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Field-programmable Logic and Applications - 2002

Proceedings of the ... International Conference on Microelectronics - 1998

Data Access and Storage Management for Embedded Programmable Processors -

Francky Catthoor 2013-03-14

Data Access and Storage Management for Embedded Programmable Processors gives an overview of the state-of-the-art in system-level data access and storage management for embedded programmable processors. The targeted application domain covers complex embedded real-time multi-media and communication applications. Many of these applications are data-dominated in the sense that their cost related aspects, namely power consumption and footprint are heavily influenced (if not dominated) by the data access and storage aspects. The material is mainly based on

research at IMEC in this area in the period 1996-2001. In order to deal with the stringent timing requirements and the data dominated characteristics of this domain, we have adopted a target architecture style that is compatible with modern embedded processors, and we have developed a systematic step-wise methodology to make the exploration and optimization of such applications feasible in a source-to-source precompilation approach.

12th International Workshop on Rapid System Prototyping - IEEE Computer Society. Design Automation Technical Committee 2001
The proceedings from the June 2001 conference in Monterey, California include 30 papers on hardware case studies, reconfiguring computing, communications systems, distributed prototyping, systems modeling, model-based prototyping, efficient evaluation, methodologies, and tools. Keynote addresses on Automotive and engine technology - Michael Bargende 2001

Field-Programmable Logic and Applications

- International Workshop on Field-Programmable Logic and Applications 1995-08-21

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.

Field-Programmable Logic and Applications. From FPGAs to Computing Paradigm -

Reiner W. Hartenstein 1998-08-14

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.

New Algorithms, Architectures and Applications for Reconfigurable Computing

- Patrick Lysaght 2005-07-01

New Algorithms, Architectures and Applications for Reconfigurable Computing consists of a collection of contributions from the authors of some of the best papers from the Field Programmable Logic conference (FPL'03) and the Design and Test Europe conference (DATE'03). In all, seventy-nine authors, from

research teams from all over the world, were invited to present their latest research in the extended format permitted by this special volume. The result is a valuable book that is a unique record of the state of the art in research into field programmable logic and reconfigurable computing. The contributions are organized into twenty-four chapters and are grouped into three main categories: architectures, tools and applications. Within these three broad areas the most strongly represented themes are coarse-grained architectures; dynamically reconfigurable and multi-context architectures; tools for coarse-grained and reconfigurable architectures; networking, security and encryption applications. Field programmable logic and reconfigurable computing are exciting research disciplines that span the traditional boundaries of electronic engineering and computer science. When the skills of both research communities are combined to address the challenges of a

single research discipline they serve as a catalyst for innovative research. The work reported in the chapters of this book captures that spirit of that innovation.

Advanced Applications of Rapid Prototyping Technology in Modern Engineering - Md

Enamul Hoque 2011-09-22

Rapid prototyping (RP) technology has been widely known and appreciated due to its flexible and customized manufacturing capabilities. The widely studied RP techniques include stereolithography apparatus (SLA), selective laser sintering (SLS), three-dimensional printing (3DP), fused deposition modeling (FDM), 3D plotting, solid ground curing (SGC), multiphase jet solidification (MJS), laminated object manufacturing (LOM). Different techniques are associated with different materials and/or processing principles and thus are devoted to specific applications. RP technology has no longer been only for prototype building rather has been extended for real industrial

manufacturing solutions. Today, the RP technology has contributed to almost all engineering areas that include mechanical, materials, industrial, aerospace, electrical and most recently biomedical engineering. This book aims to present the advanced development of RP technologies in various engineering areas as the solutions to the real world engineering problems.

Parallel and Distributed Processing - Fla.)

International Parallel Processing Symposium
1998 (Orlando 1998-03-18)

This book constitutes the refereed proceedings of 10 international workshops held in conjunction with the merged 1998 IPPS/SPDP symposia, held in Orlando, Florida, US in March/April 1998. The volume comprises 118 revised full papers presenting cutting-edge research or work in progress. In accordance with the workshops covered, the papers are organized in topical sections on reconfigurable architectures, run-time systems for parallel

programming, biologically inspired solutions to parallel processing problems, randomized parallel computing, solving combinatorial optimization problems in parallel, PC based networks of workstations, fault-tolerant parallel and distributed systems, formal methods for parallel programming, embedded HPC systems and applications, and parallel and distributed real-time systems.

