

RUMP SESSION

Technology and Circuits Joint Rump Session

RJ1: The Next Decade of VLSI Technology and Circuits – Are We on the Same Road?

Organizers:

Circuits

M. Whatley, Cypress

M. Yamaoka, Hitachi

Technology

T-J King Liu, University of California, Berkeley

S. Yamakawa, Sony Corp.

Moderators: J. Dawson, Massachusetts Institute of Technology

K. Kuhn, Intel

The International Technology Roadmap for Semiconductors (ITRS) charts future technology requirements and potential pathways for the industry to sustain the historical pace of improvement in *transistor* performance and cost. These include the use of higher-permittivity gate dielectric materials, high-mobility semiconductor channel materials, and non-classical structures to improve transistor drive current and scalability, and they vary depending on the application (high performance *vs.* low operating power *vs.* low standby power). The issues of increasing MOSFET off-state leakage current and performance variations with transistor scaling are fundamental challenges which will require joint Technology-Circuits solutions, in order for the industry to sustain the historical pace of improvement in *circuit* performance and cost.

This panel discussion will aim to answer the following questions:

- What do we expect to see in the next 10 years in terms of new devices and technologies? (Technologists will provide an ITRS-based perspective for future transistor improvement.)
- Will these address the needs of the expected applications? (Circuit designers will describe driver applications and associated device requirements in terms of performance, power, cost, and design complexity.)

Panelists:

M. Brillouet, CEA LETI

T. Hiramoto, University of Tokyo

K. Imai, NECEL

K. Ishibashi, Renesas Electronics Corp.

M. Izzard, Texas Instruments, Inc.

C. Phelan, Cypress Semiconductor Corp.

D. Robertson, Analog Devices, Inc.