TECHNICALLY SPEAKING:

IT’S THE PLACE TO

be

from wherever you are!

Jarrod Webb
Manufacturing Engineer,
Lockheed Martin
IPC APEX EXPO is an event I look forward to every year. In 2021, we are collaborating from further afield as we participate in our first virtual IPC APEX EXPO. Although the setting will be different, we are committed to providing you with the cutting-edge content you have come to expect.

This year, IPC will bring experts together to help companies transform and modernize as we look toward the future of electronics manufacturing. Our technical conference reflects that transformation by offering a three-track educational event, featuring:

**Factory of the Future Implementation** complete with brand new technical sessions on such topics as cybersecurity, data analytics, connected factory, and digital twin.

**PCB Fabrication and Materials**, with sessions on microvia reliability, PCB design, PCB reliability and PCB advancements.

**Quality, Reliability, Assembly, Test and Inspection**, covering automotive electronics, electronics materials, assembly, coating, and assembly design.

Technical sessions will include opportunities to ask questions live at the scheduled time, and content from the sessions will be available on demand for 90 days following the event.

While we won’t be able to meet each other in-person this year, I hope you will take advantage of the opportunities to network virtually, and participate in live Q&As with speakers and instructors during professional development and the technical conference. I hope you’ll spend some time talking to IPC Hall of Famers and Emerging Engineers, and I encourage you to test your knowledge in our virtual trivia event.

Your involvement in IPC APEX EXPO is directly responsible for the show’s success. We appreciate your flexibility, your dedication, and your input as we move from an in-person event to one that offers a vibrant virtual program. **IPC APEX EXPO 2021** is the place to be – wherever you are.

Sincerely,

**Shane Whiteside**
President & CEO
Summit Interconnect
IPC Board Chair
Supporting Associations
- Advanced Functional Fabrics of America (AFFOA)
- AIM Global, Inc.
- Automotive Industry Action Group (AIAG)
- China Printed Circuit Association (CPCA)
- European Institute for the PCB Community
- High-Density Packaging User Group (HDP)
- Hong Kong Printed Circuit Association (HKPCA)
- International Electronics Manufacturing Initiative (iNEMI)
- Manufacturing Technology Centre (MTC)
- MicroElectronics Packaging and Test Engineering Council (MEPTEC)
- Mesago Messe Frankfurt Group
- Power Sources Manufacturers Association (PSMA)
- Taiwan Printed Circuit Association (TPCA)
- Adhesives & Sealants Industry
- ASSEMBLY Magazine
- Circuits Assembly
- eBOM
- EDACafe
- Electronics Sourcing North America (ESNA)
- EPP Europe
- Global SMT & Packaging
- i4.0 Today
- Informa Manufacturing Europe Limited
- Manufacturing Technology Insights
- PCB007
- PCB Design007
- Power Electronics World
- Printed Circuit Design & Fab Magazine
- Scoop Communications
- Signal Integrity Journal
- Silicon Semiconductor
- SMT Connect
- SMT Today
- SMT007
- SMTnet
- U.S. Tech
- Wiring Harness News
- WNIE (What’s New in Electronics)

NEW COMPANY EDUCATION PACKAGES: AN EXCLUSIVE IPC MEMBER BENEFIT!

BASIC PACKAGE: Up to 100 employees from the same company gain access to the Full Conference and 100 professional development courses live or on demand for 90 days for $15,000.

PREMIER PACKAGE: An unlimited number of employees for the Full Conference and up to 200 professional development courses live or on demand for 90 days for $25,000.

Click the numbers below to navigate to that page.
2021 SCHEDULE AT A GLANCE

Schedule subject to change
IPCAPLEXPO.ORG as of January 2021

ALL EVENTS WILL BE HELD IN CENTRAL STANDARD TIME (CST)

