SMTA International

PRE-EVENT guide

Conference: November 1 - 4, 2021
Exposition: November 3 - 4, 2021

Minneapolis Convention Center
Minneapolis, MN, USA

*Co-located with MD&M Minneapolis

www.smta.org/smtai
SMTA International provides your best chance to reconnect with the global electronics manufacturing community and to stay competitive, identify challenges, innovate and exceed expectations.

We invite you to attend the in-person SMTA International Conference and Exhibition from November 1 - 4, at the Minneapolis Convention Center. Virtual presentations will be available starting November 15th. We are proud of our legacy of providing outstanding conference and exhibition experiences and this year will be no different. The conference and exhibition are a unique opportunity for us to collaborate, share, and learn from each other and industry experts.

The team work and collaboration that goes into developing the conference and exhibition is exceptional – it really highlights that SMTA is more than just an industry association, we are a family. Our technical program contains papers and presentations from true subject matter experts covering a wide range of electronic manufacturing topics.

The Technical Advisory Committee and the SMTA staff, Chapter Officers and Global Board of Directors sincerely hope that SMTA International is a valuable and enjoyable experience for you. Register today!

The Industry’s Largest and Strongest Technical Program

SMTA International remains an exceptional event as we attract an outstanding group of authors, speakers and exhibitors. Our technical program contains papers and presentations from true subject matter experts covering a wide range of electronic manufacturing topics. SMTA International consistently welcomes over 100 speakers into the technical program each year, along with offering professional development courses and student poster sessions.

Not able to attend in-person? You can stream recorded presentations starting November 15th.

The Largest Audience of Engineers and Manufacturing Professionals

We are excited to welcome Medical Design & Manufacturing Minneapolis (MD&M) to the Minneapolis Convention Center this November. Together, the events bring one of the largest audiences of engineering and manufacturing professionals to the Midwest.

Explore all five manufacturing and engineering trade shows that share the expo floor. It’s a one-stop experience delivering design to manufacturing solutions at every stage of the manufacturing process—design, materials, manufacturing, automation, and packaging—in top manufacturing sectors.

THE SECTIONS INCLUDED IN THIS GUIDE:

- Section 1: Advanced Packaging Technology (APT)
- Section 2: Flux, Solder, Adhesives (FSA)
- Section 3: Harsh Environment Applications (HE)
- Section 4: Inspection/Counterfeit Electronics (INS)
- Section 5: Lead-Free Soldering Technology (LF)
- Section 6: Manufacturing Excellence (MFX)
- Section 7: Substrates/PCB Technology (SUB)
- Section 8: Technical Innovations (TI)
- Section 9: Professional Development Courses (PDCS)
- Section 10: Students & Young Professionals (SYP)
- Section 11: Electronics Exhibition (EXPO)
- Section 12: Women’s Leadership Program (WLP)
A Generic Approach for Automatic Design Rule Derivation for Assembly Design Kits (ADK)
Andy Heinig, Fraunhofer IIS/EAS

Additive-Print Process-Performance Interaction for Ink-Jet and Direct-Write Circuits with Surface Mount Components
Pradeep Lall, Ph.D., Auburn University

Advances in Packaging for Future Technology Trends
Kai Hollstein, Institute for Microelectronic Systems

Ag Sintering Die Attach Solution for System in Package RF Module- Assembly, Process Challenges and Resin Bleed Out Optimization
Md Hasnine, Qorvo

An Approach to Use Reduced Sample Sizes for Qualification Testing Based on Failures in Time (FITS) Analysis and the Poisson Exponential Binomial Distribution for Low Volume Custom Components
Jacob Weber, Collins Aerospace

Automotive Gate Driver Package with Galvanically Isolated Communication Linkage
Burton Carpenter, NXP Semiconductors

CPU Socket Interposer Component Level and Manufacturability Study, Part 1: Socket Contact vs. Direct-Solder-Attach Interconnection
Paul Wang, Mitac International Corporation

Cu Conductive Paste as Via Filling Materials for Through Silicon Via (TSV) and Through Glass Via (TGV)
Yoshinori Ejiri, Showa Denko Materials Co., Ltd.

