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Computer-aided Design of VLSI Circuits and Systems - Alberto Sangiovanni-Vincentelli 1985

Contemporary Logic Design - Randy H. Katz 1994

This text demonstrates state-of-the-art technologies for the design of modern logic circuits, including CAD tools, rapid prototyping and programmable logic devices. It provides practice in traditional techniques of logic design and includes examples of implementations from many CAD tools.

Field-programmable Logic and Applications - 2002

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.

Disruptive Logic Architectures and Technologies - Pierre-Emmanuel Gaillardon 2012-04-24

This book discusses the opportunities offered by disruptive technologies to overcome the economical and physical limits currently faced by the electronics industry. It provides a new methodology for the fast evaluation of an emerging technology from an architectural prospective and discusses the implications from simple circuits to complex architectures. Several technologies are discussed, ranging from 3-D integration of

devices (Phase Change Memories, Monolithic 3-D, Vertical NanoWires-based transistors) to dense 2-D arrangements (Double-Gate Carbon Nanotubes, Sublithographic Nanowires, Lithographic Crossbar arrangements). Novel architectural organizations, as well as the associated tools, are presented in order to explore this freshly opened design space.

Novel Techniques for High Performance Field Programmable Logic Devices - Narasimha B. Bhat 1993

Foundations of Disjunctive Logic Programming - Jorge Lobo 1992

This monograph provides an intensive course for graduate students in computer science, as well as others interested in extensions of logic programming, on the theoretical foundations of disjunctive logic programming. Disjunctive logic programming permits the description of indefinite or incomplete information through a disjunction of atoms in the head of a clause. The authors describe model theoretic semantics, proof theoretic semantics, and fix point semantics for disjunctive and normal disjunctive programs (a normal disjunctive program permits negated atoms in the body of a clause) and present theories of negation. They conclude with selected applications to knowledge databases. Jorge Lobo is Assistant Professor in Computer Science at the University of Illinois, Chicago Circle. Jack Minker is Professor in the Department of Computer Science and Institute for Advanced Computer Studies at the University of Maryland. Arcot Rajasekar is Assistant Professor in the Computer Science Department at the University of Kentucky. Contents: Introduction and Background. Definitions and Terminology. Declarative Semantics. Proof Theory. Negation. Weak Negation. Normal Logic Programs. Procedural Semantics: Normal Programs. Disjunctive Databases. Applications.

The "universal Acceptance of Logic" - Christopher Cherniak 1983

Field Programmable Logic and Applications - Patrick Lysaght 2004-06-22

This book contains the papers presented at the 9th International Workshop on Field Programmable Logic and Applications (FPL'99), hosted by the University of Strathclyde in Glasgow, Scotland, August 30 - September 1, 1999. FPL'99 is the ninth in the series of annual FPL workshops. The FPL'99 programme committee has been fortunate to have received a large number of high-quality papers addressing a wide range of topics. From these, 33 papers have been selected for presentation at the workshop and a further 32 papers have been accepted for the poster sessions. A total of 65 papers from 20 countries are included in this volume. FPL is a subject area that attracts researchers from both electronic engineering and computer science. Whether we are engaged in research into software or hard software seems to be primarily a question of perspective. What is unquestionable is that the interaction of groups of researchers from different backgrounds results in stimulating and productive research. As we prepare for the new millennium, the premier European forum for researchers in field programmable logic remains the FPL workshop. Next year the FPL series of workshops will celebrate its tenth anniversary. The contribution of so many overseas researchers has been a particularly attractive feature of these events, giving them a truly international perspective, while the informal and convivial atmosphere that pervades the workshops have been their hallmark. We look forward to preserving these features in the future while continuing to expand the size and quality of the events.

Field-Programmable Logic and Applications. From FPGAs to Computing Paradigm - Reiner W. Hartenstein 2003-06-29

This book constitutes the refereed proceedings of the 8th International Workshop on Field-Programmable Logics and Applications, FPL '98, held in Tallinn, Estonia, in August/September 1998. The 39

revised full papers presented were carefully selected for inclusion in the book from a total of 86 submissions. Also included are 30 refereed high-quality posters. The papers are organized in topical sections on design methods, general aspects, prototyping and simulation, development methods, accelerators, system architectures, hardware/software codesign, system development, algorithms on FPGAs, and applications.

