



**inEMI**

International Electronics Manufacturing Initiative

# Overview of Thrust Areas and Materials Projects

Bob Pfahl

Advancing manufacturing technology

# iNEMI Three Thrust Areas

- **Energy and the Environment**
- **Medical Electronics**
- **Miniaturization**



**iNEMI**

International Electronics Manufacturing Initiative

# iNEMI Projects

## Highlights from the Energy & Environment Thrust Area

Advancing manufacturing technology

# Energy and the Environment Thrust Area

**Goal: Provide low cost electronic assembly processes that encompass environmental attributes, meet current and future regulations, are sustainable & energy efficient**

## Strategy:

- Create a proactive stance in the electronics industry to evaluate environmental impact with stakeholders
- Increase global communication and cooperation within industry regarding recycling challenges
- Promote basic principles for effective energy efficiency requirements
- Increase technology input to government policy making on material & energy restrictions



## Tactics

- Conduct R&D to create a sustainable infrastructure and viable recycled materials market for use in new products and other applications
- Develop Product Lifecycle Integration Management (PLIM) standards to expected energy reporting requirements
- Develop solutions to compliance requirements that are transparent, implementable, and not unnecessarily burdensome
- Create & disseminate industry roadmaps to drive technology development

## Impact

- New revenue streams to support recycling efforts
- Provides assessment methodology to support decision making
- Reduce energy usage
- Minimize risk of both negative environmental performance and business disruption
- Establish efficient supply chains to meet industry growth rates

# Energy & Environment Thrust Area

Project (Active)	Status	TIG
Pb-Free Alloy Alternatives	New Initiative	Board Assembly
Pb-Free Early Failure Study	New Initiative	Board Assembly
High Reliability RoHS Task Force	Ongoing	Environmentally Conscious Electronics
Pb-Free BGAs in SnPb Assemblies	Phase 1 Completed Phase 2 Almost Complete	Board Assembly
Pb-Free Rework Optimization	Ongoing	Environmentally Conscious Electronics
Pb Free Wave Soldering	Ongoing	Environmentally Conscious Electronics
Halogen-Free Phase II, (Joint with Substrates TIG)	Ongoing	Environmentally Conscious Electronics & Substrates
Tin Whisker, Phase II	New Initiative	Environmentally Conscious Electronics



**iNEMI**

International Electronics Manufacturing Initiative

**iNEMI  
Projects  
Highlights  
from the  
Medical  
Electronics  
Thrust Area**

Advancing manufacturing technology

# Medical Electronics Thrust Area

**Goal: Provide the patient and medical community with seamless end-to-end solutions for improved health management**

## Strategy:

- Wirelessly connect implantable devices, portable devices and diagnostic imaging tools for clinical and home-health monitoring.
- Increase substrate and component packing density for producing small, easy to use, cost effective medical devices
- Increase device reliability for long term product life cycles



## Tactics

- Develop modeling tools to understand RF traffic issues in the wireless clinical and home-health environment.
- Develop advanced PWB technologies that address the performance & I/O density requirements of medical devices.
- Develop component reliability standards & test methods that address the unique performance requirements and use environments that characterize the medical products sector
- Create & disseminate industry roadmaps to drive technology development

## Impact

- Reduce paperwork and recording errors between patient and care-giver
- Enable new cost effective device designs, products and treatments
- Reduce time investment for medical approvals by governmental agencies
- Establish efficient supply chains to meet industry growth rates

**INEMI**

# Medical Electronics Thrust Area

Project	Status	TIG
Medical Components Reliability Specification	Ongoing	Medical
Medical Substrates	New Initiative	Medical



**iNEMI**

International Electronics Manufacturing Initiative

**iNEMI  
Projects  
Highlights  
from the  
Miniaturization  
Thrust Area**

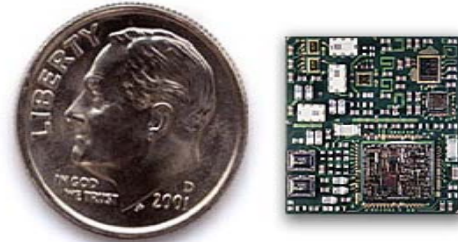
Advancing manufacturing technology

# Miniaturization Thrust Area

**Goal: Provide the customer maximum product value in the smallest possible form factor**

## Strategy:

- Minimize product size by converting substrate from a space transformer to a circuit element
- Minimize substrate & assembly conversion costs to shrink product costs
- Expand product capabilities by adding intelligence to component type products yielding new applications
- Enhance global testing and manufacturing processes



**SiP with radio functions for a GSM mobile phone radio**

## Tactics

- Develop advanced PWB and assembly technologies that increase substrate and component packing density
- Develop new materials systems & assembly processes
- Introduce smart technology & software into component type products
- Create methodology that enables reliable comparison of test coverage between test environments, revisions, & assessors
- Create & disseminate industry roadmaps
- Manage increased heat densities to enhance reliability

## Impact

- Increased product throughput while minimizing capital investment
- Increase manufacturing margins
- Enable new value added product applications with increased margins
- Enables more informed decision making on issues pertaining to test.
- Establish efficient supply chains to meet industry growth rates

# Miniaturization Thrust Area

Project (Active)	Status	TIG
Functional Test Coverage Assessment	Ongoing	Board and Systems Manufacturing Test
Pb-free Component & Board Finish Reliability Project. <i>(Joint with Substrate TIG)</i>	Phase 1 Completed Phase 2 New Initiative	Board Assembly & Substrate
Board Co-planarity in SMT	New Initiative	Board Assembly
Fiber Connector End-Face Inspection, Phase II	Ongoing	Optoelectronics
Pb-Free Nano-solder	Phase 1 Completed	Board Assembly
Nano-Attach	Ongoing	Board Assembly
RFID Item-Level Tagging Roadmap	New Initiative	Integrate with '09 RM
Printed & Organic Electronics Roadmap	Ongoing	OE-A Cooperation



[www.inemi.org](http://www.inemi.org)

Email contacts:

Jim McElroy

[jmcelroy@inemi.org](mailto:jmcelroy@inemi.org)

Bob Pfahl

[bob.pfahl@inemi.org](mailto:bob.pfahl@inemi.org)



**inEMI**

Advancing manufacturing technology