VLSI Circuit Design Methodology Demystified: A Conceptual Taxonomy

By Liming Xiu

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This book was written to arm engineers qualified and knowledgeable in the area of VLSI circuits with the essential knowledge they need to get into this exciting field and to help those already in it achieve a higher level of proficiency. Few people truly understand how a large chip is developed, but an understanding of the whole process is necessary to appreciate the importance of each part of it and to understand the process from concept to silicon. It will teach readers how to become better engineers through a practical approach of diagnosing and attacking real-world problems.

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VLSI Circuit Design Methodology Demystified: A Conceptual Taxonomy By Liming Xiu Bibliography

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Editorial Review

From the Back Cover

An accessible, intuitive resource to common—and not-so-common—questions and answers about very large-scale integrated (VLSI) circuit design

The widespread acceptance of sophisticated electronic devices and the growing challenges of a more technically oriented future have created an unprecedented demand for very large-scale integrated (VLSI) circuits. Meeting this crucial need requires advances in material science and processing equipment along with the ability to use the computer more effectively to aid in the design process. More importantly, it also requires a significant number of qualified professionals to work in this exciting field. Unfortunately, due to its complexity and dynamic nature, the topic of VLSI circuit design methodology is not widely taught in universities nor is it well understood by many engineers. Now, VLSI Circuit Design Methodology Demystified takes the guesswork out of this important topic by presenting readers with a succinct and accessible treatment of how a complex chip is developed, from concept to silicon.

Uniquely organized in a question-and-answer format, the book builds on information in the order of chip development: market research/product definition, system design, logic design, logic verification, logic synthesis, Place & Route, and physical verification. A wealth of important questions are addressed, including:

- What are the requirements of a successful chip design?
- What are the major approaches of today's VLSI circuit design practices?
- What are the major process steps in building MOSFET transistors?
- What is the role of functional verification in the IC design process?
- What are the two major aspects of ASIC design flow?
- What is Hardware Description Language (HDL)?
- What is the most commonly used model in VLSI circuit testing?
- What are the qualities of a good IC implementation designer?

The answers to these questions and many more provide the framework for understanding the key concepts involved in the VLSI chip development process, giving readers a solid foundation for further advancement in the field. Written by an industry expert, the book uses up-to-date, real-world design examples to demonstrate to readers how to become better engineers through a practical approach of diagnosing and attacking problems. Ideal as a resource for electrical engineers specializing in integrated circuit design in the semiconductor industry, this book is also suitable as a supplementary text for students enrolled in advanced VLSI courses.

About the Author

Liming Xiu is a Design Engineer and a Senior Member of Technical Staff (SMTS) at Texas Instruments, Inc. His interests include digital and mixed-signal integrated circuit design and VLSI physical design. He has worked on various mixed-signal devices, including video decoders, 3-D graphics controllers, and HDTV decoders, as physical design lead. He is also a Phase Lock Loop (PLL) expert. He is the inventor of "Flying-Adder" frequency and phase synthesis architecture, which has been used in many commercial products. He

has eleven granted or pending U.S. patents. He is a Senior Member of the IEEE and the general chair of the IEEE Circuit and Systems Society, Dallas Chapter.

Users Review

From reader reviews:

Lilian Anderson:

VLSI Circuit Design Methodology Demystified: A Conceptual Taxonomy can be one of your starter books that are good idea. Most of us recommend that straight away because this guide has good vocabulary that may increase your knowledge in language, easy to understand, bit entertaining but delivering the information. The article author giving his/her effort to put every word into pleasure arrangement in writing VLSI Circuit Design Methodology Demystified: A Conceptual Taxonomy but doesn't forget the main level, giving the reader the hottest in addition to based confirm resource facts that maybe you can be considered one of it. This great information can easily drawn you into new stage of crucial pondering.

Shelly Gomes:

The book untitled VLSI Circuit Design Methodology Demystified: A Conceptual Taxonomy contain a lot of information on the item. The writer explains her idea with easy means. The language is very clear to see all the people, so do not really worry, you can easy to read the idea. The book was published by famous author. The author will take you in the new period of time of literary works. It is possible to read this book because you can please read on your smart phone, or model, so you can read the book in anywhere and anytime. If you want to buy the e-book, you can wide open their official web-site in addition to order it. Have a nice go through.

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