Components for Military & Space Electronics Conference & Exhibition

PROGRAM & REGISTRATION

February 8 - 11, 2010
LAX Radisson Hotel
Los Angeles, CA

CMSE is the premier conference on the use of components in military & space electronics

Co-Sponsored by
Electronic Components Association
EOS/ESD Symposium
Military Embedded Systems
VME and Critical Systems

Organized by
Components Technology Institute, Inc.
www.cti-us.com

Invitation to CMSE 2010

Dear Military and Space Electronics Professionals,

The CMSE Conference promotes advances achieved in electronic components for military and space electronics.

In the emphasis to go to commercial components it was soon discovered that many of these components were not suitable for military and space systems without special testing, uprating, upscreenig and in some situations require protection from temperature extremes and radiation levels. The low prices of commercial components as compared to those available to military specifications imply this is a much lower cost approach. Once companies realized the amount of testing and stress mitigation practices required, the cost savings from using COTS components became smaller and in some cases more expensive. The major issue is that many newer technology components are only available as COTS and have to be used. This is where the special effort should be expended.

There are many examples where circuit boards and subsystems built with commercial components have been successfully used as embedded electronics in military systems. The road to success is a function of the suppliers design, manufacturing controls and testing.

CMSE is the biggest and most comprehensive conference addressing successful practices for the use of both military and COTS components in military and space systems, though sometimes controversial. Everyone working in this field is encouraged to attend CMSE 2010 to learn about the latest information and visit the exhibits which promote current equipment, information and services concerning components for military and space applications.

I look forward to seeing you in Los Angeles at CMSE 2010, mark your calendar.

Leon Hamiter
Program Chairman

Highlights of 2010 CMSE Conference

Seminars
Components Engineering - 201
Equipment & Procedures for Detecting Counterfeit Components

Technical Sessions
OEM Experiences & Avoidance of Counterfeits
BGAs & Packaging Issues
New Reliability Practices
Trusted Suppliers
Rad-Hard and Tolerant Electronics
Component Applications & Reliability

Special Tutorials
Worst Case Circuit Analysis to Identify Critical Components
ESD/EOS Design & Protection for Military Electronics

CMSE 2010 is cosponsored by EOS/ESD Symposium
October 2-8, 2010
John Ascuaga's Nugget Resort
Sparks (Reno), NV

The international technical forum on electrical overstress and electronic discharge that features research, technology and solutions to increase understanding, enhance quality and reliability, reduce and control costs, and improve yields and productivity. It's the one event where you will find technical papers that emphasize the latest research and technology plus advanced tutorials, exhibits of ESD control products and services; authors' corners; Program Manager Certification; Device/Design Certification and more. More info: http://www.esda.org/symposia.html

CMSE Schedule & Information

Organized by engineers for engineers and engineering management, this is the premier conference for military and space electronics issues. This 14th Annual Conference addresses components, circuit boards and subsystems while also emphasizing new technology and design practices.

Venue

Accommodations:
LAX Radisson Hotel
6225 W. Century Blvd.
Los Angeles, CA 90045
Tel: + 1 800 395-7046
Fax: 310 337-6555

Reservations should be made directly with LAX Radisson Hotel. Mention CMSE Conference.

Registration:
Monday, February 8
7:00 am - 5:30 pm
Tuesday, February 9
7:00 am - 5:20 pm
Wednesday, February 10
7:00 am - 5:00 pm
Thursday, February 11
7:30 am - 11 am

Seminars Schedule (see details herein)
Monday, February 8
8:30 am - 5:00 pm

Conference Schedule
Tuesday, February 9
8:15 am - 5:20 pm

Wednesday, February 10
8:00 am - 5:30 pm

Thursday, February 11
8:30 am - 11:00 am

Exhibit Hours
Tuesday, February 9
12:00 noon - 7:30 pm

Wednesday, February 10
10:00 am - 2:00 pm

Get Acquainted Reception
Tuesday, February 9
5:30 pm - 7:30 pm

For technical questions contact:
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Leon.Hamiter34@cti-us.com

General Information

REGISTRATION
The Conference Registration fee includes only the Technical Sessions and Tutorials. The Seminars are additional. Advance registration is strongly recommended and the selected tutorial must be identified when registering At the door changing of tutorials will only be allowed if space permits.

The All Events registration fee includes a choice of Seminar, Technical Sessions, choice of Tutorial, Conference Notes CD, Conference Guide, refreshment breaks, buffet lunch, reception on Tuesday and the Exhibits. Advance registration is recommended and provides a discount. **Payment must be submitted with the Registration Form**. See the Registration Form for fees.

