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A Soft Processor Overlay with Tightly-Coupled FPGA Accelerator

The book provides a thorough overview of the state-of-the-art field-programmable gate array (FPGA)-based robotic computing accelerator designs and summarizes their adopted architectures. The book is aimed at researchers, professionals, and graduate students in VLSI, machine learning, electrical and computer engineering, and hardware systems.

Key Features:
- Comprehensive coverage of FPGA-based robotic computing accelerators
- Detailed explanations of various accelerator designs and methodologies
- Real-world case studies and practical applications
- Insights into the future trends and challenges in FPGA-based robotics

The book is an essential resource for anyone interested in the field of robotics, including researchers, practitioners, and students.

FPGA-based robotic computing accelerators have revolutionized the field of robotics by enabling more efficient and powerful computing capabilities. This book provides a comprehensive guide to these accelerators, covering everything from the basics to the latest advancements.

The book begins with an introduction to FPGA technology and its role in robotics, followed by a detailed explanation of various accelerator designs and their methodologies. Each chapter includes real-world case studies and practical applications to help readers understand how these accelerators work in real-world scenarios.

This book is a valuable resource for anyone interested in the future of robotics, including researchers, practitioners, and students. With its comprehensive coverage and practical insights, it will help readers keep up with the latest advancements in this exciting field.

Computational Science and Its Applications - ICSA 2019/2019 garage Novato 2019-11-28 The aim of this volume is to bring together some of the leading researchers working on computational science and its applications. The volume includes a collection of papers from the 15th International Conference on Computational Science (ICCS 2019), which was held in Novato, California, USA, in June 2019. The papers cover a wide range of topics, including parallel and distributed computing, numerical methods, data analytics, and machine learning.

The editors of the volume are Professors J. Dongarra, R. Grimes, and V. Venkatakrishnan. They have organized the papers into five sections: parallel and distributed computing, numerical methods, data analytics, machine learning, and emerging technologies.

The volume is a valuable resource for researchers and practitioners in computational science and its applications, providing insights into the latest developments and challenges in these areas.
Parallel Computing: on the Road to Exascale R. H. B. Sharif 2016-04-01 As predicted by Gordon E. Moore in 1965, the performance of computer processors increased at an exponential rate. Nevertheless, the increase in computing speeds of single processor servers was eventually curtailed by physical constraints. This led to the development of parallel computing, and while progress has been made in the field, the complexity of parallel algorithms design, the limitations of the available software development tools, and the complexity of implementing tools to harness thousands or even millions of processing nodes require major changes in the construction and use of more powerful parallel systems. This book presents the proceedings of the 16th International Conference on Parallel Computing (ParCo2015), held in Edinburgh, Scotland, in September 2015. Topics covered include computer architecture and performance, programming models and methods, parallel and distributed systems, applications of parallel and distributed computing in science and engineering, networks, operating systems and software tools which facilitate efficient and convenient utilization of modern parallel and distributed computing architectures, as well as large-scale applications, including big data problems.

Supercomputing: Towards Exascale Pradip Satapathy 2015-11-16 This book constitutes the refereed proceedings of the 20th International Conference on Parallel Computing (ParCo2015), held in Edinburgh, Scotland, in September 2015. Topics covered include computer architecture and performance, programming models and methods, parallel and distributed systems, applications of parallel and distributed computing in science and engineering, networks, operating systems and software tools which facilitate efficient and convenient utilization of modern parallel and distributed computing architectures, as well as large-scale applications, including big data problems.

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Parallel Processing and Applied Mathematics Roman Wyrzykowski 2015-08-06 This two volume set LNCS 9377 and LNCS 9378 constitutes the refereed proceedings of the 11th International Conference on Parallel Processing and Applied Mathematics, PPAM 2015, held in Krakow, Poland, in August 2015. The two volumes contain a total of 239 revised full papers presented in 33 sessions carefully reviewed and selected from 381 submissions. The focus of PPAM 2015 was on models, algorithms, and software tools which facilitate efficient and convenient utilization of modern parallel and distributed computing architectures, as well as large-scale applications, including big data problems.

Computational Intelligence for Multi-Body Big Data on the Cloud with Engineering Applications from Kannur Suganthi 2018-09-01 Computational Intelligence for Multi-Body Big Data on the Cloud with Engineering Applications covers topics on the theory, techniques, and applications used in the field of computational intelligence for multi-body engineering applications. The book provides an interdisciplinary overview that includes both theoretical and applied topics, such as machine learning and data science, as well as applications in engineering and computer science. The book also highlights the use of cloud computing and big data analytics in solving complex problems related to multi-body systems.

Applied Reconfigurable Computing Vilde Øilo 2018-01-15 This book constitutes the refereed proceedings of the 12th International Symposium on Applied Reconfigurable Computing, ARC 2018, held in Royal Jordan, Amman, in March 2018. The 48 papers presented in this volume were carefully reviewed and selected from 117 submissions. They cover topics on hardware-software co-design and system-level approaches in reconfigurable computing. In addition, the book contains 3 invited papers and a poster paper on reconfigurable training and competion projects.

Algorithms and Architectures for Parallel Computing Wang Xiang 2018-04-18 This book constitutes the refereed proceedings of the 13th International Conference on Algorithms and Architectures for Parallel Computing, ICA3PP 2018, held in Zhangjiajie, China, in November 2018. The 109 revised full papers presented together with 17 workshop papers in this volume were carefully reviewed and selected from 307 submissions. They cover topics on parallel hardware-software co-design and hardware-software systems. In addition, the book contains invited papers and a poster paper on hardware-software systems and competion projects.

Special Topics in Information Technology Markus Seedorf 2019-01-21 This capstone book presents state-of-the-art techniques in information technology from the Department of Information Technology at the University of Wollongong, Wollongong. It covers a wide range of topics, including data processing, machine learning, networking, and security. The book is structured to provide a comprehensive overview of information technology, including its applications in various fields, and to guide students in developing a deep understanding of the subject. It is suitable for both undergraduate and graduate students, as well as professionals in the field who want to stay updated with the latest developments.

High-performance computing and related topics Guojun Wang 2015-11-16 This book is a collection of papers presented at the 19th International Conference on High Performance Computing and Communications, HPCC 2017, held in Chicago, USA, in September 2017. The book covers a wide range of topics related to high-performance computing and related areas, including parallel computing, distributed systems, data analytics, and cloud computing. It includes contributions from leading researchers and practitioners in the field, providing a comprehensive overview of the latest developments and future directions in high-performance computing.