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Principles of Computer Hardware Alan Clements 2006-02-09 The fourth edition of this work provides a readable, tutorial based introduction to the subject of computer hardware for undergraduate computer scientists and engineers and includes a companion website to give lecturers additional notes.

The Holodeck Michael Cloran 2020-02-07 This book is about a requirements specification for a Holodeck at a proof of concept level. In it I introduce optical functions for a optical processor and describe how they map to a subset of the Risc-V open instruction set. I describe how parallelism could be achieved. I then describe a possible layered approach to an optical processor motherboard for the datacenter and for a personal Holodeck. I describe Volumetrics in brief and show how its evolution to Holodeck volumetrics could be done with bend light technology and the possibility of solidness to touch. I describe in detail the architecture of a Holodeck covering several approaches to Holodecks from static scene to scrolling scene to multi-user same complex to networked multi-user Holodecks.

Digital Logic and State Machine Design David J. Comer 1995 From one of the best-known and successful authors in the field comes this new edition of Digital Logic and State Machine Design. The text is concise and practical, and covers the important area of digital system design specifically for undergraduates. Comer's primary goal is to illustrate that sequential circuits can be designed using state machine techniques. These methods apply to sequential circuit design as efficiently as Boolean algebra and Karnaugh mapping methods apply to combinatorial design. After presenting the techniques, Comer proceeds directly into designing digital systems. This task consists of producing the schematic or block diagram of the system based on nothing more than a given set of specifications. The design serves as the basis for the construction of the actual hardware system. In the new Third Edition, Comer introduces state machines earlier than in previous editions, and adds entire chapters on programmable logic devices and computer organization.

Fundamentals of Digital Logic with Verilog Design Stephen Brown 2013-03-15 Fundamentals of Digital Logic With Verilog Design teaches the basic design techniques for logic circuits. It emphasizes the synthesis of circuits and explains how circuits are implemented in real chips. Fundamental concepts are illustrated by using small examples. Use of CAD software is well integrated into the book. A CD-ROM that contains Altera's Quartus CAD software comes free with every copy of the text. The CAD software provides automatic mapping of a design written in Verilog into Field Programmable Gate Arrays (FPGAs) and Complex Programmable Logic Devices (CPLDs). Students will be able to try, firsthand, the book's Verilog examples (over 140) and homework problems. Engineers use Quartus CAD for designing, simulating, testing and implementing logic circuits. The version included with this text supports all major features of the commercial product and comes with a compiler for the IEEE standard Verilog language. Students will be able to: enter a design into the CAD system compile the design into a selected device simulate the functionality and timing of the resulting circuit implement the designs in actual devices (using the school's laboratory facilities) Verilog is a complex language, so it is introduced gradually in the book. Each Verilog feature is presented as it becomes pertinent for the circuits being discussed. To teach the student to use the Quartus CAD, the book includes three tutorials.

Computer Organization and Design David A. Patterson 2004-08-07 This best selling text on computer organization has been thoroughly updated to reflect the newest technologies. Examples highlight the latest processor designs, benchmarking standards, languages and tools. As with previous editions, a MIPS processor is the core used to present the fundamentals of hardware technologies at work in a computer system. The book presents an entire MIPS instruction set—instruction by instruction—the fundamentals of assembly language, computer arithmetic, pipelining, memory hierarchies and I/O. A new aspect of the third edition is the explicit connection between program performance and CPU performance. The authors show how hardware and software components--such as the specific algorithm, programming language, compiler, ISA and processor implementation--impact program performance. Throughout the book a new feature focusing on program performance describes how to search for bottlenecks and improve performance in various parts of the system. The book digs deeper into the hardware/software interface, presenting a complete view of the function of the programming language and compiler--crucial for understanding computer organization. A CD provides a toolkit of simulators and compilers along with tutorials for using them. For instructor resources click on the grey "companion site" button found on the right side of this page. This new edition represents a major revision. New to this edition: * Entire Text has been updated to reflect new technology * 70% new exercises. * Includes a CD loaded with software, projects and exercises to support courses using a number of tools * A new interior design presents defined terms in the margin for quick reference * A new feature, "Understanding Program Performance" focuses on performance from the programmer's perspective * Two sets of exercises and solutions, "For More Practice" and "In More Depth," are included on the CD * "Check Yourself" questions help students check their understanding of major concepts * "Computers In the Real World" feature illustrates the diversity of uses for information technology *More detail below...

