

A SPECIAL ONE-DAY TECHNICAL SYMPOSIUM

September 21, 2006 • Arizona State University • Tempe Campus, Tempe, AZ

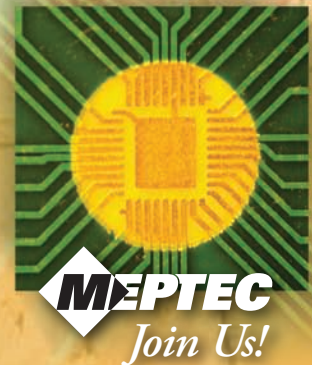
# Medical Electronics: Integrating Technologies

*Merging the Microelectronic, Bioscience and Medical Industries*

### Featuring Technical Presentations by:

- Arizona State University / Biodesign Institute
- CardioMEMS, Inc.
- Continuum
- Freescale Semiconductor
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## A SPECIAL ONE-DAY TECHNICAL SYMPOSIUM

September 21, 2006  
Arizona State University  
Tempe Campus, Tempe, AZ  
Old Main Building

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

# Medical Electronics: Integrating Technologies

*Merging the Microelectronic, Bioscience  
and Medical Industries*

### KEYNOTE SPEAKER



*Gianfranco Zaccai*

### TECHNICAL CHAIRMAN

David Ruben  
Technical Fellow  
Medtronic

### GENERAL CHAIRMAN

Nicholas Leonardi  
VP Sales & Marketing  
CMC Interconnect Technologies



### Symposium Keynote

## Making Technology Transparent

*Gianfranco Zaccai, President, CEO and co-founder of Continuum*

Embarrassment, confusion, fear. These emotions are common, but when experienced by people using medical products, they have a direct effect on the cost, quality, and efficacy of healthcare and on the medical manufacturer's bottom line. It is no longer enough to produce technologically superior medical devices. Third party payers, hospital administrators and medical professionals have all come to demand greater overall cost efficiency and patients have moved from being passive participants to knowledgeable, empowered consumers. To meet these demands requires a heightened understanding of all the stakeholder's needs, perceptions and desires and the integration and efficient collaboration of multiple disciplines to transform such insights into people-delighting reality.

*Gianfranco Zaccai is a pioneer in the interdisciplinary field of using design research to identify compelling opportunities for innovation, accelerating product time to market and ultimately creating consumer delighting experiences.*

The Medical Electronics Industry continues to show momentum in growth, with strong demand and expectations coming from the consumer, as well as technology advances expanding the scope of the electronics capability. Can technology advances keep up? Can divergent industries collaborate effectively and work together to meet these expectations?

This first MEPTEC Symposium on Medical Electronics will bring together technical and business professionals from a variety of disciplines and industries dedicated to the advancement and integration of state-of-the-art technology in medical products.

Four sessions have been planned to cover Microelectronic, Bioscience and Medical perspectives: an industry overview discussing outsourcing trends, consumer protection and innovation, life-on-a-chip, and industry convergence challenges; industry trends and integration of technologies to include RF technology, power sources and design; enabling technologies such as semiconductors, nanotechnology, MEMS technology, and "lab-on-a-chip"; and finally opportunities in medical electronic products such as hearing aid technology, implantable medical devices, and systems technologies.

# Go to [www.meptec.org](http://www.meptec.org) for complete presentation descriptions and to Register Today!

## SESSION ONE:

### Industry Overview

Session Leader: Dan Nienhauser  
Director & General Manager  
*ASU MacroTechnology Works*

This session will begin to outline electronics and semiconductor impact on the medical and biomedical engineering industries, with an introduction on how the microelectronics industry can best collaborate with industry and government organizations that participate and monitor health related technologies. There is a great deal of potential for electronics in the health related industries over the next decade and this overview session will set the stage for subsequent component, enabling and microelectronic technology discussions.

#### ***Presentations in this session include:***

#### **Outsourcing Trends in Electronic Manufacturing Services for Medical Devices**

Jennifer Read, Director, Client Services  
*Technology Forecasters, Inc.*

#### **Consumer Protection and Innovation in Medical Device Development**

Ellen Feigal, M.D., Director of Medical Devices and Imaging  
*The Critical Path Institute*

#### **Life on a Chip for Biomedical Research**

Deirdre Meldrum, Ph. D. Dean of the Ira A. Fulton School of Engineering at Arizona State University (effective January 2007) and a Center Director in the Biodesign Institute.

#### **Convergence Challenges: Chips and Biotech**

Celeste Null, Director Biomedical Engineering, Digital Health Group, *Intel*

## SESSION TWO:

### Industry Trends & Integration of Technologies

Session Leader: John Crane, President  
*John Crane & Associates*

The Microelectronics Industry has developed and utilized technology roadmaps for decades, with expansion of the roadmaps into medical and bioscience areas. Technology Roadmaps can include the future extensions of technology as well as convergence of technologies. Designing for product miniaturization, selection of specific power sources and other components and the utilization of "wireless" ( RF – radio frequency ) technology are three technology areas to be presented.

