

April 2006

In This Issue:

- **2007 iNEMI Roadmap North American Workshop**
- **Recent Activity**
- **Roadmap Overview**
- **Roadmap Leadership Opportunity**
- **Revised Roadmap Schedule**

Welcome to the ninth newsletter of the **2007 iNEMI Roadmap** cycle. This and subsequent newsletters will be completely dedicated to keeping you informed about the progress of the **2007 iNEMI Roadmap**. Please pass this newsletter on to anyone within your technical network who might be interested in becoming involved in this effort.

2007 iNEMI Roadmap North American Workshop

The International Electronics Manufacturing Initiative (iNEMI) will hold a workshop for its 2007 Roadmap on Wednesday, May 17, at consortium headquarters in Herndon, Virginia. The workshop is a full-day meeting, scheduled from 8:00 a.m. to 5:30 p.m., and is open to non-members.

“This workshop provides a progress report on the roadmap, and gives industry an advance look at key findings,” said Chuck Richardson, iNEMI staff manager of roadmapping. “It also provides the opportunity for industry feedback — kind of a ‘reality check’ on the conclusions being drawn — and allows mid-course corrections, if necessary. Participants have the advantage of gaining early insight into the anticipated future direction of the electronics industry, and discussions and feedback help us improve the final roadmap report.”

The workshop plans to include presentations from all 19 Technology Working Groups (TWGs).

The North American workshop is one of several regional meetings scheduled for the 2007 iNEMI Roadmap. There was also a workshop held in Europe on April 5 (*see report below*), co-located with SEMICON Europa (Munich), and one scheduled in China on June 27, in conjunction with HDP '06 (Shanghai).

The workshop registration fee is \$200 for non-members (fee is waived for iNEMI members and TWG Chair presenters), which includes a continental breakfast, lunch and a copy of the 2007 iNEMI Roadmap CD when published in February 2007 (which sells for \$250). **TWG Chair presenters need to register but no fee is required and, as usual, TWG Chairs will receive a final copy of their chapter from the 2007 iNEMI Roadmap.** Registration deadline is May 10 (earlier if the meeting reaches capacity). To guarantee the iNEMI room rate, please call the Country Inn & Suites at 703-435-2700 and ask for the iNEMI rate of \$129 per nite. Another option is the

Quality Inn & Suites at 703-471-5005 and ask for the iNEMI rate of \$99 per night. If you book online, the price is much higher. For other hotels in the area, please go to:
http://www.inemi.org/cms/contact/contact_hotels.html

For additional information about, or to register for, the North American workshop, go to
http://www.inemi.org/cms/calendar/iNEMI_Roadmap_North_American_workshop.html

**2007 iNEMI Roadmap - North American Workshop
Preliminary Agenda
May 17, 2006
Herndon, Virginia**

Time	Subject	Presenter
7:30 a.m.	Continental Breakfast	
7:50 a.m.	Welcome/Overview Presentation	Jim McElroy, iNEMI, Chuck Richardson, iNEMI
8:20 – 4:20	Technology Working Group Reports: (20 minutes each)	
	Business Processes / Technologies:	
8:20 a.m.	Product Lifecycle Information Management	Eric Simmon, NIST
	Design Technologies:	
8:40 a.m.	Modeling, Simulation & Design Tools	Sanjeev Sathe, ASE
9:00 a.m.	Thermal Management	Cam Murray, 3M
9:20 a.m.	Environmentally Conscious Electronics	Mark Newton, Dell
9:40 – 10:10	Discussion / Break	
	Manufacturing Technologies:	
10:10 a.m.	Board Assembly	Dongkai Shangguan, Flextronics
10:30 a.m.	Test, Inspection & Measurement	Michael Reagin, Delphi
10:50 a.m.	Final Assembly	Steve Davidson, Delphi
	Component Subsystem Technologies:	
11:10 a.m.	Packaging	Joe Adam, Skyworks
11:30 a.m.	RF Components & Subsystems	Eric Strid, Cascade Microtech
11:50 a.m.	Organic Substrates	Jack Fisher, IPC/iNEMI
12:10 p.m.	Optoelectronics	TBD
12:30 – 1:30	Lunch / Discussion	
1:30 p.m.	Mass Data Storage	Tom Coughlin, Consultant
1:50 p.m.	Connectors	John MacWilliams, Consultant
2:10 p.m.	Energy Storage Systems	Dan Doughty, Sandia Labs
2:30 p.m.	Interconnect Substrates – Ceramic	Howard Imhof, Metalor
2:50 – 3:20	Discussion / Break	
3:20 p.m.	Passive Components	Phil Lessner, Kemet
3:40 p.m.	Sensors	Tim McBride, TI
4:00 p.m.	Semiconductor Technology	Alan Allan, Intel
4:20 p.m.	Organic & Printed Electronics	Dan Gamota, Motorola
5:00 p.m.	Summary	Chuck Richardson, iNEMI

