

ISSCC Evening PANELS

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ISSCC Evening PANEL – 2003

E1 Analog Ip – Stairway to SoC Heaven?

Organizer: Rudolf J. Koch, Intineon Technologies, Munich, Germany

Moderator: Franz Dielacher, Intineon Technologies, Villach, Austria

Panel: Yousif Ammar, CEO, XIGNAL, Unterhaching, Germany
Georges Gielen, Prof., Katholieke Univ., Leuven, Belgium
Thomas Heydler, Pres./CEO, Barcelona Design, Newark, CA
Masao Hotta, Senior Chief Engr. & GM, Hitachi, Gunma-Ken, Japan
Philippe Margarshack, Vice Pres., STMicroelectronics Central R&D Group, Crolles, France
Jean-Francois Pollet, COO, Dolphin Integration, Meylan, France
Bill Redman-White, Fellow, Philips, Semiconductor/Prof. Southampton Univ., United Kingdom

Subcommittee: European Panel

E2 Will MEMS, Imagers and Displays be Key to the Growth of the IC Industry?

Organizer: Khalil Najafi, Prof., Dept. of Electrical Engineering and Computer Science, Univ. of Michigan, Ann Arbor, MI

Moderator: Kensall D. Wise, Prof., Dept. of Electrical Engineering and Computer Science, Univ. of Michigan, Ann Arbor, MI

Panel: Yoshiaki Hagiwara, Principal Engineer, Sony, Tokyo, Japan
Christofer Hierold, Prof., Swiss Federal Institute of Technology, Zurich, Switzerland
Roger Howe, Prof., Dept. of Electrical Engineering and Computer Science, Univ. Of California, Berkeley, CA
R. Daniel McGrath, Andover, MA
Clark C.T. Nguyen, Program Manager, Microsystems Technology Office,

DARPA

Ray Roop, Director, Strategic Technology, Sensor Products Division, Motorola,
Tempe, AZ

Subcommittee: Imagers, MEMS and Displays

E3 Good, Bad, Ugly – 50 Years of Memory Evolution. What Next?

Organizer: John Barth, Senior Engineer, IBM Microelectronics, Burlington, VT

Moderator: Sreedhar Natarajan, Design Manager, Mosys, Kanata, Canada

Panel: Howard Kalter, President, HLK, Burlington, VT

Dick Foss, Chairman, Mosaid Technologies, Calabogie, Canada

Adin Hyslop, Director of Design, Ramtron International, Colorado Springs, CO

Changhyun Kim, Vice President, Memory Division, Samsung, Hwasung,
Republic of Korea

Joel Karp, Consultant, Atherton, CA

Roelof Salters, Research Fellow, Philips Semiconductors, Eindhoven, The
Netherlands

Subcommittee: Memory

E4 Future Mobile Phones: A Beautiful Dream or Smoke in LSI Technology?

Co-organizer: Masayuki Mizunmo, Assistant Manager, NEC, Sagamihara,
Kanagawa, Japan

Co-organizer: Akira Matsuzawa, General Manager, Matsuzawa Electric, Osaka,
Japan

Moderator: Tadahiro Kuroda, Professor, Keio Univ., Yokohoma, Japan Tad

Panel: Avner Goren, Architecture Marketing Manager, Texas Instruments, Dallas, TX

Hoi-Jun Yoo, Professor, KAIST, Daejon, Republic of Korea

Hugo DeMan, Professor, Katholieke Univ. Leuven and Senior Research Fellow,
IMEC, Leuven, Belgium

Jay Heeb, Senior Architect, Intel, Chandler, AZ

Katsuhiko Ueda, Director, Matsushita Electric Industries, Kyoto, Japan

Naohiko Irie, Senior Researcher, Hitachi, Tokyo, Japan

Subcommittee: Far East

E5 Fineline Prototyping: Breaking New Ground or Breaking the Bank?

Organizer/Moderator: Roger Minear, Distinguished Member of Technical Staff,
Agere Systems, Allentown, PA

Panel: Qiuting Huang, Swiss Federal Institute of Technology, Zurich, Switzerland

Dale Pearson, IBM T. J. Watson Research Center, Yorktown Heights, NY

Wolfgang Pribyl, Austriamicrosystems, Schloss Premstätten, Austria

Stefanos Sidiropoulos, Aeluros, Mountain View, CA

David Sheng, Taiwan Semiconductor Manufacturing, San Jose, CA
Vahid Manian, Broadcom, Irvine, CA

Subcommittee: Wireline

E6 SoC: DOA? RIP?

Organizer: K. Nagraj, Texas Instruments, Warren, NJ

Moderator: David Allstot, University of Washington, Seattle, WA

Panel: Bruce Wooley, Professor, Stanford University, Stanford, CA
Dennis Buss, Vice President, Texas Instruments, Dallas, TX
Ken Hansen, Vice President, Motorola, Austin, TX
Greg Alwood, Director, Intel, Santa Clara, CA
Chris Mangelsdorf, Director, Analog Devices, Tokyo, Japan
Robert Mertens, Senior Vice President, IMEC, Leuven, Belgium

Subcommittee: Analog

ISSCC Evening PANEL – 2002

E1 Software Radio – Cool or to be Cooled?

Organizer/Moderator: Michael S. Steyaert, Katholieke Univ., Leuven, Belgium

Panel: Qiuting Huang, ETH Zurich, Lab, Switzerland
Raf Roovers, Phillips 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

Subcommittee: European panel

E2 When Will Optical Interconnects Appear on High-Performance Microprocessors?

Organizer: Stefanos Sidiropoulos, Aeluros Inc., Palo Alto, CA

Moderator: Ian Young, Intel Corp., Hillsboro, OR

Panel: 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, Hewlett Packard, Fort Collins, CO
Mitsumasa Koyanagi, Tohoku Univ., Japan
Christer Svensson, Linkoping Univ., Sweden

Subcommittee: Digital

E3 Does Moore's Law Apply to Analog? Past, Present and Future Implications of Technology Progress and Higher Levels of Integration for Mixed-Signal Circuits

Co-organizer: Venu Gopinathan, Broadcom Corp., Irvine, CA

Co-organizer/Moderator: David Robertson, Analog Devices, Wilmington, MA

Panel: Kerry Bernstein, IBM, Essex Junction, VT
Lew Counts, Analog Devices, Wilmington, MA
Steven J. Hillenius, Agere Systems, Murray Hill, NJ
Masao Hotta, Hitachi Ltd., Tokyo, Japan
Ted Tewksbury, Maxim Integrated Products, N. Chelmsford, MA
Maarten Vertregt, Philips Research Labs, Eindhoven, The Netherlands
Bruce Wooley, Stanford Univ., Stanford, CA

Subcommittee: Analog

E4 Have Universities Killed Research - or Has Industry Corrupted It?

