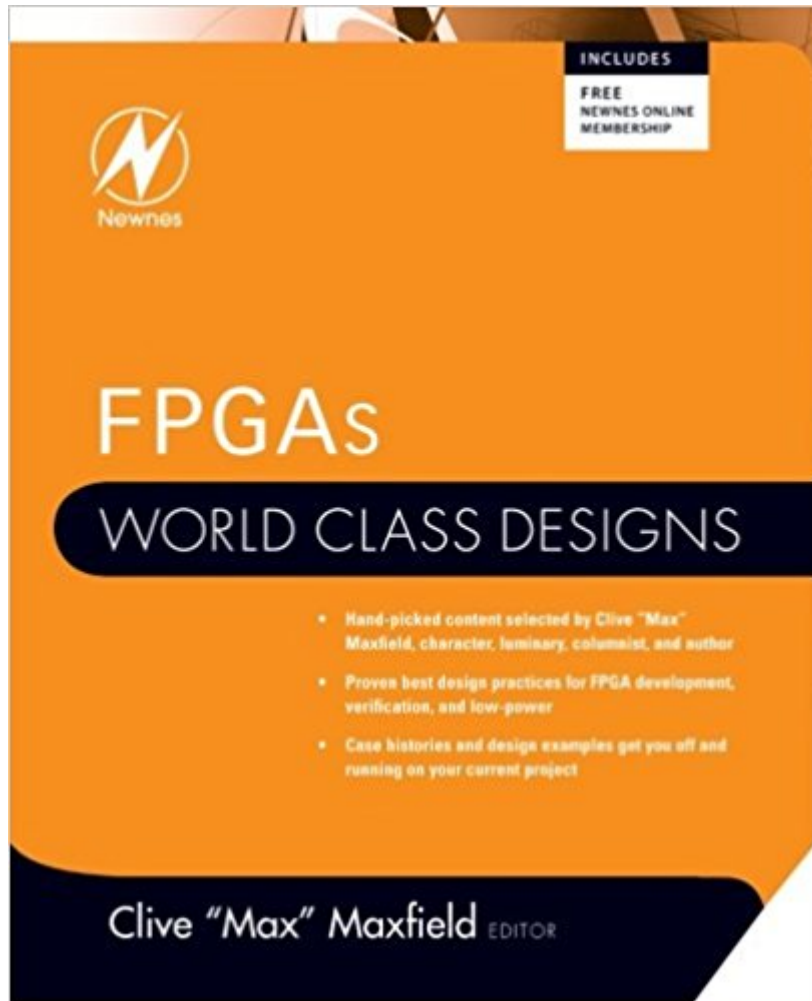




The book was found

FPGAs: World Class Designs



Synopsis

All the design and development inspiration and direction a hardware 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.

Contents

Chapter 1 Alternative FPGA Architectures
Chapter 2 Design Techniques, Rules, and Guidelines
Chapter 3 A VHDL Primer: The Essentials
Chapter 4 Modeling Memories
Chapter 5 Introduction to Synchronous State Machine Design and Analysis
Chapter 6 Embedded Processors
Chapter 7 Digital Signal Processing
Chapter 8 Basics of Embedded Audio Processing
Chapter 9 Basics of Embedded Video and Image Processing
Chapter 10 Programming Streaming FPGA Applications Using Block Diagrams In Simulink
Chapter 11 Ladder and functional block programming
Chapter 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

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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.- Chaptres 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

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