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KEY=FUNDAMENTALS - NOEMI GUERRA

Synthesizable VHDL Design for FPGAs *Springer Science & Business Media* The methodology described in this book is the result of many years of research experience in the field of synthesizable VHDL design targeting FPGA based platforms. VHDL was first conceived as a documentation language for ASIC designs. Afterwards, the language was used for the behavioral simulation of ASICs, and also as a design input for synthesis tools. VHDL is a rich language, but just a small subset of it can be used to write synthesizable code, from which a physical circuit can be obtained. Usually VHDL books describe both, synthesis and simulation aspects of the language, but in this book the reader is conducted just through the features acceptable by synthesis tools. The book introduces the subjects in a gradual and concise way, providing just enough information for the reader to develop their synthesizable digital systems in VHDL. The examples in the book were planned targeting an FPGA platform widely used around the world. **Digital Design with RTL Design, Verilog and VHDL** *John Wiley & Sons* An eagerly anticipated, up-to-date guide to essential digital design fundamentals Offering a modern, updated approach to digital design, this much-needed book reviews basic design fundamentals before diving into specific details of design optimization. You begin with an examination of the low-levels of design, noting a clear distinction between design and gate-level minimization. The author then progresses to the key uses of digital design today, and how it is used to build high-performance alternatives to software. Offers a fresh, up-to-date approach to digital design, whereas most literature available is sorely outdated Progresses though low levels of design, making a clear distinction between design and gate-level minimization Addresses the various uses of digital design today Enables you to gain a clearer understanding of applying digital design to your life With this book by your side, you'll gain a better understanding of how to apply the material in the book to real-world scenarios. **Digital Systems Design Using VHDL** *Cengage Learning* Written for advanced study in digital systems design, Roth/John's DIGITAL SYSTEMS DESIGN USING VHDL, 3E integrates the use of the industry-standard hardware description language, VHDL, into the digital design process. The book begins with a valuable review of basic logic design concepts before introducing the fundamentals of VHDL. The book concludes with detailed coverage of advanced VHDL topics. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. **Introduction to VHDL** *Springer Science & Business Media* Covers all aspects of the VHDL language **Analysis and Solutions for Switching Noise Coupling in Mixed-Signal ICs** *Springer Science & Business Media* Modern microelectronic design is characterized by the integration of full systems on a single die. These systems often include large high performance digital circuitry, high resolution analog parts, high driving I/O, and maybe RF sections. Designers of such systems are constantly faced with the challenge to achieve compatibility in electrical characteristics of every section: some circuitry presents fast transients and large consumption spikes, whereas others require quiet environments to achieve resolutions well beyond millivolts. Coupling between those sections is usually unavoidable, since the entire system shares the same silicon substrate bulk and the same package. Understanding the way coupling is produced, and knowing methods to isolate coupled circuitry, and how to apply every method, is then mandatory knowledge for every IC designer. Analysis and Solutions for Switching Noise Coupling in Mixed-Signal ICs is an in-depth look at coupling through the common silicon substrate, and noise at the power supply lines. It explains the elementary knowledge needed to understand these phenomena and presents a review of previous works and new research results. The aim is to provide an understanding of the reasons for these particular ways of coupling, review and suggest solutions to noise coupling, and provide criteria to apply noise reduction. Analysis and Solutions for Switching Noise Coupling in Mixed-Signal ICs is an ideal book, both as introductory material to noise-coupling problems in mixed-signal ICs, and for more advanced designers facing this problem. **Introduction to Logic Circuits & Logic Design with Verilog** *Springer* This textbook for courses in Digital Systems Design introduces students to the fundamental hardware used in modern computers. Coverage includes both the classical approach to digital system design (i.e., pen and paper) in addition to the modern hardware description