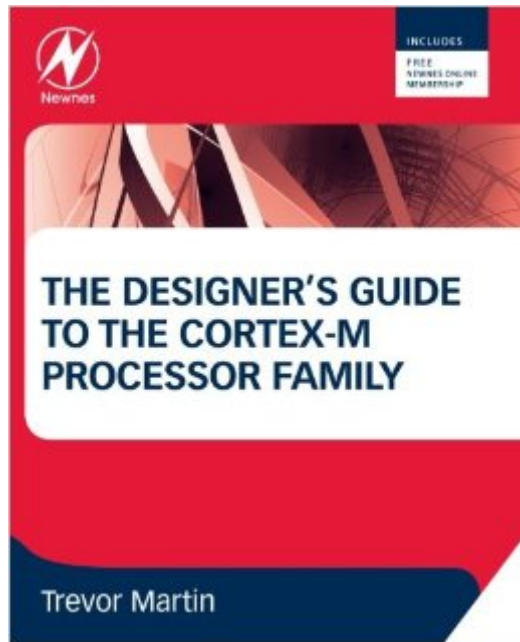


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# The Designer's Guide To The Cortex-M Processor Family: A Tutorial Approach



## Synopsis

The Designer's Guide to the Cortex-M Family is a tutorial-based book giving the key concepts required to develop programs in C with a Cortex M- based processor. The book begins with an overview of the Cortex- M family, giving architectural descriptions supported with practical examples, enabling the engineer to easily develop basic C programs to run on the Cortex-M0/M0+/M3 and M4. It then examines the more advanced features of the Cortex architecture such as memory protection, operating modes and dual stack operation. Once a firm grounding in the Cortex M processor has been established the book introduces the use of a small footprint RTOS and the CMSIS DSP library. With this book you will learn:

- The key differences between the Cortex M0/M0+/M3 and M4
- How to write C programs to run on Cortex-M based processors
- How to make best use of the Coresight debug system
- How to do RTOS development
- The Cortex-M operating modes and memory protection
- Advanced software techniques that can be used on Cortex-M microcontrollers
- How to optimise DSP code for the cortex M4 and how to build real time DSP systems
- An Introduction to the Cortex microcontroller software interface standard (CMSIS), a common framework for all Cortex M- based microcontrollers
- Coverage of the CMSIS DSP library for Cortex M3 and M4
- An evaluation tool chain IDE and debugger which allows the accompanying example projects to be run in simulation on the PC or on low cost hardware

## Book Information

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## Customer Reviews

Just a quick note: I received the book today, and thought I'd point out to anyone who has looked through the Kindle "preview", which has all the nice color graphics. Don't expect that in the \$58 printed edition, all the graphics are in black & white.

This book is more about how to use the Keil software development tools than about the Cortex-M processors themselves, and it is very light on technical content for the processors. As the author states in the Preface: "it is assumed that...you are familiar with the instruction set of your preferred microcontroller. In addition, it is helpful to have basic knowledge on how to use the uVision debugger and IDE." In a quick glance I found a number of typographical errors, and the code examples are often poorly formatted.

This book started out well in the first couple of chapters. However, it became increasingly difficult to follow when the stated tutorial examples in the book did not match the ones in the tutorial zip file. It is very difficult to learn something when you don't have the correct tools for the job.

I own an advanced engineering design company and we have been using ARM controllers for the past several years. I believe the Cortex architecture has started a great trend toward increasing on-chip features, improving reliability while reducing development costs. However, the new SOC's are very complex so many of the current books on the market are basically regurgitated reference manuals presented in a dry technical manner. I myself, like to learn from examples with clear explanations on why certain approaches are successful in complex systems design. This text is a great beginners guide, however, it is also an excellent reference for seasoned developers wanting to learn the benefits of the ARM Cortex M architecture. The author gives a great overview of the core architecture along with specific examples to the CMSIS interface standard. Although the Keil/ARM CMSIS online documentation good for experienced programmers, the author provides real-world application examples that gives one thought on how to approach existing solutions. In addition, he also provides a plethora of examples to download so that one can follow the examples presented in the material. I used to program embedded systems many years ago, so I decided assist in a recent project to gauge how technology has matured over the years. This manual has helped me catch-up quickly relative to the current online documentation, and I believe it's because the book provides good examples with clear and concise presentation. Overall I like the authors approach and highly recommend this book for hardware and system developers. I hope this helps. David Paul Validus Technologies

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