Emerging Processes and Assembly Challenges for Electronics Manufacturing
Glenn Farris, Universal Instruments Corporation

Enhancing Low Temperature Solder Interconnect Board Level Shock Performance
Tae-Kyu Lee, Cisco Systems, Inc.

Freeze Frame Reflow to Enhance Yields for Advanced Low Profile Bottom Terminated Packages
Steven Kummerl, Texas Instruments
Fundamental Study of Core Ball BGA Technology Through Assembly to Reliability
Jimin Yao, Intel Corporation

High Speed Data Transmission Characteristics On Glass Based Interposer
Satoru Kuramochi, Dai Nippon Printing co ltd

Innovative Indium and Silver-Tin Plating Processes for Connector Press-Fit Applications
Frank Xu, Ph.D., MacDermid Alpha Electronics Solutions

Investigation Of Interdiffusion and Formation Of Intermetallic Compounds in Power Electronic Substrate Joints Produced by Transient Liquid Phase Bonding
Chidinma Imediegwu, Georgia Institute of Technology

Micro Device | Hot Solder Dip
Gary Moffat, Retronix Ltd

Modeling of the Effect of Thermal Pad Voiding on Quad Flatpack No-Lead Components
Ross Wilcoxon, Ph.D., Collins Aerospace

No Bleed Die Attach to Roughened Leadframe
Dan Hart, MacDermid Alpha Electronics Solutions

Perspectives and Considerations for the Implementation of Pb-Free Solders into Aerospace, Defense, and High Performance Products and Systems
Anthony Rafanelli, Ph.D., Raytheon Technologies

Reliability Assessment of Micro Via Stacking Configuration in FCPBGA Using FEM
Sandeep Shantaram, Ph.D., NXP Semiconductors

Underfill Material and Interface Property Evolution in Underhood Automotive Temperatures over Period of 1-Year
Pradeep Lall, Ph.D., Auburn University
A Correlation Study of Solder Cup Voiding Versus Solder Joint Integrity
Timothy Pearson, Collins Aerospace

An Investigation into the Effects of Greases on Low-Load Gold-Plated Electrical Contacts Undergoing Fretting
Rishabh Chaudhary, M.S., Center for Advanced Life Cycle Engineering (CALCE)

An Investigation on the Influence of Nickel Contamination of Plated Through Hole (PTH) Solder Joint Integrity
Dave Hillman, Collins Aerospace

Deliquescent Relative Humidity Measurement of No-Clean Flux Residues
Eric Campbell, IBM Corporation

Development of Encapsulation Solutions for Flexible Hybrid Electronics
Weifeng Liu, Ph.D., Flex

Dielectric Behavior of Solder
Deborah Chung, Ph.D., University at Buffalo, The State University of New York

Edge Bonding as Viable Reinforcement for Solder Joints in High Reliability Applications
Jimmy Shu, MacDermid Alpha Electronics Solutions

Evolution and Applications of Fine-Feature Solder Paste Printing for Heterogeneous Integration
Evan Griffith, Indium Corporation

Lower Temperature Soldering Using Supercooled Liquid Metal
Ian Tevis, SAFI-Tech

Materials Characterization and Correlation Study of Solder Paste Using Electrochemical Impedance Spectroscopy (EIS) and Surface Insulation Resistance (SIR)
Mark McMeen, STI Electronics

Test Methods to Differentiate Risk Between Benign and Aggressive Wave Solder No-Clean Flux Residue
Kevin Zhang, Cisco Systems, Inc.
Assessment Of Long-Term Storage System Of Electronic Components
Diganta Das, Ph.D., University of Maryland - CALCE

Challenges of Interpreting and Applying New IPC J-STD-001 Cleanliness Standards in High-Rel Applications
Bill Capen, Honeywell FM&T

Effect of Temperature on the Mechanical Fatigue of Solder Joints in Ball Grid Array Assembly
Xin Wei, Auburn University

Electrical Performance Impact of Disinfecting Near and Around Electronic Systems
Phil Isaacs, IBM Corporation

Online Monitoring of Non-Ionic Impurities in Rinsing of Cleaned PCBA
Vladimir Sitko, PBT Works s.r.o.

