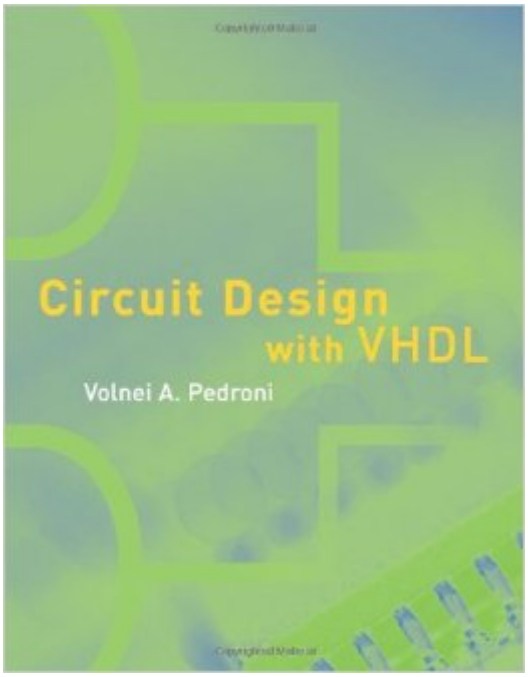
Circuit Design With VHDL



Synopsis

This textbook teaches VHDL using system examples combined with programmable logic and supported by laboratory exercises. While other textbooks concentrate only on language features, Circuit Design with VHDL offers a fully integrated presentation of VHDL and design concepts by including a large number of complete design examples, illustrative circuit diagrams, a review of fundamental design concepts, fully explained solutions, and simulation results. The text presents the information concisely yet completely, discussing in detail all indispensable features of the VHDL synthesis. The book is organized in a clear progression, with the first part covering the circuit level, treating foundations of VHDL and fundamental coding, and the second part covering the system level (units that might be located in a library for code sharing, reuse, and partitioning), expanding upon the earlier chapters to discuss system coding. Part I, "Circuit Design," examines in detail the background and coding techniques of VHDL, including code structure, data types, operators and attributes, concurrent and sequential statements and code, objects (signals, variables, and constants), design of finite state machines, and examples of additional circuit designs. Part II, "System Design," builds on the material already presented, adding elements intended mainly for library allocation; it examines packages and components, functions and procedures, and additional examples of system design. Appendixes on programmable logic devices (PLDs/FPGAs) and synthesis tools follow Part II. The book’s highly original approach of teaching through extensive system examples as well as its unique integration of VHDL and design make it suitable both for use by students in computer science and electrical engineering.

Book Information

Hardcover: 375 pages

Publisher: The MIT Press (August 1, 2004)

Language: English

ISBN-10: 0262162245

ISBN-13: 978-0262162241

Product Dimensions: 7 x 0.8 x 9 inches

Shipping Weight: 1.6 pounds

Average Customer Review: 4.7 out of 5 starsÂ Â See all reviewsÂ (36 customer reviews)

Best Sellers Rank: #395,900 in Books (See Top 100 in Books) #22 inÂ Books > Engineering & Transportation > Engineering > Electrical & Electronics > Circuits > Logic #66 inÂ Books > Computers & Technology > Programming > Software Design, Testing & Engineering > Logic #118

inÂ Books > Engineering & Transportation > Engineering > Electrical & Electronics > Circuits > Design

Customer Reviews

I am a physics graduate student who needed to learn VHDL for many of my projects (FPGA-based digital filters, FFT and other high speed digital-based processing). After spending about a week trying to cookbook/copycat the complicated structures in VHDL I decided it would be best to start at a basic level to get a solid grasp of VHDL. It is hard to imagine a better introduction.The author did a perfect job integrating the routine software writing with system design. All of the code is COMPLETE and all of it works (90% of it I checked myself, when going through examples & problems).Simulations, complete code and clear diagrams are presented for every example! If you need to do real engineering work using VHDL, and have a list of designs on your table that are begging for FPGA, ASIC, CPLDs, but don’t know how to do it in VHDL, this book is for you.Some cautionary notes: 1) This book gives you basic, but fundamental knowledge of VHDL. If you know other programming languages (for example assembler, Vis. Basic or C/C++), but need VHDL then after this book you can start writing real code and will be able to understand complicated examples and will easily be able to incorporate IP cores into projects. Contrary to the opinion of some of the above reviewers, I disagree that this book is a cookbook. It doesn’t have any really complicated design examples like FFT. The book is all about giving the reader a very solid footing of VHDL so that the reader could reference other much more involved references/ code examples/ IP cores etc.. 2) This book will be of very little use if you don’t know basic logic/ digital circuits.

Electronic Testing) Analog Circuit Design: Art, Science and Personalities (EDN Series for Design Engineers) Skew-Tolerant Circuit Design (The Morgan Kaufmann Series in Computer Architecture and Design) Effective Coding with VHDL: Principles and Best Practice (MIT Press) The Student's Guide to VHDL, Second Edition (Systems on Silicon) VHDL : Programming By Example