5:30 p.m. Close

Recent Activity

2007 iNEMI Roadmap European Workshop. iNEMI held a European Roadmap Workshop on April 5 in Munich in conjunction with SEMICON Europa. This workshop reviewed work to date on two key PEG and eight TWG chapters covering areas thought to be of particular interest in Europe, and elicited feedback from the European perspective. The event was co-sponsored by IEEE CPMT Society, Fraunhofer IZM, and IMAPS Europe.

Approximately 30 people attended the workshop, and feedback from the attendees indicates that the roadmap information was beneficial, plus it afforded valuable networking opportunities during and after the workshop. We had representatives from the following companies: Alcatel, Binder Elektronik GmbH, Clariant GmbH, Delphi, EIPC, Fraunhofer IZM, Harman/Becker, Infineon Technologies AG, KBTec, MICRONSULT, Mozaik Technology Ventures, NanoNexus, Inc., Nokia, Oy Poltronic Ab, Robert Bosch GmbH, Seho GmbH, Siemens VDO Automotive AG, TechniData AG, Teradyne, Texas Instruments, TWI Ltd.

Presentations have been placed on the iNEMI FTP site <FTP://FTP.inemi.org> and can be accessed by all TWG Chairs under the 2007 Roadmap/2007TWG/ MunichWkshop40506Presentations folders - using the existing user name and password for the 2007 TWG folder. **Please pay particular attention to the summary presentation by Bob Pfahl (#13) as it does an excellent job of presenting highlights from the presenters and feedback from attendees.**

We have also set up an FTP site that is accessible to workshop attendees where presentations will be available. I emailed instructions and password information to all attendees on 4/13/06. If you were an attendee at the workshop and did not receive your email instructions, please contact Chuck Richardson at chuck.richardson@inemi.org.

PEG Update. PEGs are working toward completing their chapter drafts for use by the TWGs in getting ready for the North American Workshop on May 17 and the Asian Workshop on June 27. On behalf of Bob Pfahl and myself, I would like to thank the PEG Chairs and their associates for the Automotive and Consumer/Portable product sectors for their contributions to the work leading to very successful presentations at the European Workshop. We would also like to thank presenters Seppo Pienimaa, Nokia, and Bernd Heger, Delphi, for their excellent work at the workshop.

TWG Update. All the TWG committees are busily working toward completing their status presentations for the May 17 North American Workshop in Herndon, Virginia. We will be holding a May 8 telecon to answer any questions from TWG Chairs in preparation for the workshop. I will be sending out an announcement shortly with the access instructions for the call. Please try to attend, as this has been a valuable tool in past cycles for preparing for the workshop.

We are offering the TWG Chairs meeting rooms before and after the May 17 workshop so that you can take advantage of the face-to-face time for working on your TWG chapters while in Herndon. Please let me know of any room needs as soon as possible.

We are also working hard to fill the remaining Optoelectronics TWG Chair position and we expect to make an announcement shortly.

On behalf of Bob Pfahl and myself, I would also like to thank the TWG Chairs and their associates for the Packaging, Board Assembly, Organic/Ceramic Substrates, Sensors, TIM, Final Assembly and Environmentally Conscious Electronics TWGs for their contributions to the work leading to very successful presentations at the European Workshop. We would also like to thank the following presenters for their excellent work: Bill Bottoms, NanoNexus; Michael Weinhold, EIPC; Paul Collander, Poltronic; Tim McBride, TI; Michael Smith, Teradyne; Bernd Heger, Delphi; and Nils Nissen, Fraunhofer IZM.

