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Parallel and Distributed Computing and Networks - Luo Qi 2011-07-12
This book constitutes the refereed proceedings of the International conference on Parallel and Distributed Computing and Networks, PDCN 2011, held in Chongqing, China, in December 2010. The 19 revised full papers presented were carefully reviewed and selected from numerous submissions. The conference provided a forum for participants from industry, academic, and non-profit organizations to exchange innovative ideas on Parallel and Distributed Computing and Networks related technologies. The papers address current issues in distributed, parallel, ubiquitous, and cloud computing with special focus on systems security, healthcare, and sports economics.

FPGA-based Implementation of Signal Processing Systems - Roger Woods 2017-05-01

An important working resource for engineers and researchers involved in the design, development, and implementation of signal processing systems The last decade has seen a rapid expansion of the use of field programmable gate arrays (FPGAs) for a wide range of applications beyond traditional digital signal processing (DSP) systems. Written by a team of experts working at the leading edge of FPGA research and development, this second edition of FPGA-based Implementation of Signal Processing Systems has been extensively updated and revised to reflect the latest iterations of FPGA theory, applications, and technology. Written from a system-level perspective, it features expert discussions of contemporary methods and tools used in the design, optimization and implementation of DSP systems using programmable FPGA hardware. And it provides a wealth of practical insights—along with illustrative case studies and timely real-world examples—of critical concern to engineers working in the design and development of DSP systems for radio, telecommunications, audio-visual, and security applications, as well as bioinformatics, Big Data applications, and more. Inside you will find up-to-date coverage of: FPGA solutions for Big Data Applications, especially as they apply to huge data sets The use of ARM processors in FPGAs and the transfer of FPGAs towards heterogeneous computing platforms The evolution of High Level Synthesis tools—including new sections on Xilinx's HLS Vivado tool flow and Altera's OpenCL approach Developments in Graphical Processing Units (GPUs), which are rapidly replacing more traditional DSP systems FPGA-based Implementation of Signal Processing Systems, 2nd Edition is an indispensable guide for engineers and researchers involved in the design and development of both traditional and cutting-

edge data and signal processing systems. Senior-level electrical and computer engineering graduates studying signal processing or digital signal processing also will find this volume of great interest.

Advances in Recent Trends in Communication and Networks - 2010

Embedded Systems Design - 2006

Official Gazette of the United States Patent and Trademark Office - United States. Patent and Trademark Office 2000

Field Programmable Logic and Application - Jürgen Becker 2004-08-11
This book contains the papers presented at the 14th International Conference on Field Programmable Logic and Applications (FPL) held during August 30th- September 1st 2004. The conference was hosted by the Interuniversity Micro- Electronics Center (IMEC) in Leuven, Belgium.

The FPL series of conferences was founded in 1991 at Oxford University (UK), and has been held annually since: in Oxford (3 times), Vienna, Prague, Darmstadt, London, Tallinn, Glasgow, Villach, Belfast, Montpellier and Lisbon. It is the largest and oldest conference in reconfigurable computing and brings together academic researchers, industry experts, users and newcomers in an informal, welcoming atmosphere that encourages productive exchange of ideas and knowledge between the delegates. The fast and exciting advances in field programmable logic are increasing steadily with more and more application potential and need. New ground has been broken in architectures, design techniques, (partial) run-time reconfiguration and applications of field programmable devices in several different areas. Many of these recent innovations are reported in this volume. The size of the FPL conferences has grown significantly over the years. FPL in 2003 saw 216

papers submitted. The interest and support for FPL in the programmable logic community continued this year with 285 scientific papers submitted, demonstrating a 32% increase when compared to the year before. The technical program was assembled from 78 selected regular papers, 45 additional short papers and 29 posters, resulting in this volume of proceedings. The program also included three invited plenary keynote presentations from Xilinx, Gilder Technology Report and Altera, and three embedded tutorials from Xilinx, the Universiẗ at Karlsruhe (TH) and the University of Oslo.

RoboCup 2014: Robot World Cup XVIII - Reinaldo A. C. Bianchi 2015-05-11
This book includes the thoroughly refereed proceedings of the 18th Annual RoboCup International Symposium, held in Joao Pessoa, Brazil, in July 2014.The 36 revised papers were carefully reviewed and selected from 66 submissions and include 11 champion-team papers, three special-track papers on open-source hardware and software, nine papers on the advancement of the RoboCup leagues track, and three best papers. The contributions present current research and educational activities in the field of robotics and artificial intelligence with a special focus on the interaction between robots and humans.

