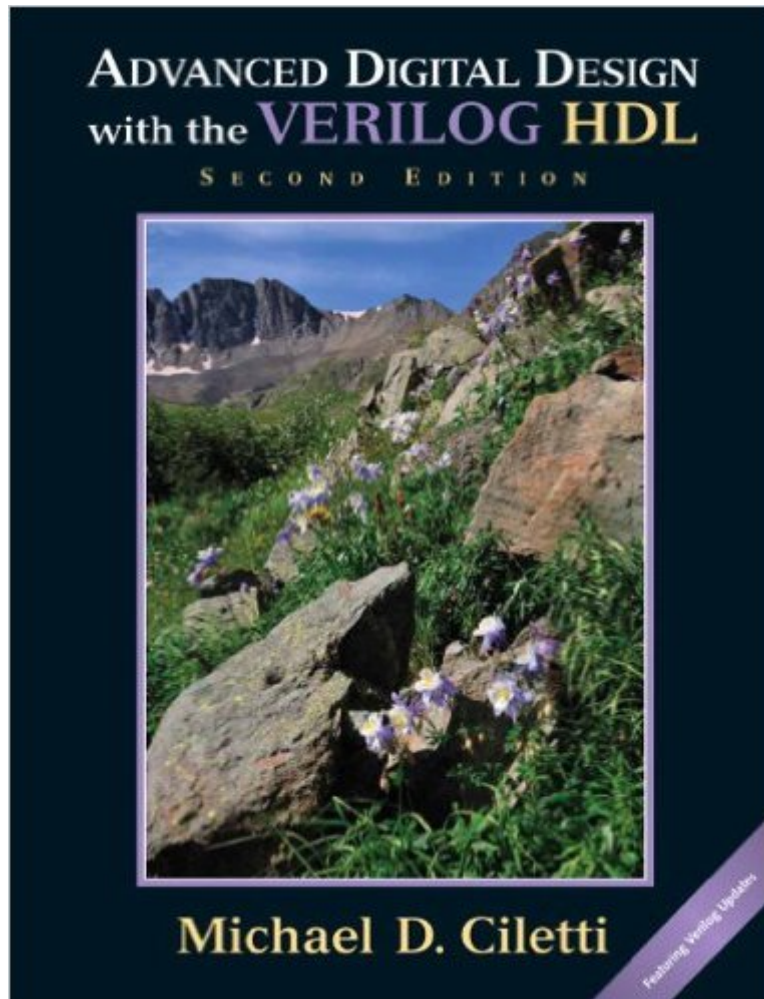# Advanced Digital Design With The Verilog HDL (2nd Edition)

Synopsis

Â Advanced Digital Design with the Verilog HDL, 2e, is ideal for an advanced course in digital design for seniors and first-year graduate students in electrical engineering, computer engineering, and computer science. This book builds on the student's background from a first course in logic design and focuses on developing, verifying, and synthesizing designs of digital circuits. The Verilog language is introduced in an integrated, but selective manner, only as needed to support design examples (includes appendices for additional language details). It addresses the design of several important circuits used in computer systems, digital signal processing, image processing, and other applications.

Book Information

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Customer Reviews

Simply put, this is an excellent book. I have five books on my bookshelf covering HDL, and this book is by far the most informative and practical. The number of examples containing Verilog code, a test bench, a synthesized netlist, and simulation results is incredible. It covers some very important topics in detail that my other books don't even mention (design partitioning, clock domain synchronization, and proper gating of clocks immediately come to mind). I especially like the in-depth treatment the book gives to writing sythesizable code. Synthesis isn't an after thought; it is a primary focus exactly as it should be. The index is sufficient and larger than most books, but this book deserves more.As an experienced engineer and engineering manager, I have used the text to provide examples, algorithms, and to instruct my engineering staff. This book is not only my main

Verilog book, but it is my digital design reference as well.

This is the best book that I have found for Verilog synthesis. There are many good books on Verilog, but most of them focus on simulation. This book is specifically useful for synthesis.The book seems intended to be used for a course on digital logic design. The first few chapters deal with digital logic design generally, and can be ignored. The discussion of Verilog begins after 100 pages in chapter 4.The core of the book is chapters 4 through 7, which describe how to define digital logic with Verilog. This is approximately 300 pages of description, discussion, and examples. The examples are well written, and very useful. The examples show, in a simple and straightforward manner, how to write Verilog that synthesizes well.Chapter 8 covers programmable logic devices, such as CPLDs and FPGAs. Unfortunately, the focus of the chapter is on specific device families, and is only of historical interest. For example, none of the Xilinx FPGAs discussed would be recommended in a new design. If the chapter had covered the basic concepts of device categories of interest, it might remain useful.The last few chapters cover some advanced topics, such as digital signal processing. A few of the topics covered are interesting. Most are too incomplete to be useful, and I believe that some of them (such as FIR filters) will not synthesize in a realistic case.The appendicies are extensive, and provide a reference for Verilog.The strength of the book is that it is the only one I have found that covers Verilog synthesis clearly. That portion of the book is a pleasure to use. The weakness of the book is that large sections are essentially irrelevant. It is a 1000 page book that would make a good 400 page book.The book would be significantly improved by an update, especially to Verilog 2001. In the current edition, Verilog 2001 is mentioned only in an appendix.

I am using this book for my graduate level classes on "Digital System Design Automation (From HDL to FPGA)". The book is very useful - It has, from one hand a very reasonable methodology behind. From the other hand it is an excellent collection of design examples. Especially important is the fact that the book is bundled with Xilinx ISE Student edition tools. The book is fully supported by presentation slides available from the author.

If you want to go from designing basic building blocks to the next level: this is one of the few books out there that can do that for you. The author builds up speed quickly, but he provides complete examples(not code fragments) with simulation waveforms. Most of the code is available on his web site.The 1st chapter is a good review of digital design(usually one half of a basic design book).His examples are excellent case studies,including architectures for arithmetic processors. There is a

chapter on memories,on the structure of the different FPGAs and chapters on all stages(eg test and synthesis) of FPGA/ASIC.The author is an excellent teacher as this book shows.(If you are struggling beginner-type student try the modeling,synthesis and rapid prototyping book first.)Advanced digital design is an excellent book.I recommend it for both experienced engineers and students!

This book is a collection of scattered examples and subsequent examples don't build off of the previous ones as much as they could.The first few chapters are worthless. The first "review" chapter goes through combinational logic too quickly and could have been ommitted completely. The introductory chapter on sequential logic is also of no use; the only concepts I was able to follow were the ones I already knew.The book is really repetetive. It was almost like entire paragraphs were copied verbatim. A single proofreading could have weeded this stuff out. Other forms of repetition seemed to be caused by the fact that similarities between related concepts weren't identified and factored out.There's also a huge section about Xilinx's and Altera's FPGA products that reads like a mix between a datasheet and a press release.To top things off, the typesetting is horrible. Each example has an unnecessarily large begin/end banner that makes it hard to see the actual structure. The text in the code samples sometimes overlaps onto itself. I wouldn't have cared so much about problems like these if the book's content were any good.In the end, I got the impression that the book was hastily put together. Definitely a waste of money.

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