The 42nd Annual International Symposium on

COMPUTER ARCHITECTURE

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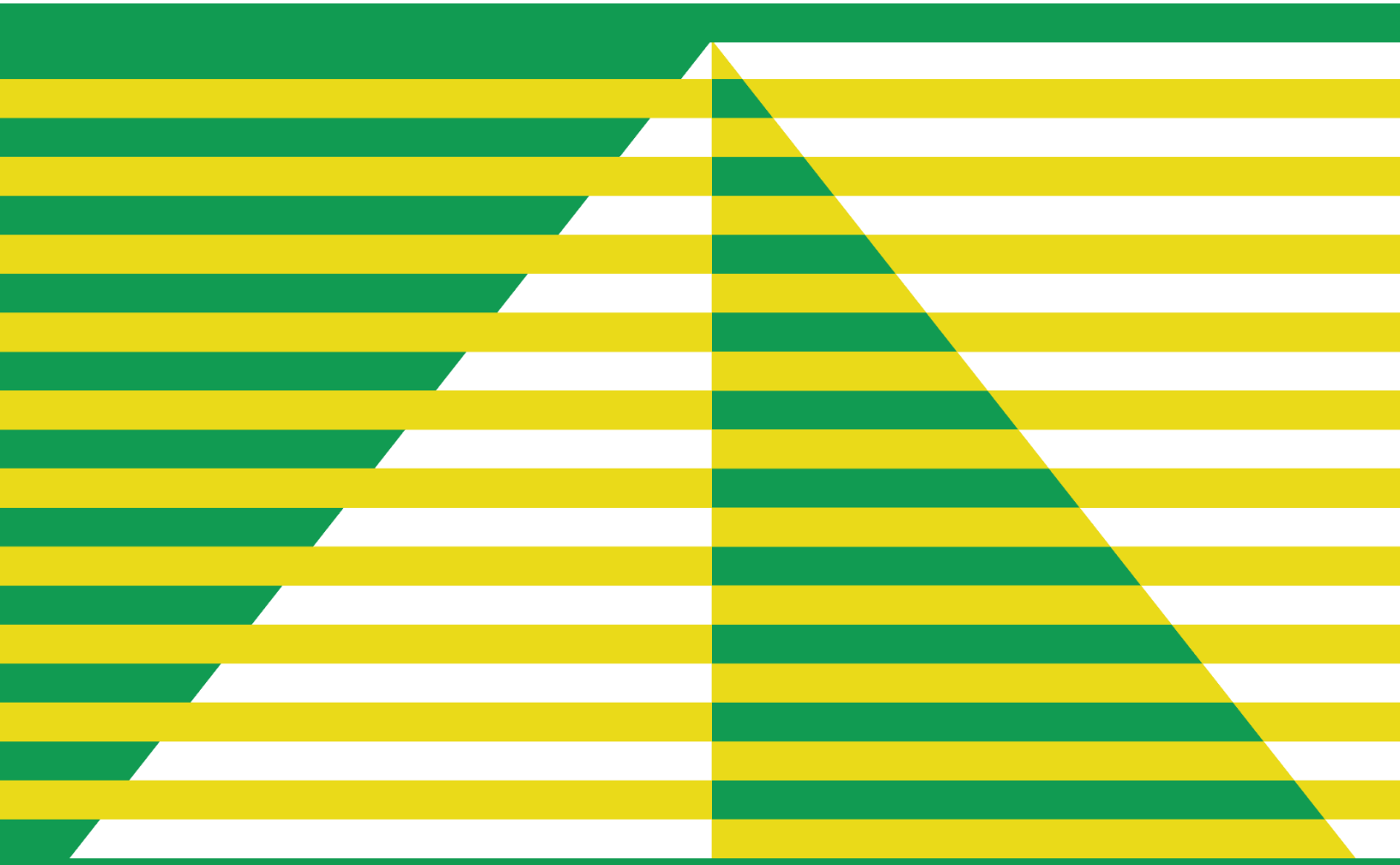
ISCA 2015
June 13-17, 2015
Portland, OR, USA



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Message from the General Chair

Welcome to the 42nd International Symposium on Computer Architecture (ISCA), in Portland, Oregon, June 13-17, 2015, at the Oregon Convention Center. ISCA has a long history of leadership as the top conference in the field of computer architecture. ISCA's success is because of all of you, our participants, organizers, and supporters. Thank you for coming, participating, and supporting this conference. As in previous ISCA conferences, expect to participate in technical presentations, workshops, tutorials, and networking opportunities of the highest caliber with colleagues from all over the world!

This year ISCA is honored to participate in the Federated Computing Research Conference, which assembles a spectrum of affiliated research conferences held together in one location. FCRC features joint plenary talks on topics of broad appeal, plenty of opportunity to network across disciplines, and the freedom to attend talks of other affiliated conferences.

ISCA's success is the result of many people's hard work. Thank you to all of the people in our community who submitted a record-number of 305 papers! Our program chair, David Albonesi, did an admirable job of coordinating the reviews of a record number of paper submissions. He assembled the largest set of program committee members and external reviewers to manage a high-quality review process in spite of the number of submissions. Thank you to all of our program committee members and external reviewers for your hard work and valuable contributions. In addition to papers submissions, we also had 30 workshop and tutorial submissions! Thank you to all of those who submitted so many workshop and tutorial proposals. Our workshop and tutorials chairs, Omer Khan and Paul Gratz, worked with them to put together a wonderful set of compelling workshops and tutorials. Our finance chair, Natalie Enright Jerger, took care of all the nitty-gritty budget and payment details and made sure we were financially on-track. Our industrial liaison chairs, Karin Strauss and Tom Wenisch, solicited and obtained grants which allowed us to substantially offset our costs, especially for our student registration rates. Our local arrangement chairs, Chris Wilkerson and Jianping Xu, organized a wonderful networking excursion event and participant gifts. They put together a marvelous excursion to the World Forestry Center, a quintessentially Oregon experience with nature walks and forestry displays in a beautiful setting. Our web chair, Eriko Nurvitadhi, did an outstanding job of creating our web site and keeping all of the information up-to-date. Our publicity chair, Lisa Wu, was the galvanizing force behind our record submissions and participation numbers. Our proceedings chair, Eric Chung, showed exceptional organization and diligence in making sure the author final submissions met criteria, forms were filled out properly, and procured vendors to produce our USB sticks and printed proceedings is most appreciated. Finally, our travel awards chair, James Tuck, was instrumental in applying for and getting valuable donations, then administrating the many details of grant applications and grant awards to offset travel costs for our student participants. The ISCA steering committee provided valuable feedback and suggestions on organizational questions.