Electronics and Electrical Engineering - Alan Zhao 2015-07-28
The 2014 Asia-Pacific Electronics and Electrical Engineering Conference (EEEC 2014) was held on December 27-28, 2014 in Shanghai, China. EEEC has provided a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Electroni

Make: FPGAs - David Romano 2016-02-29
What if you could use software to design hardware? Not just

any hardware--imagine specifying the behavior of a complex parallel computer, sending it to a chip, and having it run on that chip--all without any manufacturing? With Field-Programmable Gate Arrays (FPGAs), you can design such a machine with your mouse and keyboard. When you deploy it to the FPGA, it immediately takes on the behavior that you defined. Want to create something that behaves like a display driver integrated circuit? How about a CPU with an instruction set you dreamed up? Or your very own Bitcoin miner You can do all this with FPGAs. Because you're not writing programs--rather, you're designing a chip whose sole purpose is to do what you tell it--it's faster than anything you can do in code. With Make: FPGAs, you'll learn how to break down problems into something that can be solved on an FPGA, design the logic that will run on your FPGA, and hook up electronic components to create finished projects. **FPGA Prototyping by VHDL Examples** - Pong P. Chu

2011-09-20
This book uses a "learn by doing" approach to introduce the concepts and techniques of VHDL and FPGA to designers through a series of hands-on experiments. FPGA Prototyping by VHDL Examples provides a collection of clear, easy-to-follow templates for quick code development; a large number of practical examples to illustrate and reinforce the concepts and design techniques; realistic projects that can be implemented and tested on a Xilinx prototyping board; and a thorough exploration of the Xilinx PicoBlaze soft-core microcontroller.
Understanding Smart Sensors - Randy Frank 2013
Now in its third edition, Understanding Smart Sensors is the most complete, up-to-date, and authoritative summary of the latest applications and developments impacting smart sensors in a single volume. This thoroughly expanded and revised edition of an Artech bestseller contains a wealth of new material,

including critical coverage of sensor fusion and energy harvesting, the latest details on wireless technology, and greater emphasis on applications through the book. Utilizing the latest in smart sensor, microelectromechanical systems (MEMS) and microelectronic research and development, Engineers get the technical and practical information they need keep their designs and products on the cutting edge. Providing an extensive variety of information for both technical and non-technical professionals, this easy-to-understand, time-saving book covers current and emergent technologies, as well as their practical implementation. This comprehensive resource also includes an extensive list of smart sensor acronyms and a glossary of key terms.

Linux Device Drivers - Jonathan Corbet 2005-02-07 Provides information on writing a driver in Linux, covering such topics as character devices, network interfaces, driver debugging, concurrency, and interrupts.

Embedded SoPC Design with Nios II Processor and Verilog Examples - Pong P. Chu 2012-05-14 Explores the unique hardware programmability of FPGA-based embedded systems, using a learn-by-doing approach to introduce the concepts and techniques for embedded SoPC design with Verilog An SoPC (system on a programmable chip) integrates a processor, memory modules, I/O peripherals, and custom hardware accelerators into a single FPGA (field-programmable gate array) device. In addition to the customized software, customized hardware can be developed and incorporated into the embedded system as well—allowing us to configure the soft-core processor, create tailored I/O interfaces, and develop specialized hardware accelerators for computation-intensive tasks. Utilizing an Altera FPGA prototyping board and its Nios II soft-core processor, Embedded SoPC

Design with Nios II Processor and Verilog Examples takes a "learn by doing" approach to illustrate the hardware and software design and development process by including realistic projects that can be implemented and tested on the board. Emphasizing hardware design and integration throughout, the book is divided into four major parts: Part I covers HDL and synthesis of custom hardware Part II introduces the Nios II processor and provides an overview of embedded software development Part III demonstrates the design and development of hardware and software of several complex I/O peripherals, including a PS2 keyboard and mouse, a graphic video controller, an audio codec, and an SD (secure digital) card Part IV provides several case studies of the integration of hardware accelerators, including a custom GCD (greatest common divisor) circuit, a Mandelbrot set fractal circuit, and an audio synthesizer based on DDFS (direct digital frequency synthesis) methodology While designing and developing an embedded SoPC can be rewarding, the learning can be a long and winding journey. This book shows the trail ahead and guides readers through the initial steps to exploit the full potential of this emerging methodology.

