Program - Mesa 2000
2000 IEEE COMPUTER ELEMENTS MESA WORKSHOP
January 16-19, 2000

Workshop:
General Co chair: Robert Montoye, IBM Research (914) 945-3075
General Co chair: Wen-Hann Wang, Intel (503) 696-3048
Program Chair: Deo Singh, Intel (408) 765-6380
Registration: Jefferson Connell, Amdahl Corp. (408) 746-3303
Fax: (408) 746-7000
Treasurer: Jefferson Connell, Amdahl Corp. (408) 746-3303

Technical Committee on Computer Elements:
Committee Chair: Jerry Merckel, Univ. of North Florida (904) 620-1350
Vice Chair (Mesa): Robert Montoye, IBM Research (914) 945-3075
Japan Committee Chair: Michinori Nishihara, IBM Japan
011+81+0775-87-4551
European Committee Chair: Mario Vinsani 011+39-02-9381559
For Information, contact: Jefferson Connell (408) 746-3303
Fax: (408) 992-2012

Workshop Theme: Low-Power Design Issues

Sunday Jan 16
5:00 Registration followed by Dinner and Keynote Presentation

Power Challenges in the Internet World
Stephen L. Smith
VP Intel Corporation

Monday Jan 17
Session 1. Low Power Design Contest  Chair: Vivek Tiwari
1.1. A Low Energy Embedded FPGA
Varghese George, EECS Dept, University of California at Berkeley
1.2. A Variable Frequency Parallel I/O Interface with Adaptive Power
Supply Regulation
Gu-Yeon Wei, Computer System Lab, Stanford University
1.3. 0.5V CMOS Logic Delivering 25 Million 16x16Bit Multiplications/s
at 400fJ based on a 100nm T-gate SOI Technology
Dr. Reinhard Grube, Institut fuer Mikroelektronik Stuttgart
(affiliated with the University of Stuttgart)
1.4. Low power self-timed divider with redundant signed digit
representation Jae-Hee Won, Seoul National University
1.5. Designing a Low-Power DCS1800-GSM/DECT Modulator/Demodulator
Nikos D. Zervas, University of Patras, GREECE
1.6. Trends in Microarchitecture and Power Challenges
Prof. Trevor Mudge
1.7. Power Savings through Microarchiotechure
Prof. Dirk Grunwald

Session 2. Consumer Appliances  Chair Yoshiaki Hagiwara
2.1. CMOS Camera on a Chip
Eric Fossum, Photobit (60 min)
2.2. Overview and Market Trend of Digital Still Camera
Hirofumi Murase, Sony Corporation, Japan
2.3. Sony Digital Still Camera System Architecture, Product and
Technical Features
Session 3. Panel Discussion: Next steps in Low Power  
Chair Deo Singh

Tuesday Jan 18
Session 4. Optical Devices  Chair Michinori Nishihara
  4.1. Photonic networks for the future network infrastructure  
      Ryo Matsunaga, NTT  
      4.2. Advanced Optical Devices for Photonic Networks  
      Kenichi Kobayashi, NEC  
      4.3. Electromagnetic Bandgaps at Photonic and Radio Frequencies  
      Eli Yablonovitch, UCLA

Session 5. I/O Technology  
  Cochairs Steve Hunter and John Alexander  
  5.1. Beyond PCI System I/O  
      Steve Hunter, IBM  
  5.2. Software Engineering Tutorial  
      Neal Coulter, Univ. of North Florida  
  5.3. Satellite RF  
      Frank van Diggelen, Magellan

Wednesday Jan 19 (Morning)
Session 6. Merged Logic Dram  Chair Robert Montoye
  6.1. Iram State and Future Plans  
      Joseph Gebis, Berkeley  
  6.2. "eDRAM Technology Challenges"  
      Paul Parries  
  6.3. A New Approach for DRAM Function Partitioning by Waferscale  
      Thin Layer Stacking  
      Robert Patti  
  6.4. Packaging alternatives to SOC with a hardware example  
      Robert Montoye

LOW POWER DESIGN CONTEST

Deadline Extended to October 1, 1999
Mesa, AZ; January 16-19, 2000

The IEEE Computer Elements Workshop is holding a Low Power Design Contest to provide a forum for universities and research organizations to showcase original "power-aware" designs and to highlight the innovations and design choices targeted at low power.

The best designs will be selected and invited for presentation and exhibition at the workshop in Mesa, AZ, January 16-19, 2000. A special session in the workshop will be devoted to the Low Power Design Contest.

An industry-sponsored fellowship will be awarded to each selected design entry to defray the travel expenses for one speaker. The registration fee for the conference will also be waived for the speaker.
A call for submissions appears below. The deadline for submissions is **October 1st, 1999**. Entries can be submitted electronically (in PDF or Postscript format) or by sending 5 paper copies plus a copy to:

**ATTN: Low Power Design Contest Chair**

Vivek Tiwari  
Intel Corp.  
3600 Juliette Ln., MS: SC 603-12  
Santa Clara, CA 95051  
USA  

Email: Vivek.Tiwari@intel.com

**Low Power Design Contest Technical Committee**

- Prof. Anantha Chandrakasan, MIT  
- Prof. Massoud Pedram, USC  
- Prof. Takayasu Sakurai, Univ. of Tokyo, Japan  
- Prof. Christer Svensson, Linkoping Univ.  
- Prof. Francky Catthoor, IMEC, Belgium  
- Prof. Eby Friedman, Univ. of Rochester  
- Prof. Kaushik Roy, Purdue Univ.  
- Prof. Vojin G. Oklobdzija, UC Davis  
- Prof. Anshul Kumar, IIT Delhi, India  
- Prof. Sarma Vridhula, Univ. of Arizona

---

**CONTEST SUBMISSIONS**

- Submissions of *original designs (h/w or s/w)*, developed at universities and research organizations after January 1997 are invited.
- Submissions should contain the title of the project, a 60-word abstract and a complete description of the design, not exceeding 4000 words in text.
- The submission should clarify the originality, distinguishing features, and the measured performance metrics of the design.
- The power targets for the design, the design choices related to power, and the specific optimizations, techniques and tradeoffs used to reduce power need to be highlighted.
- Submissions which present proof-of-implementation in the form of die, board or system photographs and measurement data will be rated higher.
- Submitted designs should not have received awards in other contests.
- Submissions will be reviewed by a special committee of experts from academia and the industry.
- Selected designs will be presented and exhibited at the workshop.
- Each paper copy submission should include one cover page and five (5) stapled copies of the complete manuscript. The one cover page should include:
  - 1. Name, affiliation and address of each author
  - 2. A designated contact person, including his/her telephone number, fax number, and email address
  - 3. A designated presenter, should the paper be accepted
  - 4. The following signed statement:
    - "All appropriate organizational approvals for the publication of this paper have been obtained. If accepted the author(s) will select a designates speaker to present the paper at the Workshop"
If you have any comments or suggestions regarding the Computer Elements web page, please send an e-mail to:
gmerckel@unf.edu