

Fundamentals Of Digital Computer Design With Vhdl Solutions

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Fundamentals of Digital Logic with VHDL Design McGraw-Hill
Market_Desc: · Undergraduate courses on digital logic design, computer architecture, and microprocessors.· Graduate students and practicing microprocessor system designers in industry.
Special Features: · While most texts either focus on computer design or digital logic and digital systems, this book includes both areas, making it a unique addition to existing literature. · The author has an extensive background in computers and has published numerous books on the subject. He is undoubtedly one of the leading authorities in this field.· This book covers simple topics, such as number system and Boolean algebra, to advanced topics, such as assembly language programming and microprocessor-based system design.· The accompanying CD contains a step by step procedure for installing and using Altera Quartus II software for synthesizing Verilog and VHDL descriptions. Screen shots of the waveforms and tabular forms illustrating the simulation results are also provided in the CD.· The CD also contains a step by step

procedure for installing and using MASM 6.11 (8086) and 68asmsim (68000). Screen shots verifying correct operations of several assembly language programs via simulation using test data are also provided in the CD. About The Book: This book covers all basic concepts of computer engineering and science from digital logic circuits to the design of a complete microcomputer system in a methodical and basic manner. Its intention is to present a clear understanding of the principles and basic tools required to design typical digital systems such as microcomputers. The book covers the latest version of Altera software called Quartus II. It provides a simplified introduction to VHDL along with a step by step procedure with tutorials on a CD. It is ideal for an introductory course in VHDL, containing digital logic and microprocessors along with both VHDL and Verilog. The material in the text is divided into three sections:· Fundamentals of digital logic circuits and design.· Microprocessor/microcomputer design.· Overview of 16-, 32-, and 64-bit microprocessors manufactured by Intel and Motorola.
Fundamentals of Digital Logic with Verilog Design Merrill Publishing Company
Computer uses and application; Number systems; Arithmetic operations; Codes; Switching algebra and logic gates; Functional logic subunits; Computer architecture and programming; Arithmetic units; Memory; Data, input/output, and channels; The control unit; Design of a

small digital computer.
Computer Organization and Design Fundamentals Academic Press
Digital Computer Design: Logic, Circuitry, and Synthesis focuses on the logical structure, electronic realization, and application of digital information processors. The manuscript first offers information on numerical symbols, fundamentals of computing aids, quantization, representation of numbers in an electronic digital computer, and computer applications. The text then ponders on the nature of automatic computation and Boolean algebra. Discussions focus on the advantages of a Boolean algebraic description of a digital computer; clock pulse generators and timing circuits; sequential switching networks; elements of information processing systems and types of digital computers; and automatic sequencing methods. The book elaborates on circuit descriptions of switching and storage elements and large capacity storage systems. Topics include static magnetic storage, dynamic delay line storage, cathode-ray storage, vacuum tube systems of circuit logic, and magnetic core systems of circuit logic. The publication also examines the system design of GP computers, digital differential analyzer, and the detection and correction of errors. The text is a valuable source of data for mathematicians and engineers interested in digital computer design.
Introduction to Digital Computer Design CRC Press
The book provides a bottom-up approach to understanding how a computer works and how to use computing to solve real-world problems. It covers the basics of digital logic through the lens of computer organization and programming. The reader should be able to design his or her own computer from the ground up at the end of the book. Logic simulation with Verilog is used throughout, assembly languages are introduced and discussed, and the fundamentals of computer architecture and embedded systems are touched upon, all in a cohesive design-driven framework suitable for class or self-study.
AN INTRODUCTION TO DIGITAL COMPUTER DESIGN McGraw Hill Professional
YOUR ONE-STOP RESOURCE FOR DIGITAL SYSTEM DESIGN! The explosion in communications and embedded computing

technologies has brought with it a host of new skill requirements for electrical and electronics engineers, students, and hobbyists. With engineers expected to have such diverse expertise, they need comprehensive, easy-to-understand guidance on the fundamentals of digital design. Enter McGraw-Hill 's Complete Digital Design. Written by an experienced electrical engineer and networking hardware designer, this book helps you understand and navigate the interlocking components, architectures, and practices necessary to design and implement digital systems. It includes: * Real world implementation of microprocessor-based digital systems * Broad presentation of supporting analog circuit principles * Building complete systems with basic design elements and the latest technologies Complete Digital Design will teach you how to develop a customized set of requirements for any design problem—and then research and evaluate available components and technologies to solve it. Perfect for the professional, the student, and the hobbyist alike, this is one volume you need handy at all times! What you ' ll find inside: * Digital logic and timing analysis * Integrated circuits * Microprocessor and computer architecture * Memory technologies * Networking and serial communications * Finite state machine design * Programmable logic: CPLD and FPGA * Analog circuit basics * Diodes, transistors, and operational amplifiers * Analog-to-digital conversion * Voltage regulation * Signal integrity and PCB design * And more!

