

December 2005

**In This Issue:**

- **Roadmap Overview**
- **Recent Activity**
- **European Kick-off Meeting at Productronica Deemed a Success**
- **2007 iNEMI Roadmap Kickoff Meeting (North America) Details**
- **Roadmap Leadership Opportunities**
- **Revised Roadmap Schedule**
- **Preliminary TWG Kickoff Agenda**

Welcome to the fifth 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.

**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 6 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 | 4. Medical                             |
| 2. Automotive        | 5. Netcom (Network, Datacom & Telecom) |
| 3. Consumer/Portable | 6. Office/Large Business Systems       |

The PEGs will 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 six 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  |

**Recent Activity**

**PEG Update.** We have taken the feedback from the PEG kick-off meeting in Chicago, updated the format of the 2004 PEG spreadsheet of key attributes, and distributed it to the 2007 PEG Chairs. They will be filling in the key attributes data over the next several months and recently shared their progress at the iNEMI Technical Committee (TC) telecom, on December 8. Most PEGs are showing good progress toward their goal of a final chapter draft for the APEX kickoff meeting.

We are still looking for a Netcom Chair, but if no one is identified by the end of this year, we will likely revert to addressing that sector's requirements in the Large Business Systems sector - as was done in 2002.

**TWG Update.** Please join me in welcoming Steven Davidson, Delphi, as the **2007 iNEMI Roadmap** "Final Assembly" Chapter Chair. We look forward to meeting Steve in person in Anaheim. Steve will replace Mike Reagin, Delphi, who has chaired this TWG for several cycles and has graciously agreed to support the transition as required. Mike has moved from final assembly responsibility at Delphi into their test environment. We wish to thank Mike for his years of supporting the "Final Assembly" Chapter and the entire iNEMI Roadmapping effort.

There will likely be several other Chair announcements to share with you in the next roadmap newsletter since several changes are in the final stage of approvals.

I sent out a number of presentations and documents (6) that have been updated with the latest information for this cycle's needs today to all TWG Chairs. Please contact me if you did not receive the email package. I will also be sending out a 2004 Roadmap Chapter in "Word" format to the 2007 Chapter Chairs for use in developing the 2007 version – assuming there was one available. For new chapters, I will send an example chapter that can be used to serve as a

possible tool. You can expect these in the next couple of weeks leading up to the pre-kickoff meeting telecom in January.

**European Kickoff (2007 iNEMI Roadmap).** The *2007 iNEMI Roadmap* kick-off in Europe was held in conjunction with Productronica (Munich, Germany) on November 16 from 1:00 until 5:00 p.m. in room A 61 of the convention center. The meeting was followed by a social hour. The purpose of the meeting was to: 1) Inform attendees of the iNEMI roadmap process; 2) increase European participation/leadership in the roadmap process; 3) present representative 2004 roadmap presentations by European speakers; and 4) ensure inclusion of European issues in the 2007 roadmap. The meeting attracted about 37 attendees from 30 different organizations, many of which voiced their intent to actively participate in the 2007 iNEMI Roadmap. The meeting was co-sponsored by IEEE CPMT Society, Fraunhofer IZM, and IMAPS Europe. All those that I talked with deemed the meeting a success in that it attracted the quantity and breadth of companies desired and all were open and eager to get involved in roadmap activity. Presentations from this meeting are available on the public area of the iNEMI website at: [http://www.inemi.org/cms/industry/Productronica\\_2005\\_Presentations.html](http://www.inemi.org/cms/industry/Productronica_2005_Presentations.html).

## Upcoming Events

The *2007 iNEMI Roadmap* (North America) kickoff meeting is scheduled for 1:00 PM – 5:00 PM PST February 6 and 8:00 AM – 5:00 PM PST February 7 at the Disney Paradise Hotel, 1717 South Disneyland Drive, Anaheim, California 92802, United States, in conjunction with APEX 2006. This meeting will be held in the Crystal Cove room and is open to all who wish to participate in the 2007 iNEMI Roadmap, or are interested in learning more, with the potential of participating. The afternoon of February 6 will be used for introductory and PEG presentations and the following day will be used for informative presentations, TWG organizing and breakout sessions, followed by short reports from the breakout groups. Cross cut matrix issues will also be discussed. I have included a proposed agenda for your information at the end of this newsletter. More information will be available in next month's newsletter. I am informed that you need to book your rooms early as there is expected to be a shortage this year.

The *2007 iNEMI Roadmap* schedule has been changed to permit roadmap workshops in Berlin, Germany and Shanghai, China next Spring and Summer. The revised schedule is listed at the end of this newsletter for your information. Please note particularly that the previously scheduled "Open Roadmap Presentation in Herndon, VA" has been moved up to May 17 from May 24 so TWG Chairs and others planning to attend will need to arrange their travel plans accordingly for this important benchmark, face-to-face meeting.

## Get Involved

Work is continuing to fill a few remaining openings for both PEG and TWG leadership positions. We are presently requesting applicants for the positions of Netcom PEG Chair, Optoelectronics and Sensor TWG Chairs. If you have been thinking about serving the industry as a Chapter Chair, please contact me and I will work with you to decide if this is the cycle to get involved. You are not required to be an iNEMI member to participate in roadmap development or to chair one of the groups. In fact, the more diversified the representatives working on the

roadmap, the broader the reach and the more valuable the final product is to the industry. With the wide range of technology categories, it should be easy to find one that stirs your interest and calls you to participate.

