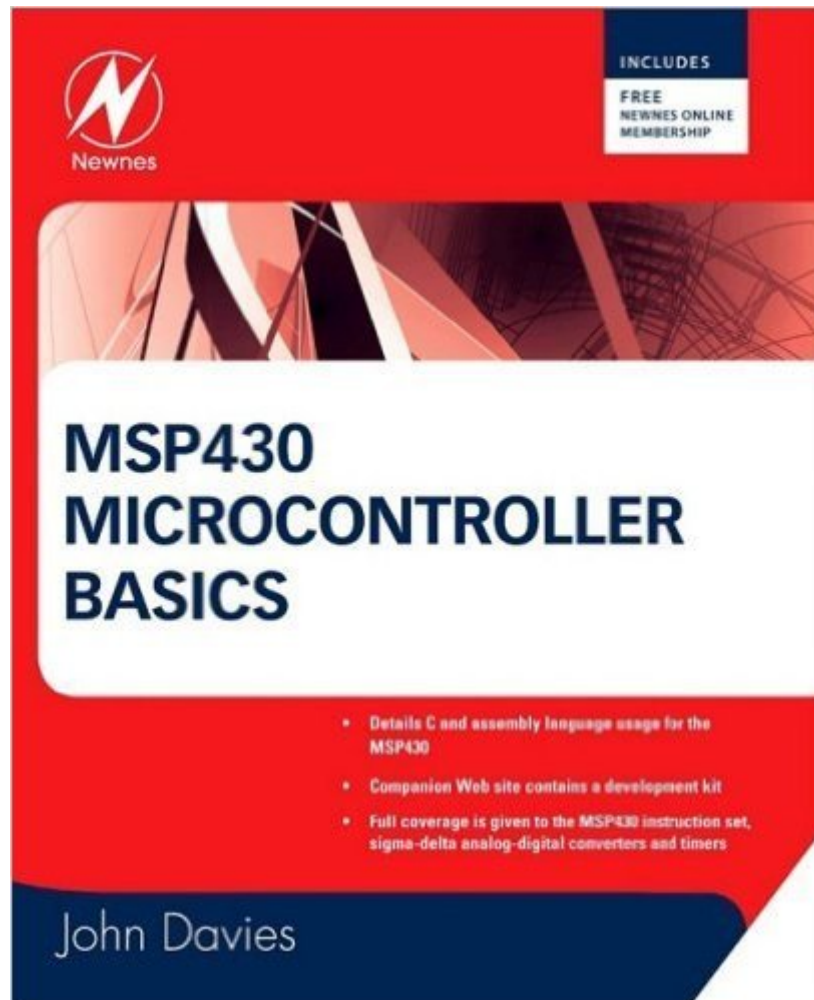


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MSP430 Microcontroller Basics



Synopsis

The MSP430 microcontroller family offers ultra-low power mixed signal, 16-bit architecture that is perfect for wireless low-power industrial and portable medical applications. This book begins with an overview of embedded systems and microcontrollers followed by a comprehensive in-depth look at the MSP430. The coverage included a tour of the microcontroller's architecture and functionality along with a review of the development environment. Start using the MSP430 armed with a complete understanding of the microcontroller and what you need to get the microcontroller up and running! Contents: 1.Embedded Electronic Systems and Microcontrollers; 2. The Texas Instruments MSP430; 3. Development; 4. A Simple Tour of the MSP430; 5. Architecture of the MSP430 Processor; 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.*Details C and assembly language for the MSP430

*Companion Web site contains a development kit *Full coverage is given to the MSP430 instruction set, and sigma-delta analog-digital converters and timers

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Customer Reviews

The best all-around MSP430 book. Well-written, easy to follow. The coverage is impressive for a "Basics" book. Far more than a mere re-hashing of the online MSP430 User's Guide, I like the way the CPU and peripherals are covered in a practical manner. For example, instead of just listing the assembler mnemonics, helpful tips are given about which assembly instructions to use for what purpose and which typical MCU instructions are missing. C is covered, as well, as are development environments and everything else necessary to getting up and running. Gotcha's to watch out for are given throughout. This alone makes this book worth the price of entry. I wish I had this book when I was learning to code this uC. More explanation could be given on why certain peripheral control parameters are set up the way they are. One example is the sample code that reads the internal temperature sensor. The offset is hard-coded, as is the slope. No mention is made about this value varying widely amongst individual chips. You'll need to calibrate your readings and although the best fit values can vary by 10% of the value given, neither this fact, nor the procedure is discussed. The slope, on the other hand varies far less from chip to chip, but no explanation for how it was arrived at is given, either. (The slope given is derived from the equation in the TI MSP430 User's Guide, adjusted for Celsius, and should be close enough for most applications, but it would have been helpful to most users if this were explained, as well as how to get the result in degrees Fahrenheit.) There are similar issues with other peripheral sample code, but this does not purport to be an advanced-level book, even though it is so comprehensive that it seems like it could easily be taken that way.

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