Organizer: Bud Taddiken, Microtune, Plano, TX

Moderator: Thomas H. Lee, Stanford Univ., Stanford, CA

Panel: Hugo J. De Man, KU Leuven/IMEC, Leuven, Belgium
Herbert Eichfeld, Infineon Technologies AG, Munich, Germany
Teresa H. Meng, Stanford Univ., Stanford, CA
J. Chris Ruddell, Consultant, Fremont, CA
Eric Swanson, Consultant, Buda, TX

Subcommittee: Wireless

E5 Low-Voltage Design or the End of MOSFET Scaling?

Organizer: Akira Matsuzawa, Matsushita Elec. Industrial Co., Ltd., Osaka, Japan

Co-organizer: Kunihiko Iizuka, Sharp, Nara, Japan

Moderator: Takayasu Sakurai, Univ. of Tokyo, Tokyo, Japan

Panel: Asad Abidi, Univ. of Calif.-Los Angeles, CA
Daniel Senderowicz, SynchroDesign, Berkeley, CA
Akira Matsuzawa, Matsushita Elec. Industrial Co., Ltd., Osaka, Japan
Alex Shubat, Virage Logic Corp., Fremont, CA
Junichi Miyamoto, Toshiba Corp., Yokohama, Japan
Shekhar Y. Borkar, Intel, Hillsboro, OR

Subcommittee: Far East panel

E6 SOI: Solution or Indigestion?

Organizer/Moderator: Sreedhar Natarajan, Texas Instruments, Inc., Dallas,

TX

Panel: Geordie Bracer, IBM Microelectronics, Essex Junction, VT
Tadaaki Yamauchi, Mitsubishi Electric Corp., Hyogo, Japan
Toshiro Hiramoto, Univ. of Tokyo, Tokyo, Japan

Betty Prince, Memory Strategies International, Austin, TX
Eric Dupont Nivet, SOISIC, Grenoble, France
James Burns, MIT Lincoln Labs, Lexington, MA

Subcommittee: Memory

E7 What Caused the Telecom Crash: Technology, Business or Demand?
Organizer: Larry DeVito, Analog Devices, Wilmington, MA
Moderator: Rick Walker, Agilent Technologies, Palo Alto, CA

Panel: Scott Blackstone, Analog Devices, Wilmington, MA
Don Clarke, Btexact Technologies, Martlesham, Ipswich, UK
Jay Liebowitz, RHK Consulting, Waltham, MA
Yuriy M. Greshishchev, Nortel Networks, Ottawa, Ont., Canada
John W. Jarve, Menlo Ventures, Menlo Park, CA
Andrew M. Odlyzko, Univ. of Minnesota, South Minneapolis, MN
Toshitama Tsuda, Fujitsu Labs Ltd., Nakahara, Kawasaki, Japan

Subcommittee: Wireline

E8 Solid-State Circuits: Systems or Circuit Innovations?
Organizer: Bill Bidermann, Pixim, Inc., Mountain View, CA
Moderator: Ralph Etienne-Cummings, Johns Hopkins Univ., Baltimore, MD

Panel: Barrie Gilbert, Analog Devices, Beaverton, OR
Thomas H. Lee, Stanford Univ., Stanford, CA
Andreas Andreou, Johns Hopkins Univ., Baltimore, MD
Wlodek Kurjanowi, ATMOS Corp., Kanata, Ontario, Canada
Bruce Gieseke, AMD, Sunnyvale, CA

Subcommittee: Imagers and MEMS

ISSCC PANEL - 2001

E1 Does Fabless Mean Futureless for Imaging?
Organizer: Albert Theuwissen, Philips Semiconductors, Eindhoven, The Netherlands
Moderator: Daniel McGrath, Atmel, San Jose, CA

Panel: Hideshi Abe, Sony, Kanagawa, Japan
Ed Chen, TSMC Hsin-chu, Taiwan
Bedrich Hosticka, Fraunhofer Institute, Duisburg, Germany
Jed Hurwitz., St. Vision, Edinburgh, UK
Sabrina Kemeny, Photobit, Pasadena, CA
Woodward Yang, Harvard, Cambridge, MA and Hyundai, Korea

E2 10 Years of RF-CMOS - But How Many Products Today?

Organizer/Moderator: Rudolf Koch, Infineon Technologies, Munich, Germany

**Panel: Barry Gilbert, Analog Devices, Beaverton, OR
Svem Mattison, Ericsson, Lund, Sweden
Michiel Steyaert, KU, Leuven, Belgium
Josef Fenk, Infineon Technologies, Munich, Germany
Frank Op't Eynde, Alcatel Microelect., Zaventem, Belgium
Tsuneo Tsukahara, NTT, Kanagawa, Japan**

**E3 Has Scaling Created a Microprocessor Monster?
Organizer: Kerry Bernstein, IBM Microelectronics, Essex Jct., VT
Moderator: David Greenhill, Sun Microsystems, Pala Alto, CA**

**Panel: Kazui Yano, Hitachi Ltd., Tokyo, Japan
David Harris, Mudd College, Claremont, CA
Ruby Lee, Princeton Univ., Princeton, NJ
Robert Montoye, IBM, Austin, TX
Yale Patt, Univ. of Texas, Austin, TX
David Patterson, UC Berkeley, CA**

**E4 How Will Future Portable Systems Store and Access Data: Disk, Semiconductor Memory, Emerging Technology, or via the Internet?
Organizer: J. Miyamoto, Toshiba, Yokohama, Japan/T. Kawahara, Hitachi Tokyo, Japan
Moderator: Gregory Atwood, Intel Corp., Santa Clara, CA**