Fundamentals of Digital Logic with Verilog Design Stephen Brown 2007-05-14 Fundamentals of Digital Logic With Verilog Design teaches the basic design techniques for logic circuits. It emphasizes the synthesis of circuits and explains how circuits are implemented in real chips. Fundamental concepts are illustrated by using small examples. Use of CAD software is well integrated into the book. A CD-ROM that contains Altera's Quartus CAD software comes free with every copy of the text. The CAD software provides automatic

mapping of a design written in Verilog into Field Programmable Gate Arrays (FPGAs) and Complex Programmable Logic Devices (CPLDs). Students will be able to try, firsthand, the book's Verilog examples (over 140) and homework problems. Engineers use Quartus CAD for designing, simulating, testing and implementing logic circuits. The version included with this text supports all major features of the commercial product and comes with a compiler for the IEEE standard Verilog language. Students will be able to: enter a design into the CAD system compile the design into a selected device simulate the functionality and timing of the resulting circuit implement the designs in actual devices (using the school's laboratory facilities) Verilog is a complex language, so it is introduced gradually in the book. Each Verilog feature is presented as it becomes pertinent for the circuits being discussed. To teach the student to use the Quartus CAD, the book includes three tutorials.

Logic and Computer Design Fundamentals M. Morris Mano 2000 CD-ROMs contain: Schematic editor -- State diagram editor -- Abel HDL text entry -- VHDL and Verilog synthesis tool -- Xilinx FPGA implementation tools -- Logic simulator.

Digital Design: Principles And Practices, 4/E John F. Wakerly 2008-09

Digital Logic Techniques John Stonham 2017-11-22 The third edition of Digital Logic Techniques provides a clear and comprehensive treatment of the representation of data, operations on data, combinational logic design, sequential logic, computer architecture, and practical digital circuits. A wealth of exercises and worked examples in each chapter give students valuable experience in applying the concepts and techniques discussed. Beginning with an objective comparison between analogue and digital representation of data, the author presents the Boolean algebra framework for digital electronics, develops combinational logic design from first principles, and presents cellular logic as an alternative structure more relevant than canonical forms to VLSI implementation. He then addresses sequential logic design and develops a strategy for designing finite state machines, giving students a solid foundation for more advanced studies in automata theory. The second half of the book focuses on the digital system as an entity. Here the author examines the implementation of logic systems in programmable hardware, outlines the specification of a system, explores arithmetic processors, and elucidates fault diagnosis. The final chapter examines the electrical properties of logic components, compares the different logic families, and highlights the problems that can arise in constructing practical hardware systems.

Fundamentals of Digital Logic with VHDL Design Stephen D. Brown 2005 Fundamentals of Digital Logic With VHDL Design teaches the basic design techniques for logic circuits. It emphasizes 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. Then, a modular approach is used to show how larger circuits are designed. VHDL is used to demonstrate how the basic building blocks and larger systems are defined in a hardware description language, producing designs that can be implemented with modern CAD tools. The book emphasizes the concepts that should be covered in an introductory course on logic design, focusing on: Logic functions, gates, and rules of Boolean algebra Circuit synthesis and optimization techniques Number representation and arithmetic circuits Combinational-circuit building blocks, such as multiplexers, decoders, encoders, and code converters Sequential-circuit building blocks, such as flip-flops, registers, and counters Design of synchronous sequential circuits Use of the basic building blocks in designing larger systems It also includes chapters that deal with important, but more advanced topics: Design of asynchronous sequential circuits Testing of logic circuits For students who have had no exposure to basic electronics, but are interested in learning a few key concepts, there is a chapter that presents the most basic aspects of electronic implementation of digital circuits. Major changes in the second edition of the book include new examples to clarify the presentation of fundamental concepts over 50 new examples of solved problems provided at the end of chapters NAND and NOR gates now introduced in Chapter 2 more complete discussion of techniques for minimization of logic functions in Chapter 4 (including the tabular method) a new chapter explaining the CAD flow for synthesis of logic circuits Altera's Quartus II CAD software provided on a CD-ROM three appendices that give tutorials on the use of Quartus II software

