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IFIP – The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

> IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is about information processing may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

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VLSI-SoC: From Algorithms to Circuits and System-on-Chip Design

20th IFIP WG 10.5/IEEE International Conference on Very Large Scale Integration, VLSI-SoC 2012
Santa Cruz, CA, USA, October 7-10, 2012
Revised Selected Papers

Springer

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Preface

This book contains extended and revised versions of the best papers that were presented during the 20th edition of the IFIP/IEEE WG10.5 International Conference on Very Large Scale Integration, a global System-on-a-Chip Design & CAD conference. The 20th conference was held at the Dream Inn Hotel, Santa Cruz, California, USA (October 7–10, 2012). Previous conferences have taken place in Edinburgh, Trondheim, Vancouver, Munich, Grenoble, Tokyo, Gramado, Lisbon, Montpellier, Darmstadt, Perth, Nice, Atlanta, Rhodes, Florianópolis, Madrid, and Hong Kong.

The purpose of this conference sponsored by IFIP TC 10 Working Group 10.5, the IEEE Council on Electronic Design Automation (CEDA), and by IEEE Circuits and Systems Society, with the In-Cooperation of ACM SIGDA, is to provide a forum for the exchange of ideas and presentation of industrial and academic research results in the field of microelectronics design. The current trend toward increasing chip integration and technology process advancements has brought about stimulating new challenges both at the physical and system design levels, as well as in the test of these systems. VLSI-SOC conferences aim to address these exciting new issues.

The 2012 edition of VLSI-SoC maintained the traditional structure of the conference, which has been successful at the previous VLSI-SOC conferences. The quality of submissions (110 regular papers and nine special session papers from 15 countries) made the selection process difficult. Finally 33 papers were accepted for oral presentation and 17 posters were accepted for presentation. Out of the 33 regular oral papers presented at the conference, 12 papers were chosen by a selection committee to have an extended and revised version included in this book. The selection of these papers has considered the evaluation scores during the review process and the review forms provided by members of the Technical Program Committee and session chairs as a result of the presentation. The chapters of this book have authors from Belgium, Brazil, China, Italy, Sweden, Switzerland and the USA. The Technical Program Committee comprised 97 members.

VLSI-SoC 2012 was the culmination of the work of many dedicated volunteers: paper authors, reviewers, session chairs, invited speakers and various committee chairs, especially the local arrangements organizers. We thank them all for their contribution.

This book is intended for the VLSI community, mainly those persons who did not have the chance to attend the conference. We hope you will enjoy

reading this book and that you will find it useful in your professional life and for the development of the VLSI community as a whole.

October 2013

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Organization

The IFIP/IEEE International Conference on Very Large Scale Integration-System-on-Chip (VLSI-SoC) 2012 took place during October 7–10, 2012, in the Dream In Hotel, Santa Cruz, California, USA. VLSI-SoC 2012 was the 20th in a series of international conferences, sponsored by IFIP TC 10 Working Group 10.5 (VLSI), IEEE CEDA, and ACM SIGDA.

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