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](mailto: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](mailto: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](mailto:Chuck.Richardson@inemi.org).

## 2007 iNEMI Roadmap Calendar

- 3Q2005: Select Product Sector Champions, teams and refine data charts
- 3/4Q05: Product Sector Champions Develop Emulators
  - September 6, 2005 – Teleconference with P.E. Group Chairs
  - September 30, 2005 - Roadmap Kick-off with PEG/TWG/TC at SMTAI
  - November 16, 2005 – European Kick-off at Productronica
  - December 2005 – Review meeting with TC on PEG Emulators
- 2004 chapter, format, Exec. Summary mailed to each TWG chair (Word 6.0) 1/4/2006
- Organizing Teleconference with TWG Chairs 1/11/2006: (offer APEX TWG meetings)
- February 2006 - PEG Workshop/TWG Kick-off at APEX Meeting in Anaheim:
  - Product Sector Tables Complete – Chapters Written
  - Cross cut issues addressed
- May 8, 2006 – Teleconference with TWG Chairs
- May 17, 2006 – Open Roadmap Presentation in Herndon, VA
- May 18, 2006 – TC Meeting in Herndon (Roadmap)
- May 25/26, 2006 – Roadmap Workshop, Berlin, Germany
- June 27-30, 2006 – Roadmap Workshop at UDP '05, Shanghai, China
- July 1, 2006 – TWG Drafts Due for TC Review
- August 9, 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

**2007 iNEMI Roadmap U.S. TWG Kickoff Meeting**  
**Disney's Paradise Pier Hotel, 1717 South Disneyland Drive, Anaheim, CA**  
**Crystal Cove Room**  
**Preliminary Agenda**

**Monday, February 6, 2007**

<b>Time</b>	<b>Subject</b>	<b>Presenter</b>
1:00 p.m.	Welcome/Overview	Jim Arnold, Motorola
1:15 a.m.	Business Issues for 2004 Roadmap	Jim McElroy, NEMI
1:30 – 5:00	Product Emulator Group Presentations: (30 minutes each)	
1:30 p.m.	Portable/Consumer Products	Susan Noe, 3M
2:00 p.m.	Office/Large Business System	Tom Pearson, Intel
2:30 p.m.	Defense and Aerospace Products	Bill Murphy, Lockheed Martin
3:00 p.m.	Automotive	Jim Spall, Delphi
3:30 – 3:45	Break	
3:45 p.m.	Medical	Anthony Primavera, Guidant
4:15 p.m.	iNEMI / ITRS Design Issues	Juan-Antonio Carballo, Intel
4:45 p.m.	Summary	Jim Arnold, Motorola
5:00 p.m.	Close	

**Tuesday, February 7, 2007**

Crystal Cove Room

<b>Time</b>	<b>Subject</b>	<b>Presenter</b>
7:30 a.m.	Continental Breakfast	
8:00 a.m.	Introduction to Breakout Sessions	Jim Arnold, Motorola
8:15 a.m.	Break-out Sessions	(Follow TWG signs to breakout sessions)
12:00 Noon	Lunch	
1:00-4:15p.m.	Technical Working Group Reports:	

**Business Processes / Technologies:**

1:00 p.m. Product Lifecycle Information Management Eric Simmon, NIST

**Design Technologies:**

1:10 p.m.	Environmentally Conscious Electronics	Joe Johnson, Cisco
1:20 p.m.	Modeling, Simulation & Design Tools	Sanjeev Sathe, ASE
1:30 p.m.	Thermal Management	Cam Murray, 3M

#### Manufacturing Technologies:

1:40 p.m.	Board Assembly	Dongkai Shangguan, Flextronics
1:50 p.m.	Test, Inspection & Measurement	TBD
2:00 p.m.	Final Assembly	Steve Davidson, Delphi
2:10 - 2:25	Break	

#### Component Subsystem Technologies:

2:25 p.m.	Passive Components	Phillip Lessner, Kemet
2:35 p.m.	RF Components & Subsystems	Eric Strid, Cascade Microtech
2:45 p.m.	Packaging	Joe Adam, Skyworks
2:55 p.m.	Semiconductor Technology	Alan Allan, Intel
3:05 p.m.	Organic Substrates	Jack Fisher, iNEMI/IPC
3:15 p.m.	Mass Data Storage	Tom Coughlin, Consultant
3:25 p.m.	Connectors	John MacWilliams, Bishop
3:35 p.m.	Energy Storage Systems	Dan Doughty, Sandia Labs
3:45 p.m.	Optoelectronics	TBD
3:55 p.m.	Sensors	TBD
4:05 p.m.	Organic and Printed Electronics	Dan Gamota, Motorola
4:15 p.m.	Ceramic Substrates	Howard Imhof, Metalor
4:15 p.m.	Summary/Close	Jim Arnold, Motorola
4:30 p.m.	Hard Stop	