IMAPS Advanced Technology Workshop on
High-Speed Interconnect, EMC and Power
Aspects of System Packaging for High Performance Computing, Telecom and Test Equipment

SHERATON PALO ALTO HOTEL
PALO ALTO, CA 94301
OCTOBER 19 - 22, 2003

General Chair:
Sarosh Patel
P: 408-733-8731
sarosh.patel@stanfordalumni.org

Technical Program Chair:
Ray Alexander, NCR Systems Engineering
P: 858-485-2665
ra121971@ncr.com

Technical Program Co-Chairs:

Munawar Ahmad, Molex Inc.
P: 501-851-4850
mahmad@molex.com

Herman Chu, Procket Networks Inc.
P: 408-635-7872
herman.chu@procket.com

Jeff Cain, Cisco Systems
P: 408-527-7754
jcain@cisco.com

William Maltz, Electronic Cooling Solutions
P: 408-749-8661
wmaltz@ecooling.com

SAVE ON THE TECHNICAL PROGRAM REGISTRATION WHEN YOU REGISTER ON-LINE:
WWW.IMAPS.ORG/SYSTEMSPACK/

Sponsored by:
The International Microelectronics And Packaging Society (IMAPS)

in conjunction with the Thermal Management ATW • October 22-24*
*Visit www.imaps.org/thermal/ for more information or see inside!

Early Registration and Hotel Deadline: September 12, 2003
Sunday, October 19

Registration: 6 pm - 8 pm
Reception: 7 pm - 8 pm

Monday, October 20

Registration: 7:30 am – 4:30 pm
Continental Breakfast: 8 am – 9:15 am
Opening Remarks: 9:15 am – 9:30 am
Workshop Chairs

**SESSION 1: INTERCONNECT TECHNOLOGIES I - CONNECTORS**
Session Chair: Munawar Ahmad, Molex Inc.
9:30 am – Noon

Interconnection Technology for the Next Generation
Roger E. Weiss, David M. Barnum, Paricon Technologies Corp.

Connector Designs to Meet the Demands of Tomorrow
Adam J. Houston, Molex Inc.

Break: 10:30 am – 11 am

Cable used for Differential Signaling over GHz
Yshihiro Hirakawa, Judd Wire Inc.

Optimized Interconnect Solutions for High-Performance System Data Transmission
Josh Nickel, Andreas Cangellaris, Patrick Codd, Stanford W. Crane, Jr., James Jeon, Zsolt Horvath, Silicon Bandwidth, Inc.

Lunch: Noon – 1 pm

**SESSION 2: POWER COMPONENTS/SUBSYSTEMS**
Session Chair: Herman Chu, Procket Networks Inc.
1 pm – 4:30 pm

Voltage and Geographic Constraints of Power Infrastructure of Telco Products, A Holistic Approach
Mark Imbertson, Procket Networks Inc.

System-in-a-Package Solutions for DC-DC Converters
David Bolognia, Amkor Technology

3-D Power Network Embedded in a High-Speed Cube
Christian M. Val, 3DPlus

Break: 2:30 pm – 3 pm

Tuesday, October 21

Registration: 7:30 am – 4 pm
Continental Breakfast: 7:30 am – 8:30 am

**SESSION 3: INTERCONNECT TECHNOLOGIES II - PROUDLY PRESENTS REAL BANDWIDTH**
Session Chair: Jeff Cain, Cisco Systems
8:30 am – Noon

Design Considerations for 10Gbit/sec Data Links
Herb Van Deusen, W. L. Gore

AC Coupled Interconnect for High-Density High-Bandwidth Packaging
Paul Franzon, Stephen Mick, John Wilson, Lei Luo, Karthik Chandrasakhar, NC State University

High Speed Differential Transmission Lines
Henning Hansen, LEONI High Speed Cables GmbH

Influence of Multiline Cross Talk on Eye Patterns at High Speed
Henri Merkelo, atSpeed Technologies

Break: 10:30 am – 11 am

4-PAM/20Gbps Transmission over 20-in FR-4 Backplane Channels: Channel Characterization and System Implementation
Youngsik Hur, M. Maeng, S. Chandramouli, F. Bien, E. Gebara, K. Lim, J. Laskar, Georgia Institute of Technology

Designing the 12.5 Gb/s Back-Plane
Bilal Ahmad, Cisco Systems

Lunch: Noon – 1 pm
### SESSION 4: INTERCONNECT TECHNOLOGIES III - WITHIN PACKAGE AND PACKAGE TO PWB

**Session Chair:** Bill Maltz, Electronic Cooling Solutions, Inc.

1 pm - 3:30 pm

<table>
<thead>
<tr>
<th>Applied FEM Techniques in Ceramic Feedthru Package Design</th>
<th>Mark Eblen, Kyocera America, Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accurate Extraction of Time Domain Performance through Windowless Transforms</td>
<td>Jayaprakash Balachandran, Arun Chandrasekhar, Eric Beyne, Walter De Raedt, Bart Nauwelaers, IMEC</td>
</tr>
<tr>
<td>Fundamental Issues of Particle-in-Elastomer Sockets</td>
<td>Weifeng Liu, Hewlett Packard; Michael Pecht, University of Maryland</td>
</tr>
</tbody>
</table>

**Break:** 2:30 pm – 3 pm

<table>
<thead>
<tr>
<th>High Reliability Second Level Interconnects using Polymer Core BGAs</th>
<th>Sashidhar Movva, Ryan Thorpe, Kyocera America, Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reception: 4 pm – 4:30 pm</td>
<td></td>
</tr>
<tr>
<td>Dinner: 4:30 pm – 6 pm</td>
<td></td>
</tr>
</tbody>
</table>