SIR Glass Test Vehicle Designed to Characterize Process Materials
Richard Stephenson, Ph.D., EMD Electronics

Use of Electrochemical Impedance Spectroscopy (EIS) as Test Method for Humidity Interaction with PCBA
Rajan Ambat, Ph.D., Technical University of Denmark

ADVANCE YOUR CAREER
» THE LATEST TECHNICAL INFO
» PROFESSIONAL NETWORKING
» JOB RESOURCES
...AND MUCH MORE

JOIN TODAY
WWW.SMTA.ORG/MEMBERSHIP
A New X-Ray Tube Technology to Revolutionise Electronics Inspection  
Keith Bryant, *KB Consultancy*

Advanced Techniques to Identify Counterfeit Components  
Bill Cardoso, Ph.D., *Creative Electron, Inc.*

Development of a Technique for Detecting Counterfeit Energy Storage Systems  
Thomas Yesufu, Ph.D., *Obafemi Awolowo University*

**ECM Industry Challenges**  
Graham Naisbitt, *Gen3Systems*

Head on Pillow Defect Detection Using AI Machine Learning  
Ajay Chaddha, Ph.D., *Intel Corporation*

New Paradigm in Additive Manufacturing: Utilization of Computed Tomography  
Chen Dai, Ph.D., *VJ Technologies*

Not Your Father’s Flying Probe Technology: New, Advanced, and Lesser-Known Capabilities of Contemporary Flying Probe Test Systems  
Giovanni Noto, *SPEA*
A Modified Coffin-Manson Methodology for Predicting Solder Joint Life in Eutectic Tin-Lead and Lead-Free Assemblies
Jean-Paul Clech, Ph.D., EPSI Inc.

A Novel Bismuth and Antimony Containing Lead-Free Solder with Enhanced Thermal Reliability for Automotive and LED Applications
Jie Geng, Indium Corporation

Bismuth Induced Phase Transformation: New Failure Mode for Tin-Based Solder Alloys with Bismuth, Copper and Nickel
Timo Herberholz, Ph.D., Robert Bosch GmbH

Challenges To Maintain High Electrical Reliability of Low Temperature Solder Paste
Ramakrishna Hosur Venkatagiriyappa, Ph.D., MacDermid Alpha Assembly Solutions

Comparison of BGA Component Level Shock and Temperature Cycle Performance of Multiple SnBi-Based Low Temperature Solders
Kevin Byrd, Ph.D., Intel Corporation

Component Side Hot Tear Defect Root Causes And Control in Full LTS Solder Joints
Kevin Byrd, Ph.D., Intel Corporation

Solder Ball Drift Behavior of Hybrid SnAgCu-LTS Solder Interconnects in Accelerated Thermal Cycling
Luke Wentlent, Universal Instruments Corporation
Jim Wilcox, Universal Instruments Corporation

Thermal Cycling Behaviors of Hybrid and Homogeneous Low Temperature Solder Interconnects
Luke Wentlent, Universal Instruments Corporation
Jim Wilcox, Universal Instruments Corporation

Using a Low Melting Point Solder in a Selective Soldering Process
Eddie Groves, Pillarhouse USA, Inc.
Jonathan Wol, Pillarhouse USA, Inc.