Roadmap Overview

As a reminder, and to inform new recipients, my name is Chuck Richardson. Working with Jim Arnold (Motorola), iNEMI's Director of Roadmapping, I am responsible for staff management of the roadmap effort. Since I don't know how familiar you are with the roadmap, I would like to give you a quick overview of its make-up. This document is made possible by volunteers from the electronics industry (iNEMI members and non-members) that form groups and committees to develop chapters, presently for 5 Product Emulator Groups (PEGs) and 19 technology and business/infrastructure areas. Each chapter anticipates manufacturing technology needs over a 10-year horizon. Each of the PEGs has a chair or co-chairs and as many group members as needed for a broad-based view of that emulator's scope (usually 2-5 individuals).

2007 iNEMI Roadmap Product Emulator Groups (PEGs):

1. Aerospace / Defense
2. Automotive
3. Consumer / Portable
4. Medical
5. Office / Large Business Systems / Communications

The PEGs define OEM requirements for their product sectors from both a business and technology perspective. Needs are presented in each PEG chapter, using key attribute tables and text according to templates that are furnished by the iNEMI Technical Committee. Each PEG chair will be expected to attend two to three face-to-face meetings during the 2006 calendar year, but most of the group's work is done by telephone and over the Internet.

The Technology Working Groups (TWGs) use the OEM requirements detailed in the 5 PEG chapters to prepare each of their roadmap chapters, detailing where they stand — and expect to progress over the next 10 years — with respect to the stated needs. Other than the TWG chairs, who are expected to attend a minimum of three meetings, no travel is required to participate in a TWG, and this activity requires only as many hours as you want to dedicate to it, depending upon how involved you wish to be.

2007 iNEMI Roadmap Technology Working Groups (TWGs):

- | | |
|--|---|
| 1. Board Assembly | 10. Optoelectronics |
| 2. Connectors | 11. Organic and Printed Electronics Technology (new for 2007) |
| 3. Energy Storage Systems | 12. Packaging |
| 4. Environmentally Conscious Electronics | 13. Passive Components |
| 5. Final Assembly | 14. PLIM (Product Lifecycle Information Management) |
| 6. Interconnect Substrates - Ceramic | 15. RF Components & Subsystems |
| 7. Interconnect Substrates - Organic | 16. Semiconductor Technology |
| 8. Mass Data Storage | 17. Sensors |
| 9. Modeling, Simulation & Design Tools | 18. Test, Inspection & Measurement |
| | 19. Thermal Management |

Get Involved

The iNEMI roadmap has become recognized as an important tool for defining the “state of the art” in the electronics industry as well as identifying emerging and disruptive technologies. It also fuels development of future iNEMI projects and sets priorities for industry R&D over the next 10 years. With the “globalization” of the iNEMI roadmap, the next “edition” should become even more important as a tool for identifying technology gaps and possible solutions for an increasingly global industry.

If you would like to be involved with the **2007 iNEMI Roadmap** team, or be added to the mailing list of this monthly newsletter, please contact Chuck Richardson at Chuck.Richardson@inemi.org.

For more detailed information about the meetings discussed above, please contact Linda Anderson-Jessup at +1 703-834-2086 or linda.jessup@inemi.org.

From the Editor: We hope that you will find this newsletter interesting and informative. If you would like to access an issue of a past roadmap newsletter or check other roadmap information, please use the iNEMI website link: <http://www.inemi.org/roadmapping/status.html>.

Please provide comments to Chuck Richardson at 1-256-880-0922 or email Chuck.Richardson@inemi.org.

2007 iNEMI Roadmap Calendar

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|--------------------|--|
| May 8, 2006 | Teleconference with TWG Chairs |
| May 17, 2006 | Roadmap Workshop, Herndon, VA |
| May 18, 2006 | TC Meeting in Herndon (Roadmap) |
| June 27, 2006 | Roadmap Workshop at HDP '05, Shanghai, China |
| July 1, 2006 | TWG Drafts Due for TC Review |
| August 9, 10, 2006 | TC Face-to-Face Review with TWG Chairs in Kokomo |

September 2006	Council Review of Key Issues and Preliminary Summary @ SMTAI, Final Roadmap Chapters Due 9/22/06
October 31, 2006	Edit, Prepare Appendix A-D, Executive Summary
November 20, 2006	Go To "Press"
December 4, 2006	Ship to Members
February 2007	Industry Release at APEX