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Nota di contenuto	Front Cover; The Definitive Guide to ARM® Cortex®-M3 and Cortex-M4 Processors; Copyright; Contents; Foreword; Preface; Synopsis; About this Book; Contributor Bio-Paul Beckmann; Acknowledgments; Terms and Abbreviations; Conventions; Chapter 1 - Introduction to ARM® Cortex®-M Processors; 1.1 What are the ARM® Cortex®-M processors?; 1.2 Advantages of the Cortex®-M processors; 1.3 Applications of the ARM® Cortex®-M processors; 1.4 Resources for using ARM® processors and ARM microcontrollers; 1.5 Background and history; Chapter 2 - Introduction to Embedded Software Development 2.1 What are inside typical ARM® microcontrollers?2.2 What you need to start; 2.3 Software development flow; 2.4 Compiling your applications; 2.5 Software flow; 2.6 Data types in C programming; 2.7 Inputs, outputs, and peripherals accesses; 2.8 Microcontroller interfaces; 2.9 The Cortex® microcontroller software interface standard (CMSIS); Chapter 3 - Technical Overview; 3.1 General information about the Cortex®-M3 and Cortex-M4 processors; 3.2 Features of the Cortex®-M3 and Cortex-M4 processors; Chapter 4 - Architecture; 4.1 Introduction to the architecture; 4.2 Programmer's model 4.3 Behavior of the application program status register (APSR)4.4 Memory system; 4.5 Exceptions and interrupts; 4.6 System control block (SCB); 4.7 Debug; 4.8 Reset and reset sequence; Chapter 5 - Instruction Set; 5.1 Background to the instruction set in ARM® Cortex®-M processors; 5.2 Comparison of the instruction set in ARM® Cortex®-

M processors; 5.3 Understanding the assembly language syntax; 5.4 Use of a suffix in instructions; 5.5 Unified assembly language (UAL); 5.6 Instruction set; 5.7 Cortex®-M4-specific instructions; 5.8 Barrel shifter 5.9 Accessing special instructions and special registers in programmingChapter 6 - Memory System; 6.1 Overview of memory system features; 6.2 Memory map; 6.3 Connecting the processor to memory and peripherals; 6.4 Memory requirements; 6.5 Memory endianness; 6.6 Data alignment and unaligned data access support; 6.7 Bit-band operations; 6.8 Default memory access permissions; 6.9 Memory access attributes; 6.10 Exclusive accesses; 6.11 Memory barriers; 6.12 Memory system in a microcontroller; Chapter 7 - Exceptions and Interrupts; 7.1 Overview of exceptions and interrupts; 7.2 Exception types 7.3 Overview of interrupt management7.4 Definitions of priority; 7.5 Vector table and vector table relocation; 7.6 Interrupt inputs and pending behaviors; 7.7 Exception sequence overview; 7.8 Details of NVIC registers for interrupt control; 7.9 Details of SCB registers for exception and interrupt control; 7.10 Details of special registers for exception or interrupt masking; 7.11 Example procedures in setting up interrupts; 7.12 Software interrupts; 7.13 Tips and hints; Chapter 8 - Exception Handling in Detail; 8.1 Introduction; 8.2 Exception sequences 8.3 Interrupt latency and exception handling optimization

Sommario/riassunto

This new edition has been fully revised and updated to include extensive information on the ARM Cortex-M4 processor, providing a complete up-to-date guide to both Cortex-M3 and Cortex-M4 processors, and which enables migration from various processor architectures to the exciting world of the Cortex-M3 and M4. Key Features include: Two new chapters on DSP features and CMSIS-DSP software libraries, covering DSP fundamentals and how to write DSP software for the Cortex-M4 processor, including examples of using the CMSIS-DSP library, as well as useful information