language (HDL) design approach (computer-based). Using this textbook enables readers to design digital systems using the modern HDL approach, but they have a broad foundation of knowledge of the underlying hardware and theory of their designs. This book is designed to match the way the material is actually taught in the classroom. Topics are presented in a manner which builds foundational knowledge before moving onto advanced topics. The author has designed the presentation with learning Goals and assessment at its core. Each section addresses a specific learning outcome that the student should be able to "do" after its completion. The concept checks and exercise problems provide a rich set of assessment tools to measure student performance on each outcome. **Fundamentals of Digital Logic with VHDL Design** 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 Logic Design, Enhanced Edition** *Cengage Learning* 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. **Digital Integrated Circuit Design From VLSI Architectures to CMOS Fabrication** *Cambridge University Press* Top-down approach to practical, tool-independent, digital circuit design, reflecting how circuits are designed. **Digital Design (VHDL) An Embedded Systems Approach Using VHDL** *Elsevier* Digital Design: An Embedded Systems Approach Using VHDL provides a foundation in digital design for students in computer engineering, electrical engineering and computer science courses. It takes an up-to-date and modern approach of presenting digital logic design as an activity in a larger systems design context. Rather than focus on aspects of digital design that have little relevance in a realistic design context, this book concentrates on modern and evolving knowledge and design skills. Hardware description language (HDL)-based design and verification is emphasized--VHDL examples are used extensively throughout. By treating digital logic as part of embedded systems design, this book provides an understanding of the hardware needed in the analysis and design of systems comprising both hardware and software components. Includes a Web site with links to vendor tools, labs and tutorials. Presents digital logic design as an activity in a larger systems design context Features extensive use of VHDL examples to demonstrate HDL (hardware description language) usage at the abstract behavioural level and register transfer level, as well as for low-level verification and verification environments Includes worked examples throughout to enhance the reader's understanding and retention of the material Companion Web site includes links to tools for FPGA design from Synplicity, Mentor Graphics, and Xilinx, VHDL source code for all the examples in the book, lecture slides, laboratory projects, and solutions to exercises **Embedded SoPC Design with Nios II Processor and VHDL Examples** *John Wiley & Sons* The book is divided into four major parts. Part I covers HDLconstructs and synthesis of basic digital circuits. Part IIprovides an overview of embedded software development with theemphasis on low-level I/O access and drivers. Part III demonstratesthe design and development of hardware and software for severalcomplex I/O peripherals, including PS2 keyboard and mouse, agraphic video controller, an audio codec, and an SD (securedigital) card. Part IV provides three case studies of theintegration of hardware accelerators, including a custom GCD(greatest common divisor) circuit, a Mandelbrot set fractalcircuit, and an audio synthesizer based on DDFS (direct digitalfrequency synthesis) methodology. The book utilizes FPGA devices, Nios II soft-core processor, anddevelopment platform from Altera Co., which is one of the two mainFPGA manufactures. Altera has a generous university program thatprovides free software and discounted prototyping boards foreducational institutions (details at ahref="http://www.altera.com/university"spanstyle="color: #284457;"http://www.altera.com/university/span/a).The two main educational prototyping boards are known as DE1 ($99)and DE2 ($269). All experiments can be implemented and tested withthese boards. A board combined with this book becomes a“turn-key” solution for the SoPC design experiments andprojects. Most HDL and C codes in the book are device independentand can be adapted by other prototyping boards as long as a boardhas similar I/O configuration. **Fundamentals of Logic Design** *Cengage Learning* Updated with modern coverage, a streamlined presentation, and excellent companion software, this seventh edition of FUNDAMENTALS OF LOGIC DESIGN achieves yet again an unmatched balance between theory and application. Authors Charles H. Roth, Jr. and Larry L. Kinney carefully present the theory that is necessary for understanding the fundamental concepts of logic design while not overwhelming students with the mathematics of switching theory. Divided into 20 easy-to-grasp study units, the book covers such fundamental concepts as Boolean algebra, logic gates design, flip-flops, and state machines. By combining flip-flops with networks of logic gates, students will learn to design counters, adders, sequence detectors, and simple digital systems. After covering the basics, this text presents modern design techniques using programmable logic devices and the 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. **Software/hardware FPGA-based system for the solution of the 3D heat equation: applications on the non-destructive evaluation of minefield.