**Panel: Carlos Paz de Araujo, Symetrix, Colorado Springs, CO
Boaz Eitan, Saifun Semiconductors, Netanya, Israel
Saied Tehrani, Motorola, Tempe, AZ
Koji Sakui, Toshiba Corp., Yokohama, Japan
Albert Fazio, Intel Corp., Santa Clara, CA
David Foote, IBM, San Jose, CA
Tatsuro Takahashi, Kyoto University, Kyoto, Japan**

**E5 Embedded DRAM: Curiosity or Workhorse?
Organizer: Jeffrey Dreibelbis, IBM, Essex Jct., VT
Moderator: Don Stark, Rambus, Mountain View, CA**

**Panel: Tohru Furuyama, Toshiba, Kawasaki, Japan
Dean Klein, Micron Technologies Inc., Boise, ID
Subramanian Iyre, IBM Microelect. Div., Hopewell Junction, NY
Wingyu Leung, Mosys Inc., Sunnyvale, CA
Sadish Soman, Axiowave Networks, Marlborough, MA
Clair Webb, Intel Corp., Hillsboro, OR**

E6 Broadband Access - Who Will Win the Race: Copper, Fiber or Wireless?
Organizer: Tyson Tuggle, Silicon Labs, Austin, TX
Moderator: Gitty Nasserbakht, Proxim, Sunnyvale, CA

Panel: Henry Samueli, Broadcom Corp., Irvine, CA
John Cioffi, Stanford Univ., Stanford, CA
Mamoru Kitamura, NTT, Kanagawa, Japan
A. Paulraj, Gigabit Wireless, San Jose, CA
Leon Cloetens, Alcatel Microelectronics, Zaventem, Belgium
Gerry Pepenella, Silicon Laboratories, Austin, TX
Derek Schaefer, Freespace Communications, Palo Alto, CA

E7 100cubed: Science or Fiction? Is It Possible to Design a 100mm² System-on-Chip with 100M Transistors in 100 Days?
Organizer: Ivo Bolsens, IMEC, Leuven, Belgium
Moderator: Jan Rabaey, UC Berkeley, CA

Panel: Hugo De Man, IMEC, Leuven, Belgium
Andrea Cuomo, ST Microelectronics, Geneva, Switzerland
Harry Veendrick, Philips Semiconductor, Eindhoven, The Netherlands
Aart De Geus, Synopsys, Mountain View, CA
Alberto Sangiovanni-Vincentelli, Cadence, Milpitas, CA
Mehdi Hatamian, Broadcom, Irvine, CA

E8 Are Startups Killing Innovation?
Organizer: Venugopal Gopinathan, Broadcom, Irvine, CA
Moderator: David Johns, Univ. Toronto, Toronto, Ont., Canada

Panel: Nav Souch, Silicon Labs, Austin, TX
Bob Hewes, Texas Instruments, Dallas, TX
Bryan Ackland, Bell Labs, Holmdel, NJ
Masao Hotta, Hitachi, Gunma, Japan
Klaas Bult, Broadcom, Utrecht, The Netherlands
Ron Rohrer, Carnegie Mellon Univ., Pittsburgh, PA

ISSCC PANEL - 2000

ME1 When Can I Buy a Dick Tracy Watch for Christmas?
Organizer: Phillip Wong, IBM T. J. Watson Research Ctr, Yorktown Heights, NY
Moderator: Woodward Yang, Harvard University, Cambridge, MA

Panel: Steve Mann, University of Toronto, Toronto, Ontario, Canada
Wai Lee, Texas Instruments, Dallas, TX
Eric Vittoz, CSEM Centre Suisse d'Electronique et de Microtechnique SA, Neuchâtel, Switzerland

Rein de Graaf, Philips Research, Eindhoven, The Netherlands
Sven Mattison, Ericsson Mobile Communications AB, Lund, Sweden
Yuji Kitamura, Sanyo Semiconductors, Rochelle Park, NJ

ME2 Where Will Processor Performance Come From in the Next Ten Years?
Co-organizer/Moderator: Krste Asanovic, Mass. Inst. of Tech, Cambridge, MA
Co-organizer: William Bowhill, Compaq Computer Corp., Shrewsbury, MA

Panel: **William Dally, Stanford University, Stanford, CA**
Joel Emer, Compaq Computer Corp., Shrewsbury, MA
Frank Fox, Rambus Inc., Mountain View, CA
Wen-Mei Hwu, Univ. of Illinois at Urbana-Champaign, Urbana, IL
Hiroshi Iwai, Tokyo Institute of Technology, Midori-ku, Yokohama, Japan
Fred Pollack, Intel Corp., Santa Clara, CA
Fred Weber, AMD, Sunnyvale, CA

ME3 Engineering Resources: Train, Buy, or Steal?
Organizer: Todd Brooks, Broadcom Corp., Irvine, CA
Moderator: David Robertson, Analog Devices, Wilmington, MA

Panel: **Theo Claasen, Philips Semiconductors, Eindhoven, The Netherlands**
Nicky Lu, Etron Technology Inc., Hsinchu, Taiwan, ROC
Mary Jane Raymond, Lucent Technologies, Murray Hill, NJ
Nav Sooch, Silicon Laboratories, Inc., Austin, TX
T. R. Viswanathan, Texas Instruments, Dallas, TX
Bob Wiederhold, Cadence Design Systems, Inc., San Jose, CA

ME4 Memory Designer: Survivor or Dinosaur?
Organizer/ Moderator: Jagdish Pathak, Sub Micron Circuits, Inc., San Jose, CA

Panel: **Jim Kupec, UMC Group, Sunnyvale, CA**
Prakash Bhalerao, Amber Networks, Cupertino, CA
Michael G. Kliment, Virtual Silicon Technology, Inc., Sunnyvale, CA
Robert Proebsting, Integrated Device Technology, Santa Clara, CA
Richard Foss, MOSAID Technologies, Inc., Kanata, Ontario, Canada
Adam Kablanian, Virage Logic Corporation, Fremont, CA

TE5 Can System LSI be a Technology Driver for the Coming Ten Years?
Co-organizer: Hirotaka Tamura, Fujitsu Labs, Ltd., Nakahara, Kawasaki, Japan
Co-organizer: Shigeo Kuninobu, Matsushita Electric, Nagaoka, Kyoto, Japan
Moderator: Takayasu Sakurai, University of Tokyo, Minato, Tokyo, Japan