Fuzzy-logic-based Programming - Chin-Liang Chang 1997

The number of fuzzy logic applications is very large. This book tells the reader how to use fuzzy logic to find solutions in areas such as control systems, factory automation, product quality control, product inspection, instrumentation, pattern recognition, image analysis, database query processing, decision support, data mining, time series (waveform) databases, geographic information systems, and image databases. Those who have applications in these areas will find the book invaluable. The author was the first student to write a PhD fuzzy logic thesis under Professor Lotfi A Zadeh (the inventor of fuzzy logic), in 1967 at the University of California, Berkeley. In 1993, he designed and introduced the NICEL language for writing fuzzy programs that enclose if-then rules. NICEL is powerful and easy to use. The reader will find in the book that many algorithms for real world applications can be conveniently represented in NICEL.

Fine- and Coarse-Grain Reconfigurable Computing - Stamatis Vassiliadis 2007-10-12

The main objective of the book is to provide in a unified way the scientific discipline of Reconfigurable Computing. The fundamental concepts and comparison studies among well-known existing implementations both for fine-grain (FPGA) reconfigurable architectures and for coarse-grain architectures will be described. After careful searching in the market of the available books in the reconfigurable computing field, the fact that there is not

any book in the market which describes the Reconfigurable Computing field in a unified way as a single entity we will prepare a textbook (i.e. tutorial style book), but not a book with very advanced new material. Books with very advanced technical material will attract a small number of potential readers (i.e. very small market). The unified way of presenting the reconfigurable computing material reflects also the current trend in academia and industry for using mixed-granularity (fine- and coarse-grain) reconfigurable processors in new System-on-Chip (SoC) implementations. We strongly believe that that new book real needs in academia and industry. The first part of the book will cover in a tutorial way the topic of Reconfigurable Computing: i) Fine-grain reconfigurable architectures and ii) coarse-grain reconfigurable architectures. The second part concerns contributions from academia and industry with recent advances in specific reconfigurable topics avoiding as much as possible too much technical information.

Advanced Logic Synthesis - André Inácio Reis 2017-11-15

This book provides a single-source reference to the state-of-the-art in logic synthesis. Readers will benefit from the authors' expert perspectives on new technologies and logic synthesis, new data structures, big data and logic synthesis, and convergent logic synthesis. The authors describe techniques that will enable readers to take advantage of recent advances in big data techniques and frameworks in order to have better logic synthesis algorithms.

Logic Design of a Programmable Oscillator Control Unit - Thomas V. Kornei 1968

Low-Energy FPGAs — Architecture and Design - Varghese George 2012-12-06

Low-Energy FPGAs: Architecture and Design is a primary resource for both researchers and practicing engineers in the field of digital circuit design. The book addresses the energy consumption of Field-Programmable Gate Arrays (FPGAs). FPGAs

are becoming popular as embedded components in computing platforms. The programmability of the FPGA can be used to customize implementations of functions on an application basis. This leads to performance gains, and enables reuse of expensive silicon. Chapter 1 provides an overview of digital circuit design and FPGAs. Chapter 2 looks at the implication of deep-submicron technology on FPGA power dissipation. Chapter 3 describes the exploration environment to guide and evaluate design decisions. Chapter 4 discusses the architectural optimization process to evaluate the trade-offs between the flexibility of the architecture, and the effect on the performance metrics. Chapter 5 reviews different circuit techniques to reduce the performance overhead of some of the dominant components. Chapter 6 shows methods to configure FPGAs to minimize the programming overhead. Chapter 7 addresses the physical realization of some of the critical components and the final implementation of a specific low-energy FPGA. Chapter 8 compares the prototype array to an equivalent commercial architecture.