Fundamentals of the Theory and Design of Digital Computers Prentice Hall
This textbook covers digital design, fundamentals of computer architecture, and assembly language. The book starts by introducing basic number systems, character coding, basic knowledge in digital design, and components of a computer. The book goes on to discuss information representation in computing; Boolean algebra and logic gates; sequential logic; input/output; and CPU performance. The author also covers ARM architecture, ARM instructions and ARM assembly language which is used in a variety of devices such as cell phones, digital TV, automobiles, routers, and switches. The book contains a set of laboratory experiments related to digital design using Logisim software; in addition, each chapter features objectives, summaries, key terms, review questions and problems. The book is targeted to students majoring Computer Science, Information System and IT and follows the ACM/IEEE 2013 guidelines. •

Comprehensive textbook covering digital design, computer architecture, and ARM architecture and assembly • Covers basic number system and coding, basic knowledge in digital design, and components of a computer • Features laboratory exercises in

addition to objectives, summaries, key terms, review questions, and problems in each chapter

Digital Design and Computer Architecture McGraw-Hill Companies

Intended for an introductory course in digital logic design. The authors provide a balance between classical and modern design approaches. Basic concepts are introduced using simple log circuits, which are designed by using both manual techniques and modern CAD-tool-based methods.

Design of Digital Computers Springer

Based on the bestselling texts *Digital Logic and Computer Design* (1972) and *Computer Engineering: Hardware Design* (1988), this text presents the fundamentals of hardware design and integrates state-of-the-art techniques and technologies in an easy-to-understand style with abundant use of examples. Students taking introductory courses in digital logic design, computer engineering, or computer hardware design should find this text useful.

Logic and Computer Design Fundamentals Springer Nature

This highly acclaimed, well established, book now in its fifth edition, is intended for an introductory course in digital computer design for B.Sc. students of computer science, B.Tech. students of computer science and engineering, and BCA/MCA students of computer applications. A knowledge of programming in C or Java would be useful to give the student a proper perspective to appreciate the development of the subject. The first part of the book presents the basic tools and develops procedures suitable for the design of digital circuits and small digital systems. It equips students with a firm understanding of logic principles before they study the intricacies of logic organization and architecture of computers in the second part. Besides discussing data representation, arithmetic operations, Boolean algebra and its application in designing combinatorial and sequential switching circuits, the book introduces the Algorithmic State Machines which are used to develop a hardware description language for the design of digital systems. The organization of a small hypothetical computer is described to illustrate how instruction sets are evolved. Real computers (namely, Pentium and MIPS machines) are described and compared with the hypothetical computer. After discussing the features of a CPU, I/O devices and I/O organization, cache and virtual memory, the book concludes with a new chapter on the use of parallelism to enhance the speed of computers. Besides, the fifth edition has new material in CMOS gates, MSI/ALU and Pentium5 architecture. The chapter on Cache and Virtual Memory has been rewritten.

Digital Logic for Computing Prentice Hall

This book is designed to facilitate a thorough understanding of fundamental principles without requiring readers to memorize an excess of confusing technological details. Rather than focusing on techniques for one particular phase of design, it covers the complete design process, from specification to manufacturing.

Fundamentals of Digital Computers Springer

Science & Business Media

This textbook provides semester-length coverage of computer architecture and design, providing a strong foundation for students to understand modern computer system architecture and to apply these insights and principles to future computer designs. It is based on the author ' s decades of industrial experience with computer architecture and design, as well as with teaching students focused on pursuing careers in computer engineering. Unlike a number of existing textbooks for this course, this one focuses not only on CPU architecture, but also covers in great detail in system buses, peripherals and memories. This book teaches every element in a computing system in two steps. First, it introduces the functionality of each topic (and subtopics) and then goes into “ from-scratch design ” of a particular digital block from its architectural specifications using timing diagrams. The author describes how the data-path of a certain digital block is generated using timing diagrams, a method which most textbooks do not cover, but is valuable in actual practice. In the end, the user is ready to use both the design methodology and the basic computing building blocks presented in the book to be able to produce industrial-strength designs.

Digital Logic and Computer Design Springer

This book provides a comprehensive, modern approach to the analysis and design of digital circuits and systems. It introduces digital design from basic concepts to advanced circuits and systems using both theoretical methods and CAD supported methods utilizing VHDL as a hardware description language. Friendly coverage also includes detailed digital design techniques, with a thorough discussion on state-machine modeling for the analysis and design of complex sequential systems using algorithmic state machine charts. Key features: Covers the analysis and design of combinational networks in depth; Presents complete coverage to the analysis and design of sequential networks; Places a strong emphasis on developing and using systematic procedures; Includes a thorough coverage to VHDL at the end of each chapter; Contains in-depth presentation of modern digital system design with PLDs; Includes techniques and heuristics for design reliability; Comprises numerous detailed examples throughout the text; Incorporates practical problems for the students/readers to carry out.