MEETINGS & COURSES

MONDAY | MARCH 8
8:45 AM–8:50 AM
Welcome Message
9:00 AM–12:00 PM
EMS Management Meeting
9:00 AM–12:00 PM
Managers Forum: Managing Challenges in Periods of Transition
Presented by the Raymond E. Pritchard Hall of Fame Council
9:00 AM–12:00 PM
Professional Development Courses
11:00 AM–12:00 PM
Forgotten Tribal Knowledge with IPC Hall of Fame and Emerging Engineers*
12:30 PM–1:30 PM
Keynote Presentation by John Mitchell, President and CEO, IPC*
1:30 PM–5:00 PM
EMS Management Meeting
1:30 PM–5:00 PM
Managers Forum: Managing Challenges in Periods of Transition
Presented by the Raymond E. Pritchard Hall of Fame Council
2:00 PM–5:00 PM
Professional Development Courses

WEDNESDAY | MARCH 10
7:55 AM–8:45 AM
Opening Remarks and Keynote Presentation by Travis Hessman, Editor-in-Chief, IndustryWeek*
10:00 AM–12:00 PM
Technical Conference Sessions
12:30 PM–1:30 PM
IPC Emerging Engineers Roundtable
12:30 PM–1:30 PM
Exhibitor New Product Presentations
12:30 PM–1:30 PM
Networking Opportunity with IPC Hall of Fame and IPC Emerging Engineers*
3:30 PM–5:00 PM
Technical Conference Sessions

THURSDAY | MARCH 11
8:10 AM–9:00 AM
Opening Remarks and Keynote Presentation by Shawn DuBravac, Chief Economist, IPC*
9:00 AM–12:00 PM
Professional Development Courses
9:00 AM–12:00 PM
Exhibitor New Products Presentations
10:00 AM–11:30 AM
Technical Conference Sessions

FRIDAY | MARCH 12
9:00 AM–9:45 AM
IPC at a Glance (Standards, Education, Advocacy, Solutions and Industry Intelligence)*
10:00 AM–10:30 AM
Exhibitor New Product Presentations
10:30 AM–12:00 PM
Technical Conference Sessions
12:00 PM–12:15 PM
Closing Remarks

* = Event Essentials, included with registration.
IPC APEX EXPO 2021 VIRTUAL EXPERIENCE

IPC APEX EXPO virtual event space and setup allow you to learn, connect and collaborate as if you were there in person! And thanks to this year’s all-virtual format, it’s easier than ever to attend IPC APEX EXPO, which means incredible opportunities to meet with and learn from industry insiders across the globe.

- Register for IPC APEX EXPO
- Create your personal profile
- Log into the event
- Search for friends, peers and exhibitors
- Request to connect one-on-one
- Don’t miss this chance to connect like never before!

2021 STANDARDS DEVELOPMENT COMMITTEE MEETINGS

As IPC APEX EXPO 2021 goes virtual, face-to-face standards development meetings scheduled for March 2021 will also be moving to a virtual environment. Each staff liaison will work with committee leaders to select a time for their meeting, and following the SummerCom 2020 model, the meetings will be spread over a few weeks, so as not to conflict with the technical conference sessions. Meetings will be posted in February.

Stay tuned for meeting announcements on the IPC APEX EXPO website.

Stephanie Rodgers
Director Product Research Development, Apex Mills
Our virtual event will offer plenty of networking opportunities for connection! Meet and collaborate with peers and industry leaders from around the world.

- A Virtual Escape Experience
- Forgotten Tribal Knowledge with IPC Hall of Fame and Emerging Engineers
- IPC Emerging Engineers Roundtable
- Trivia Networking and Name That Tune
- IPC Education Foundation: Looking Ahead

Bhanu Sood, Ph.D.
Commodity Risk Assessment Engineer, NASA Goddard Space Flight Center

Win a $50 Amazon gift card during our daily participation giveaways!
MANAGERS FORUM – MANAGING CHALLENGES IN PERIODS OF TRANSITION

Designed to prepare new and experienced managers in the electronics industry to thrive through trade wars and the global recovery of the COVID-19 pandemic.

Global experts, executives, managers, and innovators will present and lead discussions on a wide range of topics, important for managing in times of transition and emerging stronger.