** *Univ Santiago de Compostela* **Basic VLSI Design Technology Technical Questions and Solutions** *CRC Press* The current cutting-edge VLSI circuit design technologies provide end-users with many applications, increased processing power and improved cost effectiveness. This trend is accelerating, with significant implications on future VLSI and systems design. VLSI design engineers are always in demand for front-end and back-end design applications.The book aims to give future and current VSLI design engineers a robust understanding of the underlying principles of the subject. It not only focuses on circuit design processes obeying VLSI rules but also on technological aspects of fabrication. The Hardware Description Language (HDL) Verilog is explained along with its modelling style. The book also covers CMOS design from the digital systems level to the circuit level. The book clearly explains fundamental principles and is a guide to good design practices.The book is intended as a reference book for senior

undergraduate, first-year post graduate students, researchers as well as academicians in VLSI design, electronics & electrical engineering and materials science. The basics and applications of VLSI design from digital system design to IC fabrication and FPGA Prototyping are each covered in a comprehensive manner. At the end of each unit is a section with technical questions including solutions which will serve as an excellent teaching aid to all readers.Technical topics discussed in the book include: • Digital System Design• Design flow for IC fabrication and FPGA based prototyping • Verilog HDL• IC Fabrication Technology• CMOS VLSI Design• Miscellaneous (It covers basics of Electronics, and Reconfigurable computing, PLDs, Latest technology etc.). **Readings in Hardware/software Co-design** *Morgan Kaufmann* This title serves as an introduction ans reference for the field, with the papers that have shaped the hardware/software co-design since its inception in the early 90s. **Intelligent Tutoring Systems 8th International Conference, ITS 2006, Jhongli, Taiwan, June 26-30, 2006 Proceedings** *Springer Science & Business Media* This book constitutes the refereed proceedings of the 8th International Conference on Intelligent Tutoring Systems, ITS 2006, held in Jhongli, Taiwan, June 2006. The book presents 67 revised full papers and 40 poster papers, together with abstracts of 6 keynote talks, organized in topical sections on assessment, authoring tools, bayesian reasoning and decision-theoretic approaches, case-based and analogical reasoning, cognitive models, collaborative learning, e-learning and web-based intelligent tutoring systems, and more. **Solutions on Embedded Systems** *Springer Science & Business Media* Embedded systems have an increasing importance in our everyday lives. The growing complexity of embedded systems and the emerging trend to interconnections between them lead to new challenges. Intelligent solutions are necessary to overcome these challenges and to provide reliable and secure systems to the customer under a strict time and financial budget. Solutions on Embedded Systems documents results of several innovative approaches that provide intelligent solutions in embedded systems. The objective is to present mature approaches, to provide detailed information on the implementation and to discuss the results obtained. **Instructors Resource Manual with Solutions and Test Item File** *Prentice Hall* **High Speed Serdes Devices and Applications** *Springer Science & Business Media* The simplest method of transferring data through the inputs or outputs of a silicon chip is to directly connect each bit of the datapath from one chip to the next chip. Once upon a time this was an acceptable approach. However, one aspect (and perhaps the only aspect) of chip design which has not changed during the career of the authors is Moore’s Law, which has dictated substantial increases in the number of circuits that can be manufactured on a chip. The pin densities of chip packaging technologies have not increased at the same pace as has silicon density, and this