Criteria for Solder Alloy Adoption
Michael Osterman, Ph.D., University of Maryland - CALCE
Effect of Initial Volume Ratio, Reflow Temperature and Current Stressing on the Microstructure of SnBiAg-SAC Mixed Solder Joints  
Eric Cotts, *Binghamton University*

**Effects of Matching Lead-Free Solder Joints Compared to SnPb on BGA Reliability in Thermal Cycling**  
Mohammed Belhadi, *Auburn University*

**Enabling Pin in Paste Through Hole Soldering Through SnBi Low Temperature Solder**  
Sugadh Bakare, *Intel Corporation*

**Evaluations of High Reliability Lead-Free Solder Paste**  
Jasbir Bath, *Koki Solder America Inc.*

**High-Reliability Lead-Free Solders for Automotive Electronics - Thermal Cycling and Shear Strength Performance**  
Morgana Ribas, Ph.D., *MacDermid Alpha Electronics Solutions*

**Hybrid Assembly and Reliability of Conventional Pb-Free BGA’s Using Low Temperature Solder Paste for Temperature Sensitive IC Applications**  
Andrew Mawer, *NXP Semiconductors*

**Interim Thermal Cycling Report on Hybrid and Homogeneous LTS Solder Joints**  
Richard Coyle, Ph.D., *Nokia Bell Labs*

**Intermetallic Compound Analyses Provide Interfacial Reliability for Solder Connections in Electronics**  
Mike Wolverton, P.E., *Raytheon Technologies*

**Low Temperature Soldering Product Level Certification and Proliferation**  
KK Tang, *Intel Corporation*

**Low-Temperature Solders SMT Process Optimization for Enhanced Reliability**  
Morgana Ribas, Ph.D., *MacDermid Alpha Electronics Solutions*

**Manufacturing Cost Reductions Available When Using Low MP Solder Paste**  
Mitchell Holtzer, *Alpha Assembly Solutions*

**Mechanical Characterization of SAC305 and SnPb36Ag2 BGA Assemblies Under Static Flexural Loading**  
Jean-Baptiste Libot, Ph.D., *Safran Electronics & Defense*
Mechanical Shock Testing And Failure Analysis On Mixed SnAgCu-BiSn And Full Stack BiSn Solder Joints Of CABGA192 Components
Jagadeesh Radhakrishnan, Intel Corporation

Mechanical Strength - Low Melting Temperature Alloys Test
Lars Bruno, Ericsson AB

Microalloying Effects on Intermetallic Compound Growth and Mechanical Reliability of Sn-Bi Solder Joints
Yaohui Fan, Ph.D., Purdue University

Reducing Solder Scrap by Replacing Solder Paste with Solder Preforms when Appropriate
Mitchell Holtzer, Alpha Assembly Solutions

Reliability of Solder Joints on Flexible Aluminum PC Boards
Divyakant Kadiwala, Averatek Corporation

Role of Conformal Coating and its Strategies for Tin Whisker Mitigation
Preeth Sivakumar, Binghamton University

Solder Joint Separation During Second Reflow Induced by VIPPO Structures: Mechanism and Modeling Methodology Study
Weidong Xie, Cisco Systems, Inc.

Solder Reliability Solution Model Modification with a Finite Rate of Temperature Change
Stephen Hwang, Ph.D., Sandia National Laboratories

Solderability of Additive Cu Surfaces
Rebecca Wheeling, Ph.D., Sandia National Laboratories

The Characterization for Rework of Low Temperature Solder Joints
KK Tang, Intel Corporation

The Effect of Peak Reflow Temperature on Thermal Cycling Performance and Failure Mode of Hybrid Low Temperature Solder Joints
Richard Coyle, Ph.D., Nokia Bell Labs

The Effects of Surface Finish on the Microstructure of TLPS Paste Joints
Catherine Shearer, EMD Electronics

The Influence of Element Lead (Pb) Content in Tin Plating on Tin Whisker Initiation/Growth
David Hillman, Collins Aerospace
The Variation of the Electrical Resistance and Microstructure of SnBi Based Solder Joints with Current Stressing
Faramarz Hadian, Ph.D., Binghamton University

Thermal Cycling Induced Interconnect Stability Degradation Mechanism in Low Melting Temperature Solder Joints
Tae-Kyu Lee, Cisco Systems, Inc.