Fundamentals of Power Electronics Robert Warren Erickson 2020 Fundamentals of Power Electronics, Third Edition, is an up-to-date and authoritative text and reference book on power electronics. This new edition retains the original objective and philosophy of focusing on the fundamental principles, models, and technical requirements needed for designing practical power electronic systems while adding a wealth of new material. Improved features of this new edition include: new material on switching loss mechanisms and their modeling; wide bandgap semiconductor devices; a more rigorous treatment of averaging; explanation of the Nyquist stability criterion; incorporation of the Tan and Middlebrook model for current programmed control; a new chapter on digital control of switching converters; major new chapters on advanced techniques of design-oriented analysis including feedback and extra-element theorems; average current control; new material on input filter design; new treatment of averaged switch modeling, simulation, and indirect power; and sampling effects in DCM, CPM, and digital control. Fundamentals of Power Electronics, Third Edition, is intended for use in introductory power electronics courses and related fields for both senior undergraduates and first-year graduate students interested in converter circuits and electronics, control systems, and magnetic and power systems. It will also be an invaluable reference for professionals working in power electronics, power conversion, and analog and digital electronics. Includes an increased number of end of chapter problems; Updated and reorganized, including three completely new chapters; Includes key principles and a rigorous treatment of topics.

Decision Diagram Techniques for Micro- and Nanoelectronic Design Handbook Svetlana N. Yanushkevich 2018-10-03 Decision diagram (DD) techniques are very popular in the electronic design automation (EDA) of integrated circuits, and for good reason. They can accurately simulate logic design, can show where to make reductions in complexity, and can be easily modified to model different scenarios. Presenting DD techniques from an applied perspective, Decision Diagram Techniques for Micro- and Nanoelectronic Design Handbook provides a comprehensive, up-to-date collection of DD techniques. Experts with more than forty years of combined experience in both industrial and academic settings demonstrate how to apply the techniques to full advantage with more than 400 examples and illustrations. Beginning with the fundamental theory, data structures, and logic underlying DD techniques, they explore a breadth of topics from arithmetic and word-level representations to spectral techniques and event-driven analysis. The book also includes abundant references to more detailed information and additional applications. Decision Diagram Techniques for Micro- and Nanoelectronic Design Handbook collects the theory, methods, and practical knowledge necessary to design more advanced circuits and places it at your fingertips in a single, concise reference.

Designing Embedded Hardware John Catsoulis 2002 Intelligent readers who want to build their own embedded computer systems-- installed in everything from cell phones to cars to handheld organizers to refrigerators-- will find this book to be the most in-depth, practical, and up-to-date guide on the market. Designing Embedded Hardware carefully steers between the practical and philosophical aspects, so developers can both create their own devices and gadgets and customize and extend off-the-shelf systems. There are hundreds of books to choose from if you need to learn programming, but only a few are available if you want to learn to create hardware. Designing Embedded Hardware provides software and hardware engineers with no prior experience in embedded systems with the necessary conceptual and design building blocks to understand the architectures of embedded systems. Written to provide the depth of coverage and real-world examples developers need, Designing Embedded Hardware also provides a road-map to the pitfalls and traps to avoid in designing embedded systems. Designing Embedded Hardware covers such essential topics as: The principles of developing

computer hardware Core hardware designs Assembly language concepts Parallel I/O Analog-digital conversion Timers (internal and external) UART Serial Peripheral Interface Inter-Integrated Circuit Bus Controller Area Network (CAN) Data Converter Interface (DCI) Low-power operation This invaluable and eminently useful book gives you the practical tools and skills to develop, build, and program your own application-specific computers.