has led to a prevalence of High Speed Serdes (HSS) devices as an inherent part of almost any chip design. HSS devices are the dominant form of input/output for many (if not most) high-integration chips, moving serial data between chips at speeds up to 10 Gbps and beyond. Chip designers with a background in digital logic design tend to view HSS devices as simply complex digital input/output cells. This view ignores the complexity associated with serially moving billions of bits of data per second. At these data rates, the assumptions associated with digital signals break down and analog factors demand consideration. The chip designer who oversimplifies the problem does so at his or her own peril. **Space Microelectronics Volume 2: Integrated Circuit Design for Space Applications** *Artech House* This invaluable second volume of a two-volume set is filled with details about the integrated circuit design for space applications. Various considerations for the selection and application of electronic components for designing spacecraft are discussed. The basic constructions of submicron transistors and schottky diodes during the technological process of production are explored. This book provides details on the energy consumption minimization methods for microelectronic devices. Specific topics include: Features and physical mechanisms of the effect of space radiation on all the main classes of microcircuits, including peculiarities of radiation impact on submicron integrated circuits;Special design, technology, and schematic methods of increasing the resistance to various types of space radiation;Recommendations for choosing research equipment and methods for irradiating various samples;Microcircuit designers on the composition of test elements for the study of the effect of radiation;Microprocessors, circuit boards, logic microcircuits, digital, analog, digital–analog microcircuits manufactured in various technologies (bipolar, CMOS, BiCMOS, SOI);Problems involved with designing high speed microelectronic devices and systems based on SOS-and SOI-structures;System-on-chip and system-in-package and methods for rejection of silicon microcircuits with hidden defects during mass production. **Advances in Information and Computer Security 14th International Workshop on Security, IWSEC 2019, Tokyo, Japan, August 28–30, 2019, Proceedings** *Springer* This book constitutes the refereed proceedings of the 14th International Workshop on Security, IWSEC 2019, held in Tokyo, Japan, in August 2019. The 18 regular papers and 5 short papers presented in this volume were carefully reviewed and selected from 61 submissions. They were organized in topical sections named: Public-Key Primitives; Cryptanalysis on Public-Key Primitives; Cryptographic Protocols; Symmetric-Key Primitives; Malware Detection and Classification; Intrusion Detection and Prevention; Web and Usable Security; Cryptanalysis on Symmetric-Key Primitives; and Forensics. **Digital System Design with FPGA: Implementation Using Verilog and VHDL** *McGraw Hill Professional* Master FPGA digital system design and implementation with Verilog and VHDL This practical guide explores the development and deployment of FPGA-based digital systems using the two most popular hardware description languages, Verilog and VHDL. Written by a pair of digital circuit design experts, the book offers a solid grounding in FPGA principles, practices, and applications and provides an overview of more complex topics. Important concepts are demonstrated through real-world examples, ready-to-run code, and inexpensive start-to-finish projects for both the Basys and Arty boards. Digital System Design with FPGA: Implementation Using Verilog and VHDL covers: • Field programmable gate array fundamentals • Basys and Arty FPGA boards • The Vivado design suite • Verilog and VHDL • Data types and operators • Combinational circuits and circuit blocks • Data storage elements and sequential circuits • Soft-core microcontroller and digital interfacing • Advanced FPGA applications • The future of FPGA **Soft Computing Methods for Practical Environment Solutions: Techniques and Studies Techniques and Studies** *IGI Global* "This publication presents a series of practical applications of different Soft Computing techniques to real-world problems, showing the enormous potential of these techniques in solving problems"--Provided by publisher. **Complex Systems: Solutions and Challenges in Economics, Management and Engineering Dedicated to Professor Jaime Gil Aluja** *Springer* This book presents an authoritative collection of contributions reporting on fuzzy logic and decision theory, together with applications and case studies in economics and management science. Dedicated to Professor Jaume Gil Aluja in recognition of his pioneering work, the book reports on theories, methods and new challenges, thus offering not only a timely reference guide but also a source of new ideas and inspirations for graduate students and researchers