FPGA Prototyping by Verilog Examples - Pong P. Chu 2011-09-20
FPGA Prototyping Using Verilog Examples will provide you with a hands-on introduction to Verilog synthesis and FPGA programming through a "learn by doing" approach. By following the clear, easy-to-understand templates for code development and the numerous practical examples, you can quickly develop and simulate a sophisticated digital circuit, realize it on a prototyping device, and verify the operation of its physical implementation. This introductory text that will provide you with a solid foundation, instill confidence with rigorous examples for complex systems and prepare

you for future development tasks.
Electronic Design - 2002

Radi oengi neeri ng 2006

Hardware Software Co-Design of a Multimedia SOC Platform - Sao-Jie Chen 2009-01-25 Hardware Software Co-Design of a Multimedia SOC Platform is one of the first of its kinds to provide a comprehensive overview of the design and implementation of the hardware and software of an SoC platform for multimedia applications. Topics covered in this book range from system level design methodology, multimedia algorithm implementation, a sub-word parallel, single-instruction-multiple data (SIMD) processor design, and its virtual platform implementation, to the development of an SIMD parallel compiler as well as a real-time operating system (RTOS). Hardware Software Co-Design of a Multimedia SOC Platform is written for practitioner engineers and technical managers who want to gain first hand knowledge about the hardware-software design process of an SoC platform. It offers both tutorial-like details to help readers become familiar with a diverse range of subjects, and in-depth analysis for advanced readers to pursue further.

Embedded Computer Systems: Architectures, Modeling, and Simulation - Stamatis Vassiliadis 2007-08-30 Researchers and professionals in the appropriate subject areas will find this book an essential update on where research has got to in what is, after all, a hugely important area. It constitutes the refereed proceedings of the 7th International Workshop on Systems, Architectures, Modeling, and Simulation, held in Samos, Greece, in July 2007. The 44 revised full papers presented together with 2 keynote talks were thoroughly reviewed and selected from 116 submissions
Finite State Machines in Hardware - Volnei A. Pedroni 2013-12-20

A comprehensive guide to the theory and design of hardware-implemented finite state machines, with design examples developed in both VHDL and SystemVerilog languages. Modern, complex digital systems invariably include hardware-implemented finite state machines. The correct design of such parts is crucial for attaining proper system performance. This book offers detailed, comprehensive coverage of the theory and design for any category of hardware-implemented finite state machines. It describes crucial design problems that lead to incorrect or far from optimal implementation and provides examples of finite state machines developed in both VHDL and SystemVerilog (the successor of Verilog) hardware description languages. Important features include: extensive review of design practices for sequential digital circuits; a new division of all state machines into three hardware-based categories, encompassing all possible situations, with numerous practical examples provided in all three categories; the presentation of complete designs, with detailed VHDL and SystemVerilog codes, comments, and simulation results, all tested in FPGA devices; and exercise examples, all of which can be synthesized, simulated, and physically implemented in FPGA boards. Additional material is available on the book's Website. Designing a state machine in hardware is more complex than designing it in software. Although interest in hardware for finite state machines has grown dramatically in recent years, there is no comprehensive treatment of the subject. This book offers the most detailed coverage of finite state machines available. It will be essential for industrial designers of digital systems and for students of electrical engineering and computer science.

The SFRA - Nicholas Croyle Weaver 2003

Handheld Computing for

Mobile Commerce: Applications, Concepts and Technologies - Hu, Wen-Chen 2010-02-28
"This book looks at theory, design, implementation, analysis, and application of handheld computing under four themes: handheld computing for mobile commerce, handheld computing research and technologies, wireless networks and handheld/mobile security, and handheld images and videos"--Provided by publisher.