Spectral Logic and Its Applications for the Design of Digital Devices - Mark G. Karpovsky 2008-07-14

Spectral techniques facilitate the design and testing of today's increasingly complex digital devices. There is heightened interest in spectral techniques for the design of digital devices dictated by ever increasing demands on technology that often cannot be met by classical approaches. Spectral methods provide a uniform and consistent theoretic environment for recent achievements in this area, which appear divergent in many other approaches. *Spectral Logic and Its Applications for the Design of Digital Devices* gives readers a foundation for further exploration of abstract harmonic analysis over finite groups in the analysis, design, and testing of digital devices. After an introduction, this book provides the essential mathematical background for discussing spectral methods. It then delves into spectral logic

and its applications, covering: * Walsh, Haar, arithmetic transform, Reed-Muller transform for binary-valued functions and Vilenkin-Chrestenson transform, generalized Haar, and other related transforms for multiple-valued functions * Polynomial expressions and decision diagram representations for switching and multiple-value functions * Spectral analysis of Boolean functions * Spectral synthesis and optimization of combinational and sequential devices * Spectral methods in analysis and synthesis of reliable devices * Spectral techniques for testing computer hardware This is the authoritative reference for computer science and engineering professionals and researchers with an interest in spectral methods of representing discrete functions and related applications in the design and testing of digital devices. It is also an excellent text for graduate students in courses covering spectral logic and its applications.

One True Logic - Owen Griffiths 2022-05-26

Logical monism is the claim that there is a single correct logic, the 'one true logic' of our title. The view has evident appeal, as it reflects assumptions made in ordinary reasoning as well as in mathematics, the sciences, and the law. In all these spheres, we tend to believe that there are determinate facts about the validity of arguments. Despite its evident appeal, however, logical monism must meet two challenges. The first is the challenge from logical pluralism, according to which there is more than one correct logic. The second challenge is to determine which form of logical monism is the correct one. *One True Logic* is the first monograph to explicitly articulate a version of logical monism and defend it against the first challenge. It provides a critical overview of the monism vs pluralism debate and argues for the former. It also responds to the second challenge by defending a particular monism, based on a highly infinitary logic. It breaks new ground on a number of fronts and unifies disparate discussions in the philosophical and logical literature. In particular, it generalises the Tarski-Sher

criterion of logicity, provides a novel defence of this generalisation, offers a clear new argument for the logicity of infinitary logic and replies to recent pluralist arguments.

Logic Minimization Algorithms for VLSI Synthesis - Robert K. Brayton 2012-12-06

The roots of the project which culminates with the writing of this book can be traced to the work on logic synthesis started in 1979 at the IBM Watson Research Center and at University of California, Berkeley. During the preliminary phases of these projects, the importance of logic minimization for the synthesis of area and performance effective circuits clearly emerged. In 1980, Richard Newton stirred our interest by pointing out new heuristic algorithms for two-level logic minimization and the potential for improving upon existing approaches. In the summer of 1981, the authors organized and participated in a seminar on logic manipulation at IBM Research. One of the goals of the seminar was to study the literature on logic minimization and to look at heuristic algorithms from a fundamental and comparative point of view. The fruits of this investigation were surprisingly abundant: it was apparent from an initial implementation of recursive logic minimization (ESPRESSO-I) that, if we merged our new results into a two-level minimization program, an important step forward in automatic logic synthesis could result. ESPRESSO-II was born and an APL implementation was created in the summer of 1982. The results of preliminary tests on a fairly large set of industrial examples were good enough to justify the publication of our algorithms. It is hoped that the strength and speed of our minimizer warrant its Italian name, which denotes both express delivery and a specially-brewed black coffee.

Asynchronous Circuit Design for VLSI Signal Processing - Teresa H. Meng 2011-06-27

Asynchronous Circuit Design for VLSI Signal Processing is a collection of research papers on recent advances in the area of