alike. **Electronic Business Euro-DAC '93, European Design Automation Conference with Euro-VHDL '93 Proceedings, CCH Hamburg, Germany, September 20-24, 1993** *IEEE* **13th International Conference on Biomedical Engineering ICBME 2008, 3-6 December 2008, Singapore** *Springer Science & Business Media* th On behalf of the organizing committee of the 13 International Conference on Biomedical Engineering, I extend our w- mest welcome to you. This series of conference began in 1983 and is jointly organized by the YLL School of Medicine and Faculty of Engineering of the National University of Singapore and the Biomedical Engineering Society (Singapore). First of all, I want to thank Mr Lim Chuan Poh, Chairman A*STAR who kindly agreed to be our Guest of Honour to give th the Opening Address amidst his busy schedule. I am delighted to report that the 13 ICBME has more than 600 participants from 40 countries. We have received very high quality papers and inevitably we had to turndown some papers. We have invited very prominent speakers and each one is an authority in their field of expertise. I am grateful to each one of them for setting aside their valuable time to participate in this conference. For the first time, the Biomedical Engineering Society (USA) will be sponsoring two symposia, ie “Drug Delivery S- tems” and “Systems Biology and Computational Bioengineering”. I am thankful to Prof Tom Skalak for his leadership in this initiative. I would also like to acknowledge the contribution of Prof Takami Yamaguchi for organizing the NUS-Tohoku’s Global COE workshop within this conference. Thanks also to Prof Fritz Bodem for organizing the symposium, “Space Flight Bioengineering”. This year’s conference proceedings will be published by Springer as an IFMBE Proceedings Series. **Springer Handbook of Systematic Musicology** *Springer* This unique reference book offers a holistic description of the multifaceted field of systematic musicology, which is the study of music, its production and perception, and its cultural, historical and philosophical background. The seven sections reflect the main topics in this interdisciplinary subject. The first two parts discuss musical acoustics and signal processing, comprehensively describing the mathematical and physical fundamentals of musical sound generation and propagation. The complex interplay of physiology and psychology involved in sound and music perception is covered in the following sections, with a particular focus on psychoacoustics and the recently evolved research on embodied music cognition. In addition, a huge variety of technical applications for professional training, music composition and consumer electronics are presented. A section on music ethnology completes this comprehensive handbook. Music theory and philosophy of music are imbedded throughout. Carefully edited and written by internationally respected experts, it is an invaluable reference resource for professionals and graduate students alike. **Electronic Design Fundamentals of Digital Logic with Verilog Design** *McGraw-Hill Science/Engineering/Math* 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. **Digital Design and Computer Architecture ARM Edition** *Morgan Kaufmann* 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. **Microcontrollers Fundamentals for Engineers and Scientists** *Springer Nature* This book provides practicing scientists and engineers a tutorial on the fundamental concepts and use of microcontrollers. Today, microcontrollers, or single integrated circuit (chip) computers, play critical roles in almost all instrumentation and control systems. Most existing books arewritten for undergraduate and graduate students taking an electrical and/or computer engineering course. Furthermore, these texts have beenwritten with a particular model of microcontroller as the target discussion. These textbooks also require a requisite knowledge of digital design fundamentals. This textbook presents the fundamental concepts common to all microcontrollers. Our goals are to present the over–arching theory of microcontroller operation and to provide a detailed discussion on constituent subsystems available in most microcontrollers. With such goals, we envision that the theory discussed in this book can be readily applied to a wide variety of microcontroller technologies, allowing practicing scientists and engineers to become acquainted with basic concepts prior to beginning a design involving a specific microcontroller. We have found that the fundamental principles of a given microcontroller are easily transferred to other controllers.