Effective Video Coding for Multimedia Applications - Sudhakar Radhakrishnan 2011-04-26
Information has become one of the most valuable assets in the modern era. Within the last 5-10 years, the demand for multimedia applications has increased enormously. Like many other recent developments, the materialization of image and video encoding is due to the contribution from major areas like good network access, good amount of fast processors e.t.c. Many standardization procedures were carrried out for the development of image and video coding. The advancement of computer storage technology continues at a rapid pace as a means of reducing storage requirements of an image and video as most situation warrants. Thus, the science of digital video compression/coding has emerged. This storage capacity seems to be more impressive when it is realized that the intent is to deliver very high quality video to the end user with as few visible artifacts as possible. Current methods of video compression such as Moving Pictures Experts Group (MPEG) standard provide good performance in terms of retaining video quality while reducing the storage requirements. Many books are available for video coding fundamentals.This book is the research outcome of various Researchers and Professors who have contributed a might in this field. This book suits researchers doing their research in the area of video coding.The understanding of

fundamentals of video coding is essential for the reader before reading this book. The book revolves around three different challenges namely (i) Coding strategies (coding efficiency and computational complexity), (ii) Video compression and (iii) Error resilience. The complete efficient video system depends upon source coding, proper inter and intra frame coding, emerging newer transform, quantization techniques and proper error concealment.The book gives the solution of all the challenges and is available in different sections.

Information Security Theory and Practices. Smart Cards, Mobile and Ubiquitous Computing Systems - Damien Sauveron 2007-07-03
This volume constitutes the refereed proceedings of the First IFIP TC6 / WG 8.8 / WG 11.2 International Workshop on Information Security Theory and Practices: Smart Cards, Mobile and Ubiquitous Computing Systems, WISTP 2007, held in Heraklion, Crete, Greece in May 2007. The 20 revised full papers are

organized in topical sections on mobility, hardware and cryptography, privacy, cryptography schemes, smart cards, and small devices.

Information and Communications Security - Lucas C. K. Hui 2015-08-01
This book constitutes the thoroughly refereed post-conference proceedings of the 16th International Conference on Information and Communications Security, ICISC 2014, held in Hong Kong, China, in December 2014. The 22 revised full papers including two invited talks presented were carefully selected from 90 submissions. The papers provide the latest results in research, development and applications in the field of information security and cryptology.

FPGAs - Juan Jose Rodriguez Andina 2017-07-28
Field Programmable Gate Arrays (FPGAs) are currently recognized as the most suitable platform for the implementation of complex digital systems targeting an increasing number of industrial

electronics applications. They cover a huge variety of application areas, such as: aerospace, food industry, art, industrial automation, automotive, biomedicine, process control, military, logistics, power electronics, chemistry, sensor networks, robotics, ultrasound, security, and artificial vision. This book first presents the basic architectures of the devices to familiarize the reader with the fundamentals of FPGAs before identifying and discussing new resources that extend the ability of the devices to solve problems in new application domains. Design methodologies are discussed and application examples are included for some of these domains, e.g., mechatronics, robotics, and power systems.

Embedded SoPC Design with Nios II Processor and VHDL Examples - Pong P. Chu 2011-08-29
The book is divided into four major parts. Part I covers HDL constructs and synthesis of basic digital circuits. Part II provides an overview of embedded software development with the emphasis on low-level I/O access and drivers. Part III demonstrates the design and development of hardware and software for several complex I/O peripherals, including PS2 keyboard and mouse, a graphic video controller, an audio codec, and an SD (secure digital) card. Part IV provides three case studies of the integration of hardware accelerators, including a custom GCD (greatest common divisor) circuit, a Mandelbrot set fractal circuit, and an audio synthesizer based on DDFS (direct digital frequency synthesis) methodology. The book utilizes FPGA devices, Nios II soft-core processor, and development platform from Altera Co., which is one of the two main FPGA manufactures. Altera has a generous university program that provides free software and discounted prototyping boards for educational institutions (details at http://www.altera.com/university). The two main educational

prototyping boards are known as DE1 ($99) and DE2 ($269). All experiments can be implemented and tested with these boards. A board combined with this book becomes a "turn-key" solution for the SoPC design experiments and projects. Most HDL and C codes in the book are device independent and can be adapted by other prototyping boards as long as a board has similar I/O configuration.

Image Processing Using FPGAs - Donald Bailey 2019-06-11
This book presents a selection of papers representing current research on using field programmable gate arrays (FPGAs) for realising image processing algorithms. These papers are reprints of papers selected for a Special Issue of the Journal of Imaging on image processing using FPGAs. A diverse range of topics is covered, including parallel soft processors, memory management, image filters, segmentation, clustering, image analysis, and image compression. Applications include traffic sign recognition for autonomous driving, cell detection for histopathology, and video compression. Collectively, they represent the current state-of-the-art on image processing using FPGAs.