The Advance Registration cutoff date is **January 11th** and refunds will not be given after this date for cancellations. Cancellations before **January 11th** will be charged a $100 administration fee. Substitutions can be made at any time.

HOTEL ACCOMMODATIONS
Special rates of $121 single or double ($10 additional person), excluding taxes, have been arranged with the LAX Raddison Hotel. This rate is less than government per diem. Rates will be honored 3 days prior and following the Conference. The cut off for these rates is **January 11, 2010**. To book these rates call + 1 800 395-7046, mention CMSE Conference and ask for on-site reservations. Check in time is 3:00 pm and check out is 12:00 pm. Any guest departing prior to their checkout date will pay early departure fee. Reservations must be canceled more than 24 hours before arrival date to avoid a charge.

TRANSPORTATION TO HOTEL
The Hotel provides complimentary shuttle service between the airport and hotel. Go to the transportation island for pickup at the hotel shuttle sign. Discounted self parking is $7 per car. Valet parking available $10.00 per day.

Monday 8:30am - 5:00pm

Seminar 1

Components Engineering - 201

Howard Dicken, DM Data, Inc.
John Devaney, Hi-Rel Laboratories, Inc.

This is a recent update of the extremely popular components engineering course that has been provided by John Devaney and Howard Dicken for a number of years. The lecturers refer to the seminar as "1 day cram course in components engineering 201".
The class will cover the following topics:

- *Introduction and review - critical reliability factors, examples of what a component engineer should know;*
- *Retrieving valuable information from data sheets and specifications;*
- *Value of comprehensive failure analysis and DPA;*
- *Understanding the semiconductor physics which limit use of upscreening;*
- *Importance of component reliability packaging - plastics vs hermetics;*
- *Wafer processing fundamentals - video games business drives technology;*
- *Components assembly - wire bonding;*
- *Hybrid problem drivers;*
- *Bipolar and MOS devices;*
- *Power and high voltage devices;*
- *Tantalum and chip caps;*
- *Recurring failure mechanisms;*
- *(Pb) free analysis, EDS vs XRF*

All Seminar 1 lectures will be available on a CD

Seminar 2

Equipment & Procedures for Detecting Counterfeit Components

Don Trenholm, Thomas Lee, Mark Marshall, Mike Haller, Erik Jordan

During recent counterfeit avoidance workshops many attendees have requested more details on the inspection & test equipment suitable to find counterfeits; microscopes, lenses, decapping, X-ray, XRF and electrical test equipment.
This Seminar will address these types of equipment, both new and used, and how to find good used at lower price. The procedures for the use of this equipment and examples of the counterfeit characteristics to look for.
For those IDs that contract for these services, a session will address finding a reputable lab with the capability and knowledge to meet CCAP-101. Guidance will be provided on the checking and verifying the labs results.
The following topics will be covered:

- *Microscopes & lenses*
- *Hands on microscope demonstrations*
- *Selecting meaningful samples*
- *De-capping techniques & equipment*
- *Die inspection approaches*
- *Verifying lead material for conformance to markings*
- *Electrical testing: types, costs, benefits*
- *Issues with implementing AS 5333*

Seminar 2 Notes will be provided

For more information on Seminars see: http://www.cti-us.com/cmsemain.htm

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CMSE EUROPE 2010

Visit the Web site at:
www.cmse-eur.com

22-24 June 2010
Marriott Hotel
Portsmouth, UK

Call for Papers - Abstract Deadline 18th February 2010

Conference Topics:

Impact of IC scaling on operating lifetimes and radiation tolerance;
Impact of lead free solders and practices on reliability;
Case studies of COTS in military & space systems;
Ruggedizing practices for harsh environments;
BGA Issues

Organized by:

Cognition AM Ltd
Components Technology Institute, Inc.

In cooperation with:

COG - Component Obsolescence Group

CMSE Technical Sessions

Tuesday, February 9

8:30 - 8:45am

WELCOME & INTRODUCTION

Program Chairman: Leon Hamiter, CTI, Inc.

8:45am - 12:00noon

Session 1: OEM Experiences & Avoidance of Counterfeits

Chair: John Prymak, Kemet Electronics

1.1 *Experiences Detecting Counterfeits & Controls Used on IDs;*
C. Mortimer, GE Fanuc

1.2 *Counterfeit Electronics- Commercial & Mil-grade Electronics Case Studies;*
A. DerMarderosian Jr, K. Rispoli, Raytheon Company

1.3 *Reducing Counterfeit and Trojan Horse Risk with a Secure Anchor Point;*
J. R. Kenny, S. Vorres, CPU Technology

1.4 *Potential Issues with Re-balled BGAs;*
N. Leonardi, H. Rotchadl, Premier Semiconductor Services

1.5 *DPA Practices and Experience with BGA and CGA Packages;*
T. Devaney, Hi Rel Labs

1.6 *Enhanced Approach to Providing JANS (RHA) Devices;*
B. Triggs, Semicoa

1.7 *X-Ray Inspection Systems for Counterfeit Detection;*
B. Cardoso, A. Nishimoto, Creative Electron

12:00 - 2:00pm   Lunch with the Exhibitors

2:00 - 5:00pm

Session 2: BGAs & Packaging Issues

Chair: Larry Harzstark, The Aerospace Corp.