specification, design and analysis of asynchronous circuits and systems. This interest in designing digital computing systems without a global clock is prompted by the ever growing difficulty in adopting global synchronization as the only efficient means to system timing. Asynchronous circuits and systems have long held interest for circuit designers and researchers alike because of the inherent challenge involved in designing these circuits, as well as developing design techniques for them. The frontier research in this area can be traced back to Huffman's publications 'The Synthesis of Sequential Switching Circuits' in 1954 followed by Unger's book, 'Asynchronous Sequential Switching Circuits' in 1969 where a theoretical foundation for handling logic hazards was established. In the last few years a growing number of researchers have joined force in unveiling the mystery of designing correct asynchronous circuits, and better yet, have produced several alternatives in automatic synthesis and verification of such circuits. This collection of research papers represents a balanced view of current research efforts in the design, synthesis and verification of asynchronous systems. Field-Programmable Custom Computing Technology: Architectures, Tools, and Applications - Jeffrey Arnold 2012-12-06 Field-Programmable Custom Computing Technology: Architectures, Tools, and Applications brings together in one place important contributions and up-to-date research results in this fast-moving area. In seven selected chapters, the book describes the latest advances in architectures, design methods, and applications of field-programmable devices for high-performance reconfigurable systems. The contributors to this work were selected from the leading researchers and practitioners in the field. It will be valuable to anyone working or researching in the field of custom computing technology. It serves as an excellent reference, providing insight into some of the most challenging issues being examined today. *Engineering Digital Design* - Richard F.

Tinder 2000-01-18

Engineering Digital Design, Second Edition provides the most extensive coverage of any available textbook in digital logic and design. The new REVISED Second Edition published in September of 2002 provides 5 productivity tools free on the accompanying CD ROM. This software is also included on the Instructor's Manual CD ROM and complete instructions accompany each software program. In the REVISED Second Edition modern notation combines with state-of-the-art treatment of the most important subjects in digital design to provide the student with the background needed to enter industry or graduate study at a competitive level. Combinatorial logic design and synchronous and asynchronous sequential machine design methods are given equal weight, and new ideas and design approaches are explored. The productivity tools provided on the accompanying CD are outlined below: [1] EXL-Sim2002 logic simulator: EXL-Sim2002 is a full-featured, interactive, schematic-capture and simulation program that is ideally suited for use with the text at either the entry or advanced-level of logic design. Its many features include drag-and-drop capability, rubber banding, mixed logic and positive logic simulations, macro generation, individual and global (or randomized) delay assignments, connection features that eliminate the need for wire connections, schematic page sizing and zooming, waveform zooming and scrolling, a variety of printout capabilities, and a host of other useful features. [2] BOOZER logic minimizer: BOOZER is a software minimization tool that is recommended for use with the text. It accepts entered variable (EV) or canonical (1's and 0's) data from K-maps or truth tables, with or without don't cares, and returns an optimal or near optimal single or multi-output solution. It can handle up to 12 functions Boolean functions and as many inputs when used on modern computers. [3] ESPRESSO II logic minimizer: ESPRESSO II is another software minimization tool widely used in schools and industry. It supports advanced

heuristic algorithms for minimization of two-level, multi-output Boolean functions but does not accept entered variables. It is also readily available from the University of California, Berkeley, 1986 VLSI Tools Distribution. [4] ADAM design software: ADAM (for Automated Design of Asynchronous Machines) is a very powerful productivity tool that permits the automated design of very complex asynchronous state machines, all free of timing defects. The input files are state tables for the desired state machines. The output files are given in the Berkeley format appropriate for directly programming PLAs. ADAM also allows the designer to design synchronous state machines, timing-defect-free. The options include the lumped path delay (LPD) model or NESTED CELL model for asynchronous FSM designs, and the use of D FLIP-FLOPs for synchronous FSM designs. The background for the use of ADAM is covered in Chapters 11, 14 and 16 of the REVISED 2nd Edition. [5] A-OPS design software: A-OPS (for Asynchronous One-hot Programmable Sequencers) is another very powerful productivity tool that permits the design of asynchronous and synchronous state machines by using a programmable sequencer kernel. This software generates a PLA or PAL output file (in Berkeley format) or the VHDL code for the automated timing-defect-free designs of the following: (a) Any 1-Hot programmable sequencer up to 10 states. (b) The 1-Hot design of multiple asynchronous or synchronous state machines driven by either PLDs or RAM. The input file is that of a state table for the desired state machine. This software can be used to design systems with the capability of instantly switching between several radically different controllers on a time-shared basis. The background for the use of A-OPS is covered in Chapters 13, 14 and 16 of the REVISED 2nd Edition.