Embedded System Design - Daniel D. Gajski
2009-08-14

Embedded System Design: Modeling, Synthesis and Verification introduces a model-based approach to system level design. It presents modeling techniques for both computation and communication at different levels of abstraction, such as specification, transaction level and cycle-accurate level. It discusses synthesis methods for system level architectures, embedded software and hardware components. Using these methods, designers can develop applications with high level models, which are

automatically translatable to low level implementations. This book, furthermore, describes simulation-based and formal verification methods that are essential for achieving design confidence. The book concludes with an overview of existing tools along with a design case study outlining the practice of embedded system design. Specifically, this book addresses the following topics in detail: . System modeling at different abstraction levels . Model-based system design . Hardware/Software codesign . Software and Hardware component synthesis . System verification This book is for groups within the embedded system community: students in courses on embedded systems, embedded application developers, system designers and managers, CAD tool developers, design automation, and system engineering.

Embedded Software and Systems - Zhaohui Wu 2005-08-29

Welcome to the post proceedings of the First

International Conference on Embedded Software and Systems (ICCESS 2004), which was held in Hangzhou, P. R. China, 9-10 December 2004. Embedded Software and Systems technology is of increasing importance for a wide range of industrial areas, such as aerospace, automotive, telecommunication, and manufacturing automation. Embedded technology is playing an increasingly dominant role in modern society. This is a natural outcome of amazingly fast developments in the embedded field. The ICCESS 2004 conference brought together researchers and developers from academia, industry, and government to advance the science, engineering, and technology in embedded software and systems development, and provided them with a forum to present and exchange their ideas, results, work in progress, and experience in all areas of embedded systems research and development. The ICCESS 2004 conference attracted much more interest than expected. The total number of paper submissions to the main

conference and its three workshops, namely, Pervasive Computing, Automobile Electronics and Tele-communication, was almost 400, from nearly 20 countries and regions. All submissions were reviewed by at least three Program or Technical Committee members or external reviewers. It was extremely difficult to make the final decision on paper acceptance because there were so many excellent, foreseeing, and interesting submissions with brilliant ideas.

Mobile Web and Intelligent Information Systems
- Jamal Bentahar 2021-08-16

This book constitutes the refereed proceedings of the 17th International Conference on Mobile Web and Intelligent Information Systems, MobiWIS 2021, held as a virtual event, in August 2021. The 15 full papers presented in this book were carefully reviewed and selected from 40 submissions. The papers of MobiWIS 2021 deal focus on topics such as security and privacy; web and mobile applications; networking and communication; intelligent information systems;

and IoT and ubiquitous computing.

Guide to Computing Fundamentals in Cyber-Physical Systems - Dietmar P.F. Möller
2016-04-14

This book presents an in-depth review of the state of the art of cyber-physical systems (CPS) and their applications. Relevant case studies are also provided, to help the reader to master the interdisciplinary material. Features: includes self-test exercises in each chapter, together with a glossary; offers a variety of teaching support materials at an associated website, including a comprehensive set of slides and lecture videos; presents a brief overview of the study of systems, and embedded computing systems, before defining CPS; introduces the concepts of the Internet of Things, and ubiquitous (or pervasive) computing; reviews the design challenges of CPS, and their impact on systems and software engineering; describes the ideas behind Industry 4.0 and the revolutions in digital manufacturing, including smart and agile

manufacturing, as well as cybersecurity in manufacturing; considers the social impact of the changes in skills required by the globalized, digital work environment of the future.

Dynamically Reconfigurable Systems - Marco Platzner 2010-03-10

Dynamically Reconfigurable Systems is the first ever to focus on the emerging field of Dynamically Reconfigurable Computing Systems. While programmable logic and design-time configurability are well elaborated and covered by various texts, this book presents a unique overview over the state of the art and recent results for dynamic and run-time reconfigurable computing systems.

