Lecture Notes in Computer Science 1896

Edited by G. Goos, J. Hartmanis and J. van Leeuwen

Springer
Berlin
Heidelberg
New York
Barcelona
Hong Kong
London
Milan
Paris
Singapore
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Reiner W. Hartenstein
Herbert Grünbacher (Eds.)

Field-Programmable Logic and Applications

The Roadmap to Reconfigurable Computing

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

Springer

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Cataloging-in-Publication Data applied for

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

Field programmable logic and applications : the roadmap to reconfigurable computing ; 10th international conference ; proceedings / FPL 2000, Villach, Austria, August 27 - 30, 2000. Reiner W. Hartenstein ; Herbert Grünbacher (ed.). - Berlin ; Heidelberg ; New York ; Barcelona ; Hong Kong ; London ; Milan ; Paris ; Singapore ; Tokyo : Springer, 2000
(Lecture notes in computer science ; Vol. 1896)
ISBN 3-540-67899-9

CR Subject Classification (1998): B.6-7, J.6

ISSN 0302-9743
ISBN 3-540-67899-9 Springer-Verlag Berlin Heidelberg New York

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© Springer-Verlag Berlin Heidelberg 2000
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Steingräber Satztechnik GmbH, Heidelberg
Printed on acid-free paper SPIN 10722573 06/3142 5 4 3 2 1 0

Preface

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.

The traditional name (FPL) of this conference no longer indicated its entire scope, which had been substantially extended and also covered evolvable and adaptable systems, coarse grain reconfigurable (sub)systems, their synthesis methods and applications, their indispensable role in System-on-Chip (SoC) development, as well as RC as an emerging new paradigm, threatening to shake up the general foundations of computer science: computing in space vs. computing in time. Several keynotes of this conference covered such aspects of the configware wave rolling in.

What was new at FPL 2000? With a number of papers FPL 2000 was beginning to bridge the gap between the RL & RC club and the Evolvable Hardware (EH) scene having its own conferences. Until a few months before the conference, network processors had only been subject of NDAs, creating a frustrating difference between usage and publications - frustrating to people interested in studying the technical issues of the high growth rate Internet business. FPL 2000 was the first conference at which this gap was filled by a number of papers, not only on network processors, but also on SoC design for next generation mobile wireless communication.

Goals. FPL 2000 had the goal of providing a preview of what we can expect in the new millennium, and, a roadmap to next generation reconfigurable systems (RS) and their application: hardware, configware, software and application development tools, IP core usage, SoC design, as well as RS technology. It was an important goal of the conference, to bring together experts, users, newcomers, and students from industry and academia.

Growing acceptance. The size of FPL conferences has increased rapidly, from 90 (FPL 1998) to 144 (1999). From 1999 to 2000 the number of papers submitted more than doubled. Our goal for FPL-2000 was to keep this growth rate and to reach an attendance 200 or beyond. The advance program was compiled from 131 papers, which came from 30 different countries:

Germany:	23	France:	5	Mexico:	3	Switzerland:	2	Ireland:	1
US:	20	Austria:	4	Netherlands:	3	Argentina:	1	Norway:	1
UK:	15	Czech Rep.:	4	Brazil:	2	Australia:	1	Portugal:	1
Japan:	12	Canada:	3	China:	2	Belgium:	1	Slovakia:	1
Spain:	7	Greece:	3	Finland:	2	Belarus:	1	Slovenia:	1
Poland:	5	India	3	Sweden:	2	Estonia:	1	Thailand:	1

Accepted. The program committee accepted for presentation 64 regular papers, 21 posters, and 10 student papers. Another 6 papers were invited papers or (invited) keynotes. Each submitted paper had been sent to four reviewers to meet the goal of an average of at least three reviews per paper. We gratefully acknowledge the organizational work done by staff at the Carinthia Tech Institute at Villach.

Acknowledgments. We would like to thank the authors for submitting first versions and for preparing the final versions of the accepted papers, as well as the members of our Program Committee and all other reviewers listed on the next page. We especially express our thankfulness to Thomas Hoffmann from Kaiserslautern University for managing the review process and for assembling the proceedings volume, as well as Michael Herz and Ulrich Nageldinger for supporting him whenever needed. We gratefully acknowledge the excellent cooperation with Alfred Hofmann of Springer-Verlag, being FPL's official publisher now for the 8th year.

June, 2000

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