VLSI Fault Modeling and Testing

Techniques - George Winston Zobrist 1993
VLSI systems are becoming very complex and difficult to test. Traditional stuck-at

fault problems may be inadequate to model possible manufacturing defects in the integrated circuit. Hierarchical models are needed that are easy to use at the transistor and functional levels. Stuck-open faults present severe testing problems in CMOS circuits, to overcome testing problems testable designs are utilized. Bridging faults are important due to the shrinking geometry of ICs. BIST PLA schemes have common features - controllability and observability - which are enhanced through additional logic and test points. Certain circuit topologies are more easily testable than others. The amount of reconvergent fan-out is a critical factor in determining realistic measures for determining test generation difficulty. Test implementation is usually left until after the VLSI data path has been synthesized into a structural description. This leads to investigation methodologies for performing design synthesis with test incorporation. These topics and more are discussed.

Design of Interconnection Networks for Programmable Logic - Guy Lemieux
2013-06-29

Programmable Logic Devices (PLDs) have become the key implementation medium for the vast majority of digital circuits designed today. While the highest-volume devices are still built with full-fabrication rather than field programmability, the trend towards ever fewer ASICs and more FPGAs is clear. This makes the field of PLD architecture ever more important, as there is stronger demand for faster, smaller, cheaper and lower-power programmable logic. PLDs are 90% routing and 10% logic. This book focuses on that 90% that is the programmable routing: the manner in which the programmable wires are connected and the circuit design of the programmable switches themselves. Anyone seeking to understand the design of an FPGA needs to become literate in the complexities of programmable routing architecture. This book builds on the state-of-the-art of programmable interconnect by providing new methods of investigating and measuring interconnect structures, as well

as new programmable switch basic circuits. The early portion of this book provides an excellent survey of interconnection structures and circuits as they exist today. Lemieux and Lewis then provide a new way to design sparse crossbars as they are used in PLDs, and show that the method works with an empirical validation. This is one of a few routing architecture works that employ analytical methods to deal with the routing architecture design. The analysis permits interesting insights not typically possible with the standard empirical approach.

Human Genome - 1997

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.

Field Programmable Logic and Application - Jürgen Becker
2004-08-19

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.

EDA for IC Implementation, Circuit Design, and Process Technology -

Luciano Lavagno 2018-10-03

Presenting a comprehensive overview of the design automation algorithms, tools, and methodologies used to design integrated circuits, the Electronic Design Automation for Integrated Circuits Handbook is available in two volumes. The second volume, EDA for IC Implementation, Circuit Design, and Process Technology, thoroughly examines real-time logic to GDSII (a file format used to transfer data of semiconductor physical layout), analog/mixed signal design, physical verification, and technology CAD (TCAD). Chapters contributed by leading experts authoritatively discuss design for manufacturability at the nanoscale, power supply network design and analysis, design modeling, and much more. Save on the complete set.

Cross-Talk Noise Immune VLSI Design Using Regular Layout Fabrics - Robert K. Brayton 2012-12-06

This book was motivated by the problems being faced with shrinking IC process feature sizes. It is well known that as process feature sizes shrink, a host of electrical problems like cross-talk, electromigration, self-heat, etc. are becoming important. Cross-talk is one of the major problems since it results in unpredictable design behavior. In

particular, it can result in significant delay variation or signal integrity problems in a wire, depending on the state of its neighboring wires. Typical approaches to tackle the cross-talk problem attempt to fix the problem once it is created. In our approach, we ensure that cross-talk is eliminated by design. The work described in this book attempts to take an "outside-the-box" view and propose a radically different design style. This design style first imposes a fixed layout pattern (or fabric) on the integrated circuit, and then embeds the circuit being implemented into this fabric. The fabric is chosen carefully in order to eliminate the cross-talk problem being faced in modern IC processes. With our choice of fabric, cross-talk between adjacent wires on an IC is reduced by between one and two orders of magnitude. In this way, the fabric concept eliminates cross-talk up-front, and by design. We propose two separate design flows, each of which uses the fabric concept to implement logic. The first flow uses fabric-compliant standard cells as an implementation vehicle. We call these cells fabric cells, and they have the same logic functionality as existing standard cells with which they are compared.

