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# Programmable Logic University Of California Berkeley

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Field-Programmable Logic: Architectures,  
Synthesis and Applications  
The Design of Totally Self-checking Circuits by  
Using Programmable Logic Arrays  
Proceedings of the Twelfth International  
Conference on Logic Programming  
The Evolution of Fault-Tolerant Computing  
Operation, Interfacing, and Programming  
5th International Workshop, FPL '95, Oxford,  
United Kingdom, August 29 - September 1, 1995.  
Proceedings  
Field Programmable Logic and Application  
Foundations of Disjunctive Logic Programming  
Programmable Logic Array  
Module Generation Systems for Programmable  
Logic Arrays and Data Paths  
4th International Workshop on Field-  
Programmable Logic and Applications, FPL'94,  
Prague, Czech Republic, September 7 - 9, 1994.  
Proceedings  
EDA for IC Implementation, Circuit Design, and  
Process Technology  
9th International Workshops, FPL'99, Glasgow,  
UK, August 30 - September 1, 1999, Proceedings

Wafer Level 3-D ICs Process Technology  
Issues in Technology Theory, Research, and  
Application: 2011 Edition  
14th International Conference , FPL 2004,  
Leuven, Belgium, August 30-September 1, 2004,  
Proceedings  
Field-Programmable Gate Array Technology  
Programmable Logic Controllers  
Field-Programmable Logic and Applications:  
Reconfigurable Computing Is Going Mainstream  
10th International Conference, FPL 2000 Villach,  
Austria, August 27-30, 2000 Proceedings  
Field Programmable Logic and Applications  
Totally Testable Programmable Logic Array  
Design  
Programmable Logic Data Book 1997  
Field-Programmable Logic and Applications: The  
Roadmap to Reconfigurable Computing  
Programmable Logic Controllers  
Field-Programmable Logic and Applications  
Field-Programmable Logic and Applications. From  
FPGAs to Computing Paradigm  
Programmable Logic Controllers  
Low-Energy FPGAs — Architecture and Design  
8th International Workshop, FPL'98 Tallinn,  
Estonia, August 31 - September 3, 1998  
Proceedings  
Reconfigurable Computing Is Going Mainstream  
PLA  
The Circuits and Filters Handbook  
Tools and Algorithms for the Construction and  
Analysis of Systems

Studies in Automatic Programming Logic  
Field-Programmable Logic and Applications  
4th International Conference, TACAS'98, Held as  
Part of the Joint European Conferences on Theory  
and Practice of Software, ETAPS'98, Lisbon,  
Portugal, March 28 - April 4, 1998, Proceedings  
In the Honor of William C. Carter  
Research Project

*Programmable  
Logic  
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## **ISAIAS HESTER**

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Field-Programmable  
Logic: Architectures,  
Synthesis and  
Applications Springer  
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. [The Design of Totally Self-checking Circuits by Using Programmable Logic Arrays](#) MIT Press 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.

**Proceedings of the Twelfth International Conference on Logic Programming** Module

Generation Systems for Programmable Logic Arrays and Data Paths  
Research Project  
Field-Programmable Logic and Applications: The Roadmap to Reconfigurable Computing  
10th International Conference, FPL 2000  
Villach, Austria, August 27-30, 2000  
Proceedings  
Many different kinds of FPGAs exist, with

different programming technologies, different architectures and different software. Field-Programmable Gate Array Technology describes the major FPGA architectures available today, covering the three programming technologies that are in use and the major architectures built on those programming technologies. The reader is introduced to concepts relevant to the entire field of FPGAs using popular devices as examples. Field-Programmable Gate Array Technology includes discussions of FPGA integrated circuit manufacturing, circuit design and logic design. It describes the way logic and interconnect are implemented in various kinds of FPGAs. It

covers particular problems with design for FPGAs and future possibilities for new architectures and software. This book compares CAD for FPGAs with CAD for traditional gate arrays. It describes algorithms for placement, routing and optimization of FPGAs. Field-Programmable Gate Array Technology describes all aspects of FPGA design and development. For this reason, it covers a significant amount of material. Each section is clearly explained to readers who are assumed to have general technical expertise in digital design and design tools. Potential developers of FPGAs will benefit primarily from the FPGA architecture and

software discussion. Electronics systems designers and ASIC users will find a background to different types of FPGAs and applications of their use.

#### The Evolution of Fault-Tolerant Computing

CRC Press

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. This book is a good choice.

Operation, Interfacing, and Programming

Springer Science & Business Media

This book focuses on foundry-based process technology that enables the fabrication of 3-D ICs. The core of the book discusses the technology platform for pre-packaging wafer level 3-D ICs. However, this book does not include a detailed discussion of 3-D ICs design and 3-D packaging. This is an edited book based on chapters contributed by various experts in the field of wafer-level

3-D ICs process technology. They are from academia, research labs and industry.

5th International Workshop, FPL '95, Oxford, United Kingdom, August 29 - September 1, 1995.