Panel: **Emmanuel Crabbe, IBM Semiconductor R & D Ctr, Hopewell Junction, NY**
Herman Casier, Alcatel, Brussels, Belgium
Minoru Yamamoto, Fujitsu Ltd., Nakahara, Kawasaki, Japan
Chuck Dennison, Micron Technology, Boise, ID
Tetsuya Iizuka, THine Electronics Inc., Tokyo, Japan
Tadahiko Nakamura, Sony Corp., Tokyo, Japan

TE6 **RF and High-Speed Interfaces: 50 Ohm or Freedom? Low Voltage Differential or Custom?**
Co-organizer/ Co-moderator: Jan Sevenhans, Alcatel, Antwerp, Belgium
Co-organizer/ Co-moderator: Christer Svensson, Link öping University, Linköping, Sweden

Panel: **Helmut Preisach, Alcatel SEL AG, Stuttgart, Germany**
Shekhar Borkar, Intel Corporation, Hillsboro, OR
Michiel Steyaert, K.U., Leuven, Heverlee, Belgium
Yoshihiko Ashida, Murata Manufacturing Co. Ltd., Nagasaka, Japan
Herman Boss, Rhode & Schwartz GmbH, Munich, Germany
Thaddeus Gabara, Bell Labs, Lucent Technologies, Murray Hill, NJ

TE7 **Home Networking: Wired or Wireless?**
Co-organizer: Lars Thon, T-Span Systems, Corp., Palo Alto, CA
Co-organizer: Wanda Gass, Texas Instruments, Dallas, TX
Moderator: Victor Bahl, Microsoft Research, Redmond, WA

Panel: **Ran Yan, Bell Labs, Lucent Technologies, Holmdel, NJ**
Edward H. Frank, Epigram Inc., Sunnyvale, CA
Alberto Mantovani, Conexant Systems Inc., Newport Beach, CA
Brent Myers, Intersil, Palm Bay, FL
Sven Mattisson, Ericsson Mobile Communications AB, Lund, Sweden
Neil Weste, Radiata Communications Pty Ltd., Epping, Australia
Modest Oprysko, IBM Research Division, Yorktown Heights, NY

TE8 **Nostradamus II: Technology's Impact on the Next Millennium**
Co-organizer / Co-moderator: Trudy Stetzler, Texas Instruments, Stafford, TX
Co-organizer / Co-moderator: Mary Jo Nettles, AMCC, San Diego, CA

Panel: **W. H. Korving, Philips Semiconductors B.V., Eindhoven, The Netherlands**
Earl McCune, Tropian Inc., Cupertino, CA
Gene A. Frantz, Texas Instruments, Stafford, TX
Jim Ebentier, AMCC, San Diego, CA
Shumpei Kawasaki, Hitachi, Los Altos Hills, CA
Eric Shutz, Alcatel Microelectronics, Zaventem, Belgium

ISSCC PANEL - 1999

ME1 "They Don't Make Engineers Like They Used To. ...?"

Moderator/Organizer: Thomas Lee, Stanford Univ., Stanford, CA

Co-organizer: Mary Jo Nettles, AMCC, San Diego, CA

Panel: **Hugo De Man, Katholieke Universiteit, Leuven, Belgium**

Nicky Lu, ETRON Technology, Hsinchu, Taiwan, R.O.C.

Bob Pease, National Semiconductor, Santa Clara, CA

Behzad Razavi, UCLA, Los Angeles, CA

Charles Sodini, MIT, Cambridge, MA

Eric Swanson, Crystal Semiconductor, Austin, TX

ME2 The Single-Chip Digital Mobile Radio: Does it Really Make Sense?

Organizer/Moderator: Ernesto Perea, STMicroelectronics, Croilles, France

Co-Organizer: Rudy Van de Plassche, Eindhoven Univ. of Technology,

Eindhoven, The Netherlands

Panel: **Joseph Fenk, Siemens Semiconductor Group, Munich, Germany**

Sven Mattison, Ericsson Mobile Communications, Lund, Sweden

Jan Sevenhans, Alcatel, Antwerpen, Belgium.

Michiel Steyaert, Katholieke Universiteit, Leuven, Belgium

Ton Wagemans, Philips Res. Labs, Eindhoven, The Netherlands

Werner Gruber, Nokia, Tew Technology Sourcing, Salo, Finland

Ken Hanson, Motorola, Austin, TX

ME3 SRAMs in the Early 21st Century

Moderator: Don Draper, Advanced Micro Devices, Sunnyvale, CA

Organizer: Ban-Pak Wong, Sun Microsystems, Palo Alto, CA

Panel: **Tony Alvares, Cypress Semiconductor, San Jose, CA**

Geordie Braceras, IBM, Essex Junction, VT

J. Thomas Pawlowski, Micron, Boise, ID

David Chapman, Motorola, Austin, TX

Hyun-Geun Byun, Samsung, Yongin City, Kyungki, Korea

Steven Eliscu, IDT, Santa Clara, CA

ME4 The Best and Worst in the Evolution of Digital IC Design

Moderator/Organizer: John Maneatis, JGM Enterprises, Redwood City, CA

Co-organizer: Kevin Donnelly, Rambus, Mountain View, CA

Panel: **Bill Bidermann, Chromatic, Sunnyvale, CA**

Mark Horowitz, Stanford Univ., Stanford, CA

Mark Johnson, Rhombus, Menlo Park, CA

Toshiaki Masuhara, Hitachi, Tokyo, Japan

Peter Stoll, Intel, Albuquerque, NM

Christer Svensson, Linköping Univ, Linköping, Sweden

TE5 **Managing Innovation - An Oxymoron?**

Moderator: Paul Brokaw, Analog Devices, Wilmington, MA

Organizers: Paul Brokaw, Analog Devices, Wilmington, MA

Klaas Bult, Broadcom, Irvine, CA

Christian Enz, Rockwell Semiconductor Systems, Newport Beach, CA

Panel: **J. Gifford, Maxim, Sunnyvale, CA**

A. Matsuzawa, Matsushita, Osaka, Japan

H. Nicholas, Broadcom, Irvine, CA

B. Pease, National Semiconductor, Santa Clara, CA

D. Robertson, Analog Devices, Wilmington, MA

Y. Tsvetov, Columbia Univ., New York, NY

E. Vittoz, CSEM, Neuchatel, Switzerland

TE6 **When Will MEMS Appear in Every Communication System?**

Moderator: Kaigham (Ken) Gabriel, Carnegie Mellon Univ., Pittsburgh, PA

Organizer: William J. Kaiser, UCLA, Los Angeles, CA

Panel: **Clark Nguyen, Univ. of Michigan, Ann Arbor, Michigan**

Jason Yao, Rockwell Science Center, Thousand Oaks, CA

Leo Pellon, Lockheed Martin, Morristown, NJ

Elliott Brown, UCLA, Los Angeles, CA

Bernhard Boser, Univ. of California, Berkeley, CA

Hector J. De Los Santos, Hughes Space and Communications, Los Angeles,

CA

TE7 **Hardware is King, Software is Queen: Has Hardware Become a Second-Class Citizen to Software?**

