All system designers dream of flexibility and easy, fast system adjustment. They dream of performing wireless transceiver functions in software. This would mean no nasty analog circuits. However, more analog functions are appearing. Is it possible to put A/D and/or D/A converter immediately before or after the antenna? Will this result in an unacceptable power drain, or will the solution enable more-efficient transmission techniques?

Panelists:
Qiuting Huang, ETH Zurich, Lab, Switzerland
Raf Roovers, Philips Research, Eindhoven, The Netherlands
Franz Dielacher, Infineon Technologies, Villach, Austria
Bram Nauta, Univ. of Twente, Enschede, The Netherlands
Simon Atkinson, Analog Devices Inc., Wilmington, MA
Hiroshi Tsurumi, Toshiba Corp., Corp. R&D Ctr., Kawasaki, Japan

Performance of modern processors is limited not by intrinsic transistor speed, but by bandwidth and latency of internal and external interconnects. Optical interconnect technology promises virtually unlimited bandwidth. Will large-scale digital chips be forced to use optical interconnects on-chip and to the rest of the system? Will on-chip copper interconnects with mixed-signal I/O and DSP techniques enable microprocessors to remain purely electrical chips? Are the cost/performance advantages of opto-electronics attractive enough to overcome the inertia of a mature industry?

Panelists:
Alina Deutsch, IBM T. J. Watson Research Center, Yorktown Heights, NY
Karl Joachim Ebeling, Infineon Technologies AG, Munich, Germany
Mark Horowitz, Stanford Univ., Stanford, CA
David A. Miller, Stanford Univ., Stanford CA
Sam Naffziger, Hewlet Packard, Fort Collins, CO
Mitsumasa Koyanagi, Tohoku Univ., Japan
Christer Svensson, Linkoping Univ., Sweden