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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 less 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 in information 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.

Christian Piguet Ricardo Reis  
Dimitrios Soudris (Eds.)

# VLSI-SoC: Design Methodologies for SoC and SiP

16th IFIP WG 10.5/IEEE International Conference  
on Very Large Scale Integration, VLSI-SoC 2008  
Rhodes Island, Greece, October 13-15, 2008  
Revised Selected Papers

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## Preface

This book contains extended and revised versions of the best papers that were presented during the 16th edition of the IFIP/IEEE WG10.5 International Conference on Very Large Scale Integration, a global System-on-a-Chip Design & CAD conference. The 16th conference was held at the Grand Hotel of Rhodes Island, Greece (October 13–15, 2008). Previous conferences have taken place in Edinburgh, Trondheim, Vancouver, Munich, Grenoble, Tokyo, Gramado, Lisbon, Montpellier, Darmstadt, Perth, Nice and Atlanta.

VLSI-SoC 2008 was the 16th in a series of international conferences sponsored by IFIP TC 10 Working Group 10.5 and IEEE CEDA that explores the state of the art and the new developments in the field of VLSI systems and their designs. The purpose of the conference was to provide a forum to exchange ideas and to present industrial and research results in the fields of VLSI/ULSI systems, embedded systems and microelectronic design and test.

The 2008 edition of VLSI-SoC maintained the traditional structure of the previous VLSI-SoC conferences. The quality of submissions (193 papers) made the selection process difficult, but finally 56 full papers and 42 posters were accepted for presentation at VLSI-SoC 2008. Out of the 56 full papers presented at the conference, 14 regular papers were chosen by a selection committee to have an extended and revised version included in this book. These selected papers have authors from France, Germany, Italy, Greece, and Switzerland. Additionally, the selection committee invited Eby Friedman, Rochester University, USA, keynote speaker at VLSI-SOC 2008, to contribute a special chapter about "3-D Integrated Technologies".

VLSI-SoC 2008 was the culmination of many dedicated volunteers: paper authors, reviewers, session chairs, invited speakers and various committee chairs, especially the local arrangements organizers. Also, special thanks to the VLSI-SOC 2008 sponsors. We thank them all for their contribution.

This book is intended for the entire VLSI community and in particular those who did not have a chance to take part in the VLSI-SoC 2008 Conference. The selected papers cover a wide variety of excellence in VLSI technology and describe advanced research in the area. We hope that the reader (professional, instructor, engineer, student, etc.) will find the book useful, constructive and enjoyable, and that the technical material presented will contribute to the continued progress of the VLSI community as a whole.

July 2009

Christian Piguet  
Ricardo Reis  
Dimitrios Soudris

# Organization

The IFIP/IEEE International Conference on Very Large Scale Integration-System-on-Chip (VLSI-SoC) 2008 took place during October 13–15, 2008 in the Grand Hotel Rhodes, on Rhodes, Greece. VLSI-SoC 2008 was the 16th in a series of international conferences, sponsored by IFIP TC 10 Working Group 10.5 (VLSI) and IEEE CEDA.

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