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Autore	LaMeres Brock J.
Titolo	Embedded systems design using the MSP430FR2355 LaunchPad(tm) / / Brock J. LaMeres
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Descrizione fisica	1 online resource (479 pages)
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Soggetti	Computer engineering Internet of things
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Formato	Materiale a stampa
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Chapter 1. Introduction to embedded systems -- Chapter 2. Digital logic basics -- Chapter 3. Computer systems -- Chapter 4. The MSP430 -- Chapter 5. Getting started programming the msp430 in assembly -- Chapter 6. Data movement instructions -- Chapter 7. Data manipulation instructions -- Chapter 8. Program flow instructions -- chapter 9. Digital i/o -- Chapter 10. The stack and subroutines -- Chapter 11. Introduction to interrupts -- Chapter 12. Introduction to timers -- Chapter 13. Switching to the c language -- Chapter 14. Serial communication in c -- Chapter 15. Analog to digital converters -- Chapter 16. The clock system -- Chapter 17. Low-power modes -- Appendix A. Concept check solutions.
Sommario/riassunto	This textbook for courses in Embedded Systems introduces students to necessary concepts, through a hands-on approach. LEARN BY EXAMPLE – This book is designed to teach the material the way it is learned, through example. Every concept is supported by numerous programming examples that provide the reader with a step-by-step explanation for how and why the computer is doing what it is doing. LEARN BY DOING – This book targets the Texas Instruments MSP430 microcontroller. This platform is a widely popular, low-cost embedded system that is used to illustrate each concept in the book. The book is

designed for a reader that is at their computer with an MSP430FR2355 LaunchPad™ Development Kit plugged in so that each example can be coded and run as they learn. LEARN BOTH ASSEMBLY AND C – The book teaches the basic operation of an embedded computer using assembly language so that the computer operation can be explored at a low-level. Once more complicated systems are introduced (i.e., timers, analog-to-digital converters, and serial interfaces), the book moves into the C programming language. Moving to C allows the learner to abstract the operation of the lower-level hardware and focus on understanding how to “make things work”. BASED ON SOUND PEDAGOGY - This book is designed with learning outcomes and assessment at its core. Each section addresses a specific learning outcome that the student should be able to “do” after its completion. The concept checks and exercise problems provide a rich set of assessment tools to measure student performance on each outcome. Written the way the material is taught, enabling a bottoms-up approach to learning which culminates with a high-level of learning, with a solid foundation; Emphasizes examples from which students can learn: contains program examples that can be run for nearly every section in the book; Targets a widely popular embedded computer, the Texas Instruments MSP430FR2355; Covers both assembly language and C language programming of the MSP430, with examples that are meant to be coded and run on an MSP430FR2355 LaunchPad™ Development Kit directly; Describes specific learning outcomes for each activity, so that the reader knows why they are doing what they are doing, along with abundant assessment tools, including concept checks and exercises.

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