Moderator: Richard Newton, Univ. of California, Berkeley, CA

Organizers: Ingrid Verbauwhede, UCLA, Los Angeles, CA

Teresa Meng, Stanford Univ., Palo Alto, CA

Panel: **Patrick W. Bosshart, Texas Instruments, Dallas, TX**

Robert Brodersen, Univ. of California, Berkeley, CA

Dan Dobberpuhl, SiByte, Menlo Park, CA

K.C. Murphy, Cadence, San Jose, CA

Takayasu Sakurai, Univ. of Tokyo, Tokyo, Japan

Yomtov Sidi, National Semiconductor, Herzlia, Israel

TE8 **Who Controls the Value of Semiconductor Devices, IP Designers or Semiconductor Engineers?**

Moderator/Co-organizer: G. Saucier, INPG, Grenoble, France

Organizer: Kunihiro Asada, Univ. of Tokyo, Tokyo, Japan

Panel: **Tadahiro Ohmi, Tohoku Univ., Sendai, Japan**
Grant Martin, Cadence, San Jose, CA
Alistair Greenhill, ARM Ltd., Cambridge, UK
Eric Schutz, Alcatel, Zaventem, Belgium
Joel Karp, Rambus, Mountain View, CA
Rich Donaldson, Texas Instruments, Dallas, TX
Shojiro Mori, Toshiba Corp., Tokyo, Japan

ISSCC PANEL - 1998

TE1 Three Decades of DRAM Development, Debate, and Distinction
Moderator: R. C. Foss, Mosaid Technologies, Kanata, Ontario, Canada
Organizer: Bill Martino, Motorola, Austin, Texas

Panel: **Kurt Hoffmann, Bundeswehr University, Munich, Germany**
Howard Kalter, IBM, Essex Junction, Vermont
Joel Karp, Consultant, Menlo Park, California
Mitsu Koyanagi, Tohoku University, Sendai, Japan
Jerry Moench, AMD, Austin, Texas
Bob Proebsting, IDT, Santa Clara, California

TE2 How much Analog is going to survive on large digital chips?
Moderator / Organizer: Klaas Bult, Broadcom Corp., Irvine, CA
Co-Organizer: Ken Martin, University of Toronto, Canada

Panel: **Chris Mangelsdorf, Analog Devices, Tokyo, Japan**
Tsutomu Wakimoto, NTT, Kanagawa, Japan
Asad Abidi, UCLA, Los Angeles, CA
Marcel Pelgrom, Philips Research Labs., Eindhoven, The Netherlands
Timothy J. Schmerbeck, IBM, Rochester, MN
Frank Carr, Rockwell International Corp., Newport Beach, CA

TE3 Sub 1V CMOS: SOI or BULK?
Moderator/Organizer: Jan Sevenhans, Alcatel, Antwerp, Belgium
and/or
Moderator/Organizer: Christer Svensson, Linköping University, Sweden

Panel: **Kristin Demeyer, KUL, IMEC, Leuven, Belgium**
Jerry Yue, Honeywell, Plymouth, MN
Seiichiro Kawamura, Fujitsu, Kawasaki, Japan
Masakazu Kakumu, Toshiba, Kawasaki, Japan
Ted Houston, Texas Instruments Inc., Dallas, TX
Jean Pierre Colinge, UCL, DICE, Louvain la Neuve, Belgium
Koichiro Mashiko, Mitsubishi, Itami, Japan
Michael Alles, IBIS, Danvers, MA
Andre-Jacques Auberton-Herve, SOITEC, Grenoble, France

TE4 Will Power Limit Microprocessor Performance?
Moderator/Organizer: William Bowhill, Digital Equipment , Hudson, MA
Co-Organizer: David Greenhill, Sun Microsystems, Mountain View, CA

Panel: **Randy Allmon, Digital Equipment Corp., Hudson, MA**
David Bearden, Motorola Inc., Austin, TX
Kerry Bernstein, IBM Microelectronics Division, Essex Junction, VT
Mark Bohr, Intel Corp., Hillsboro, OR
Shashank Goel, Simplex Solutions Inc., Sunnyvale, CA
Ray Heald, Sun Microsystems Inc., Mountain View, CA
Masakazu Yamashina, NEC Corp., Kanagawa, Japan

FE5 Will CMOS Image Sensors Survive Scaling?
Moderator: Albert Theuwissen, Philips Research Labs., Eindhoven, The Netherlands
Organizer: Abbas El Gamal, Stanford University, Stanford, CA

Panel: **H-S. Wong, IBM, TJ Watson, Yorktown Heights, NY**
Yoshiyuki Matsunaga, Toshiba, Kawasaki, Japan
Daniel McGrath, Polaroid Corp., Cambridge, MA
Kit M. Cham, Helwett-Packard Labs., Palo Alto, CA
Jack Uppal, Intel Corp., Santa Clara, CA
Nobukazu Teranishi, NEC Corp., Kanagawa, Japan
J. E. D. Hurwitz, VLSI Vision Ltd., Edinburgh, Scotland

FE6 How Will Media Signal Processors Dominate the Next Decade?
Moderator: William Bidermann, Chromatic Research, Sunnyvale, CA
Organizer: Steve Purcell, Chromatic Research, Sunnyvale, CA

Panel: **K. Gutttag, Texas Instruments, Plano, TX**
D. Patterson, University of California at Berkeley, CA
B. Prasad, Intel Corp., Santa Clara, CA
S. Purcell, Chromatic Research, Sunnyvale, CA
T. Sakurai, University of Tokyo, Tokyo, Japan
F. Sijstermans, Philips Research Labs., Eindhoven, The Netherlands

