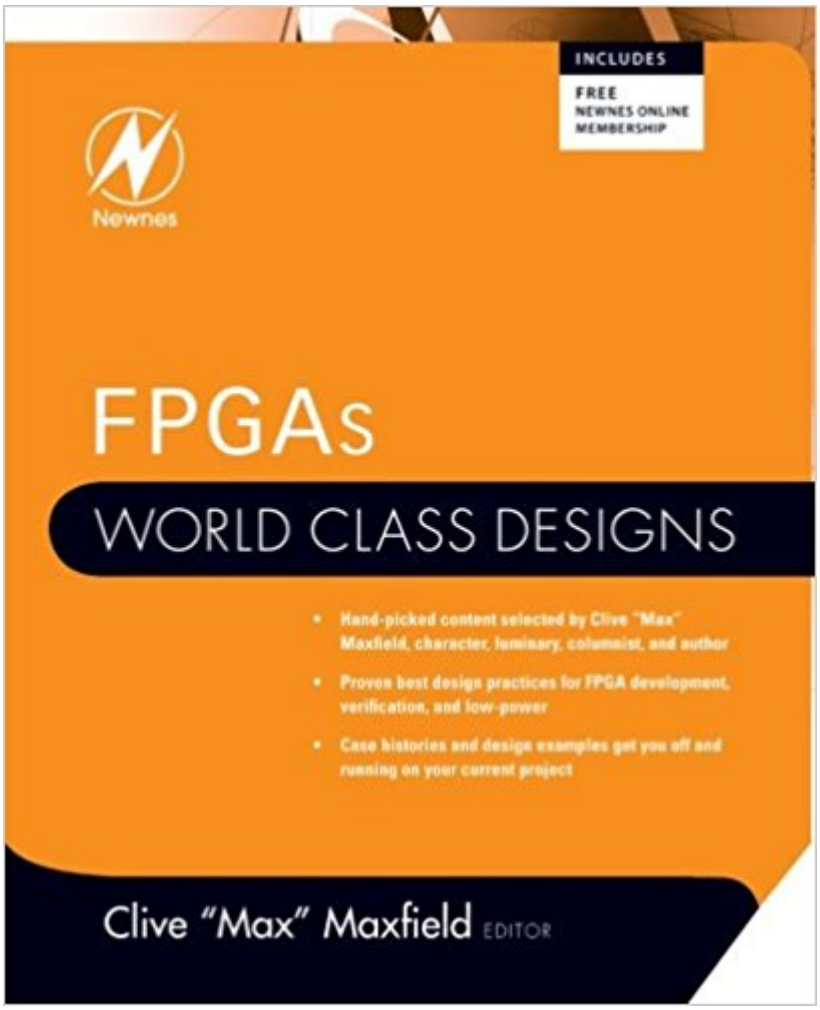
FPGAs: World Class Designs



Synopsis

All the design and development inspiration and direction a harware engineer needs in one blockbuster book! Clive "Max" Maxfield renowned author, columnist, and editor of PL DesignLine has selected the very best FPGA design material from the Newnes portfolio and has compiled it into this volume. The result is a book covering the gamut of FPGA design from design fundamentals to optimized layout techniques with a strong pragmatic emphasis. In addition to specific design techniques and practices, this book also discusses various approaches to solving FPGA design problems and how to successfully apply theory to actual design tasks. The material has been selected for its timelessness as well as for its relevance to contemporary FPGA design issues.ContentsChapter 1 Alternative FPGA ArchitecturesChapter 2 Design Techniques, Rules, and GuidelinesChapter 3 A VHDL Primer: The EssentialsChapter 4 Modeling MemoriesChapter 5 Introduction to Synchronous State Machine Design and AnalysisChapter 6 Embedded ProcessorsChapter 7 Digital Signal ProcessingChapter 8 Basics of Embedded Audio ProcessingChapter 9 Basics of Embedded Video and Image ProcessingChapter 10 Programming Streaming FPGA Applications Using Block Diagrams In SimulinkChapter 11 Ladder and functional block programmingChapter 12 Timers *Hand-picked content selected by Clive "Max" Maxfield, character, luminary, columnist, and author*Proven best design practices for FPGA development, verification, and low-power*Case histories and design examples get you off and running on your current project

Book Information

Series: World Class Designs
Paperback: 488 pages
Publisher: Newnes; 1 edition (March 4, 2009)
Language: English
ISBN-10: 1856176215
ISBN-13: 978-1856176217
Product Dimensions: 7.5 x 1.2 x 9.2 inches
Shipping Weight: 2.2 pounds (View shipping rates and policies)
Average Customer Review: 3.0 out of 5 stars 1 customer review
Best Sellers Rank: #1,379,836 in Books (See Top 100 in Books) #54 inÂ Books > Engineering & Transportation > Engineering > Electrical & Electronics > Circuits > Logic #151 inÂ Books > Computers & Technology > Hardware & DIY > Microprocessors & System Design > Microprocessor

Design #167 inÂ Books > Engineering & Transportation > Engineering > Electrical & Electronics > Circuits > Integrated

Customer Reviews

Clive "Max" Maxfield received a BS in Control Engineering from Sheffield Polytechnic, England in 1980. He began his career as a mainframe CPU designer for International Computers Limited (ICL) in Manchester, England. Max now finds himself a member of the technical staff (MTS) at Intergraph Electronics, Huntsville, Alabama. Max is the author of dozens of articles and papers appearing in magazines and at technical conferences around the world. Max’s main area of interest are currently focused in the analog, digital, and mixed-signal simulation of integrated circuits and multichip modules.