The Best of ICCAD - Andreas Kuehlmann 2012-12-06

In 2002, the International Conference on Computer Aided Design (ICCAD) celebrates its 20th anniversary. This book commemorates contributions made by ICCAD to the broad field of design automation during that time. The foundation of ICCAD in 1982 coincided with the growth of Large Scale Integration. The sharply increased functionality of board-level circuits led to a major demand for more powerful Electronic Design Automation (EDA) tools. At the same time, LSI grew quickly and advanced circuit integration became widely available. This, in turn, required new tools, using sophisticated modeling, analysis and optimization algorithms in order to manage the evermore complex design processes. Not surprisingly, during the same period, a

number of start-up companies began to commercialize EDA solutions, complementing various existing in-house efforts. The overall increased interest in Design Automation (DA) required a new forum for the emerging community of EDA professionals; one which would be focused on the publication of high-quality research results and provide a structure for the exchange of ideas on a broad scale. Many of the original ICCAD volunteers were also members of CANDE (Computer-Aided Network Design), a workshop of the IEEE Circuits and System Society. In fact, it was at a CANDE workshop that Bill McCalla suggested the creation of a conference for the EDA professional. (Bill later developed the name).

Architecture of Computing Systems - ARCS 2019 - Martin Schoeberl 2019-05-13

This book constitutes the proceedings of the 32nd International Conference on Architecture of Computing Systems, ARCS 2019, held in Copenhagen, Denmark, in May 2019. The 24 full papers presented in this volume were carefully reviewed and selected from 40 submissions. ARCS has always been a conference attracting leading-edge research outcomes in Computer Architecture and Operating Systems, including a wide spectrum of topics ranging from embedded and real-time systems all the way to large-scale and parallel systems. The selected papers are organized in the following topical sections: Dependable systems; real-time systems; special applications; architecture; memory hierarchy; FPGA; energy awareness; NoC/SoC. The chapter 'MEMPower: Data-Aware GPU Memory Power Model' is open access under a CC BY 4.0 license at link.springer.com.

[Field-Programmable Logic and Applications: The Roadmap to Reconfigurable Computing](#) - Reiner W. Hartenstein 2003-06-29

This book is the proceedings volume of the 10th International Conference on Field Programmable Logic and its Applications (FPL), held August 27-30, 2000 in Villach, Austria, which covered areas like

reconfigurable logic (RL), reconfigurable computing (RC), and its applications, and all other aspects. Its subtitle "The Roadmap to Reconfigurable Computing" reminds us, that we are currently witnessing the runaway of a breakthrough. The annual FPL series is the eldest international conference in the world covering configware and all its aspects. It was founded 1991 at Oxford University (UK) and is 2 years older than its two most important competitors usually taking place at Monterey and Napa. FPL has been held at Oxford, Vienna, Prague, Darmstadt, London, Tallinn, and Glasgow (also see: <http://www.fpl.uni-kl.de/FPL/>). The New Case for Reconfigurable Platforms: Converging Media. Indicated by palmtops, smart mobile phones, many other portables, and consumer electronics, media such as voice, sound, video, TV, wireless, cable, telephone, and Internet continue to converge. This creates new opportunities and even necessities for reconfigurable platform usage. The new converged media require high volume, flexible, multi purpose, multi standard, low power products adaptable to support evolving standards, emerging new standards, field upgrades, bug fixes, and, to meet the needs of a growing number of different kinds of services offered to zillions of individual subscribers preferring different media mixes.

Logic Synthesis for Field-Programmable Gate Arrays - Rajeev Murgai 2012-12-06

Short turnaround has become critical in the design of electronic systems. Software-programmable components such as microprocessors and digital signal processors have been used extensively in such systems since they allow rapid design revisions. However, the inherent performance limitations of software-programmable systems mean that they are inadequate for high-performance designs. Designers thus turned to gate arrays as a solution. User-programmable gate arrays (field-programmable gate arrays, FPGAs) have recently emerged and are changing the way electronic systems are designed

and implemented. The growing complexity of the logic circuits that can be packed onto an FPGA chip means that it has become important to have automatic synthesis tools that implement logic functions on these architectures. *Logic Synthesis for Field-Programmable Gate Arrays* describes logic synthesis for both look-up table (LUT) and multiplexor-based architectures, with a balanced presentation of existing techniques together with algorithms and the system developed by the authors. Audience: A useful reference for VLSI designers, developers of computer-aided design tools, and anyone involved in or with FPGAs.