FE7 LSI Solutions and Enabling Technologies for Mobile Multimedia Devices at the Year 2000
Organizer: K. Sasaki, Hitachi Central Research Labs., Tokyo, Japan
Coorganizer: T. Baba, Matsushita Semiconductor of America, Palo Alto, CA
T. Sumi, Matsushita Electronics Corp., Osaka, Japan
Moderator: T. Meng, Stanford University, Stanford, CA

Panel: **R. Brodersen, UC Berkeley, CA**
C. Chien, Rockwell Science Center, Thousand Oaks, CA

S. Kawasaki, Hitachi Microsystems Inc., San Jose, CA
T. Lee, Stanford University, CA
H. Meyr, Aachen University, Templergraben, Germany
M. Motomura, NEC, Kanagawa, Japan
W. Sansen, Katholieke Universiteit Leuven, Belgium

FE8 Global Communications: the good, the bad, and the ugly
Moderator/Organizer: Rick Walker, Hewlett-Packard, Palo Alto, CA

Panel: **Ganesh R. Basawapatna, Encore Television, Englewood, CO**
Rev. Heng Sure, Berkeley Buddhist Monastery, Berkeley, CA
Richard Bateman, Teacher and Educator, San Francisco, CA
Tom Mahon, Silicon Valley Publicist, San Francisco, CA
Martin J. Verhoeven, Institute for World Religions, Berkeley, CA
Francois Bar, Stanford University, CA

ISSCC PANEL - 1997

TE1 Analog Versus DSP for Disk Drives
Moderator: Richard Spencer, UC Davis, Davis, CA
Organizer: Patrick Tucci, National Semiconductor, Santa Clara, CA
Co-Organizer: Tyson Tuttle, Broadcom Corp, Irvine, CA

Panel: **Jeffrey Sonntag, Bell Labs, Lucent Technologies, Allentown, PA**
Richard Carley, Carnegie Mellon Univ., Pittsburgh, PA
Maurizio Zuffada, SGS-Thomson Microelectronics, Milan, Italy
Greg Winner, SSI, Tustin, CA
Hemant Thapar, DataPath Systems, Santa Clara, CA
Jerrell Hein, Crystal Semiconductor Corp., Austin, TX
Matsuju Yoshida, Fujitsu VLSI Ltd., Aichi, Japan

TE2 RF Designers are from Mars, Analog Designers are from Venus
Moderator / Organizer: Behzad Razavi, UCLA, Los Angeles, CA
Co-organizer: Hae-Seung Lee, MIT, Cambridge, MA

Panel: **Asad Abidi, UCLA, Los Angeles, CA**
Les Besser, Besser Associates, Los Altos, CA
Geoff Dawe, Analog Devices, Wilmington, MA
Qiuting Huang, Swiss Fed. Inst. of Tech., Zurich, Switzerland
Ed Knapp, Triquint Semiconductor, Beaverton, OR
Hiroshi Kondoh, Hitachi, Tokyo, Japan

TE3 Multimedia Networking: Wireless, Cable or Telco?
Moderator: David J. Goodman, Rutgers Univ., New Brunswick, NJ
Organizer: Lars Thon, IBM Almaden Research Center, San Jose, CA

Co-organizer: Ernesto Perea, SGS-Thomson Microelectronics, Meylan, France

Panel: Walter Chen, Texas Instruments, Dallas, TX
John Cioffi, Stanford University, Stanford, CA
Jean Jerphagnon, Alcatel Telecom, Velizy, France Denis Mestdagh, SGS-Thomson, Grenoble, France
Henry Samueli, Broadcom Corporation, Irvine, CA
Nori Shibata, Nippon Telephone & Telegraph, Japan
Paul Shumate, Bellcore, Morristown, NJ

TE4 What DRAM Architecture will Succeed the Synchronous DRAM?
Moderator: Nicky Lu, Etron, Hsinchu, Taiwan, ROC
Organizer: Hyung-Kyu Lim, Samsung, Kyungki, Korea
Co-Organizer: Bill Martino, Motorola, Austin, TX

Panel: Yukio Fukuzo, NEC, Kanagawa, Japan
Holger Goebel, Siemens, Munich, Germany
Craig Hampel, Rambus, Mountain View, CA
Chang-Hyun Kim, Samsung, Kyungki, Korea
Pete MacWilliams, Intel, Hillsboro, OR
Desi Rhoden, VLSI, Tempe, AZ
Bill Vogley, Texas Instruments, Houston, TX

FE5 "To Be EE or not to Be?" "Will I be Enjoying Engineering in 10 Years?"
Moderator: Eric Fossum, Photobit, La Crescenta, CA
Co-Organizer: Frank Libsch, IBM Research, Yorktown Heights, NY
Co-Organizer: Fritz Kub, Naval Research Lab., Washington, DC

Panel: Philip Girard, Intellectual Property Attorneys, San Francisco, CA
Tadashi Shibata, Tohoku University, Tokyo, Japan
Rudy van de Plassche, Philips Research Labs, Eindhoven, The Netherlands
Wallace Read, President of IEEE, New York, NY
Eleanor Baum, Cooper Union, New York, NY
Pallab Chatterjee, Texas Instruments, Dallas, TX
Jim Williams, Linear Technology Corp., Milpitas, CA

FE6 Synchronous vs Asynchronous Design
Moderator: Teresa Meng, Stanford University, Stanford, CA
Organizer: Engel Roza, Philips Research Labs, Eindhoven, the Netherlands

Panel: Bob Brodersen, Univ. of California, Berkeley, CA
Francky Catthoor, IMEC, Heverlee, Belgium
Francois Agon, SGS-Thomson, Meylan, France
Takashi Nanya, Univ. of Tokyo, Tokyo, Japan
Uri Weiser, Intel Israel, Haifa, Israel,

**Kees van Berkel, Philips Research Labs,
Eindhoven, the Netherlands**

FE7 The Future of the Net Computer and Its Impact on Microprocessors
Moderator: Nick Tredennick, Tredennick Inc., Los Gatos, CA
Organizer: Jim Slager, Hitachi, San Jose, CA
Co-organizer: Vojin Oklobdzija, UC Davis, CA & Integration, Berkeley, CA