Reconfigurable hardware is not only of utmost importance for large manufacturers and vendors of microelectronic devices and systems, but also a very attractive technology for smaller and medium-sized companies. Hence, Dynamically Reconfigurable Systems also addresses researchers and engineers actively working in

the field and provides them with information on the newest developments and trends in dynamic and run-time reconfigurable systems.

Advances in Computers - 1995-09-11

Praise for the Series "Mandatory for academic libraries supporting computer science departments." -CHOICE Since its first volume in 1960, Advances in Computers has presented detailed coverage of innovations in computer hardware, software, theory, design, and applications. It has also provided contributors with a medium in which they can explore their subjects in greater depth and breadth than journal articles usually allow. As a result, many articles have become standard references that continue to be of significant, lasting value in this rapidly expanding field.

E-Waste Management - Klaus Hieronymi 2012-06-14

The landscape of electronic waste, e-waste, management is changing dramatically. Besides a rapidly increasing world population,

globalization is driving the demand for products, resulting in rising prices for many materials. Absolute scarcity looms for some special resources such as indium. Used electronic products and recyclable materials are increasingly crisscrossing the globe. This is creating both - opportunities and challenges for e-waste management. This focuses on the current and future trends, technologies and regulations for reusable and recyclable e-waste worldwide. It compares international e-waste management perspectives and regulations under a view that includes the environmental, social and economic aspects of the different linked systems. It overviews the current macro-economic trends from material demand to international policy to waste scavenging, examines particular materials and product streams in detail and explores the future for e-waste and its' management considering technology progress, improving end-of-lifecycle designs, policy and sustainability perspectives.

To achieve this, the volume has been divided in twelve chapters that cover three major themes: holistic view of the global e-waste situation current reserve supply chain and management of used electronics, including flows, solutions, policies and regulations future perspectives and solutions for a sustainable e-waste management. The emphasis of the book is mainly on the dramatic change of the entire e-waste sector from the cheapest way of getting rid of e-waste in an environmental sound way to how e-waste can help to reduce excavation of new substances and lead to a sustainable economy. It is an ideal resource for policy-makers, waste managers and researchers involved in the design and implementation of e-waste.

Design Thinking Research - Larry Leifer
2013-08-19

This book summarizes the results of Design Thinking Research carried out at Stanford University in Palo Alto, California, USA, and Hasso Plattner Institute in Potsdam, Germany.

The authors offer readers a closer look at Design Thinking with its processes of innovations and methods. The contents of the articles range from how to design ideas, methods, and technologies via creativity experiments and wicked problem solutions, to creative collaboration in the real world and the connectivity of designers and engineers. But the topics go beyond this in their detailed exploration of design thinking and its use in IT systems engineering fields and even from a management perspective. The authors show how these methods and strategies work in companies, introduce new technologies and their functions and demonstrate how Design Thinking can influence as diverse a topic area as marriage. Furthermore, we see how special design thinking use functions in solving wicked problems in complex fields. Thinking and creating innovations are basically and inherently human - so is Design Thinking. Due to this, Design Thinking is not only a factual matter or a result of special courses nor of being gifted or

trained: it's a way of dealing with our environment and improving techniques, technologies and life.

Design of Hardware/Software Embedded Systems - Eugenio Villar Bonet 2001

Este libro presenta los desafíos planteados por las nuevas y sumamente poderosas tecnologías de integración de sistemas electrónicos, que están en la base de los cambios sociales hacia lo que llaman la Sociedad de la Información; en la que los dispositivos electrónicos se harán una parte incorporada de la vida diaria, encajados en casi cada producto. Es necesario un conocimiento cuidadoso de los desafíos para aprovechar la amplia gama de ocasiones ofrecidas por tales capacidades de integración y las correspondientes posibilidades de diseño de sistemas electrónicos.

Mobile Ad Hoc Robots and Wireless Robotic Systems: Design and Implementation -

Santos, Raul Aquino 2012-12-31

The emergence of wireless robotic systems has

provided new perspectives on technology. With the combination of disciplines such as robotic systems, ad hoc networking, telecommunications and more, mobile ad hoc robots have proven essential in aiding future possibilities of technology. Mobile Ad Hoc Robots and Wireless Robotic Systems: Design and Implementation aims to introduce robotic theories, wireless technologies, and routing applications involved in the development of mobile ad hoc robots. This reference source brings together topics on the communication and control of network ad hoc robots, describing how they work together to carry out coordinated functions.