**Wednesday, October 22**

Registration: 7:30 am – Noon

Continental Breakfast: 7:30 am – 8:30 am

### SESSION 5: EMI

**Session Chair:** Ray Alexander, NCR Systems Engineering

8:30 am - Noon

<table>
<thead>
<tr>
<th>Design-Class Simulation for the EMC Design of Electronics</th>
<th>Fred German, Flomerics Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting of Microelectronic Components at Room Temperature with Solders and Local Heat Sources</td>
<td>Timothy P. Weihs, D. Van Heerden, O.M. Knio, Reactive NanoTechnologies, Inc.</td>
</tr>
<tr>
<td>EMI Evaluation of an Interconnect System for Gigabit Applications</td>
<td>Wemdemagegnehu Beyene, Hao Shi, Newton Cheng, Chuck Yuan, Rambus Inc.</td>
</tr>
</tbody>
</table>

**Low Inductance Thin Film Capacitors for Decoupling Applications**

Nobuo Kamehara, John D. Baniecki, Takeshi Shioga, Kazuaki Kurihara, Fujitsu Laboratories Ltd.

**Break:** 10:30 am – 11 am

**An Investigation of the Importance of Decoupling Capacitor Values in High-Speed Digital PCBs**

Jun Fan, James L. Knighten, NCR; Lin Zhang, Giuseppe Selli, Jingkun Mao, Richard E. DuBroff, James L. Drewniak, University of Missouri-Rolla; Bruce Archambeault, IBM

**Integrated Decoupling in High Performance IC Packaging**

Leonard W. Schaper, Richard K. Ulrich, University of Arkansas

### Concluding Remarks

**IMMEDIATELY FOLLOWING THE SYSTEM PACKAGING ATW…..**

**IMAPS Advanced Technology Workshop on Thermal Management for High-Performance Computing and Wireless Applications**

Sheraton Palo Alto Hotel
Palo Alto, CA
October 22 - 24, 2003

**General Chair:**

Dave Saums, Ceramics Process Systems
Email: dsaums@msn.com
P: 978-499-4990

**Technical Program Chair:**

Herman Chu, Procket Networks
Email: herman.chu@procket.com
P: 408-635-7872

This workshop is organized each year by IMAPS to promote discussion of leading-edge developments in thermal management components, materials, and systems solutions for removing, spreading, and dissipating heat from microelectronic devices and systems. The Workshop emphasis is for practical, high-performance solutions to meet current and evolving requirements in computing and wireless/telcom systems. Single-company product development concepts are acceptable subjects; however, all abstracts will be judged on novel and innovative contributions to the industry knowledge.

Visit www.imaps.org/thermal/ for more information.
**REGISTRATION FORM**

**REGISTER ON-LINE AT** [www.imaps.org/systemspack/](http://www.imaps.org/systemspack/) **AND SAVE $50**

**SYSTEM PACKAGING ATW - OCTOBER 19 - 22, 2003**

- **Dr.**
- **Mr.**
- **Ms.**

**Member ID# __________________**

**First Name ___________________________ M.I. ___________ Last Name ___________________________**

**Company/Affiliation ___________________________________________ Job Position ___________________________**

**Address ___________________________________________________**

**City ___________________________ State _______ Zip ___________ Country ___________________________**

**Phone ___________________________ Fax _______________________ Email ___________________________**

---

**REGISTRATION FEES: EARLY REGISTRATION ENDS 9/12/03**

<table>
<thead>
<tr>
<th><strong>WORKSHOP FEES</strong></th>
<th>(On or before 9/12)</th>
<th>(After 9/12)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Member (IMAPS)</strong></td>
<td>$565</td>
<td>$665</td>
</tr>
<tr>
<td><strong>Non-member</strong></td>
<td>$665</td>
<td>$765</td>
</tr>
</tbody>
</table>

- *Includes one-year individual membership in IMAPS*

- **Speaker/Chair**
  - $300
  - $400

Workshop Fees include an Abstract Book and a CD of Presentations. CD of Presentations will be mailed 10 business days after the event.

---

**ADDITIONAL PURCHASES**

- **Spouse/Guest (meals only)**
  - $150
  - $150

- **CD of Presentations (Member Rate)**
  - $100
  - $100

- **CD of Presentations (Non-Member Rate)**
  - $175
  - $175

- **Add to Ship in the US**
  - $7
  - $7

- **Add to Ship Overseas**
  - $25
  - $25

---

**Housing (Hotel Cut-off is September 12, 2003)**

Housing Accommodations must be made directly to:

**Sheraton Palo Alto Hotel**

625 El Camino Real

Palo Alto, CA 94301

P: 800-874-3516 or 650-328-2800

E: SheratonReservation@pahotel.com

When making reservation, please reference IMAPS - Group 1.

**Single/Double: $179**

Sheraton Palo Alto Hotel requires a deposit for the first night's room and tax to hold your room. Deposit refunded if reservation is cancelled fourteen (14) days prior to arrival. After which time, deposit is non-refundable.

---

**PAYMENT**

**Workshop Fee:** $__________

**Additional Purchases:** $__________

**Total Payment Due:** $__________

- A $25 fee must be added to all Wire Transfers.

**Card# ___________________________ Exp. ________**

**Signature ___________________________**

Card billing address, if different from above: (required)

---

Register for both ATWs and Save $100!

**System Packaging**

[www.imaps.org/systemspack/](http://www.imaps.org/systemspack/)

October 19 - 22, 2003

**Thermal Management**

[www.imaps.org/thermal/](http://www.imaps.org/thermal/)

October 22 - 24, 2003