Panel: Farid Dibachi, Diba Inc., Menlo Park, CA
Harel Kodesh, Microsoft Corp., Redmond, WA
John Moussouris, MicroUnity Systems Engineering Inc., Sunnyvale, CA
Fred Pollack, Intel Corp., Hillsboro, OR
Marc Tremblay, Sun Microsystems Inc., Mountain View, CA
John Wharton, Applications Research, Palo Alto, CA

FE8 DRAM + Logic Integration: Which Architecture and Fabrication Process
Moderator: Osamu Kimura, NEC, Sagamihara, Japan
Co-moderator: Richard Crisp, Rambus, Mountain View, CA
Organizer: Michihiro Yamada, Mitsubishi, Itami, Hyogo, Japan

Panel: Michael Nagy, SGI, Mountain View, CA
Henry Lie, Hewlett Packard, Palo Alto, CA
Roelof Salters, Philips, Eindhoven, the Netherlands
Kenji Numata, Toshiba, Kawasaki, Japan
Takao Watanabe, Hitachi, Tokoyo, Japan
Kazunori Saitoh, Mitsubishi, Itami, Hyogo, Japan

FE9 Is CMOS Ever Going to Make It in RF?
Moderator/Organizer: Russ Apfel, Consultant, Austin, TX

Panel: Robert Bayruns, Anadigics, Warren, NJ
Peter Baltus, Philips Research Labs, Eindhoven, the Netherlands
Paul Davis, Bell Labs, Lucent Technologies, Reading, PA
Paul Gray, UC Berkeley, Berkeley, CA
Gitty Nasserbakht, Texas Instruments, Dallas, TX
Michiel Steyaert, Katholieke Univ. Leuven, Heverlee, Belgium
Daisuke Ueda, Matsushita Electronics Corp., Osaka, Japan

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TE 1 High-Density Flash Memory: Scaling or Multilevel Cell?
Moderator: Hyung-Kyu Lim, Samsung Electronics Co., Yongin, Korea
Organizer: Michihiro Yamada, Mitsubishi Electric Corp., Itami, Japan

Panel: Greg Atwood, Intel Corp., Santa Clara, CA
Daniel C. Guterman, SunDisk Corp., Santa Clara, CA

Hitoshi Miwa , Hitachi, Ltd., Tokyo , Japan
Jun-ichi Miyamoto , Toshiba Corp., Kawasaki , Japan
Yasushi Terada, ULSI Lab, Mitsubishi Electric Corp, Itami, Japan
James C. Yu, Advanced Micro Devices, Sunnyvale, CA

TE2 Will Analog Supply Follow Digital?
Moderator/Organizer: Rinaldo Castello, University of Pavia, Pavia, Italy

Panel: **Pietro Erratico, SGS-Thomson, Agrate Brianza, Italy**
Raouf Halim, Rockwell International, Los Angeles, CA
Akira Matsuzawa, Matsushita Electric, Osaka, Japan
Willy Sansen, Katholiecke University of Leuven, Leuven, Belgium
Eric Vittoz, CSEM, Neuchatel, Switzerland
Bruce Wooley, Stanford University, Stanford, CA

TE3 Photons to Bits: Is electronic imaging at a watershed?
Moderator: H-S. Philip Wong, IBM T.J. Watson Res. Ctr, Yorktown Hts, NY
Organizer: Woodward Yang, Harvard University, Cambridge, MA

Panel: **Peter Denyer, VLSI Vision Ltd., Edinburgh, Scotland**
Eric R. Fossum , JPL, Cal. Inst. of Tech. Pasadena, CA
Stephen Saylor, Apple Computer Inc., Santa Clara, CA
Charles G. Sodini, MIT , Cambridge, MA
Nobukazu Teranishi, NEC Microelectronics Research Labs, Sagamihara, Japan
Albert J.P. Theuwissen, Philips Research Labs, Eindhoven, The Netherlands

TE 4 Computer multimedia: NSP versus DSP
Moderator: Mehdi Hatamian, Silicon Design Experts, Morganville, NJ
Organizer: Wanda Gass, Texas Instruments, Dallas, TX

Panel: **Mike Farmwald, Chromatics Research, Mountain View, CA**
Gene A. Frantz, Texas Instruments, Houston, TX
Matt Perry, Advanced Micro Devices,. Austin, TX
Toyohiko Yoshida, Mitsubishi Electric Corp., Hyogo, Japan
David Schuler, Intel Corp. , Hillsboro, OR
Bill Veghte, Microsoft Corp., Redmond, WA
Rob Woudsma, Philips Research Labs, Eindhoven, The Netherlands

FE5 What is the best signalling technology for memory to logic chip communications?
Moderator/Organizer: Richard Crisp, Rambus, Mountain View, CA

Panel: **David Chapman, Motorola Semiconductor, Austin, TX**
Richard C. Foss, Mosaid Technologies, Kanata, Canada
Terry Lee, Micron Technology, Boise, ID

Tom Lee, Stanford University, Stanford, CA
Rick Luebs, Hewlett-Packard, Ft. Collins, CO
Masao Taguchi, Fujitsu Ltd., Kawasaki, Japan

FE6 The Analog Top Ten
Organizer/Moderator: Chris Mangelsdorf, Analog Devices, Wilmington, MA

Panel: Paul Brokaw, Analog Devices, Wilmington, MA
Max Hauser, Philips Semiconductor, Sunnyvale, CA
Minoru Nagata, Hitachi Ltd., Tokyo, Japan
Bob Pease, National Semiconductor, Santa Clara, CA
Bang-Sup Song, Univ. of Illinois, Urbana, IL
Gabor Temes, Oregon State Univ., Corvallis, OR

FE7 The Interconnect Nightmare
Don Draper, NexGen, San Jose, CA.
Organizer: Jeff Yetter, Hewlett-Packard Co, Fort Collins, CO

Panel: Donald A. Priore, Digital Equipment Corp., Hudson, MA
Charlie X. Huang, EPIC Design Technology Inc., Santa Clara, CA
Michael A. Buckley, Hewlett-Packard Co., Fort Collins, CO
Yusuke Ohtomo, NTT LSI Labs, Kanagawa, Japan
Jurij Paraszczak, IBM T.J. Watson Research Center Yorktown Heights NY
Ahsan Bootehsaz, Synopsys, Inc., Mountain View, CA
Eric P. Finchem, TriQuint Semiconductor, Inc., Beaverton, OR

