Electrical & Computer ENGINEERING

# SEMINAR

**THURSDAY**
**DECEMBER 7, 2006**

**Scaife Hall Auditorium**
**Room 125**

**4:30 p.m.**
Refreshments—4:00 p.m.


**JOERG HENKEL**
**KARLSRUHE UNIVERSITY**


Dr. J. Henkel received his Master and Ph.D ("Summa cum laude") degrees both from the Technical University of Braunschweig, Germany. He then joined the Computer & Communication Research Laboratories CCRL (now NEC Laboratories America) in Princeton, NJ, where he led various projects in the areas of low power system level design and advanced embedded architectures. In between, he had an appointment as a visiting professor at the University of Notre Dame, IN.
Dr. Henkel is currently with Karlsruhe University (TH), Germany, where he is directing the Chair for Embedded Systems (CES). He has served or is serving as a program committee member for major conferences in electronic design automation and embedded system design like DAC, ICCAD, DATE, ASP-DAC, ISLPED, Codes-ISSS, CASES, RTSS, RSP. He has given full-day tutorials at conferences like DAC, ICCAD, DATE and others in the area of embedded system design. In 2001 he served as a Program Chair for the IEEE/ACM Codes Hardware/Software Co-design Symposium and was a General of the same convention in 2002. Furthermore, he was a Program Chair for the 2002 IEEE Workshop on Rapid System Prototyping. In 2006 he served as a Program Co-Chair for the IEEE/ACM Int'l Symposium on Low Power Electronics and Design (ISLPED). He has guest-edited special issues on hardware/software co-design in the IEEE Computer Magazine and on rapid system prototyping with Kluwer. Dr. Henkel is an Associate Editor of the IEEE Trans. on VLSI Systems and the Chair of the IEEE Computer Society, Germany Section. He holds seven US patents.


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# The RISPP Approach for Designing Extensible Embedded Processors

Designing embedded processors becomes increasingly flexible since tool suites from major vendors allow the designer to customize in multiple ways including instruction extensions. The designer faces then the problem to explore a large design space in order to find solutions that comply to given constraints (e.g. performance) with minimal area and/or minimal power consumption etc.

The talk is twofold: in the first part it gives an overview of the author's past work in the field including design space exploration for extensible embedded processors. The second part focuses on the current work that we call RISPP: Rotating Instruction Set Processing Platform, a platform that allows run-time reconfiguration in order to enhance efficiency as opposed to current approaches that are limited to customization during design time. The major design steps and tools of RISPP are discussed and some first results of the ongoing project are presented.

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