Thermal Fatigue Reliability of a 1206 Chip Resistor with High-Performance Pb-Free Solder Alloys
Timothy Pearson, Collins Aerospace

Thermal Reliability of Mixing Bismuth Containing Solder Paste with SAC BGA’s at Low Reflow Temperature- Part II
Sahana Marur Kempaiah, Rochester Institute of Technology

Unveiling a Total Solution for Soldering Through-Hole Components using a Low Temperature Alloy
Pritha Choudhury, Ph.D., MacDermid Alpha Electronics Solutions
Cleanliness Detection and Resistance of Solvent Extract, A Critical Evaluation
David Lober, KYZEN Corporation

Correlation of Solder Paste Electrochemical Impedance Spectroscopy (EIS) Measurements to Solder Paste Inspection (SPI) Performance
Morgan Miller, Insituware

Designing of Rheology Tests to Develop New Solder Pastes Formulation
Charlotte Morin, Inventec Performance Chemicals

Detailed Study of Condensate Residues in the Soldering Process - Analysis of the Responsible Reaction Partners as well as Reasons for Condensate Polymerization and Growth of Crystalline Structures
Viktoria Rawinski, Rawinski GmbH

Engineered Aqueous Cleaning - It all Comes Down to Performance
Debbie Carboni, KYZEN Corporation

Identifying Cleaning Compatibility Issues with Electronic Components
Claire Brennan, Ph.D., Collins Aerospace

Importancy of Good Design for Cleaning PCBA
Vladimir Sitko, PBT Works s.r.o.

Lean Six Sigma and Model-Based Systems Engineering Capabilities Matrix Development for Counterfeit Avoidance and Supply Chain Optimization in Digital Transformation Environments
LaTasha Taylor Starr, Colorado State University

Lessons Learned with Large and Heavy Copper Boards, a Review of Quality and Productivity Improvements
Paul Wilson, Rockwell Automation

Modern Electronics Defluxing – Meeting the Low VOC Challenge
Naveen Ravindran, M.S.Ch.E., ZESTRON Corporation

New Device Validates Printer Accuracy and Squeegee Force During Singular Test
Michael Sivigny, CeTaQ Americas
Process and Design Guidelines for Large and Complex RF and EMI Shields for Board Level Assembly
Mohammed Alam, Intel Corporation

Robotic Soldering Process Implementation and Optimization in Electronics Manufacturing
Sanmaher Mashaareh, P.E., Binghamton University

Root Cause of Dye Stain Observed on Server Motherboard Sockets BGA Solder Joints and its Impact on Their Solder Joint Quality and Reliability
Hemant Shah, Ph.D., Intel Corporation

Selective Soldering with High-Performance Lead-Free Solder
Gerjan Diepstraten, ITWEAE

Site-Specific Ionic Contamination Process Control Monitoring Plan Method
Mike Bixenman, DBA, MBA, Magnalytix

Statistical Analysis of Transfer Efficiency in the Age of Very Large Sample Sizes
Ron Lasky, P.E., Ph.D., Indium Corporation

The Effect of Grain Size Distribution on the Defect Generation Mechanism of 0201 Passives
Swagatika Patra, Binghamton University-SUNY

The Effects of the Cleaning of Populated Circuits Boards on the Performance of Conformal Coating in Thermal Shock Testing
Chris Brightwell, Humiseal Europe

The Evolution of Material Handling Practices and Processes
Michael Adamson, Inovaxe Corporation

The Relationship Between Reflow Profiles and Contamination
Mike Konrad, Aqueous Technologies

Thin Foil Printing in Today’s Miniaturized World: Do Printing Rules Change?
Chrys Shea, Shea Engineering Services

Validation of Changes and Monitoring Cleaning Process Stability According to J-STD 001H Chapter 8
Vladimir Sitko, PBT Works s.r.o.

