MEPTEC Presents

MicroElectronics Packaging and Test Engineering Council

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A ONE-DAY TECHNICAL SYMPOSIUM & EXHIBITS

The 3rd Annual

The Heat is On: Thermal Management in Microelectronics

Challenges and Innovations

Sessions will include:

- Thermal Management Overview: Trends and Technology
- Issues in Design and Analysis of Advanced Packages
- Thermal Effects and Solutions in the Back End Operation
- Thermal Management in Challenging Applications

February 15, 2007
Holiday Inn San Jose
San Jose, California

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February 15, 2007

Holiday Inn San Jose (formerly Hyatt San Jose) San Jose, California

8:00 a.m. to 5:00 p.m.

Table Top Exhibits 10:00 a.m. to 7:00 p.m.

Reception 5:00 p.m to 7:00 p.m.

The 3rd Annual

The Heat is On:

Thermal Management in Microelectronics

Challenges and Innovations

Thermal issues in microelectronics are becoming more prominent every year, with the mainstream press reporting on overheated electronics, and major players in the semiconductor field benchmarking their products by power consumption rather than speed. Interest in challenges and innovations in thermal management is growing in both depth – as companies integrate the technologies – and in scope – as the number of products containing some form of microelectronics continues to grow.

Thermal management of microelectronics, which is essentially an extension of device packaging technology, has the attention of corporate management from both the business and technology perspective, as these thermal challenges continue to limit the continuing improvements in product performance. The benefits of innovations and solutions, however, must be weighed against their development and implementation costs, as well as any marketplace barriers.

The First MEPTEC Thermal Symposium in 2005 detailed the issues from all levels – device, package, board, and system. The Second MEPTEC Thermal Symposium focused on high-end microprocessors and video graphics processors, two key drivers of thermal management technology. These continue to be critical applications based on market size and potential, but thermal solution technologies are increasingly driven by other types of end products, including mil-aero, medical, automotive, telecom, optoelectronics, portable, and consumer applications.

Thermal management challenges and innovations are important to companies throughout the entire product supply chain, and MEPTEC is again bringing together many influential speakers from a range of organizations to present at this annual symposium. The objective of this international event, typical of the MEPTEC symposium format, is to help attendees understand the reasons for thermal challenges, as well as the technology that will provide solutions and enable the electronics industry to continue down the path of ever greater performance.

SYMPOSIUM KEYNOTE

Jerry Bartley
Distinguished Engineer, Technology Collaboration Services
IBM

Jerry Bartley has been with IBM since 1977 and is currently a Distinguished Engineer guiding first-level packaging teams at IBM's Engineering and Technology Services organization in Rochester, MN. He has been a significant contributor on a wide range of packaging programs in his 30 years at IBM, including work as the lead engineer on the development and application of ball grid array, ceramic column grid array, and multi-chip module packaging technologies. He has applied this expertise on products ranging from games to supercomputers, and has driven efforts in thermal, mechanical, and electrical performance of packaging and interconnects. The electronics industry recognizes him as an expert on packaging and design trade-offs at all levels of integration.

Mr. Bartley has made many presentations at a variety of industry events over the years, including a recent presentation on the development of the front-side bus for the Xbox360®. He has been granted 18 patents with over 40 patents pending, and he is the chair of JEDEC's JC15.2 Subcommittee on Electrical Performance of Packaging and Interconnections.

TECHNICAL CHAIRMAN
Thomas S. Tarter
Principal Engineer
NeoPhotonics

GENERAL CHAIRMAN
Nicholas Leonardi
VP Marketing & Sales
CMC Interconnect Technologies

Go to www.meptec.org for complete presentation descriptions and to Register Today!

SESSION ONE:

Thermal Management Overview: Trends and Technology

Session Leader:
Jeff Demmin
Director of Advanced Programs
Tessera, Inc.