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.

Proceedings, Seventh IEEE International Workshop on Rapid System Prototyping - 1996

Proceedings of the June 1996 workshop, focusing on hardware/software codevelopment. Highlights advances in hardware emulation; co-simulation of hardware, software, and mechanical parts; RSP for telecom; and higher level models for system prototyping, and explores subjects including system simulation/emulation in a hierarchical sense, software prototyping and validation, and experiences from specific system prototyping projects. Of interest to system designers, modeling and tool developers, integrated circuit designers, and software engineers. No index. Annotation copyright by Book News, Inc., Portland, OR.

Index to IEEE Publications - Institute of Electrical and Electronics Engineers 1997
Issues for 1973- cover the entire IEEE technical literature.

Scientific and Technical Aerospace Reports - 1995

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

Adaptable Embedded Systems - Antonio Carlos Schneider Beck 2012-11-27

As embedded systems become more complex, designers face a number of challenges at different levels: they need to boost performance, while keeping energy consumption as low as possible, they need to reuse existent software code, and at the same time they need to take advantage of the extra logic available in the chip, represented by multiple processors working together. This book describes several

strategies to achieve such different and interrelated goals, by the use of adaptability. Coverage includes reconfigurable systems, dynamic optimization techniques such as binary translation and trace reuse, new memory architectures including homogeneous and heterogeneous multiprocessor systems, communication issues and NOCs, fault tolerance against fabrication defects and soft errors, and finally, how one can combine several of these techniques together to achieve higher levels of performance and adaptability. The discussion also includes how to employ specialized software to improve this new adaptive system, and how this new kind of software must be designed and programmed.

Applied Reconfigurable Computing. Architectures, Tools, and Applications -

Nikolaos Voros 2018-04-25

This book constitutes the proceedings of the 14th International Conference on Applied Reconfigurable Computing, ARC 2018, held in

Santorini, Greece, in May 2018. The 29 full papers and 22 short presented in this volume were carefully reviewed and selected from 78 submissions. In addition, the volume contains 9 contributions from research projects. The papers were organized in topical sections named: machine learning and neural networks; FPGA-based design and CGRA optimizations; applications and surveys; fault-tolerance, security and communication architectures; reconfigurable and adaptive architectures; design methods and fast prototyping; FPGA-based design and applications; and special session: research projects.

Communication Channel Synthesis for Heterogeneous Embedded Systems - Michael Herbert Eisenring 2002

Proceedings of the Fifth International Workshop on Hardware/Software Co-Design (Codes/CASHE '97) - 1997

Enhancing Embedded Systems Simulation -

Christian Köhler 2011-03-29

Christian Köhler covers the connection between μ C and simulation, the interface abstraction as well as the analysis and optimization of coupling systems with the Chip-Hardware-in-the-Loop Simulation (CHILS) approach. He develops the hardware to simulation coupling system with a focus on less hardware effort, the capabilities to couple with different simulation environments, and the efficiency of coupling. Furthermore, the author presents existing concepts to simulate complex systems and compares them with the new approach.

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.

Rapid System Prototyping with FPGAs - RC Cofer 2011-03-31

The push to move products to market as quickly and cheaply as possible is fiercer than ever, and accordingly, engineers are always looking for new ways to provide their companies with the edge over the competition. Field-Programmable Gate Arrays (FPGAs), which are faster, denser, and more cost-effective than traditional programmable logic devices (PLDs), are quickly becoming one of the most widespread tools that embedded engineers can utilize in order to gain that needed edge. FPGAs are especially popular for prototyping designs, due to their superior speed and efficiency. This book hones in on that

rapid prototyping aspect of FPGA use, showing designers exactly how they can cut time off production cycles and save their companies money drained by costly mistakes, via prototyping designs with FPGAs first. Reading it will take a designer with a basic knowledge of implementing FPGAs to the "next-level of FPGA use because unlike broad beginner books on FPGAs, this book presents the required design skills in a focused, practical, example-oriented manner. In-the-trenches expert authors assure the most applicable advice to practicing engineers Dual focus on successfully making critical decisions and avoiding common pitfalls appeals to engineers pressured for speed and perfection Hardware and software are both covered, in order to address the growing trend toward "cross-pollination" of engineering expertise

Readings in Hardware/Software Co-Design - Giovanni De Micheli 2002

This title serves as an introduction and reference

for the field, with the papers that have shaped the hardware/software co-design since its inception in the early 90s.