What Do You Want on Your Tombstone?
Tony Lentz, FCT Assembly
Analysis of Glass Transition Temperature of PCB & Substrate Using Dynamic Mechanical Analysis & Thermomechanical Analysis
Shristi Yadav, MAE Department of University of Texas at Arlington

Identifying Causes of Wire Bond Pad Metal Lift-Off Failures in ENEPIG Deposits
Patrick Valentine, Ph.D., Uyemura USA

Impact of the Surface Finish on IMC and Solder Joint Reliability with Low-Temperature Solder Paste
Britta Schafsteller, Ph.D., Atotech Deutschland GmbH

Improving Immersion Silver Performance for 5G Applications
Denis Jacques, Technic Inc

Investigation of Pd-Ge Alloy in ENEPIG Process as Better Barrier Layer
Yohei Kaneko, C. Uyemura & Co., Ltd.

Microstructure of Weak-Micro-Via and its Failure Prevention
Ming-Chun Hsieh, Osaka University

Varying Requirements, same Inkjet Solder Mask Coating Tool - The Case of Inkjet Adaptability by Printing Strategies
Luca Gautero, Ph.D., SUSS MicroTec NL
A Digital Solution to Manage In-Circuit Testing
Zhi Peng Wang, *IBM Corporation*

**Aerosol Jet Printed Interconnects for Millimeter-Wave Components**
Alex Ramm, *Optomec*

**An Investigation into Alternative Methods of Drying Moisture Sensitive Devices in Storage and in Re-Work Applications**
Dan Jenkins, *Steel Camel*

**An Automated PCB Design Constraint Extraction and Verification from the SOC Platform Design Collateral**
Alan Hatfield, *Intel Corporation*
Minoru Ishikawa, *Siemens Digital Industries Software*

**Comparative Study of Thermal Conductive Adhesive and Die Attach Material for Heatsink Assembly**
Raghabendra Rout, *Binghamton University-SUNY*

**Counterfeit Mitigation by In-Line Deep Visual Inspection**
Eyal Weiss, Ph.D., *Cybord*

**GaIn Based Liquid Metals as TIMs: Challenges and Considerations**
Peter McClure, *Universal Instruments’ Advanced Process Laboratory*

**Getting Real in the Digital World**
Michael Ford, *Aegis Software*

**High Performance Liquid Metal Thermal Interface Materials**
Ron Lasky, P.E., Ph.D., *Indium Corporation*

**Liquid Dispensed Thermal Materials – Product Formats, Properties and Manufacturing**
Sanjay Misra, *Henkel Corporation*

**Method of Traceability and Counterfeit Detection of Components Through the Resale Market Using IoT and Blockchain**
Curtis Grosskopf, *IBM Corporation*

**New IPC-1783 Component Level Authentication (CLA) Standard**
Michael Ford, *Aegis Software*
Photonic Soldering Temperature Sensitive Components with High Temperature Solder Alloys
Vahid Akhavan, *NovaCentrix*

SMT Performance Analytics - Golden Cycle Time and Automated Loss Reason Inference
Andrew Scheuerman, Ph.D., *Arch Systems*

Systems Analysis and Axiomatic Design using Discrete Event Simulation
Zohair Mehkri, *Flex*

Thermal Interface Material for Advanced Electronics Applications
Rita Mohanty, Ph.D., *Henkel*
Half day (3.5 hours) educational courses are led by internationally respected professionals with extensive experience in the subject area.

Course instructors deliver focused, in-depth presentations on topics of current importance to the industry, based on their research and industry experience. Professional Development Courses are application oriented and structured to combine field experience with scientific research to solve everyday problems.