Topics include:

- Technical Support and New Product Development in a Post-Pandemic World
- Going Forward: Evaluating and Validating New Products and Processes for PCB Fabrication
- Managing the Supply Chain During Periods of Uncertainty
- Transitioning to Factory 4.0 - How AI Can Help Small Companies
- Vertical Integration, Pros & Cons: Why We Chose United States for New Manufacturing Sites
- Certainties to Expect from the Unexpected and the Resulting Challenges & Changes

Hear from experts such as:

- President of Atotech Electronics
- CEO of Green Circuits
- Vice President of Operations of Northrop Grumman
- Presidents of two United States Fabricators
- Two members of IPC’s Board of Directors
- Senior Vice President and General Manager of Rogers’ Advanced Connectivity Solutions
- The first two-time winner of IPC’s Innovation Award (2019 and 2020)
- And more!

Between trade wars, a pandemic, a resulting economic downturn coupled with staffing shortages and demand shifts, the industry has been through a significant period of change. Learning from change is as crucial as managing through it. For this reason, the EMS Management Meeting joins the Managers Forum to discuss “Managing Challenges in Periods of Transition,” with joint keynotes on the post-election landscape, OEM viewpoint on learning from change, and an industry wide panel discussion on “Lessons Learned in Managing Supply Chain Disruption and Strategies for the Future,” featuring Chris Mitchell, Vice President Global Government Relations, IPC; Jeanie Wade, Vice President Operations, Northrop Grumman, and panelists from FTG, Rogers Corporation, Cirtronics, Arrow, and Northrop Grumman.

IPC EMS MANAGEMENT MEETING

Attendance Requirement: must be a senior level executive of an EMS company to attend

This event brings EMS leaders together to discuss key issues driving business success such as:

- IPC’s industry intelligence initiatives
- Global EMS market updates
- Economic impacts
- Emerging technology
- Supply chain management
- Factory of the Future

Experts invited to share their insights or lead discussions include:

- Jack Calderon and Chaim Lubin, Lincoln International
- Randall Sherman, New Venture Research
- Jeanie Wade, Northrop Grumman
- David Patterson, Cirtronics
- Matt Kelly, Chief Technologist, IPC
- Chris Mitchell, VP of Global Government Relations, IPC
- John Mitchell, President and CEO, IPC
- Arrow (name TBD)
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See us at IPC/APEX 2021

2021 INSPIRATIONALLY SPEAKING:
Don’t Miss Our Keynote Speakers!

Travis Hessman
Editor-in-Chief, IndustryWeek
Keynote presentation:
WEDNESDAY | MARCH 10 | 8:00 AM–8:45 AM

Part futurist, part manufacturing tech geek, Travis Hessman has built his career covering the rise of the new digital manufacturing revolution. From artificial intelligence and 3D printing to the IoT and industrial wearables, Travis brings with him a wealth of history and perspective on the new tools and tech posed to disrupt the course of the industry and spur a new rise in U.S. manufacturing.

As chief editor of IndustryWeek, Travis offers a unique perspective that matches this high-tech energy with insights from his daily contact with some of the world’s most successful and innovative manufacturers about real-life implementations, applications, and strategies for digital transformation success.

John Mitchell
IPC President and CEO
Keynote presentation:
MONDAY | MARCH 8 | 12:30 PM–1:30 PM

As IPC’s president and CEO, John Mitchell leads the organization’s global operations and staff. Working with the IPC board of directors, he is responsible for assisting in the development and implementation of the Board’s strategic vision and aspirational goals. He joined IPC as president and CEO in April 2012, and has been instrumental in launching solutions to help IPC’s members achieve financial success and competitive excellence.

Shawn DuBravac
IPC Chief Economist
Keynote presentation:
THURSDAY | MARCH 11 | 8:15 AM–9:00 AM

As IPC’s chief economist, internationally recognized thought leader, global futurist and trendcaster, Shawn DuBravac works to expand IPC’s research program and provide insights on the biggest issues facing the $2 trillion global electronics industry, including supply chain resiliency/uncertainty, trade wars, skilled workforce shortage, and the expanding role of electronics in the global economy.

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Each year the IPC APEX EXPO Technical Conference is the place to access the latest electronics manufacturing industry technical content and insights—and this year is no different. Our virtual technical conference will include thoughtful presentations featuring topical studies, new technologies, advanced materials, and the latest processes that help improve the efficiency and quality of your manufacturing. And all of these sessions will be available on demand for 90 days after the conference.