Industry and corporate roadmaps in the semiconductor field indicate alarming trends in the thermal management area. The International Technology Roadmap for Semiconductors (ITRS), for example, identifies "management of overall power consumption" as one of a handful of "near-term grand challenges" impeding the continued progress of the semiconductor industry.

In this session, leaders from a range of organizations will give their views on overall trends and challenges in thermal management from a variety of perspectives. Roadmaps, case studies, new developments, and emerging technologies will illustrate where we are today, and what we need to do to meet upcoming requirements.

Presentations in this session include:

Thermal Management of Mobile Electronics: A Case Study in Densification
Hongyu Ran, Ph.D.
Senior Engineer, Thermal
Tessera, Inc.

Thermal Management Issues and Trends for Advanced ICs
Maniam Alagaratnam
Vice President for Manufacturing Technology
LSI Logic

System-Level Thermal Challenges
Presenter to be announced

SESSION TWO:

Issues in Design and Analysis of Advanced Packages

Session Leader:
Thomas S. Tarter
Principal Engineer
NeoPhotonics Corporation

Thermal design and analysis techniques are continuously adapting to changes in packaging structures and technology. Recent trends in packaging continue the push to incorporate additional functionality within each unit. Lateral and stacked versions of multi-chip packages (MCPs) are not only becoming more common but also more complex, including combinations of lateral and stacked chips in the same package. Additional complex structures are also gaining popularity: Package-on-Package (PoP) and Package-in-Package (PiP), for example, with each specific version bringing with it interesting thermal behavior for thermal engineers to deal with. Along with additional complexity within the package, thermal analysis must increasingly address die level thermal issues (hot spots) and also extend to system level thermal design work. This session will cover how these types of issues are being addressed to ensure satisfactory thermal performance.

Presentations in this session include:

New Techniques for Chip and Package Thermal Modeling
Sherman Ikemoto
Business Development Manager
Flomerics

High Power Packaging for Consumer and Industrial Products
Jesse Galloway, Ph.D.
Senior Director, Thermal Characterization
Amkor Technology

Thermal Behavior and Data Processing for Multi-Chip Packages: Lateral, Stacked, PoP and PiP
Dr. Roger Emigh
Director, WW Package Characterization
STATS ChipPAC

SESSION THREE:

Thermal Effects and Solutions in the Back End Operation

Session Leader:
Mark Murdza
Director of Marketing
Antares Advanced Test Technologies

The most significant issue for both test and burn-in operations is cost. Test costs are on the rise due to many different variables. Of late, the most notable variable is related to thermal issues. While some market segments have tackled thermal issues for years, others are realizing the effects of managing thermally related issues for the first time. As device power densities have increased and fabrication process dipped to 90nm and below, many device manufacturers have begun to feel the impact of dealing with thermal issues on test and burn-in floors. In this session we will highlight the nuances that thermal issues imply upon back end operations, how they impact costs, and the strategies that have been implemented within the industry in order to overcome these issues within various levels of back end test operations.

Presentations in this session include:

Challenges of Process Variation and Temperature at Burn-In
Tony Flowers
Product Engineering Efficiency Manager
Texas Instruments

Limitations of Traditional Burn-In and Test Methods Due to Thermal Implications
Presenter to be announced

Thermal Disparities and Higher Power Device Management
Presenter to be announced

SESSION FOUR:

Thermal Management in Challenging Product Applications

Session Leader:
Nick Leonardi
Vice President, Marketing and Sales
CMC Interconnect Technologies

Heat generation in microelectronic based end-products continues to be a challenge, with innovations in materials and design seen as the key to improving performance. The challenges continue to become more complex as in the case of servers, which at one time were not typically confined by overall dimensions but are becoming smaller in size for stacking in server farm rack systems. Gaming hardware with its sophisticated graphics processing continues to require equally sophisticated methods to remove the heat being generated. The areas of High Brightness LEDs and Opto-Electronics have seen their share of thermal related challenges as products have evolved. This session will focus on the thermal perspective of a selected group of challenging products.