Syllogistic Reasoning in Fuzzy Logic and Its Application to Reasoning with Dispositions - Lotfi Asker Zadeh 1984

Reconfigurable Computing - Scott Hauck 2010-07-26

Reconfigurable Computing marks a revolutionary and hot topic that bridges the gap between the separate worlds of hardware and software design—the key feature of reconfigurable computing is its groundbreaking ability to perform computations in hardware to increase performance while retaining the flexibility of a software solution. Reconfigurable computers serve as affordable, fast, and accurate tools for developing designs ranging from single chip architectures to multi-chip and embedded systems. Scott Hauck and Andre DeHon have assembled a group of the key experts in the fields of both hardware and software computing to provide an introduction to the entire range of issues relating to reconfigurable computing. FPGAs (field programmable gate arrays) act as the “computing vehicles to implement this powerful technology. Readers will be guided into adopting a completely new way of handling existing design concerns and be able to make use of the vast opportunities possible with reconfigurable logic in this rapidly evolving field. Designed for both hardware and software programmers Views of reconfigurable programming beyond

standard programming languages Broad set of case studies demonstrating how to use FPGAs in novel and efficient ways

Design of Reconfigurable Logic Controllers - Andrei Karatkevich 2015-12-23

This book presents the original concepts and modern techniques for specification, synthesis, optimisation and implementation of parallel logical control devices. It deals with essential problems of reconfigurable control systems like dependability, modularity and portability. Reconfigurable systems require a wider variety of design and verification options than the application-specific integrated circuits. The book presents a comprehensive selection of possible design techniques. The diversity of the modelling approaches covers Petri nets, state machines and activity diagrams. The preferences of the presented optimization and synthesis methods are not limited to increasing of the efficiency of resource use. One of the biggest advantages of the presented methods is the platform independence, the FPGA devices and single board computers are some of the examples of possible platforms. These issues and problems are illustrated with practical cases of complete control systems. If you expect a new look at the reconfigurable systems designing process or need ideas for improving the quality of the project, this book is a good choice.g process or need ideas for improving the quality of the project, this book is a good choice.

Proceedings - 2002

Studies in Automatic Programming Logic - Zohar Manna 1977

Illustrates how intelligent systems can be applied to the verification, debugging, and synthesis of computer programs.

Logic Monitor for a Programmable Raster-vector Generator - M. Chaudhary 1966

Field-Programmable Logic and Applications: Reconfigurable Computing Is Going Mainstream - Manfred Glesner 2003-08-02

This book constitutes the refereed

proceedings of the 12th International Conference on Field-Programmable Logic and Applications, FPL 2002, held in Montpellier, France, in September 2002. The 104 revised regular papers and 27 poster papers presented together with three invited contributions were carefully reviewed and selected from 214 submissions. The papers are organized in topical sections on rapid prototyping, FPGA synthesis, custom computing engines, DSP applications, reconfigurable fabrics, dynamic reconfiguration, routing and placement, power estimation, synthesis issues, communication applications, new technologies, reconfigurable architectures, multimedia applications, FPGA-based arithmetic, reconfigurable processors, testing and fault-tolerance, crypto applications, multitasking, compilation techniques, etc.

Tools and Algorithms for the Construction

and Analysis of Systems - Portugal) TACAS 98 (1998 : Lisbon 1998-03-18

This book constitutes the refereed proceedings of the 4th International Conference on Tools and Algorithms for the Construction and Analysis of Systems, TACAS'98, held in conjunction with ETAPS in Lisbon, Portugal, in March/April 1998. The 28 revised full papers presented together with an invited talk were selected from a total of 78 submissions. The volume is devoted to conceptual foundations, development, and applications of tools and algorithms for the specification, verification, analysis, and construction of software and hardware systems. The papers are organized in sections on model checking, design and architecture, various applications, fielded applications, verification of real-time systems, mixed analysis techniques, and case studies and experience.