Modern Processor Design John Paul Shen 2013-07-30 Conceptual and precise, Modern Processor Design brings together numerous microarchitectural techniques in a clear, understandable framework that is easily accessible to both graduate and undergraduate students. Complex practices are distilled into foundational principles to reveal the authors insights and hands-on experience in the effective design of contemporary high-performance micro-processors for mobile, desktop, and server markets. Key theoretical and foundational principles are presented in a systematic way to ensure comprehension of important implementation issues. The text presents fundamental concepts and foundational techniques such as processor design, pipelined processors, memory and I/O systems, and especially superscalar organization and implementations. Two case studies and an extensive survey of actual commercial superscalar processors reveal real-world developments in processor design and performance. A thorough overview of advanced instruction flow techniques, including developments in advanced branch predictors, is incorporated. Each chapter concludes with homework problems that will institute the groundwork for emerging techniques in the field and an introduction to multiprocessor systems.

Digital Design and Computer Organization Hassan A. Farhat 2003-12-29 Digital Design and Computer Organization introduces digital design as it applies to the creation of computer systems. It summarizes the tools of logic design and their mathematical basis, along with in depth coverage of combinational and sequential circuits. The book includes an accompanying CD that includes the majority of circuits highlig

Digital Electronics and Design with VHDL Volnei A. Pedroni 2008-01-25 Digital Electronics and Design with VHDL offers a friendly presentation of the fundamental principles and practices of modern digital design. Unlike any other book in this field, transistor-level implementations are also included, which allow the readers to gain a solid understanding of a circuit's real potential and limitations, and to develop a realistic perspective on the practical design of actual integrated circuits. Coverage includes the largest selection available of digital circuits in all categories (combinational, sequential, logical, or arithmetic); and detailed digital design techniques, with a thorough discussion on state-machine modeling for the analysis and design of complex sequential systems. Key technologies used in modern circuits are also described, including Bipolar, MOS, ROM/RAM, and CPLD/FPGA chips, as well as codes and techniques used in data storage and transmission. Designs are illustrated by means of complete, realistic applications using VHDL, where the complete code, comments, and simulation results are included. This text is ideal for courses in Digital Design, Digital Logic, Digital Electronics, VLSI, and VHDL; and industry practitioners in digital electronics. Comprehensive coverage of fundamental digital concepts and principles, as well as complete, realistic, industry-standard designs Many circuits shown with internal details at the transistor-level, as in real integrated circuits Actual technologies used in state-of-the-art digital circuits presented in conjunction with fundamental concepts and principles Six chapters dedicated to VHDL-based techniques, with all VHDL-based designs synthesized onto CPLD/FPGA chips

Electrical Engineering Ralf Kories 2003-07-09 This is a superb source of quickly accessible information on the whole area of electrical engineering and electronics. It serves as a concise and quick reference, with self-contained chapters comprising all important expressions, formulas, rules and theorems, as well as many examples and applications.

Computer Science and Engineering Zainalabedin Navabi 2009-08-10 Computer Science and Engineering is a component of Encyclopedia of Technology, Information, and Systems Management Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on Computer Science and Engineering provides the essential aspects and fundamentals of Hardware Architectures, Software Architectures, Algorithms and Data Structures, Programming Languages and Computer Security. It is aimed at the following five major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers.

George Spencer Brown's "Design with the NOR" Steffen Roth 2021-03-08 A polymath and author of Laws of Form, George Spencer Brown, brought together mathematics, electronics, engineering and philosophy to form an unlikely bond. This book investigates Design with NOR, the title of the yet unpublished 1961 typescript by Spencer Brown.

