

ADVANCE PROGRAM AND REGISTRATION ON-LINE: WWW.IMAPS.ORG/THERMAL

IMAPS Advanced Technology Workshop on Thermal Management

HOLIDAY INN SAN JOSE
SAN JOSE, CALIFORNIA - USA
SEPTEMBER 24 - 27, 2007

General Chair:

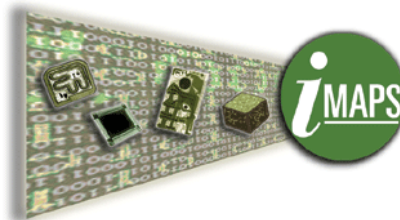
David Saums, DS&A LLC
P: 978-499-4990
dsaums@dsa-thermal.com

Technical Program Chair:

David Copeland, Sun Microsystems, Inc.
P: 408-276-6528
david.copeland@sun.com

Program Committee:

Cullen Bash, Hewlett-Packard Laboratories
Vadim Gektin, Sun Microsystems
Bill Maltz, Electronics Cooling Solutions
George Meyer, Celsia Technologies
John Peeples, The Citadel
Guy Wagner, RM Laboratories



Sponsored by:

International Microelectronics And Packaging Society (IMAPS)

"Everything in electronics between the chip and the system"

Advance Registration and Hotel Discount End: August 28, 2007

Monday, September 24

Registration: 5:30 pm - 6:30 pm

Opening Reception: 5:30 pm - 6:30 pm

Tuesday, September 25

Registration: 7:30 am - 5:30 pm

Continental Breakfast: 7:30 am - 8:30 am

SESSION 1: MARKET DRIVERS

Chair: David Saums, DS&A LLC

8:30 am - 10:00 am

Liquid Cooling Viability for Mainstream Microelectronics Thermal Management
Monem Alyaser, Asetek USA

Sustainable Information Technology Ecosystem
Cullen Bash, Chandrakant Patel, Hewlett-Packard Laboratories

Applications, Developments, and Forecast for Engineered Thermal Materials
David L. Saums, DS&A LLC

Break: 10:00 am - 10:30 am

SESSION 2: PUMPED LIQUID COOLING

Chair: John Peeples, The Citadel

10:30 am - 12:00 pm

Boiling on Nano-Structured Surfaces*
Sharan R. Shriraman, Vijaykumar Sathyamurthi, Debjyoti Banerjee, Texas A&M University

Refrigerant Flow Boiling in a Microchannel Cold Plate Evaporator*
Stefan S. Bertsch, Eckhard A. Groll, Suresh V. Garimella, Purdue University

Nanofluid Pool Boiling and Microchannel Forced Convective Heat Transfer Investigations using an Instrumented Glass Device*
Abhishek Jain, Theodorian Borca-Tasciuc, Michael K. Jensen, Rensselaer Polytechnic Institute

SESSION 3: SYSTEM COOLING

Chair: William Maltz, Electronics Cooling Solutions

12:00 pm - 12:30 pm

Improved Thermal Management of Telecommunications Cabinets using Surface Treatments
David Forder, TAG Technology

Lunch: 12:30 pm - 1:30 pm

SESSION 3: SYSTEM COOLING (CONTINUES)

Chair: William Maltz, Electronics Cooling Solutions

1:30 pm - 4:00 pm

Multiscale Thermal Modeling of Electronics Cabinets*
Qihong Nie, Yogendra Joshi, Georgia Institute of Technology

Evaluation of Cooling Solutions for Outdoor Electronics
Mahendra S. Wankhede, S. D. Mahajan, Vivek B. Khaire, Avijit Goswami, Applied Thermal India

Thermally Driven Diffusion in Copper-Wirebonded Packages
Amip Shah, Hewlett Packard

Break: 3:00 pm - 3:30 pm

Thermal Characterization of Copper Contact Interconnect for DRAM Package Stacking
Hongyu Ran, Tessera, Inc.

SESSION 4: AIR COOLING

Chair: Guy Wagner, RM Laboratories

4:00 pm - 5:30 pm

Optimization & Comparison of Techniques for the Heat Sink Selection using Operations Research Methods
S. Manivannan, S. Prasanna Devi, Raja Rajeswari Engineering College

Synthetic Jet Based Thermal Management Solutions with High Reliability and Low Acoustics
Raghav Mahalingam, Nuventix, Inc.