I thought of it as a "sampler plate", offering various interesting bits and pieces. It might be useful for someone completely new to FPGAs and digital design, who is not scared of jumping into a completely unknown domain. The book groups various chapters "hand-picked" by the author with the possible goal of giving an idea of the overall problem space.That said, the content of the book is pretty non-uniform (hence the three stars) and probably less useful for a student or an experienced professional. If you are a newcomer and looking for a rigorous, progressive introduction in either FPGA or digital design, this is not the right book for you (you might want instead to look at books such as the two books FPGA Prototyping by VHDL (or Verilog) Examples by Pong P. Chu). If you have some expertise in the area, you might be turned off by the extreme diversity, and by the fact that many chapters are at an introductory level.A few comments on the actual chapters:- Chapter 1 is copied from Design warrior’s guide to FPGAs by the same author. It’s a pretty good intro (that chapter alone made me buy the book)- Chapter 2 (copied from Designing with FPGAs and CPLDs by Bob Zeidman) Plus: great chapter on synchronous design, etc. Minus: 24 pages of unexplained Verilog code. The author doesn’t even explain that the language used to write that code is Verilog, so a newbie could be very confused by this chapter.- Chapter 3 nice VHDL intro (copied Design recipes for FPGA by Peter Wilson).- Chapter 4 Modeling memories (from ASIC and FPGA verification, by Richard Munden). Interesting step-by-step description of how to model a SDRAM device using the VITAL2000 package. Unfortunately too brief. Hopefully the actual book contains more details.- Chapter 5 (copied from Electrical Engineering Design by Richard Tinder). Arguably the best chapter in the book that justifies stuff like why a D-flip-flop is actually built that way, etc. Must-read. After reading this chapter I promptly ordered R. Tinder’s book.- Chapter 6 (from: Design

recipes for FPGAs by Peter Wilson). The chapter goes through modeling a simple, minimal embedded CPU.- Chaptes 7,8,9 on DSP, audio, video - haven't read them in detail, but they are again introductory chapters.- Chapter 10 (from "The theory and practice of Reconfigurable Computing") - showcases using high-level design methodologies through a simple project for contour/edge detection implemented in Simulink

FPGAs: World Class Designs Learning FPGAs: Digital Design for Beginners with Mojo and Lucid HDL Make: FPGAs: Turning Software into Hardware with Eight Fun and Easy DIY Projects FPGAs: Instant Access Programmable Logic Handbook: PLDs, CPLDs and FPGAs Design Recipes for FPGAs, Second Edition: Using Verilog and VHDL The Insiders Guide To Hiring A World-Class Dental Team: A Revolutionary Approach To Recruiting, Hiring, Training, and Retaining, World-Class Dental Professionals 101 Tennis Tips From A World Class Coach VOLUME 1: A Common Sense Approach to Tennis (101 Tennis Tips From A World Class Tennis Coach) Just Cross Stitch May/June 2009 (15 Exclusive Designs, Two Canadian Lighthouse Designs, Discover Donna Vermillion Giampa's Fabulous Floral Pillows, Elegant Blackwork Designs, Create a Summer Ornament, Vol. 27, No. 3) Analog Circuits (World Class Designs) White Working Class: Overcoming Class Cluelessness in America Pro Flash Manual: A Michael Willems Dutch Master Class Manual (The Michael Willems "Dutch Master Class" series Book 2) Learning to Labor: How Working Class Kids Get Working Class Jobs Strategies for Employment Class and Collective Actions: Leading Lawyers on Addressing Trends in Wage and Hour Allegations and Defending Employers in Class Action Litigation (Inside the Minds) A Piece of the Action: How the Middle Class Joined the Money Class The ARRL General Class License Manual (Arrl General Class License Manual for the Radio Amateur) General Class License Manual (Arrl General Class License Manual for the Radio Amateur) The ARRL Extra Class License Manual (Arrl Extra Class License Manual for the Radio Amateur) The ARRL Extra Class License Manual: For Ham Radio (Arrl Extra Class License Manual for the Radio Amateur) The Fast Track To Your Technician Class Ham Radio License: Covers all FCC Technician Class Exam Questions July 1, 2014 until June 30, 2018 (Fast Track Ham License Series)