Computer Systems Science and Engineering - 2000

Introduction to Embedded Systems, Second Edition - Edward Ashford Lee 2016-12-30

An introduction to the engineering principles of embedded systems, with a focus on modeling, design, and analysis of cyber-physical systems. The most visible use of computers and software is processing information for human consumption. The vast majority of computers in use, however, are much less visible. They run the engine, brakes, seatbelts, airbag, and audio system in your car. They digitally encode your voice and construct a radio signal to send it from your cell phone to a base station. They command robots on a factory floor, power generation in a power plant, processes in a chemical plant, and traffic lights in a city. These less visible

computers are called embedded systems, and the software they run is called embedded software. The principal challenges in designing and analyzing embedded systems stem from their interaction with physical processes. This book takes a cyber-physical approach to embedded systems, introducing the engineering concepts underlying embedded systems as a technology and as a subject of study. The focus is on modeling, design, and analysis of cyber-physical systems, which integrate computation, networking, and physical processes. The second edition offers two new chapters, several new exercises, and other improvements. The book can be used as a textbook at the advanced undergraduate or introductory graduate level and as a professional reference for practicing engineers and computer scientists. Readers should have some familiarity with machine structures, computer programming, basic discrete mathematics and algorithms, and signals and systems.

MEDINFO 2015: EHealth-enabled Health -

I.N. Sarkar 2015-08-12

Health and Biomedical Informatics is a rapidly evolving multidisciplinary field; one in which new developments may prove crucial in meeting the challenge of providing cost-effective, patient-centered healthcare worldwide. This book presents the proceedings of MEDINFO 2015, held in São Paulo, Brazil, in August 2015. The theme of this conference is 'eHealth-enabled Health', and the broad spectrum of topics covered ranges from emerging methodologies to successful implementations of innovative applications, integration and evaluation of eHealth systems and solutions. Included here are 178 full papers and 248 poster abstracts, selected after a rigorous review process from nearly 800 submissions by 2,500 authors from 59 countries. The conference brings together researchers, clinicians, technologists and managers from all over the world to share their experiences on the use of information methods,

systems and technologies to promote patient-centered care, improving patient safety, enhancing care outcomes, facilitating translational research and enabling precision medicine, as well as advancing education and skills in Health and Biomedical Informatics. This comprehensive overview of Health and Biomedical Informatics will be of interest to all those involved in designing, commissioning and providing healthcare, wherever they may be.

IEEE International Workshop on Rapid Systems Prototyping - IEEE Computer Society. Technical Committee on Simulation 1999 Contains papers from a June 1999 workshop which brought together system designers, model and tool developers, integrated circuit designers, and software engineers to explore problems and techniques in the area of rapid system prototyping. Papers focus on models for system simulation/emulation in a hierarchical sense, software-to- hardware mapping, software prototyping and validation, prototyping

environments of hardware simulators, and experiences from specific system prototyping projects. Contains sections on communication and distributed systems, reconfigurable architectures, reuse, formal methods, design methodologies, interface technologies, and FPGA-based design. Lacks a subject index. Annotation copyrighted by Book News, Inc., Portland, OR.

Fourth International Workshop on Hardware/Software Co-Design, Codes/CASHE '96 - Donald E. Thomas 1996

Embedded architecture co-synthesis and system integration / B. Lin, S. Vercauteren, and H. De Man -- A multi-level transformation approach to HW/SW codesign : a case study / T.K.-Y. Cheung, G. Hellestrand, and P. Kanthamanon -- Fully parallel hardware/software codesign for multi-dimensional DSP applications / M. Sheliga, N.L. Passos, and E.H.-M. Sha -- A co-design methodology based on formal specification and high-level estimation / C. Carreras [and others] --

