

Einladung zum 148. Institutskolloquium

Thema: **Industrial Design Closure Flow for Timing and Routability in Designs below the 32nm Technology Node**

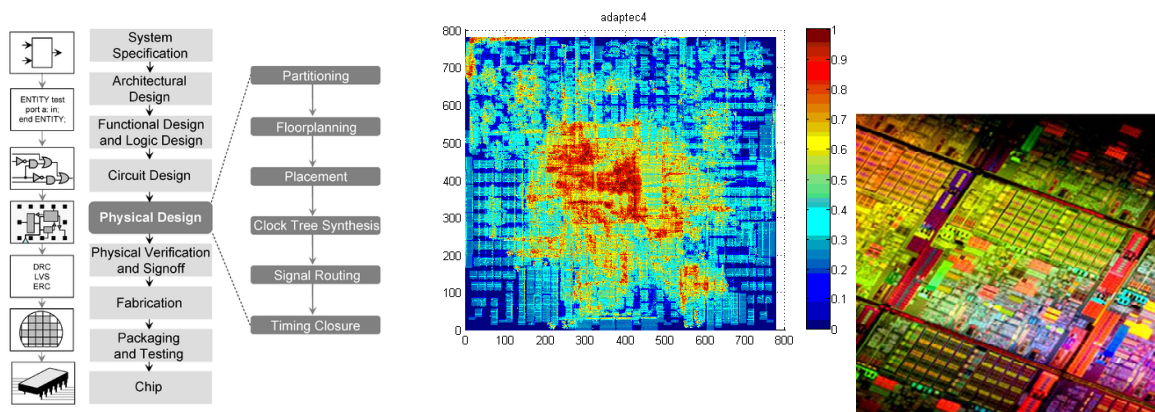
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Leitung: **Prof. Dr.-Ing. habil. Jens Lienig**

Zeit / Ort: **19. März 2012, 10 Uhr im Barkhausenbau II/56**

As VLSI technology scales down further to meet the demand of Moore's law, interconnect delays become the dominant factor in delay optimization. Coupled with conflicting optimization objectives such as delay, area and routability, the design closure problem of complex VLSI designs becomes almost intractable.

In this presentation, we first go over the IBM design closure flow which has shown some success in this area particularly for high performance designs. Then, we focus on the local routing congestion problem which becomes increasingly important as complex design rules make local pin access the bottleneck for modern designs and routers. Since congestion analysis based on global routing does not model these effects, routability-driven placement and physical synthesis fail to alleviate local congestion. To address this issue, we propose a new placement-based congestion mitigation technique which abstracts local congestion complexity to the cell level. We demonstrate that the detailed placement-like technique can significantly improve routing quality on real industry designs.



Gi-Joon Nam received his B.S. degree in computer engineering from Seoul National University in Seoul, Korea, and M.S. and Ph.D degrees in computer science and engineering from the University of Michigan, Ann Arbor, Michigan, U.S.A. Since 2001, he has been working with the IBM Austin Research Lab in Austin, Texas. His general interests include computer-aided design algorithms, combinatorial optimization, VLSI system design, and computer architecture. Dr. Nam has served on the technical program committees for various conferences including DAC, ICCAD, ISPD etc. He is the recipient of 1st place award for the 38th Design Automation Conference Student Design Contest, numerous IBM awards and the SIGDA technical leadership award from ACM.