#### ***Presentations in this session include:***

#### **iNEMI 2007 Roadmap Processes Medical PEG (Product Emulator Group) Sector Overview**

Chuck Richardson, Staff Manager of iNEMI Roadmapping  
*iNEMI*

#### **Miniaturization of Medical Electronics**

Jeffrey C. Demmin, Director of Advanced Programs  
*Tessera*

#### **Powersource Technology for Biomedical Applications**

Randolph Leising, Ph.D., Director, Materials & Analysis  
*Greatbatch, Inc.*

#### **The Impact of RF "Wireless" Technology on the Medical Industry**

Ken Negai, RF Business Manager  
*Freescale Semiconductor*

## SESSION THREE:

### Enabling Technologies

Session Chair: Roger Emigh, Director,  
Worldwide Package Characterization  
*StatsChipPAC*

The medical electronics industry is poised to reap the benefits of technological advancements in several rapidly growing fields. Developments in nanotechnology, such as nano materials and particle dispersion, have an upcoming role in medical electronics products. MEMS devices are being developed and utilized in sensing applications and medical delivery. Semiconductor chips are being designed or modified for managing the functions of various medical devices and processing data collected from these devices. This session will look at recent developments in these and other areas and how they are enabling the next generation of medical devices.

#### ***Presentations in this session include:***

#### **Enabling Medical Innovation with Semiconductor Technology**

Ganesh Moorthy, VP of Advanced Microcontroller and Memory Division  
*MicroChip Technology, Inc.*

#### **Integrated Nanotechnologies for Medical Electronics**

Jeffrey D. Jordan, Ph.D., Project Manager  
*NanoDynamics, Inc.*

#### **Development of an Implantable MEMS Biomedical Sensor**

Angad Singh, Director, Operations and MEMS Engineering  
*CardioMEMS, Inc.*

#### **Lab-on-a-Chip Applications Towards Mass Spectrometric Diagnostics**

Randall Nelson, Ph.D., President/CEO  
*Intrinsic Bioprobes, Inc.*

## SESSION FOUR:

### Opportunities in Medical Microelectronics Products

Session Leader: Bruce Bowers,  
VP of Business Development  
*Flip Chip International*

To quickly and accurately diagnose, monitor, treat and prevent. . . . These are the major goals of the various microelectronics product applications supporting the Medical industry.

As the need for Medical electronic devices to go to smaller form factors, with increased features and improved performance demands, manufacturers have responded with innovative products that are involved in all of our lives.

This session will cover some of the leading product applications from a variety of manufacturers in the Medical industry. Emphasis will be placed on the challenges experienced in Medical product commercialization and examples of some of the key technology enablers being experienced.

#### ***Presentations in this session include:***

#### **Microelectronics and Technology Integration in the Hearing Aid Industry**

Thomas Burns, Ph.D., Director of Applied Technology and Research  
*Starkey Laboratories*

#### **Medical Implantable Electronic Devices**

Mark Phelps, Sr. Director, Electronic Systems Technology  
*Medtronic, Inc*

#### **Atomic Force Microscopy Systems for Bioscience Analysis**

Stuart Lindsay, Ph.D., ASU Professor of Physics and Chemistry, *Co-Founder of Molecular Imaging ( now Agilent )*

#### **Medical Imaging Systems and Diagnostic Advancements**

Presenter to be announced

### SYMPOSIUM REGISTRATION

## Medical Electronics: Integrating Technologies Merging the Microelectronic, Bioscience and Medical Industries

**September 21, 2006**

Arizona State University  
Tempe Campus, Tempe, AZ  
8:00 am - 5:00 pm

### Pre-Registration

Guaranteed pre-reservations for this conference will be accepted by mail, fax, phone, or online. 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 acceptable; 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 September 15th

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

### Hotel Information

A special rate of \$149.00 has been arranged with nearby Mission Palms Hotel for MEPTEC attendees (located at 60 East 5th Street). Please call 480-894-1400 or 800-547-8705 to reserve your room. You should mention that you are visiting ASU in order to secure the special rate.

For more information about this and other MEPTEC events call Bette Cooper at 650-714-1570, email: [bcooper@meptec.org](mailto:bcooper@meptec.org), fax: 866-424-0130 or 580-529-3227, or visit our web site at [www.meptec.org](http://www.meptec.org).

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### 2 Symposium Fees:

Attendance Fee:  MEPTEC Members \$295  Non-Members \$345 \$ \_\_\_\_\_  
*Includes Break Refreshments, Lunch 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.*

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