INVITED SPEAKER

2.1 *Packaging Techniques & Concerns for Large Devices;*
M. J. Sampson, K.A. LaBel, NASA

2.2 *Characterization of High Reliability Flip Chip Technology Requirements;*
B. Bauer, S. Popelar, Aeroflex Colorado Springs

2.3 *CCGA (Ceramic Column Grid Array) Packaging for Space/ Mil Applications;*
R. Kuang, Actel Corp.

2.4 *Area Array Package Trends & Assembly Reliability Failures for Tin-lead and Lead-free Solders;*
Reza Ghaffarian, JPL/NASA

2.5 *Flip-Chip Failure Mechanisms in PBGAs;*
Z. Wang, International Rectifier Corp.

2.6 *Dense Memory Product Line Results from Stacked Die Packaging Technology ;*
R. Lake, Aeroflex Colorado Springs

2.7 *Selection and Qualification of a New 4 Mb SRAM Basic Die for Space Qualified 3D Stacked SRAM Modules;*
P-E Berthet, M. Gil, N. Fiant, 3D Plus

5:30 - 7:30pm EXHIBITS AND NETWORKING RECEPTION

Wednesday, February 10

8:00 - 9:30am

Session 3: New Reliability Practices

Chair: Dr. Andrew Kostic, The Aerospace Corp

3.1 *New Fast Method for Detecting Product MTBF;*
M. Silverman, H. McLean, Ops A La Carte

3.2 *Military-Scale ESD/TVS/EMI Protection for Hi-Reliability Military Electronics;*
A. Wang, University of California

3.3 *Testing Solutions for PEM FPGA's in High Reliability Systems;*
M. Marshall, Integra Technologies

3.3 *Observations on Active Devices Screening & Evaluation Test;*
C. O'Brien, BAE Systems, Inc.

9:50 - 12:00noon

Session 4: Trusted Suppliers

Chair: Creigh Gordon, USAF AFRL

INVITED SPEAKER

4.1 *Trusted Integrated Circuit Overview;*
S. Maynard, B. S. Cohen, D. Radack, Institute for Defense Analyses

4.2 *Aeroflex Trusted Supply Chain Services;*
B. Bauer, Aeroflex Colorado Springs

4.3 *The Trusted Supplier Perspective;*
A. J. Bent, National Semiconductor

4.5 *Presentation on IC Trusted Supplier Program;*
D. D. Chu, Sandia National Laboratories

12:00 - 2:00pm   Lunch with the Exhibitors

CMSE Technical Sessions

2:00 - 5:30pm

Parallel with Session 6

Session 5: Rad-Hard and Tolerant Electronics

Chair: Dave Strobel, Space Micro Inc.

5.1 ***Approaches for Developing Rad-Hard Electronics";***
M. Owens, R. Pugh,Think Strategically, LLC

5.2 ***Future Memory Technologies for Space;***
C. Gordon, AFRL

5.3 ***Clock Network Manager Provides Timing Accuracy Needed for Advanced System Applications;***
R. Lake, Aeroflex Colorado Springs

5.4 ***Very High Density and Radiation Tolerant PROM for Space Systems;***
P. Wang, P-E Berthet, 3D Plus

5.5 ***The Need for a Radiation Tolerant Flash Solid State Drive for Space Applications;***
B. Gess, Trident Space & Defense

5.6 ***FPGAs and ASICs for Space Applications;***
R. Roosta, JPL

5.7 ***Leveraging the Availability of 32-bit Fault-Tolerant Processors Suitable for Radiation-Tolerant FPGA Devices;***
S. Habinc, Jiri Gaisler

5.8 ***Rad Hard by Design DRAM for Space & Interceptors ;***
B. Vermeire, D. R. Czajkowski, D. Strobel, H. Bourdu, H. Cerna, M. Fennell, Space Micro Inc.