Hands-on Experience with Altera FPGA Development Boards - Jivan S. Parab 2017-11-08
This book is built around the use of readymade soft processor cores for FPGA design. In particular, the book focuses on Altera FPGA boards. The book explores many different embedded systems needs and prepares its readers for hands-on design and development of such systems. Many worked-out examples and case studies have been included to enable a clear understanding of design concepts. Primarily designed as a textbook for core or lab courses on FPGA based embedded systems, this book will appeal to students and instructors alike. The book takes an autodidactic approach, which also makes it

suitable for hobbyists and practitioners looking to acquaint themselves with Altera FPGA boards.

FPGAs - Juan Jose Rodriguez Andina 2017-07-28 Field Programmable Gate Arrays (FPGAs) are currently recognized as the most suitable platform for the implementation of complex digital systems targeting an increasing number of industrial electronics applications. They cover a huge variety of application areas, such as: aerospace, food industry, art, industrial automation, automotive, biomedicine, process control, military, logistics, power electronics, chemistry, sensor networks, robotics, ultrasound, security, and artificial vision. This book first presents the basic architectures of the devices to familiarize the reader with the fundamentals of FPGAs before identifying and discussing new resources that extend the ability of the devices to solve problems in new application domains. Design methodologies are discussed and application examples are included for some of these domains, e.g., mechatronics, robotics, and power systems.

Introduction to Reconfigurable Computing - Christophe Bobda 2007-09-30 This work is a comprehensive study of the field. It provides an entry point to the novice willing to move in the research field reconfigurable computing, FPGA and system on programmable chip design. The book can also be used as teaching reference for a graduate course in computer engineering, or as reference to advance electrical and computer engineers. It provides a very strong theoretical and practical background to the field, from the early Estrin's machine to the very modern architecture such as embedded logic devices.

Embedded SoPC Design with Nios II Processor and VHDL Examples - Pong P. Chu 2011-09-26 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.

Field-Programmable Logic and Applications - Peter Y.K. Cheung 2003-08-27
This book constitutes the refereed proceedings of the 13th International Conference on Field-Programmable Logic and Applications, FPL 2003, held in Lisbon, Portugal in September 2003. The 90 revised full papers and 56 revised poster papers presented were carefully reviewed and selected from

216 submissions. The papers are organized in topical sections on technologies and trends, communications applications, high level design tools, reconfigurable architecture, cryptographic applications, multi-context FPGAs, low-power issues, run-time reconfiguration, compilation tools, asynchronous techniques, bio-related applications, codesign, reconfigurable fabrics, image processing applications, SAT techniques, application-specific architectures, DSP applications, dynamic reconfiguration, SoC architectures, emulation, cache design, arithmetic, bio-inspired design, SoC design, cellular applications, fault analysis, and network applications.

Digital Signal Processing with Field Programmable Gate Arrays - Uwe Meyer-Baese 2013-03-09
Starts with an overview of today's FPGA technology, devices, and tools for designing state-of-the-art DSP systems. A case study in the first chapter is the basis for more than 30 design examples throughout. The following chapters deal with computer arithmetic concepts, theory and the implementation of FIR and IIR filters, multirate digital signal processing systems, DFT and FFT algorithms, and advanced algorithms with high future potential. Each chapter contains exercises. The VERILOG source code and a glossary are given in the appendices, while the accompanying CD-ROM contains the examples in VHDL and Verilog code as well as the newest Altera "Baseline" software. This edition has a new chapter on adaptive filters, new sections on division and floating point arithmetics, an up-date to the current Altera software, and some new exercises.