Although this is a relatively small book, it is packed with useful information for quickly coming up to speed on microcontroller concepts. **Microelectronics Education Proceedings of the 2nd European Workshop held in Noordwijkerhout, The Netherlands, 14–15 May 1998** *Springer Science & Business Media* Dear participant in the second European Workshop on Microelectronics Education, It is a pleasure to present you the Proceedings of the Second European Workshop on Microelectronics Education and to welcome you at the Workshop. The Organising Committee is very pleased that it has found several key persons, with highly appreciated levels of knowledge and expertise, willing to present Invited Contributions to this Workshop. We have striven for an interesting spread over important areas like the expected demands for educated engineers in the wide field of Microelectronics, and Microsystems, in European industry (and beyond!) and innovations in method and focus of our educational programmes. This is the second European Workshop in this area; the first one was held in Grenoble in France in the spring of 1996. It was the initiative of Georges Kamarinos, Nadine Guillemot and Bernard Courtois to organise this Workshop because they felt that Microelectronics was 'at a turning point' to become the core of the largest industry in the world and that this warranted a serious (re-)consideration of our educational imperatives. It is now two years since and their feeling has become reality: nobody doubts that by the year 2000 the microelecnonics industry will be the largest industrial sector. It is also obvious that because of that and because of the predicted shortfall of educated engineers we must continuously reconsider the quality of our educational approach. **Field-Programmable Logic and Applications 5th International Workshop, FPL '95, Oxford, United Kingdom, August 29 - September 1, 1995. Proceedings** *Springer Science & Business Media* This volume constitutes the proceedings of the Fifth International Workshop on Field-Programmable Logic and Its Applications, FPL '95, held in Oxford, UK in August/September 1995. The volume presents 46 full revised papers carefully selected by the program committee from a large number and wide range of submissions. The papers document the progress achieved since the predecessor conference (see LNCS 849). They are organized in sections on architectures, platforms, tools, arithmetic and signal processing, embedded systems and other applications, and reconfigurable design and models. **Methodologies For The Conception, Design, And Application Of Intelligent Systems - Proceedings Of The 4th International Conference On Soft Computing (In 2 Volumes)** *World Scientific* IIZUKA '96, the 4th International Conference on Soft Computing, emphasized the integration of the components of soft computing to promote the research work on post-digital computers and to realize the intelligent systems. At the conference, new developments and results in soft computing were introduced and discussed by researchers from academic, governmental, and industrial institutions.This volume presents the opening lectures by Prof. Lotfi A. Zadeh and Prof. Walter J. Freeman, the plenary lectures by seven eminent researchers, and about 200 carefully selected papers drawn from more than 20 countries. It documents current research and in-depth studies on the conception, design, and application of intelligent systems. **Architecture and Design of Distributed Embedded Systems IFIP WG10.3/WG10.4/WG10.5 International Workshop on Distributed and Parallel Embedded Systems (DIPES 2000) October 18–19, 2000, Schloß Eringerfeld, Germany** *Springer Science & Business Media* Due to the decreasing production costs of IT systems, applications that had to be realised as expensive PCBs formerly, can now be realised as a system-on-chip. Furthermore, low cost broadband communication media for wide area communication as well as for the realisation of local distributed systems are available. Typically the market requires IT systems that realise a set of specific features for the end user in a given environment, so called embedded systems. Some examples for such embedded systems are control systems in cars, airplanes, houses or plants, information and communication devices like digital TV, mobile phones or autonomous systems like service- or edutainment robots. For the design of embedded systems the designer has to tackle three major aspects: The application itself including the man-machine interface, The (target) architecture of the system including all functional and non-functional constraints and, the design methodology including modelling, specification, synthesis, test and validation. The last two points are a major focus of this book. This book documents the high quality approaches and results that were presented at the International Workshop on Distributed and Parallel Embedded Systems (DIPES 2000), which was sponsored by the International Federation for Information Processing (IFIP), and organised by IFIP working groups WG10.3, WG10.4 and WG10.5. The workshop took place on October 18-19, 2000, in Schloß Eringerfeld near Paderborn, Germany. Architecture and Design of Distributed Embedded Systems is organised similar to the workshop. Chapters 1 and 4 (Methodology I and II) deal with different