5G Impacts and New Challenges for PCB and Integrated SMTA Infrastructures
John Marke, UL LLC

Assembly and Reliability of Flip Chip and 6-Side Molded WLCSP
John Lau, Unimicron

Assembly: Best Practices for Improving Manufacturing Productivity
Jim Hall, ITM Consulting
Phil Zarrow, ITM Consulting

Ball Grid Array: Design and Assembly of BGAs with Emphasis on Backward Compatibility
Ray Prasad, Ray Prasad Consultancy

Cleaning and Cleanliness Quantification Boot Camp
Mike Konrad, Aqueous Technologies

Cost Conscious Test Strategies for Electrical Cost Products
Robert Hanson, Robert Hanson Consulting

Cost Modeling Your Assembly Line or Factory to Reduce Costs and Improve Profitability
Ron Lasky, Ph.D., Indium Corporation

Design and Assembly Process Challenges for Bottom Terminations Components (BTCs) such as QFN, DFN and MLF in Tin-Lead & Lead Free World
Ray Prasad, Ray Prasad Consultancy

Fan-Out Packaging and System-in-Package
John Lau, Unimicron

Flexible and Rigid Flex Circuit Design Principles
Vern Solberg, Solberg Technical Consulting
PROFESSIONAL DEVELOPMENT COURSES (PDC’S)

Introduction to Statistical Analysis
Ross Wilcoxon, Collins Aerospace

LTS 101: Manufacturing Process Guidance for Implementation of SnBi Base Low Temperature Soldering for Consumer Products
Kok Kwan Tang, Intel Corporation

PCB Design for Implementing 3D and High Density Semiconductor Package Technologies
Vern Solberg, Solberg Technical Consulting

Practical Use of Low Temperature Solder, Assembly, Reflow & Inspection
Bob Willis, bobwillis.co.uk

Principles and Practice of Developing Soldering Profiles
Ray Prasad, Ray Prasad Consultancy

Reliability of Electronics – Role of Intermetallic Compounds
Jennie Hwang, Ph.D., H-Technologies Group

Robotic Soldering Process, Design, Quality Control & Defects – Causes & Cures
Bob Willis, bobwillis.co.uk

Selection Criteria of Surface Finish for Next Generation PCB Technologies: HDI, High Frequency, RF-Microwave, 5G
Kunal Shah, Lilotree

Solder Joint Reliability – Principle and Practice
Jennie Hwang, Ph.D., H-Technologies Group

Tin Whiskers: An In-Depth Technical Discussion
David Hillman, Collins Aerospace

Tolerance Mistaken: DFM Impacts of not Properly Addressing Limitations of Material, Industry Standards and Assembly Process Limitations
Dale Lee, Plexus Corp.

Uncommon Leadership: Developing Influence, Increasing Impact
Jason Hunt, Eye Squared Leadership
We're looking towards the future and the future is YOU!

Tuesday, November 2 | 2:00pm - 4:00pm
Roundtable - Growing the Future: NextGen Electronics Manufacturing Workforce

Wednesday, November 3 | 10:00am - 3:45pm
Jump Start - Foundational Technical Sessions
Topics include:
- Stencil Printing
- Inspection
- Placement
- Reflow
- DFM
- Cleaning

Thursday, November 4 | 12:00pm - 1:00pm
Casual Career Conversations
Topics include:
- Resume tips and tricks
- Starting your career (life transitions)
- Propelling your career (entry level to senior level)
- There are no dumb questions (mentors tell all)

Thursday, November 4 | 1:30pm - 3:00pm
Casual Soft Skill Conversations
Topics include:
- Strategic Self Promotion
- Putting Emotional Intelligence to Work
- Stress Management and Burnout
SMTA International will co-locate with Medical Design & Manufacturing (MD&M) Minneapolis bringing together one of the largest audiences of engineering and manufacturing professionals in the Midwest.

All five trade shows share the expo floor in Minneapolis. It’s a one-stop experience delivering design to manufacturing solutions at every stage of the manufacturing process—design, materials, manufacturing, automation, cleaning and packaging—in top manufacturing sectors.