Fundamentals of Computer Architecture and Design Springer

This updated textbook covers digital design, fundamentals of computer architecture, and ARM assembly language. The book starts by introducing computer abstraction, basic number systems, character coding, basic knowledge in digital design, and components of a computer. The book goes on to discuss information representation in computing, Boolean algebra and logic gates, and sequential logic. The book also presents introduction to computer architecture, Cache mapping methods, and virtual memory. The author also covers ARM

architecture, ARM instructions, ARM assembly language using Keil development tools, and bitwise control structure using C and ARM assembly language. The book includes a set of laboratory experiments related to digital design using Logisim software and ARM assembly language programming using Keil development tools. In addition, each chapter features objectives, summaries, key terms, review questions, and problems.

Fundamentals of Digital Logic with Verilog Design John Wiley & Sons
Textbook

Introduction to Digital Logic Design Prentice Hall

"Fundamentals of Digital Logic with VHDL Design, 4th Edition is intended for an introductory course in digital logic design, which is a basic course in most electrical and computer engineering programs. A successful designer of digital logic circuits needs a good understanding of basic concepts and a firm grasp of computer-aided design (CAD) tools"--

Digital Computer Design Pearson

I have been using the first edition of this book as a text for a number of years. This was in a Stanford University first-year graduate course that is taken by students from Electrical Engineering or Computer Science who are interested in computer organization. Because computer technology has been changing so rapidly, it became necessary to supplement the text with additional readings. My colleagues and I examined many newly-published books for possible use as texts. We found no book with the same excellent choice of topics and thorough coverage as Dr. Gschwind's first edition.

Springer-Verlag's request that I prepare a second edition of this book came at a time when I had many other projects underway. Before I decided whether to take on the project of preparing a revision, I asked many of my students for their opinions of Dr. Gschwind's first edition. Even I was surprised by the enthusiasm that this rather skeptical and critical group of students displayed for the book. It was this enthusiasm that convinced me of the value and importance of preparing the revision.

Computer Architecture Elsevier

Fundamentals of Digital Logic and Microcomputer Design, has long been hailed for its clear and simple presentation of the principles and basic tools required to design typical digital systems such as microcomputers. In this Fifth Edition, the author focuses on computer design at three levels: the device level, the logic level, and the system level. Basic topics are covered, such as number systems and Boolean algebra, combinational and sequential logic design, as well as more advanced subjects such as assembly language programming and microprocessor-based system design. Numerous examples are provided throughout the text. Coverage includes: Digital circuits at the gate and flip-flop levels Analysis and design of

combinational and sequential circuits

Microcomputer organization, architecture, and programming concepts Design of computer instruction sets, CPU, memory, and I/O System design features associated with popular microprocessors from Intel and Motorola Future plans in microprocessor development An instructor's manual, available upon request Additionally, the accompanying CD-ROM, contains step-by-step procedures for installing and using Altera Quartus II software, MASM 6.11 (8086), and 68asm (68000), provides valuable simulation results via screen shots.

Fundamentals of Digital Logic and Microcomputer Design is an essential reference that will provide you with the fundamental tools you need to design typical digital systems. Digital Computer Design Principles with Introduction to Microprocessors McGraw-Hill Education

'Fundamentals of Digital Logic with VHDL Design' teaches the basic design techniques for logic circuits. It emphasises the synthesis of circuits and explains how circuits are implemented in real chips. Fundamental concepts are illustrated by using small examples, which are easy to understand. Computer Systems Springer-Verlag Not only does almost everyone in the civilized world use a personal computer, smartphone, and/or tablet on a daily basis to communicate with others and access information, but virtually every other modern appliance, vehicle, or other device has one or more computers embedded inside it. One cannot purchase a current-model automobile, for example, without several computers on board to do everything from monitoring exhaust emissions, to operating the anti-lock brakes, to telling the transmission when to shift, and so on.

Appliances such as clothes washers and dryers, microwave ovens, refrigerators, etc. are almost all digitally controlled. Gaming consoles like Xbox, PlayStation, and Wii are powerful computer systems with enhanced capabilities for user interaction. Computers are everywhere, even when we don't see them as such, and it is more important than ever for students who will soon enter the workforce to understand how they work. This book is completely updated and revised for a one-semester upper level undergraduate course in Computer Architecture, and suitable for use in an undergraduate CS, EE, or CE curriculum at the junior or senior level. Students should have had a course(s) covering introductory topics in digital logic and computer organization. While this is not a text for a programming course, the reader should be familiar with computer programming concepts in at least one language such as C, C++, or Java. Previous

courses in operating systems, assembly language, and/or systems programming would be helpful, but are not essential. INTRODUCTION TO DIGITAL COMPUTER DESIGN Prentice Hall Computer Organization and Design Fundamentals takes the reader from the basic design principles of the modern digital computer to a top-level examination of its architecture. This book can serve either as a textbook to an introductory course on computer hardware or as the basic text for the aspiring geek who wants to learn about digital design. The material is presented in four parts. The first part describes how computers represent and manipulate numbers. The second part presents the tools used at all levels of binary design. The third part introduces the reader to computer system theory with topics such as memory, caches, hard drives, pipelining, and interrupts. The last part applies these theories through an introduction to the Intel 80x86 architecture and assembly language. The material is presented using practical terms and examples with an aim toward providing anyone who works with computer systems the ability to use them more effectively through a better understanding of their design.