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

Field Programmable Logic and Application  
North Holland

A bestseller in its first edition, The Circuits and Filters Handbook has been thoroughly updated to provide the most current, most comprehensive information available in both the classical and emerging fields of

circuits and filters, both analog and digital. This edition contains 29 new chapters, with significant additions in the areas of computer-

### **Foundations of Disjunctive Logic Programming**

Springer Science & Business Media  
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.

**Programmable Logic Array** Springer Science & Business Media

This book constitutes the refereed proceedings of the 11th International Conference on Field-Programmable Logic and Application, FPL 2001, held in Belfast, Northern Ireland, UK, in August 2001. The 56 revised full papers and 15 short papers presented were carefully reviewed and selected from a total of 117 submissions. The book offers topical sections on architectural framework, place and route, architecture, DSP, synthesis, encryption, runtime reconfiguration, graphics and vision, networking, processor interaction, applications, methodology, loops

and systolic, image processing, faults, and arithmetic.

**Module Generation Systems for Programmable Logic Arrays and Data Paths** Springer

Science & Business Media

For the editors of this book, as well as for many other researchers in the area of fault-tolerant computing, Dr. William Caswell Carter is one of the key figures in the formation and development of this important field. We felt that the IFIP Working Group 10.4 at Baden, Austria, in June 1986, which coincided with an important step in Bill's career, was an appropriate occasion to honor Bill's contributions and achievements by organizing a one day

"Symposium on the Evolution of Fault-Tolerant Computing" in the honor of William C. Carter. The Symposium, held on June 30, 1986, brought together a group of eminent scientists from all over the world to discuss the evolution, the state of the art, and the future perspectives of the field of fault-tolerant computing. Historic developments in academia and industry were presented by individuals who themselves have actively been involved in bringing them about. The Symposium proved to be a unique historic event and these Proceedings, which contain the final versions of the papers presented at Baden, are an authentic reference document.

*4th International Workshop on Field-Programmable Logic and Applications, FPL'94, Prague, Czech Republic, September 7 - 9, 1994. Proceedings*  
CRC Press

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.

*EDA for IC*

*Implementation, Circuit Design, and Process Technology* University of California Press

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.  
9th International  
Workshops, FPL'99,  
Glasgow, UK, August  
30 - September 1,  
1999, Proceedings

Springer  
Featuring hundreds of  
illustrations and  
references, this volume  
in the third edition of  
the Circuits and Filters  
Handbook, provides  
the latest information  
on analog and VLSI  
circuits, omitting  
extensive theory and  
proofs in favor of  
numerous examples  
throughout each  
chapter. The first part  
of the text focuses on  
analog integrated  
circuits, presenting up-  
to-date knowledge on  
monolithic device  
models, analog circuit  
cells, high performance  
analog circuits, RF  
communication  
circuits, and PLL  
circuits. In the second  
half of the book, well-  
known contributors  
offer the latest findings  
on VLSI circuits,  
including digital  
systems, data

converters, and systolic arrays.

*Wafer Level 3-D ICs Process Technology*  
Springer Science & Business Media

This title is part of UC Press's Voices Revived program, which commemorates University of California Press's mission to seek out and cultivate the brightest minds and give them voice, reach, and impact. Drawing on a backlist dating to 1893, Voices Revived makes high-quality, peer-reviewed scholarship accessible once again using print-on-demand technology. This title was originally published in 1965.

*Issues in Technology Theory, Research, and Application: 2011 Edition*  
Springer Science & Business Media

This volume contains the proceedings of the 4th International Workshop on Field-Programmable Logic and Applications (FPL '94), held in Prague, Czech Republic in September 1994. The growing importance of field-programmable devices is substantiated by the remarkably high number of 116 submissions for FPL '94; from them, the revised versions of 40 full papers and 24 high-quality poster presentations were accepted for inclusion in this volume. Among the topics treated are: testing, layout, synthesis tools, compilation research and CAD, trade-offs and experience, innovations and smart applications, FPGA-based computer

architectures, high-level design, prototyping and ASIC emulators, commercial devices, new tools, CCMs and HW/SW co-design, modelers, educational experience, and novel architectures.

14th International Conference , FPL 2004, Leuven, Belgium, August 30-September 1, 2004, Proceedings  
MIT Press

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.

### **Field-Programmable Gate Array**

**Technology** Springer  
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 hardware 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 - searchers in ?eld programmable logic remains the FPL workshop. Next year the FPL series of workshopswill 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. Programmable Logic Controllers CRC Press

Issues in Technology Theory, Research, and Application: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Technology Theory, Research, and Application. The editors have built Issues in Technology Theory, Research, and Application: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Technology Theory, Research, and Application in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Technology Theory,

Research, and Application: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at

<http://www.ScholarlyEditions.com/>.

Field-Programmable Logic and Applications: Reconfigurable Computing Is Going Mainstream Springer Science & Business Media

The basic concepts and building blocks for the design of Fine- (or FPGA) and Coarse-Grain Reconfigurable Architectures are discussed in this book. Recently-developed integrated architecture design and software-supported design flow of FPGA and coarse-grain reconfigurable architecture are also described.

**10th International Conference, FPL 2000 Villach, Austria, August 27-30, 2000**

**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.