**Current Exhibitors**
**(SMTAI Exhibitor List as of August 20)**

| 1 Click SMT | ESSEMTEC USA | Mirtec Corp. |
| 5N Plus Inc. | Europlacer Americas Inc. | Mycronic |
| ACL STATICIDE | Fuji America Corporation | Neoden USA |
| Aegis Software | Garland Service Company | Nikon Superior |
| AIM Solder | Glenbrook Technologies | Nordson DAGE |
| Akrometrix | Hanwha Techwin | Omron |
| Alfalor Technology | Inovaxe Corporation | OSI Electronics, Inc. |
| Alltemated | Instiware | Panasonic |
| American Standard Circuits | ITW EAE | PARMI |
| ANDA Technologies | JBC Tools, Inc. | PFC Flexible Circuits |
| ASC International | JUKI AUTOMATION SYSTEMS | Pillarhouse |
| ASM | KIC | Precision PCB Services, Inc. |
| BlueRing Stencils | Koh Young America | Retronix |
| BTU International | Kulicke & Soffa | Scienscope |
| CCL Design | KYZEN | Seica Inc. |
| Condair | Linkage Technologies | Seika Machinery |
| Conductive Containers, Inc. | MacDermid Alpha | Shenmao America |
| CyberOptics Corporation | Magnalytix, LLC | Simplmatic Automation |
| ELANTAS PDG | Metallic Resources | Smartsol Technologies |
| Eltek USA Inc | MicroScreen | Smart Splice |
| | Mid America Taping & Reeling | SMTXTRA |
| | | Specialty Coating Systems |
| | | Steel Camel |
| | | Sunshine Global Circuits |
| | | Swanstrom Tools USA |
| | | Teradyne |
| | | Test Research, Inc. |
| | | Texmac/Takaya |
| | | Tintronics |
| | | Trans-Tec America/Yamaha |
| | | Universal Instruments |
| | | Viscom |
| | | VisiConsult X-Ray Solutions |
| | | Vitrox USA |
| | | V-TEK, Inc. |
| | | ZESTRON Corporation |
| | | Zymet Inc. |
Free for everyone and all are welcome!

We extend an invitation to everyone to attend the Women's Leadership Program to promote women in engineering fields. Show your support for diversity in engineering fields by attending this session.

Tuesday, November 2nd | 1:30pm - 5:00pm
Career development presentations and speed mentoring sessions
- Breaking Through Unwritten Stereotypes: Good Old Boys Club
- Identifying Mentors and Cultivating Sponsors
- Importance of Strategic Thinking
- Relentlessly Reinvent and Accelerate your Career Path
- Positive Outcomes from Tough Situations
- Find your Strengths: Personality Analysis

Tuesday, November 2nd | 5:00pm - 6:00pm
Connection Reception
The Women's Leadership Program will continue their annual gathering, hosting the Connection Reception on the evening of Tuesday, November 2nd!
Register to attend the in-person conference and exposition, taking place in Minneapolis, MN on November 1-4 or register for the virtual conference only, access starting November 15. Visit [www.smta.org/smtai](http://www.smta.org/smtai) to register today!

### VIP Package - *Best Value!*

<table>
<thead>
<tr>
<th>Category</th>
<th>Attendee</th>
<th>Speakers/Session Chairs</th>
<th>Students</th>
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<tbody>
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<td><strong>SMTA Members</strong></td>
<td>$1,050</td>
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<td><strong>Non-Members</strong></td>
<td>$1,250</td>
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**Includes:**
- Registration for 5 professional development courses of your choosing
- Access to the 4-day technical conference in Minneapolis, MN
- (1) Virtual conference registration
- Conference proceedings
- Women’s Leadership Program
- Keynote Presentation
- Admission to the 2-day expo co-located with MD&M Minneapolis

### In-Person Conference

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**Includes:**
- Access to the 4-day technical conference in Minneapolis, MN
- (1) Virtual conference registration
- Conference proceedings
- Women’s Leadership Program
- Keynote Presentation
- Admission to the 2-day expo co-located with MD&M Minneapolis

### Virtual Conference

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<td><strong>Non-Members</strong></td>
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**Includes:**
- Access to the virtual conference platform to stream all pre-recorded presentations starting November 15th
- Conference proceedings

### Expo Only | Free for all Attendees

Access to the two-day electronic manufacturing exposition in Minneapolis, MN! This year we are proud to co-locate with MD&M Minneapolis which will bring five shows under one roof!

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