5.9 ***New High Speed and High Density Radiation Tolerant SRAM Modules for Space Applications;***
P-E Berthet, P. Wang, N. Fiant, 3D Plus

2:00 - 5:30pm

Parallel with Session 5

Session 6: Component Applications & Reliability

Chair: Anthony Lai, Aitech Defense Systems

6.1 ***Review of Air Force Space Parts, Materials & Processes (PMP) Requirements;*** Larry Harzstark, The Aerospace Corp.

6.2 ***NEPP Activities;***
M. J. Sampson, K.A. LaBel, NASA

6.3 ***Potential Impact of the Piezoelectric Effects in DC/DC Converter Applications;***
A. D. Pathak, L. Ou, International Rectifier

6.4 ***New Manufacturing and Testing Techniques for High Reliability Ta Capacitors;***
Y. Freeman, J. Prymak, E. Reed, Kemet

6.5 ***Stacked Multi-Layer Ceramic Capacitors for High Reliability Applications;***
J. Bultitude, J. McConnell, A. Gurav, T. Ashburn, J. Franklin, J. Zavala, L. Jones, R. Phillips, X. Xu, J. Magee, M. Laps, KEMET Electronics Corporation

6.6 ***Robust Reliability of BME Class-I High Temperature Capacitors;***
A. Gurav, X. Xu, J. Franklin, T. Ashburn, KEMET Electronics Corporation; C. Randall, Pennsylvania State University

6.7 ***JAN/JANS Certification and Qualification of Diodes to aid Military and Aerospace Future Roadmap Requirements;***
F. Kwan, P. Ciccarelli, Aeroflex Metelics

6.8 ***The End of Obsolescence. Managing End of Life Electronic Components;***
L. Melatti, Channel One Intl.

Close of General Sessions

Thursday, February 11

8:30 - 11:00 noon

Parallel Sessions

Tutorial 1 - Worst Case Circuit Analysis to Identify Critical Components

Steve Sandler and Charles E. Hymowitz, AEi Systems

This course is designed to provide the participant with the fundamental skills required to perform a Worst Case Circuit Analysis (WCCA) to identify the components that need special attention and testing. The value and contribution of this analysis and the different methods which can be utilized are clearly explained. Basic tolerance studies and their evaluation are presented for common electronic components. Standard industry aging guidelines are compared. Common pitfalls and misconceptions about component tolerances and their impact on WCCA are explored.

Tutorial 2 - ESD/EOS Design & Protection for Military Electronics

Vesselin Vassilev, Novorell Technologies

The advanced IC design scaling techniques aimed at increasing the on-chip transistor densities, in addition to the semiconductor technology downscaling, are greatly reducing the achieved on chip ESD/EOS robustness. The reduced internal protection capabilities increase the need for more advanced circuit level, PC boards and handling protection approaches. This tutorial addresses the state of the art principles of IC design for Human Body Model (HBM), Machine Model (MM) and system level (IEC) ESD robustness in CMOS and bipolar technologies plus chip level ESD assessment and troubleshooting methodologies applying simulation and design verification tools.

Close of CMSE 2010

CMSE 2010 Exhibition Information

Tuesday, February 9   **12:00am to 7:30pm**
Wednesday, February 10   **10:00am to 2:00pm**

This Conference provides a major opportunity for direct marketing, advertising and technical interchange with decision makers: **Component Engineers - Design Engineers - Engineering Managers**
Project Managers - Quality Assurance Personnel - Procurement Executives

The delegates and visitors

The event is targeted to a variety of high-level professionals working as:

- Design Engineers
- Manufacturing Engineers
- Engineering Managers
- System Integrators
- Consultants

- Program Managers
- Project Leaders
- Government Managers
- DOD Procurement

Services Included

CTI staff will be present to take care of all arrangements, to answer any questions and to cater to special needs that you and your visitors may have. This means that you, as an exhibitor, only have to look after promoting your products and meeting your customers.

Included in your participation

- Exhibition Space (6' x 10') or
- Exhibition table (3' x 6')
- Standard electric connection 110V/500W max.
- Print out of attendee/visitor details

- Coffee/Tea for exhibitor & visitors
- Complimentary visitor admission to Exhibits
- Lunch buffet for exhibitors & visitors +
- Reception also open to visitors +
+ Limited to space availability

CMSE Past Exhibitors

Space & Availability

A few exhibit spaces remain, register now for availability.

Exhibiting Booth - $2000 (6'x10')
Exhibiting Table Top - $1600 (3'x6')

Advertising

Advertising is available:

Conference CD Notes color ad - $300
Conference Guide color ad full page - $700

Registration & Contact

CMSE 10 Exhibition Registration Form is posted on the web:
http://www.cti-us.com/cmsemain.htm

For exhibition information and space availability contact
Elena: +1 256 536-1304, info8@cti-us.com