Logic and Computer Design Fundamentals M. Morris Mano 2004 Featuring a strong emphasis on the fundamentals underlying contemporary logic design using hardware description languages, synthesis and verification, this text focuses on the ever-evolving applications of basic computer design concepts.

Digital Design M. Morris Mano 2013 For courses on digital design in an Electrical Engineering, Computer Engineering, or Computer Science department. Digital Design, fifth edition is a modern update of the classic authoritative text on digital design. This book teaches the basic concepts of digital design in a clear, accessible manner. The book presents the basic tools for the design of digital circuits and provides procedures suitable for a variety of digital applications.

Rules of Play Katie Salen Tekinbas 2003-09-25 An impassioned look at games and game design that offers the most ambitious framework for understanding them to date. As pop culture, games are as important as film or television—but game design has yet to develop a theoretical framework or critical vocabulary. In Rules of Play Katie Salen and Eric Zimmerman present a much-needed primer for this emerging field. They offer a unified model for looking at all kinds of games, from board games and sports to computer and video games. As active participants in game culture, the authors have written Rules of Play as a catalyst for innovation, filled with new concepts, strategies, and methodologies for creating and understanding games. Building an aesthetics of interactive systems, Salen and Zimmerman define core concepts like "play," "design," and "interactivity." They look at games through a series of eighteen "game design schemas," or conceptual frameworks, including games as systems of emergence and information, as contexts for social play, as a storytelling medium, and as sites of cultural resistance. Written for game scholars, game developers, and interactive designers, Rules of Play is a textbook, reference book, and theoretical guide. It is the first comprehensive attempt to establish a solid theoretical framework for the emerging discipline of game design.

Reconfigurable Computing Systems Engineering Lev Kirischian 2017-12-19 Reconfigurable Computing Systems Engineering: Virtualization of Computing Architecture describes the organization of reconfigurable computing system (RCS) architecture and discusses the pros and cons of different RCS architecture implementations. Providing a solid understanding of RCS technology and where it's most effective, this book: Details the architecture organization of RCS platforms for application-specific workloads Covers the process of the architectural synthesis of hardware components for system-on-chip (SoC) for the RCS Explores the virtualization of RCS architecture from the system and on-chip levels Presents methodologies for RCS architecture run-time integration according to mode of operation and rapid adaptation to changes of multi-parametric constraints Includes illustrative examples, case studies, homework problems, and references to important literature A solutions manual is available with qualifying course adoption. Reconfigurable Computing Systems Engineering: Virtualization of Computing Architecture offers a complete road map to the synthesis of RCS architecture, exposing hardware design engineers, system architects, and students specializing in designing FPGA-based embedded

systems to novel concepts in RCS architecture organization and virtualization.

Digital Computer Design Edward L. Braun 2014-05-12 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.

Computing Handbook, Third Edition Teofilo Gonzalez 2014-05-07 Computing Handbook, Third Edition: Computer Science and Software Engineering mirrors the modern taxonomy of computer science and software engineering as described by the Association for Computing Machinery (ACM) and the IEEE Computer Society (IEEE-CS). Written by established leading experts and influential young researchers, the first volume of this popular handbook examines the elements involved in designing and implementing software, new areas in which computers are being used, and ways to solve computing problems. The book also explores our current understanding of software engineering and its effect on the practice of software development and the education of software professionals. Like the second volume, this first volume describes what occurs in research laboratories, educational institutions, and public and private organizations to advance the effective development and use of computers and computing in today's world. Research-level survey articles provide deep insights into the computing discipline, enabling readers to understand the principles and practices that drive computing education, research, and development in the twenty-first century.

