Report on the 22nd Asia and South-Pacific Design Automation Conference (ASP-DAC2017)

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The 22nd Asia and South-Pacific Design Automation Conference (ASP-DAC2017) was held at Makuhari Messe, Chiba (near Tokyo), Japan, from January 16 to 19, 2017.   Makuhari Messe is one of the biggest international convention complexes in Japan and a memorable place where the first ASP-DAC was held in 1995. ASP-DAC2017 had 397 attendees from all over the world.

ASP-DAC is a high-quality and premium conference on Electronic Design Automation (EDA) area like other sister conferences such as Design Automation Conference (DAC), Design, Automation & Test in Europe (DATE), and International Conference on Computer Aided Design (ICCAD). ASP-DAC started in 1995 and has continuously offered opportunity to know the recent advanced technologies on LSI design and design automation areas, and to communicate each other for researchers and designers around Asia and South Pacific regions.

ASP-DAC2017 was sponsored by IEEE CASS, IEEE CEAD, ACM SIGDA, IEICE (Institute of Electronics, Information and Communication Engineers, Japan) TC-VLD (VLSI Design Technologies), and IPSJ (Information Processing Society of Japan) SIG-SLDM (System and LSI Design Methodology).

ASP-DAC2017 had three keynote sessions, 27 regular sessions, four special sessions, a university LSI design contest, and designers' forum on Tuesday, 17th to Thursday, 19th, as well as six tutorials on Monday, 16th.

Keynote 1 *Keynote 2* *Keynote 3*

The three keynote sessions were arranged at the beginning of each day. The first keynote held in Tuesday morning was a joint keynote celebrating Professor Edward J. McCluskey, who passed away in February 2016, through three speeches by world-renowned scholars on the next wave of pioneering innovations. It started with a memorial speech on Prof. McCluskey by Prof. Jacob Abraham of University of Texas at Austin. The first keynote speech was 'Heterogeneous integration of X-tronics: Design automation and education' by Prof. Tim Cheng of Hong Kong University of Science and Technology, explaining the heterogeneous nano-system integration technology named X-tronics and showing the gap that EDA technology should fill. The second one was 'Electronics for the Human Body' by Prof. John Rogers of Northwestern University, introducing technologies making electronic and optoelectronic devices intimately integrated with the living body. The last speech was 'Design of society: Beyond digital system design' by Prof. Hiroto Yasuura of Kyushu University, Japan, showing the prospects for the future that the design technologies of the integrated system that Professor McCluskey founded spread to the design of society and education systems.

The second keynote in Wednesday morning was 'Emerging medical technologies for interfacing the brain: From deep brain stimulation to brain computer interfaces' by Dr. Napoleon Torres-Martinez of CEA LETI, France, explaining electronics technologies for deep brain stimulation therapy and implant device for brain-computer interface. The third keynote held in Thursday morning was 'All-programmable FPGAs: More powerful devices require more powerful tools' by Dr. Steve Trimberger of Xilinx Research Labs, explaining the history of FPGA devices and the innovation leading to the latest devices, and emphasizing that design tools must continue to innovate with the device.

Conference room
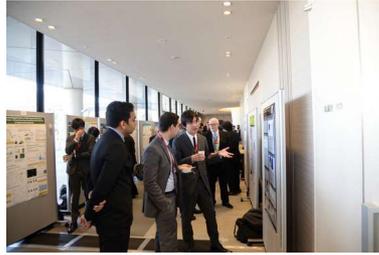
Poster session

ASP-DAC2017 had received 358 submissions from all over the world, 107 submissions coming from USA, 59 from China, 26 from Taiwan, 26 from Japan, 25 from Germany, 20 from India, 11 from Korea, 10 from Australia, 10 from Hong Kong, and 64 from others including European countries. Based on rigorous and thorough reviews and a full-day face-to-face meeting by the Technical Program Committee in August 2016 at Hong Kong, 111 papers had been accepted and the 27 technical sessions were organized.

The four special sessions were organized based on the talks invited by the Technical Program Committee chaired by Prof. David Z. Pan of University of Texas at Austin. They were 'Neuromorphic computing system and low-power recognition', 'Let's secure the physics of cyber-physical systems', 'Emerging technologies for biomedical applications: Artificial vision systems and brain machine interface', and 'When backend meets frontend: Cross-layer design & optimization for system robustness'.

University Design Contest is also an important annual event of ASP-DAC. 20 outstanding designs out of 25 contributions all including actual silicon proof had been selected and short oral presentations and poster presentations were made on Tuesday.

The Designers' Forum is a unique program of ASP-DAC held in Japan that shares design experience and solutions of actual product designs of the industries. The

Panel discussion

Banquet

forum of this conference consisted of three oral presentation sessions and a panel discussion session. The topics included IoT applications, AI technologies, automotive security, and advanced image sensing and processing technologies. The panel discussion on the future of AI technologies attracted a lot of participants.

Six tutorials were held on Monday. They were 'Silicon photonics for computing systems: Opportunities, challenges, and implementations', 'Towards energy-efficient intelligence in power-/area-constrained hardware', 'Post-silicon validation and emulation-based validation using exercisers', 'Quick start guide of digital PLL for digital designers', 'The emergence of hardware oriented security and trust', and 'Cross-layer reliability aware design, optimization and dynamic management'. Each 2-hour tutorial lecture was held twice. Each audience could take at most three of the six lectures.

Please see http://www.aspdac.com/aspdac2017/ for more details.

The next ASP-DAC will be held in Jeju Island, Korea from January 22 to 25, 2018. Visit www.aspdac.com/ for more details.