

# Foreword

Welcome to the 16th IEEE International Symposium on Computer Arithmetic, held in Santiago de Compostela, Spain from June 15 to June 18, 2003. Since 1969, the ARITH symposia have served as the primary forum for presenting scientific work on computer arithmetic, number systems, and the implementation of arithmetic processing components. This year's symposium is dedicated to Michael Flynn, who has made lasting contributions to the fields of computer arithmetic and computer architecture. We are also pleased to recognize Luigi Dadda as an Honorary Conference Chair to whom the ARITH-9 symposium was dedicated for his pioneering work in computer arithmetic.

This year's technical program includes 34 papers with authors representing 14 countries. The program includes a keynote talk, "Computer Arithmetic: An Algorithm Engineer's Perspective," by David Matula, a tutorial session, "Design of Power Efficient VLSI Arithmetic: Speed and Power Trade-offs," by Vojin Oklobdzija and Ram Krishnamurthy, and a panel session, "Revisions to the IEEE 754 Standard for Floating-Point Arithmetic," chaired by Eric Schwarz. The rest of the technical program is divided into 8 sessions; "Multiplication," "Division," "Floating-Point Arithmetic," "Elementary Functions," "Testing and Error Analysis," "Cryptography," "Powering, Multiplication, and Counters," and "Number Systems."

The technical program contains the latest research in computer arithmetic. Improvements in algorithms and implementations for the basic arithmetic operations are continually being developed to reduce area, delay, and energy consumption. Exciting changes are taking place in floating-point arithmetic, as demonstrated by major revisions to the IEEE 754 floating-point standard. Computing elementary functions in either hardware or software is an area of growing importance, as is the need for new algorithms and implementations for cryptography. The increased complexity of arithmetic algorithms and implementations requires new methods for testing and error analysis. Furthermore, emerging technologies and applications often require specialized number systems to facilitate efficient implementations.

The 34 papers included in these proceedings were selected out of 101 complete papers submitted to ARITH-16. The submission of manuscripts and the review process were done electronically, allowing faster and more efficient processing and a better match between the submitted papers and the reviewers' fields of expertise. For each paper, at least three reviews were solicited. Most reviews were done by the 32 members of the Program Committee, but some were handled by external reviewers. The papers included in these proceedings were selected by 25 members of the Program Committee, who participated in a meeting held in Los Angeles in January, 2003.

The success of a symposium such as this depends on the participation of many individuals. First, we would like to thank all the authors who submitted their research results. We would also like to express our gratitude to the members of the Program Committee and the external reviewers, who contributed so much of their time and provided in-depth reviews of the papers. We sincerely appreciate the direction provided by the members of the Steering Committee. Finally, we are grateful to Tomas Lang for his guidance and support as General Chair, to Milos Ercegovac for graciously hosting the Program Committee Meeting, to Alexandre Tenca for his important work as Publicity Chair, and to Javier Bruguera for his outstanding efforts as Local Arrangements and Finance Chair.

Support for this year's symposium was provided by the IEEE, the IEEE Computer Society, the IEEE Computer Society Technical Committee on VLSI, Universidad de Santiago de Compostela, Ministerio de Ciencia y Tecnologia of Spain, Direccion Xeral de Investigacion e Desenvolvemento de Galicia, the University of California at Los Angeles, and AutoPD.

We hope that you will find this year's program a continuation of the previous ARITH meetings' tradition of excellence.

**Jean-Claude Bajard and Michael Schulte**  
*Program Chairs*