Presentations in this session include:

Mitigating Semiconductor Hot Spots
Bob Conner
Marketing and Business Development
Nextreme Thermal Solutions, Inc.

High Power, Small Form Factor Optical Transceiver Thermal Management
Thomas S. Tarter
Principal Engineer
NeoPhotonics Corporation

Thermal Challenges in Product Development and Design
Presenter to be announced

TABLE TOP EXHIBITORS

As of 1/8/07

- AIM
- Analysis Tech, Inc.
- Chomerics Division of Parker Hannifin Corporation
- CMC Interconnect Technologies
- DS&A LLC
- E-tec Interconnect Ltd.
- Henkel Corporation
- Honeywell Electronic Materials
- Indium Corporation
- Nextreme Thermal Solutions
- Optical Metrology Innovations Ltd.
- Ozen Engineering, Inc.
- Palomar Technologies
- Promex Industries Inc.
- Protavic America, Inc.
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- sp3 Diamond Technologies, Inc.
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- Thermal Engineering Associates
- Thermshield, LLC

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Mark Murdza
Director of Marketing
Antares Advanced Test Technology

For more information contact Bette Cooper at 650-714-1570, email: bcooper@meptec.org, fax: 866-424-0130, or visit our web site at www.meptec.org.

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SYMPOSIUM REGISTRATION

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Pre-Registration

Guaranteed pre-reservations for this conference will be accepted by mail, fax, phone, or email. Space is available on a first come, first served basis. **PRE-REGISTRATION ONLY, PLEASE** – no at-door sign-ups. Please note that at-door payment for attendance is ac-ceptable; however, if you sign up and do not cancel within 48 hours, you will be invoiced. **Refunds for advance payment will be given provided cancellation is received 48 hours prior to the event.**

Please Register by February 9th

Registration confirmation, location map and other information will be sent to you.

Hotel Information

A limited block of rooms has been reserved at the Holiday Inn San Jose (formerly Hyatt San Jose) for a rate of $119.00. The hotel is conveniently located at 1740 North First Street, San Jose, CA in close proximity to the San Jose Airport. Please call 408-793-3300 no later than January 31, 2007 to reserve your room. Be sure to mention MEPTEC in order to secure the special rate.

1 Attendee Information: (Please Print)

Name ____________________

Title ____________________

Company ____________________

Address ____________________

City/State/Zip ____________________

Phone ____________________ Fax ____________________

E-mail ____________________

2 Symposium Fees:

Attendance Fee: ❑ MEPTEC Members **$295** ❑ Non-Members **$345** $__________
Includes Break Refreshments, Lunch, Reception and Proceedings.

Proceedings on CD: ❑ MEPTEC Member **or** Non-Member **$35** $__________
Event attendees only - will be shipped two weeks following event.

Non-Attendee Proceedings on CD: Quantity of _____ @ **$75** each $__________
Will be shipped two weeks following event.

Table Top Exhibit Space*: ❑ MEPTEC Members **$395** ❑ Non-Members **$495** $__________
** Includes one symposium attendance, lunch and proceedings.*

❑ **Exhibits Only:** *You must Pre-register to attend exhibits at no charge.* $ **FREE**

3 MEPTEC Membership:

Take this opportunity to sign up for a MEPTEC membership and enjoy an immediate discount on this symposium!

❑ **Individual Membership / 1 yr. / $95.00** $__________

❑ **Corporate Membership / 1 yr. / $475.00** *(Includes 6 members)* $__________

Visit www.meptec.org for more information about MEPTEC membership.

Total $__________

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❑ Check enclosed (Make payable to MEPTEC or MEPCOM)

❑ Will pay at door *(see pre-registration information)*

❑ Credit Card: ❑ Visa ❑ MasterCard ❑ American Express ❑ Discover

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