

Foreword

This volume commemorates the twentieth anniversary of the International Symposium on Field-programmable Gate Arrays by highlighting the twenty-five most significant papers that have appeared in the conference as viewed from a 2011 perspective. These twenty-five papers represent about five percent of the total papers that have appeared in the conference. These papers have impacted industry, described key building blocks in wide use throughout industry and academia, opened areas of research, resolved serious problems, illuminated difficult issues, and illustrated innovative ways to use FPGAs. They span all areas of concern by the conference including architecture, CAD, circuits and technology, and applications and reconfigurable computing. These papers capture a significant slice of the history of FPGA research and practice, and continue to deliver insights today. They represent "must read" background for research in the field.

This volume includes a one-page endorsement written by an expert in the field that captures the historical context in which the paper was written and offers a retrospective view on its significance. Each endorsement contains a URL link to the original paper.

To identify the papers included in this volume, we ran a rigorous nomination and review process over the course of a full year. Over a six month period, we collected nominations through the web. Anyone could submit nominations with self-nominations prohibited. This resulted in nominations for fifty papers out of the nearly five hundred papers that have appeared in the symposium. We assembled a panel of fifteen experts (see p. iv) to make the final selection of twenty-five papers from the fifty nominations. All of the experts had previously served as chairs of the symposium. As part of the expert review, at least five area experts reread all the papers nominated in an area and shared their view of the relative significance of the papers in the area with the entire panel. This was followed by a blind ranking process in which all experts offered their own rank ordering for the papers, independent of area. These rankings were combined using a variety of preferential ranking schemes to best capture the composite expert consensus.

We would like to thank ACM SIGDA for their sponsorship of this volume, and we would also like to thank all the sponsors of the FPGA Symposium throughout its history, including ACM/SIGDA, Actel, Agere, Aldec, Altera, BEECube, Cypress, Eve, ITRC Ontario Canada, Lucent, Mentor Graphics, Microsemi, Synplicity, Trimmerger Family Foundation, Vantis, and Xilinx. We also express many thanks to the numerous volunteers and authors who make the FPGA Symposium such a success.

FPGA design, mapping, and usage have come a long way since 1992. Their importance and realm of application has grown. As capacities grow, mask costs increase, and deep submicron effects proliferate, their importance should continue to grow into the future. At the same time, continued integration of diverse functions, programmability, and energy issues present challenges that could limit or accelerate widespread adoption. This volume will help you understand how we got to the FPGAs we have today and illuminate the important areas of research for tomorrow. We anticipate the FPGA Symposium will continue to offer glimpses into the future of this important technology.

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