Speed-up estimation for HW/SW-systems / W. Hardt and W. Rosenstiel -- A framework for interactive analysis of timing constraints in embedded systems / R.K. Gupta -- The interplay of run-time estimation and granularity in HW/SW partitioning / J. Henkel and R. Ernst -- Partitioning and exploration strategies in the TOSCA co-design flow / A. Balboni, W. Fornaciari, and D. Sciuto -- Process partitioning for distributed embedded systems / J. Hou and W. Wolf -- Two-level partitioning of image processing algorithms for the parallel map-oriented machine / R.W. Hartenstein, J. Becker, and R. Kress -- PACE : a dynamic programming algorithm for hardware/software partitioning / P.V. Knudsen and J. Madsen -- A model for the coanalysis of hardware and software architectures / F. Rose [and others] -- A case study in co-design of communication controllers / R. Gerndt -- Formal verification of embedded systems based on CFSM networks / F. Balarin [and others] -- Towards a model for hardware

and software functional partitioning / F. Vahid and T. dm Le -- Implications of codesign as a natural constituent of a systems engineering discipline for computer-based systems / M. Voss and O. Hammerschmidt -- Uninterpreted co-simulation for performance evaluation of HW/SW systems / J.P. Calvez, D. Heller, and O. Pasquier - - Fast and accurate hardware-software co-simulation using software timing estimates / C. Passerone [and others].

Cartesian Genetic Programming - Julian F. Miller
2011-09-18

Cartesian Genetic Programming (CGP) is a highly effective and increasingly popular form of genetic programming. It represents programs in the form of directed graphs, and a particular characteristic is that it has a highly redundant genotype-phenotype mapping, in that genes can be noncoding. It has spawned a number of new forms, each improving on the efficiency, among them modular, or embedded, CGP, and self-modifying CGP. It has been applied to many

problems in both computer science and applied sciences. This book contains chapters written by the leading figures in the development and application of CGP, and it will be essential reading for researchers in genetic programming and for engineers and scientists solving applications using these techniques. It will also be useful for advanced undergraduates and postgraduates seeking to understand and utilize a highly efficient form of genetic programming.

Dynamic Reconfigurable Architectures and Transparent Optimization Techniques -

Antonio Carlos Schneider Beck Fl. 2010-03-10
Dynamic Reconfigurable Architectures and Transparent Optimization Techniques presents a detailed study on new techniques to cope with the aforementioned limitations. First, characteristics of reconfigurable systems are discussed in details, and a large number of case studies is shown. Then, a detailed analysis of several benchmarks demonstrates that such architectures need to attack a diverse range of

applications with very different behaviours, besides supporting code compatibility. This requires the use of dynamic optimization techniques, such as Binary Translation and Trace reuse. Finally, works that combine both reconfigurable systems and dynamic techniques are discussed and a quantitative analysis of one them, the DIM architecture, is presented.

Co-Synthesis of Hardware and Software for Digital Embedded Systems - Rajesh Kumar Gupta 2012-12-06

Co-Synthesis of Hardware and Software for Digital Embedded Systems, with a Foreword written by Giovanni De Micheli, presents techniques that are useful in building complex embedded systems. These techniques provide a competitive advantage over purely hardware or software implementations of time-constrained embedded systems. Recent advances in chip-level synthesis have made it possible to synthesize application-specific circuits under strict timing constraints. This work advances the

state of the art by formulating the problem of system synthesis using both application-specific as well as reprogrammable components, such as off-the-shelf processors. Timing constraints are used to determine what part of the system functionality must be delegated to dedicated application-specific hardware while the rest is delegated to software that runs on the processor. This co-synthesis of hardware and software from behavioral specifications makes it possible to realize real-time embedded systems using off-the-shelf parts and a relatively small amount of application-specific circuitry that can be mapped to semi-custom VLSI such as gate arrays. The ability to perform detailed analysis of timing performance provides the opportunity of improving the system definition by creating better phototypes. Co-Synthesis of Hardware and Software for Digital Embedded Systems is of interest to CAD researchers and developers who want to branch off into the expanding field of hardware/software co-design, as well as to

digital system designers who are interested in

the present power and limitations of CAD techniques and their likely evolution.