Investigation of the Effects of Single Fan Failure in a Series Fan Arrangement with Two Fans
Guy Wagner, RM Laboratories

Wednesday, September 26

Registration: 7:30 am - 5:30 pm

Continental Breakfast: 7:30 am - 8:30 am

SESSION 5: THERMAL INTERFACE MATERIALS

Chair: David Saums, DS&A LLC

8:30 am - 12:30 pm

Graphite Nanoplatelet-Epoxy Composite Thermal Interface Materials*
Aiping Yu, Palanisamy Ramesh, Mikhail E. Itkis, Elena Bekyarova, Robert C. Haddon, University of California - Riverside

Phase Change Metallic Alloy TIM2 Performance and Reliability
Chris G. Macris, Robert G. Ebel, Christopher B. Leyerle, John C. McCullough, Enerdyne Solutions

Silicone Thermal Interface Materials: High-Performance Heat Dissipation Solutions
Jason D. Clark, Martin Stephan, Dow Corning Corporation

Break: 10:00 am - 10:30 am

Thermal Performance Differences Between ASTM D 5470 and "Overclocker" Methods*

Robert Russo, Victor Papanu, New Jersey Institute of Technology

Full Metal TIMs

Bob Jarrett, Jordan Ross, Indium Corporation of America

Effect of Single-Walled Carbon Nanotube Purity on the Thermal Conductivity of Carbon Nanotube-Based Composites

Aiping Yu, Mikhail E. Itkis, Elena Bekyarova, Robert C. Haddon, University of California – Riverside

Rheo-Mechanical Properties of Thermally Conductive Materials

Sanjay Misra, Kevin Hanson, The Bergquist Company

Lunch: 12:30 pm - 1:30 pm

SESSION 6: DATACENTER COOLING

Chair: Cullen Bash, Hewlett Packard Laboratories

1:30 pm - 3:00 pm

Thermal Zone Mapping: Data Center Design and Assessment Automated Visualization Tool for Thermal Metric Analysis

Christian J. Bonilla, Ernesto Ferrer, Cullen Bash, Hewlett-Packard Laboratories

Mining Environmental Data in Data Centers

Lola Bautista, Ratnesh Sharma, Hewlett-Packard Laboratories

Analysis of Alternative Data Center Cooling Approaches

Herman Chu, Cisco Systems, Inc.; Robert Hannemann, TF&F LLC

Break: 3:00 pm - 3:30 pm

SESSION 7: TEST AND EQUIPMENT

Chair: Vadim Gektin, Sun Microsystems

3:30 pm - 5:30 pm

Si/SiGe Quantum Well Thermoelectric Materials and Devices for Waste Heat Recovery From Vehicles and Industrial Plants

Saeid Ghamaty, Norbert B. Elsner, Hi-Z Technology, Inc.

High Performance Test Validation Tool Design for Debugging Engineer in Chip-Maker Industry

Michael Spokoyny, Xinliang Qiu, Vladimir Zrodnikov, James M. Kerner, United States Technology Consortium

Fast Evaluation of Transient Hot Spots in VLSI Chip Packages*

Je-Hyoung Park, Ali Shakouri, University of California at Santa Cruz; Sung-Mo Kang, UC Merced

Application-Specific Evaluation of Heatpipe Performance using Electrical Transient Testing Method

Yan Zhang, Hongyu Ran, Tessera, Inc.; Jimmy He, Flomerics Inc.

Thursday, September 27

Registration: 7:00 am - 12:30 pm

Continental Breakfast: 7:30 am - 8:30 am

SESSION 8: HIGH CONDUCTIVITY MATERIALS

Chair: David Copeland, Sun Microsystems

8:30 am - 10:00 am

A Preliminary Study of Optimization Techniques for Compact Thermal Model Development of Multi-Heat Source Components

Arun P. Raghupathy, Electronic Cooling Solutions Inc.

Graphite Reinforced Al with 750 W/mK Thermal Conductivity and Controllable Thermal Expansion: Materials Behavior and Prototype Modeling and Performance

James A. Cornie, Himanshu Pokharna, Mark J. Montesano, Metal Matrix Cast Composite, LLC and WmK, LLC

Innovative Thermal Design for High Power LED Applications

Claus Peter Kluge, CeramTec AG

Break: 10:00 am - 10:30 am

SESSION 9: PASSIVE PHASE-CHANGE

Chair: George A. Meyer IV, Celsia Technologies LLC

10:30 am - 12:30 pm

Advanced Liquid Cooling Design and Performance

Geoff Lyon, CoolIT Systems Inc.