modelling and specification paradigms and the corresponding design methodologies. Generic system architectures for different classes of embedded systems are presented in Chapter 2. In Chapter 3 several design environments for the support of specific design methodologies are presented. Problems concerning test and validation are discussed in Chapter 5. The last two chapters include distribution and communication aspects (Chapter 6) and synthesis techniques for embedded systems (Chapter 7). This book is essential reading for computer science researchers and application developers. **Microelectrofluidic Systems Modeling and Simulation** *CRC Press* Composite systems that integrate microelectromechanical and microelectrofluidic (MEF) components with electronics are emerging as the next generation of system-on-a-chip (SOC) designs. However, there remains a pressing need for a structured methodology for MEFS design automation, including modeling techniques and simulation and optimization tools. Integrating top-down and bottom-up design philosophies, Microelectrofluidic Systems presents the first comprehensive design strategy for MEFS. This strategy supports hierarchical modeling and simulation from the component level to the system level. It leads to multi-objective optimization tools valuable in all phases of the design process, from conceptualization to final manufacturing. The authors begin by defining the basic variables and elements needed to describe MEFS behavior, then model that behavior across three layers of abstraction: the low-level component, high-level reconfigurable architecture, and bio/chemical application layers. They have developed a hierarchical integrated design environment with SystemC and present its architecture and associated functional packages. Microelectrofluidic Systems is visionary in its leverage of electronic design principles for microsystem design and heralds a new era of automated SOC design. The strategy it presents holds the potential for significant reductions in design time and life-cycle maintenance costs, and its techniques and tools for robust design and application flexibility can lead to the high-volume production needed for the inevitably growing product market. **Design of Computers and Other Complex Digital Devices** *Pearson Education* Uniquely, this advanced digital logic design textbook has as its design target an actual commercial 8-bit processor, the Intel 8080, serving as an extended example of the effective use of VHDL (a hardware description language), EPG As (field programmable gate arrays), and the ASM (Algorithmic State Machine) method to achieve this end. Part I provides a refresher course in basic digital logic

design. Part II examines the use of programmable logic devices, hardware description languages, and the ASM method for implementation of general algorithms in hardware. Part III details the microprocessor's design and implementation specifications. Appends an overview of the Intel 8080 instruction set, and suggested lab projects for junior and senior-level students in electrical and computer engineering. **DSP Integrated Circuits** *Elsevier* DSP Integrated Circuits establishes the essential interface between theory of digital signal processing algorithms and their implementation in full-custom CMOS technology. With an emphasis on techniques for co-design of DSP algorithms and hardware in order to achieve high performance in terms of throughput, low power consumption, and design effort, this book provides the professional engineer, researcher, and student with a firm foundation in the theoretical as well as the practical aspects of designing high performance DSP integrated circuits. Centered around three design case studies, DSP Integrated Circuits thoroughly details a high-performance FFT processor, a 2-D Discrete Cosine Transform for HDTV, and a wave digital filter for interpolation of the sampling frequency. The case studies cover the essential parts of the design process in a top-down manner, from specification of algorithm design and optimization, scheduling of operations, synthesis of optimal architectures, realization of processing elements, to the floor-planning of the integrated circuit. Details the theory and design of digital filters - particularly wave digital filters, multi-rate digital filters, fast Fourier transforms (FFT's), and discrete cosine transforms (DCT's) Follows three complete "real-world" case studies throughout the book Provides complete coverage of finite word length effects in DSP algorithms In-depth survey of the computational properties of DSP algorithms and their mapping to optimal architectures Outlines DSP architectures and parallel, bit-serial, and distributed arithmetic Presents the design process in a top-down manner and incorporates numerous problems and solutions **Review of Modern Engineering Solutions for the Industry** *Trans Tech Publications Ltd* These proceedings of the 2012 International Conference on Mechatronic Systems and Automation Systems (MSAS 2012), held on July 21st 2012 in Wuhan (China), comprise 102 peer-reviewed papers grouped into 6 chapters: Mechatronic Devices and Systems; Signal Processing and Measurement; Control and Automation Systems; Sensors; Material Science and Processing Technology in Manufacturing; Mechanical Engineering and Electrical Power