Sincere appreciation goes to our industrial sponsors! These sponsors provide critical financial support; many of them have provided consistent sponsorship year after year. This support is critical for us to continue to keep our costs low and our quality high. We want to give warm thanks (in alphabetical order) to Altera, AMD, ARM, Cavium, Google, Hewlett Packard, Huawei, IBM,

Intel, Microsoft, Oracle, and Qualcomm. We also want to thank the generous support from the U.S. National Science Foundation, ACM SIGARCH, IEEE TC on Computer Architecture, and Oracle for travel grants to offset student travel costs or child-care/companion assistance.

ISCA is co-sponsored by IEEE and ACM, who support ISCA on alternate years. This year we have the privilege of working with the ACM and we want to thank the excellent people at the ACM for their responsiveness in supporting ISCA.

Thank you to each and every one of our participants for attending ISCA in our beautiful green city of Portland, Oregon.

Sincerely,

Debbie Marr
Intel Corporation

Message from the Program Chair

I am delighted to present the program for the 42nd International Symposium on Computer Architecture. We received a record 305 submissions, and I had the honor of leading the selection of the 58 papers that appear in this year's program. I'll first give insight into the process that we followed, and then thank those who really made this happen.

I was fortunate to work with 49 outstanding Program Committee (PC) members, 165 dedicated External Review Committee (ERC) members, and a number of expert external reviewers. Each submission received reviews from two PC members and one member of the ERC. All papers with at least one positive review advanced to the second round, where they received a fourth review from a PC member and a fifth from the ERC. Some papers received reviews from outside experts, resulting in every second round paper receiving at least five reviews. Margaret Martonosi handled all papers for which I had a conflict. Throughout the review period, the scores and identities of the other reviewers were kept hidden, except for a brief period at the end of the first and second rounds when reviewers could see other reviews and make adjustments. The workload and progress of other PC/ERC members was also hidden throughout the entire process, to focus reviewers on the task at hand and permit more effective individual nagging. Most PC members reviewed 17 papers over the two rounds, a reasonable load considering the record number of submissions; a number of ERC members graciously volunteered to review 6-7 papers.

After the rebuttal period, during which time the authors could view both reviewer scores and comments, PC members were assigned as discussion leads. Usually, the lead was given to the PC member with the highest Overall Merit score, except in a few cases in order to reasonably load balance the assignments (no PC member was assigned to lead more than five papers). The ensuing online discussion period involved all reviewers, who assigned Post Discussion Overall Merit scores and reached consensus to classify papers into *online-accept* (20 papers), *online-reject* (108), and *discuss* (93) categories in advance of the PC meeting.

The PC meeting was held at the Hilton Chicago O'Hare over a full day on February 27 and a half-day on February 28. Despite inclement weather that caused several flight delays and cancellations, 47 PC members attended the meeting; one other attended by phone, and one was unable to attend due to a family illness. Discussion of each paper proceeded as follows. PC members with a conflict first left the room. Then the paper number, title, discussion lead, reviewers, and scores were revealed. Author information was never shown, except for accepted papers the day after the meeting. Discussion leads quickly summarized the *online-accept* category papers without debate. For *discuss* category papers, the lead first summarized the paper, their review, and the ERC and external reviews where applicable. The other PC members weighed in and, when necessary, the three PC members discussed the paper before voting. If the vote was not unanimous, the entire PC was invited to ask questions of the PC reviewers and provide their opinions, which was followed by a full PC vote. All PC members were strongly encouraged to vote, with a majority decision deciding the paper's fate. The number of accepted papers was never revealed throughout the meeting in order to encourage PC members to maintain their objectivity, and not be swayed by any perception of having accepted "too many" or "too few" papers at any point in time. All and all, we managed to provide sufficient time for productive debate over the day and a half meeting.

I am grateful for the support of the many people who made this happen. First, I'd like to thank the PC members who dedicated numerous hours to ensure that we made the best possible decisions. I am privileged to have had the opportunity to work with such a talented and devoted group of professionals. Many thanks also to the dedicated members of the ERC, especially those who willingly volunteered to take on a higher-than-expected review load, and the external reviewers, whose insightful comments were instrumental in making the final selections. I'd like to express my sincere thanks to Margaret Martonosi for deftly handling my conflict papers, and to Steve Keckler, Lieven Eeckhout, Jose Martinez, and Tom Wenisch, on whom I heavily depended for advice. I'm grateful to Dave Kaeli, David Wood, and the Steering Committee for having the faith in me to lead the process, and to General Chair Debbie Marr for her support. Cornell PhD student Jon Tse was instrumental in setting up and maintaining the submission server, and I cannot thank enough my PhD students, Abhi Majumdar and Tayyar Rzayev, for their outstanding work as Submission Co-Chairs, including their invaluable assistance at the PC meeting.

I hope you enjoy this year's ISCA program.

David H. Albonesi
Cornell University

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