

DISTINGUISHED LECTURE

Center for Embedded Computer Systems

Presents

A Thermal Perspective of Dependability in Systems on Chip

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Abstract

The first part of the talk introduces to some basics of on-chip reliability from a thermal point of view i.e., how heat/temperature is related to reliability. We explain NBTI and Electromigration etc., and show that many reliability-related mechanisms are accelerated by temperature. We also discuss challenges posed by, and solutions for how to estimate and measure temperature. The second part introduces some of our concepts on how to control on-chip temperature through mechanisms such as load balancing etc.

Biography



Jörg Henkel is currently with Karlsruhe Institute of Technology (KIT), Germany, where he is directing the Chair for Embedded Systems CES. Before, he was with NEC Laboratories in Princeton, NJ. His current research is focused on design and architectures for embedded systems with focus on low power and reliability. Prof. Henkel has organized various embedded systems and low power ACM/IEEE conferences/ symposia as General Chair and Program Chair and was a Guest Editor on these topics in various Journals like the IEEE Computer Magazine. He was Program Chair of CODES'01, RSP'02, ISLPED/06, SIPS'08 and CASES'09, Estimedia'11, VLSI Design'12 and served as General Chair for CODES'02, ISLPED

2009 and Estimedia 2012. He is/has been a steering committee member of major conferences in the embedded systems field like at ICCAD, ISLPED, Codes+ISSS, CASES and is/has been an editorial board member of various journals like the IEEE TVLSI, IEEE TCAD, JOLPE etc. He has given full/half-day tutorials at leading conferences like DAC, ICCAD, DATE etc and has delivered several keynotes.

Prof. Henkel received the 2008 DATE Best Paper Award, the 2009 IEEE/ACM William J. McCalla ICCAD Best Paper Award, the Codes+ISSS 2011 Best Paper Award and the MaXentric Technologies AHS 2011 Best Paper Award. He is the Chairman of the IEEE Computer Society, Germany Section, and the Editor-in-Chief of the ACM Transactions on Embedded Computing Systems (ACM TECS). He is an initiator and the coordinator of the German Research Foundation's (DFG) program on 'Dependable Embedded Systems' (SPP 1500). He holds ten US patents. For details see <http://ces.itec.kit.edu/~henkel/>

Monday, February 25, 2013

Refreshments at 10:45a.m., Lecture begins at 11:00a.m.

Harut Barsamian Colloquia Room (EH 2430)

Host: Professor Mohammad Al Faruque

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