FE8 Is Capturing Network Function For ATM In Silicon Realistic?
Moderator: Subhash Roy, Transwitch Corp., Shelton, CT
Organizer: Ed Rathke, GTE Labs, Waltham, MA

Panel: Rajiv Dighe, NEC USA CCRL, Princeton, NJ
James Hutchins, Sandia National Labs, Livermore, CA
Keiji Ishikawa, NTT LSI Labs, Kanagawa, Japan
Kai-Yeung Siu, Univ. of California, Irvine, CA
Mani B. Srivastava, AT&T Bell Labs, Murray Hill, NJ

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WE 1 Silicon Foundries: Partners, Suppliers or Competitors? (Sunset A - C)
Organizers: Jean Marc Chateau, SGS-Thomson Microelectr., Grenoble, France
Marc Degrauwe, CSEM, Neuchatel, Switzerland
Frank Hewlett, Sandia National Labs, Albuquerque, NM
Moderator: Chris Rowen, MIPS Technologies, Cortaillod, Switzerland

Panel: James Clemens, AT&T Bell Labs, Murray Hill, NJ

Leon Cloetens, Alcatel Bell, Antwerp, Belgium
Alain Duteil, SGS-Thomson, Rousset, France
Amnon Fisher, LSI Logic Corp., Milpitas, CA
Robert Hadaway, Northern Telecom, Nepean, Canada
Art Mandell, Fabless Semiconductor Corp., Sunnyvale, CA
F. C. Tseng, TSMC, Hsinchu, Taiwan

WE 2 The Best DRAM Approach for Graphics Applications (Sunset D - F)
Organizer: Nicky Lu, Etron Technology Inc., Hsinchu, Taiwan, R.O.C.
Co-organizers: Richard Crisp, Rambus Inc., Mountain View, CA
Masahiko Yoshimoto, Mitsubishi Electric Corp., Itami, Japan
Moderator: Akira Kanuma, Toshiba Corp., Kawasaki, Japan

Panel: Anthony M. Balistreri, Texas Instruments, Stafford, TX
Richard Crisp, Rambus Inc., CA
Kazuyasu Fujishima, Mitsubishi Electric Corp., Itami, Japan
T. Sunaga, IBM Japan Ltd., Shiga, Japan
Dick Lawrence, Digital Equipment Corp., Hudson, MA
Rajan Kapur, Cirrus Logic, Fremont, CA
Takeshi Kizaki, Hitachi Ltd., Japan

WE 3 The Digital Highway: The Off Ramp to the Home
(Marina A - C) Moderator/Organizer: Russ Apfel, Consultant, Austin, TX
Organizer: Yukio Akazawa, NTT LSI Laboratories, Atsugi, Japan

Panel: Wendell Bailey, Nat'l. Cable Television Assoc., Washington, DC
David Ehreth, DSC Communications Corp., Petaluma, CA
Oswald Fundneider, Siemens AG, Munich, Germany
Robert Luff, Scientific Atlanta, Norcross, GA
Paul Shumate, Bellcore, Morristown, NJ
Kazuo Yamaguchi, Fujitsu LTD, Japan

WE 4 Analog BiCMOS: Luxury or Necessity?
(Marina D - F) Moderator
Co-organizer: Behzad Razavi, AT&T Bell Labs, Holmdel, NJ
Co-organizer: Robert Jewett, Hewlett Packard Labs, Palo Alto, CA

Panel: Klaas Bult, UCLA, Los Angeles, CA
Bill Krenik, Manager, TI, Dallas, TX
Mark McDonald, National Semiconductor, Santa Clara, CA
Davis Robertson, Analog Devices, Wilmington, MA
Michiel Steyaert, Katholieke Universiteit Leuven, Heverlee, Belgium
Eric Swanson, Crystal Semiconductor, Austin, TX
Kazua Sone, NEC, Tokyo, Japan

TE 5 In-House CAD versus Vendor CAD for High-Performance Processors

Organizer: Ted Williams, HaL Computer Systems, Campbell, CA
Moderator: Patrick Bosshart, Texas Instruments, Dallas, TX

Panel: Anant Agrawal, Sun Microsystems, Mountain View, CA
Gil Amid, Intel Design Center, Haifa, Israel
William Grundmann, Digital Equipment Corp., Hudson, MA
Wally Rhines, Mentor Graphics Corp., Wilsonville, OR
Matthew Rohm, Silicon Graphics Inc., Mountain View, CA
James Solomon, Cadence Design Systems, San Jose, CA

TE 6 Single-Chip Integration versus Multichip Modules
Moderator: Stephen Flanagan, Motorola, Austin, TX

Panel: van Davidson, IBM, Poughkeepsie, NY
Paul Franzon, North Carolina State Univ., Raleigh, NC
Kasuro Sasaki, Hitachi America, San Jose, CA
Frank Swiatowiec, Micromodule Systems, Cupertino, CA
Masahide Takada, NEC Microelectronics, Kanagawa, Japan

TE7 Radio Front-End and Digital Signal Processing: Incompatible Technologies or Incompatible People?
Moderator/Organizer: Matt Rhodes, PCSI, San Diego

Panel: Asad A. Abidi, University of California, Los Angeles, CA
Peter Baltus, Philips Research Labs, Eindhoven, The Netherlands
Ricke Clark, Rockwell International, Newport Beach, CA
Joseph Fenk, Siemens AG, Munich, Germany
Gene Frantz, Texas Instruments, Dallas, TX
Masayuki Ishikawa, NTT LSI Labs, Atsugi, Japan
Mehmet Soyuer, IBM T.J. Watson Research Ctr.

TE 8 Monolithic Surface-Micromachined Sensors: IC Technology of the Next Century?
Moderator: Richard Payne, Analog Devices, Wilmington, MA
Organizer: Bernhard Boser, Dept. of EECS, Univ. of California, Berkeley, CA

Panel: Bedrich Hosticka, Fraunhofer Institute, Duisburg, Germany
Roger Howe, Dept. of EECS, Univ. of California, Berkeley, CA
Lj Ristic, Motorola Inc., Mesa, AZ
Felix Rudolf, CSEM, Neuchâtel, Switzerland
Martin Schmidt, Dept. of EECS, MIT, Cambridge, MA
Kenichiro Suzuki, NEC Corp., Tsukuba, Japan