

Foreword

Welcome to the IEEE Asian Solid-State Circuits Conference (A-SSCC) 2023. This year, A-SSCC is held on-site in Hainan, China from Nov. 5th to Nov. 8th. Being one of the five conferences fully sponsored by the IEEE Solid-State Circuits Society, A-SSCC is one of the leading conferences in the field of integrated circuits and systems design.

The conference theme for this year is “Silicon System with Open Platform of Heterogeneous Integration”. As the IC design is becoming more complicated as well as the applications are diversified like AI and IoT, the domain specific computing with heterogeneously integrated ICs with open platforms are becoming important. A-SSCC 2023 will highlight these heterogeneously integrated ICs that provide unique and innovative solutions for such diversified emerging applications.

This year, we received 235 submissions from around the world. After rigorous review process, the Technical Program Committee (TPC) selected 93 high quality papers with an acceptance rate of 39.6%. In addition, we invited 10 student papers from ESSCIRC 2023 and CICC 2023, having 103 technical paper presentations.

ASSCC will continue its 4-day program similar to last year. Four plenary speeches will be given by distinguished leaders of the industry. First on Nov. 6th, Dr. Chih-Ming Hung, AVP of Technology MediaTek will give a talk on “Semiconductor Chip Design in a Legoland”, and Dr. Bongtae Kim, ETRI Fellow will share his view on “Envisioning 6G Mobile New World”. On Nov. 7th, Dr. Masayuki Ito, Director, NSITEXE Inc. will give a talk on “Architecture Challenges for Heterogeneous Processors in Embedded SoCs”, followed by Professor Albert Wang, University of California, Riverside, who will talk about “Listen: ESD Protection is About Circuit Design”.

Before the regular technical sessions, we have 4 tutorials on Sunday, Nov. 5th, offered by Professor Yan Lu of University of Macau on Hybrid DC-DC Converters, Professor Jae-Yoon Sim of POSTECH on Circuit Design for Scalable Quantum Computing, Professor Masum Hossain of Carleton University on Digital Equalization for Multilevel Signaling in High-speed SerDes and Professor Shouyi Yin of Tsinghua University on Reconfigurable ML Processor: Fundamental Concepts, Application, and Future Trends. A panel discussion is held on Tuesday, Nov. 7th with the topic Heterogeneous Integration: Does it call the end of the foundry-fabless business model?”. The panel invites 6 experts to discuss issues and challenges in heterogeneous integration. The industry session, also held on Tuesday, highlights advances in Design Techniques for Industrial Applications, where four outstanding industry papers are presented. The regular conference papers are grouped in 22 sessions in three parallel tracks. Student Design Contest provides live demos from the top 10 student-authored papers including several FPGA papers. Three winners will be selected and recognized at the conference.

Continuing our diverse programs from last year, we have seven invited special sessions. To expand the knowledge of IC designers beyond circuits, two special sessions, “IT Vision in Asia” and “Convergence Workshop” are organized. To offer advanced and

practical technologies in the real world, two special sessions, “Industry Forum” and “Start-up!” is prepared. Besides these technical talks, two mentoring sessions, “Learn to Establish and Achieve Professionalism (LEAP)” and “RiSE (Rising Star Express) Forum” will give inspiring talks to young scholars and students. We also established “ASSCC-CICC-ESSCIRC (ACE) Joint Session” where 5 student papers from CICC and 5 from ESSCIRC are presented. The ACE program is supported by IEEE Solid-State Circuits Society.

The A-SSCC 2022 TPC consists of 118 members divided into 10 technical subcommittees. The members come from both industry and academia around the world. This year, TPC members gathered in virtual platform in late July to select excellent papers. Their contributions to maintain a high-quality conference are highly appreciated. Furthermore, I would like to acknowledge the leadership of the technical subcommittee chairs: Prof. Po-Chiun Huang (Analog Circuits and Systems), Dr. Kazuko Nishimura (Data Converters), Prof. Jun Zhou (Digital Circuits and Systems), Prof. Joo-Young Kim (SoC and Signal Processing), Prof. Minoru Fujishima (Wireless), Prof. Byungsub Kim (Wireline), Prof. Jerald Yoo (Emerging Technology and Applications), Dr. Chiweon Yoon (Memory), Dr. Jun Deguchi (FPGA), and Dr. Stefan Rusu (Industry Program).

I would also like to acknowledge Prof. Jung-Hoon Chun, Prof. Sai-Weng Sin, and Prof. Nan Qi for organizing the Student Design Contest, the FPGA Demo, and the Industry Demo programs, Prof. Zhihua Wang for preparing the plenary program and panel, and Prof. Seung-Tak Ryu for the tutorial planning. I would like to give special thanks to the TPC Co-Chair, Prof. Pei-Yun Tsai and the TPC Vice-Chair, Prof. Tetsuya Iizuka for their full support.

I would like to extend my sincere appreciation to all authors and speakers, conference organizers, committee members, moderators, panelists, and, last but not least, all the participants. I hope you will enjoy the technical program of the A-SSCC 2023, take this opportunity to network with experts around the world, and bring back good memories with you!

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