Fundamentals of Digital Logic with VHDL Design with CD-ROM Stephen Brown 2008-04-14 Fundamentals of Digital Logic with VHDL Design teaches the basic design techniques for logic circuits. The text provides a clear and easily understandable discussion of logic circuit design without the use of unnecessary formalism. It emphasizes 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. Then, a modular approach is used to show how larger circuits are designed. VHDL is a complex language so it is introduced gradually in the book. Each VHDL feature is presented as it becomes pertinent for the circuits being discussed. While it includes a discussion of VHDL, the book provides thorough coverage of the fundamental concepts of logic circuit design, independent of the use of VHDL and CAD tools. A CD-ROM containing all of the VHDL design examples used in the book, as well as Altera's Quartus II CAD software, is included free with every text.

Computer Arithmetics for Nanoelectronics Vlad P. Shmerko 2018-10-03 Emphasizes the Basic Principles of Computational Arithmetic and Computational Structure Design Taking an interdisciplinary approach to the nanoscale generation of computer devices and systems, Computer Arithmetics for Nanoelectronics develops a consensus between computational properties provided by data structures and phenomenological properties of nano and molecular technology. Covers All Stages of the Design Cycle, from Task Formulation to Molecular-Based Implementation The book introduces the theoretical base and properties of various data structures, along with techniques for their manipulation, optimization, and implementation. It also assigns the computational properties of logic design data structures to 3D structures, furnishes information-theoretical measures and design aspects, and discusses the testability problem. The last chapter presents a nanoscale prospect for natural computing based on assorted computing paradigms from nature. Balanced Coverage of State-of-the-Art Concepts, Techniques, and Practices Up-to-date, comprehensive, and pragmatic in its approach, this text provides a unified overview of the relationship between the fundamentals of digital system design, computer architectures, and micro- and nanoelectronics.

Introduction to Logic Design

Digital Design and Computer Architecture Sarah Harris 2015-04-09 Digital Design and Computer Architecture: ARM Edition covers the fundamentals of digital logic design and reinforces logic concepts through the design of an ARM microprocessor. Combining an engaging and humorous writing style with an updated and hands-on approach to digital design, this book takes the reader from the fundamentals of digital logic to the actual design of an ARM processor. By the end of this book, readers will be able to build their own microprocessor and will have a top-to-bottom understanding of how it works. Beginning with digital logic gates and progressing to the design of combinational and sequential circuits, this book uses these fundamental building blocks as the basis for designing an ARM processor. SystemVerilog and VHDL are integrated throughout the text in examples illustrating the methods and techniques for CAD-based circuit design. The companion website includes a chapter on I/O systems with practical examples that show how to use the Raspberry Pi computer to communicate with peripheral devices such as LCDs, Bluetooth radios, and motors. This book will be a valuable resource for students taking a course that combines digital logic and computer architecture or students taking a two-quarter sequence in digital logic and computer organization/architecture. Covers the fundamentals of digital logic design and reinforces logic concepts through the design of an ARM microprocessor. Features side-by-side examples of the two most prominent Hardware Description Languages (HDLs)—SystemVerilog and VHDL—which illustrate and compare the ways each can be used in the design of digital systems. Includes examples throughout the text that enhance the reader's understanding and retention of key concepts and techniques. The Companion website includes a chapter on I/O systems with practical examples that show how to use the Raspberry Pi computer to communicate with peripheral devices such as LCDs, Bluetooth radios, and motors. The Companion website also includes appendices covering practical digital design issues and C programming as well as links to CAD tools, lecture slides, laboratory projects, and solutions to exercises.

Computer Organization and Design David A. Patterson 2012 "Presents the fundamentals of hardware technologies, assembly language, computer arithmetic, pipelining, memory hierarchies and I/O"--

Digital Logic M. Rafiquzzaman 2019-09-11 DIGITAL LOGIC

Digital Design M. Morris Mano 2002 For sophomore courses on digital design in an Electrical Engineering, Computer Engineering, or Computer Science department. & Digital Design, fourth edition is a modern update of the classic authoritative text on digital design.& This book teaches the basic concepts of digital design in a clear, accessible manner. The book presents the basic tools for the design of digital circuits and provides procedures suitable for a variety of digital applications.