Computational Science and Its Applications – ICCSA 2019 - Sanjay Misra 2019-06-28
The six volumes LNCS 11619-11624 constitute the refereed proceedings of the 19th International Conference on Computational Science and

Its Applications, ICCSA 2019, held in Saint Petersburg, Russia, in July 2019. The 64 full papers, 10 short papers and 259 workshop papers presented were carefully reviewed and selected form numerous submissions. The 64 full papers are organized in the following five general tracks: computational methods, algorithms and scientific applications; high performance computing and networks; geometric modeling, graphics and visualization; advanced and emerging applications; and information systems and technologies. The 259 workshop papers were presented at 33 workshops in various areas of computational sciences, ranging from computational science technologies to specific areas of computational sciences, such as software engineering, security, artificial intelligence and blockchain technologies. Beginning FPGA: Programming Metal - Aiken Pang 2016-12-23 Use Arrow's affordable and breadboard-friendly FPGA development board (BeMicro MAX 10) to create a light sensor, temperature sensor, motion sensor, and the KITT car display from Knight Rider. You don't need an electronics engineering degree or even any programming experience to get the most out of Beginning FPGA: Programming Metal. Just bring your curiosity and your Field-Programmable Gate Array. This book is for those who have tinkered with Arduino or Raspberry Pi, and want to get more hands-on experience with hardware or for those new to electronics who just want to dive in. You'll learn the theory behind FPGAs and electronics, including the math and logic you need to understand what's happening - all explained in a fun, friendly, and accessible way. It also doesn't hurt that you'll be learning VHDL, a hardware description language that is also an extremely marketable skill. What You'll Learn: Learn what an FPGA is and how it's different from a microcontroller or ASIC Set up your toolchain Use VHDL, a popular hardware description

language, to tell your FPGA what to be Explore the theory behind FPGA and electronics Use your FPGA with a variety of sensors and to talk to a Raspberry Pi Who This Book is For: Arduino, Raspberry Pi, and other electronics enthusiasts who want a clear and practical introduction to FPGA.

Unifying Electrical Engineering and Electronics Engineering - Song Xing 2013-08-24 Unifying Electrical Engineering and Electronics Engineering is based on the Proceedings of the 2012 International Conference on Electrical and Electronics Engineering (ICEE 2012). This book collects the peer reviewed papers presented at the conference. The aim of the conference is to unify the two areas of Electrical and Electronics Engineering. The book examines trends and techniques in the field as well as theories and applications. The editors have chosen to include the following topics; biotechnology, power engineering, superconductivity circuits, antennas technology, system architectures and telecommunication.

Digital Systems Design Using VHDL - Charles H. Roth, Jr. 2016-12-05 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. *EDN, Electrical Design News* 2000

Digital Systems and Applications - Vojin G. Oklobdzija 2017-12-19 New design architectures in computer systems have

surpassed industry expectations. Limits, which were once thought of as fundamental, have now been broken. Digital Systems and Applications details these innovations in systems design as well as cutting-edge applications that are emerging to take advantage of the fields increasingly sophisticated capabilities. This book features new chapters on parallelizing iterative heuristics, stream and wireless processors, and lightweight embedded systems. This fundamental text— Provides a clear focus on computer systems, architecture, and applications Takes a top-level view of system organization before moving on to architectural and organizational concepts such as superscalar and vector processor, VLIW architecture, as well as new trends in multithreading and multiprocessing. includes an entire section dedicated to embedded systems and their applications Discusses topics such as digital signal processing applications, circuit implementation aspects, parallel I/O algorithms, and operating systems Concludes with a look at new and future directions in computing Features articles that describe diverse aspects of computer usage and potentials for use Details implementation and performance-enhancing techniques such as branch prediction, register renaming, and virtual memory Includes a section on new directions in computing and their penetration into many new fields and aspects of our daily lives

Rapid Prototyping of Digital Systems - James O. Hamblen 2007-05-08
Rapid Prototyping of Digital Systems, Second Edition provides an exciting and challenging laboratory component for an undergraduate digital logic design class. The more advanced topics and exercises are also appropriate for consideration at schools that have an upper level course in digital logic or programmable logic. Design engineers

working in industry will also want to consider this book for a rapid introduction to FPLD technology and logic synthesis using commercial CAD tools, especially if they have not had previous experience with the new and rapidly evolving technology. Two tutorials on the Altera CAD tool environment, an overview of programmable logic, and a design library with several easy-to-use input and output functions were developed for this book to help the reader get started quickly. Early design examples use schematic capture and library components. VHDL is used for more complex designs after a short introduction to VHDL-based synthesis. A coupon is included with the text for purchase of the new UP 1X board. The additional logic and memory in the UP 1X's FLEX 10K70 is useful on larger design projects such as computers and video games. The second edition includes an update chapter on programmable logic, new robot sensors and projects, optional Verilog examples, and a meta assembler which can be used to develop assemble language programs for the computer designs in Chapters 8 and 13.