High Temperature and High Heat Flux Cooling for Electronics

William G. Anderson, Scott D. Garner, Advanced Cooling Technologies, Inc.

The Characterization of the Microboiling Process for the Fluid FC-72*

Anthony Fernandez, Jorge Gonzalez-Cruz, Santa Clara University

Practical Application Guidelines for Vapor Chambers for Electronics Thermal Management

George A. Meyer IV, Celsia Technologies LLC; David L. Saums, DS&A LLC

*Student Competition Winners

sponsored by



REGISTRATION FORM

REGISTER ON-LINE AT WWW.IMAPS.ORG/THERMAL

THERMAL MANAGEMENT ATW: SEPTEMBER 24 - 27, 2007

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Member ID# _____

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Company/Affiliation _____ Job Position _____

Address _____

City _____ State _____ Zip _____ Country _____

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REGISTRATION FEES: ADVANCE REGISTRATION ENDS 8/28/07

THERMAL WORKSHOP FEES

(On or before 8/28) (After 8/28)

<input type="checkbox"/> Member (IMAPS)	\$615	\$715
<input type="checkbox"/> Non-member*	\$715	\$815

*Includes one-year individual membership in IMAPS

<input type="checkbox"/> Speaker	<input type="checkbox"/> Chair	<input type="checkbox"/> Chapter Officers	\$350	\$450
<input type="checkbox"/> Student			\$200	\$300

Workshop Fees include an Abstract Book, all meals listed and a CD of Presentations. CD of Presentations will be mailed 3 weeks after the event.

ADDITIONAL PURCHASES

<input type="checkbox"/> Companion/Guest (meals only)	\$160	\$160
<input type="checkbox"/> CD of Presentations (Member Rate)	\$200	\$200
<input type="checkbox"/> CD of Presentations (Non-Member Rate)	\$300	\$300
<input type="checkbox"/> Add to Ship in the US	\$7	\$7
<input type="checkbox"/> Add to Ship Overseas	\$25	\$25

HOW DID YOU HEAR ABOUT THIS EVENT?

<input type="checkbox"/> Direct Mail	<input type="checkbox"/> Website	<input type="checkbox"/> E-Mail
<input type="checkbox"/> Advancing Microelectronics	<input type="checkbox"/> Colleague	
<input type="checkbox"/> IMAPS Weekly E-mail Bulletin	<input type="checkbox"/> Personal Phone Call	
<input type="checkbox"/> Industry/Trade Magazine	<input type="checkbox"/> Other _____	

HOUSING (Hotel Cut-off is August 28, 2007)

Housing Accommodations **must** be made directly to:

Holiday Inn San Jose
1740 North First Street
San Jose, CA 95112

P: +1-866-241-9878 or +1-408-793-3300

Please reference **IMAPS** when making reservations by phone.

On-line reservations: www.holidayinn.com/sanjoseca; on the left, enter your arrival and departure dates, and type in group code **IMP**; click Check Availability and follow steps to complete your reservation.

Room Rate: \$129/night (Single/Double)

IMAPS cannot guarantee room availability or pricing after the August 28th deadline.

Holiday Inn San Jose requires a deposit for the first night's room and tax to hold your room. Cancellations accepted without penalty up to 72 hours in advance. After 72 hours, guest will be billed one night's room & tax.

PAYMENT

THERMAL07PROG

Thermal Workshop Fees: \$ _____

Additional Purchases: \$ _____

Total Payment Due: \$ _____

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

For wire transfer information, email Rick Mohn - rmohn@imaps.org.

Enclosed is a check payable in US funds to IMAPS

Charge my fees to:

Visa MasterCard Discover Amex Diners Club

Card# _____ Exp. _____

Signature _____

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

Mail this form with payment to: IMAPS * 611 2nd Street, NE * Washington, DC 20002-4909. For credit card transactions, register on-line: www.imaps.org; or register by phone with your credit card by calling 202-548-4001; Fax: 202-548-6115. Additional information? E-mail: IMAPS@imaps.org, or visit our web site: <http://www.imaps.org>. Cancellations will be refunded (less a \$50 processing fee) only if written notice is postmarked on or before **Friday, September 7, 2007**. No refunds will be issued after that date.

IMAPS Registration
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