Fundamentals of Logic Design, Enhanced Edition Charles H. Roth, Jr. 2020-01-01 Master the principles of logic design with the exceptional balance of theory and application found in Roth/Kinney/John's FUNDAMENTALS OF LOGIC DESIGN, ENHANCED, 7th Edition. This edition introduces you to today's latest advances. The authors have carefully developed a clear presentation that introduces the fundamental concepts of logic design without overwhelming you with the mathematics of switching theory. Twenty engaging, easy-to-

follow study units present basic concepts, such as Boolean algebra, logic gate design, flip-flops and state machines. You learn to design counters, adders, sequence detectors and simple digital systems. After mastering the basics, you progress to modern design techniques using programmable logic devices as well as VHDL hardware description language. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Logic and Computer Design Fundamentals M. Morris Mano 2008 Featuring a strong emphasis on the fundamentals underlying contemporary logic design using hardware description languages, synthesis, and verification, this book focuses on the ever-evolving applications of basic computer design concepts with strong connections to real-world technology. Treatment of logic design, digital system design, and computer design. Ideal for self-study by engineers and computer scientists.

Computer Systems Ata Elahi 2017-11-08 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 System Design Using VHDL Rishabh Anand 2013 The book covers the complete syllabus of subject as suggested by most of the universities in India. Generic VHDL code is taught and used through out the book so that different companies. VHDL tools can be used if desired. Moving from the unknown in a logical manner. Subject matter in each chapter develops systematically from inceptions. Large number of carefully selected worked examples in sufficient details. No other reference is required. Ideally suited for self-study.

Fundamentals of Logic Design, Enhanced Edition, Loose-Leaf Version Jr. Charles H. Roth 2020

Fundamentals of Digital Logic and Microcontrollers M. Rafiquzzaman 2014-09-15 Updated to reflect the latest advances in the field, the Sixth Edition of Fundamentals of Digital Logic and Microcontrollers further enhances its reputation as the most accessible introduction to the basic principles and tools required in the design of digital systems. Features updates and revision to more than half of the material from the previous edition Offers an all-encompassing focus on the areas of computer design, digital logic, and digital systems, unlike other texts in the marketplace Written with clear and concise explanations of fundamental topics such as number system and Boolean algebra, and simplified examples and tutorials utilizing the PIC18F4321 microcontroller Covers an enhanced version of both combinational and sequential logic design, basics of computer organization, and microcontrollers

Digital Logic and Computer Design M. Morris Mano 2017 This book presents the basic concepts used in the design and analysis of digital systems and introduces the principles of digital computer organization and design.

Dedicated Digital Processors F. Mayer-Lindenberg 2004-04-02 The recent evolution of digital technology has resulted in the design of digital processors with increasingly complex capabilities. The implementation of hardware/software co-design methodologies provides new opportunities for the development of low power, high speed DSPs and processor networks. Dedicated digital processors are digital processors with an application specific computational task. Dedicated Digital Processors presents an integrated and accessible approach to digital processor design principles, processes, and implementations based upon the author's considerable experience in teaching digital systems design and digital signal processing. Emphasis is placed on presentation of hardware/software co-design methods, with examples and illustrations provided throughout the text. System-on-a-chip and embedded systems are described and examples of high speed real-time processing are given. Coverage of standard and emerging DSP architectures enable the reader to make an informed selection when undertaking their own designs. Presents readers with the elementary building blocks for the design of digital hardware systems and processor networks Provides a unique evaluation of standard DSP architectures whilst providing up-to-date information on the latest architectures, including the TI 55x and TigerSharc chip families and the Virtex FPGA (field-programmable gate array) Introduces the concepts and methodologies for describing and designing hardware VHDL is presented and used to illustrate the design of a simple processor A practical overview of hardware/software codesign with design techniques and considerations illustrated with examples of real-world designs Fundamental reading for graduate and senior undergraduate students of computer and electronic engineering, and Practicing engineers developing DSP applications.