ATTENDEES CAN CHOOSE SESSIONS FROM THREE HOT-TOPIC TRACKS:

- Factory of the Future Implementation
- PCB Fabrication and Materials
- Quality, Reliability, Assembly, Test and Inspection

The modernization of different types of factories and supply chains is crucial for the future of our industry. Our Factory of the Future Implementation track will help attendees accelerate and advance to help the industry Build Electronics Better. Register for the All-Access Package, the full technical conference, a day pass, or a convenient single-session pass.

Vicka Hammill
Engineering Fellow, Honeywell Aerospace

TRACK 1
FACTORY OF THE FUTURE IMPLEMENTATION

PSMA Session: Power Electronics IoT and Energy Harvesting Packaging and Manufacturability Considerations for Strategic Power Applications
WEDNESDAY | MARCH 10 | 10:00 AM-12:00 PM

Cybersecurity 1 Essentials and Regulations
WEDNESDAY | MARCH 10 | 1:30 PM-3:00 PM

Cybersecurity 2 Concerns, Risks, and Management
WEDNESDAY | MARCH 10 | 3:30 PM-5:00 PM

MTC Session: Factory of the Future Advancements
THURSDAY | MARCH 11 | 10:00 AM-12:00 PM

Data Analytics 1 Case Studies
THURSDAY | MARCH 11 | 1:30 PM-3:00 PM

Traceability for Electronics Manufacturing
THURSDAY | MARCH 11 | 1:30 PM-3:00 PM

Data Analytics 2 Mining and Refining
THURSDAY | MARCH 11 | 3:30 PM-5:00 PM

Implementing Digital Twin for Electronics Manufacturing
FRIDAY | MARCH 12 | 10:30 AM-12:00 PM
**TRACK 2**

**PCB FABRICATION AND MATERIALS**

- PCB Embedded Technology for HDI Applications  
  WEDNESDAY | MARCH 10 | 10:00 AM-12:00 PM
- Microvia 1 Reliability  
  WEDNESDAY | MARCH 10 | 1:30 PM-3:00 PM
- Microvia 2 Weak Microvia Interface  
  WEDNESDAY | MARCH 10 | 3:30 PM-5:00 PM
- PCB Reliability  
  THURSDAY | MARCH 11 | 10:00 AM-12:00 PM
- PCB Design - HDI and Signal Integrity Considerations  
  THURSDAY | MARCH 11 | 1:30 PM-3:00 PM
- PCB Advancements  
  THURSDAY | MARCH 11 | 3:30 PM-5:00 PM
- iNEMI Session: 5G/High Frequency Challenges and Opportunities  
  FRIDAY | MARCH 12 | 10:30 AM-12:00 PM
- Defense PCB Industrial Base and Technology Roadmap  
  FRIDAY | MARCH 12 | 10:30 AM-12:00 PM

**TRACK 3**

**QUALITY, RELIABILITY, ASSEMBLY, TEST AND INSPECTION**

- PCBA Quality, Reliability, and AI-based Inspection  
  WEDNESDAY | MARCH 10 | 10:00 AM-12:00 PM
- Automotive Electronics  
  WEDNESDAY | MARCH 10 | 1:30 PM-3:00 PM
- HDP Session: Projects Progress  
  WEDNESDAY | MARCH 10 | 3:30 PM-5:00 PM
- Electronic Materials - Thermal Interface Materials  
  THURSDAY | MARCH 11 | 10:00 AM-12:00 PM
- Electronics Assembly Materials and Coatings  
  THURSDAY | MARCH 11 | 1:30 PM-3:00 PM
- Assembly Design  
  THURSDAY | MARCH 11 | 3:30 PM-5:00 PM
- AFFOA Session: Advancements in E-Textiles 1  
  THURSDAY | MARCH 11 | 3:30 PM-5:00 PM
- AFFOA Session: Advancements in E-Textiles 2  
  FRIDAY | MARCH 12 | 10:30 AM-12:00 PM
CONNECT WITH INDUSTRY ORGANIZATIONS @ IPC APEX EXPO 2021

WEDNESDAY | MARCH 10 | 10:00 AM-12:00 PM
Power Sources Manufacturers Association (PSMA) Session: Packaging and Manufacturability Considerations for Strategic Power Applications

THURSDAY | MARCH 11 | 10:00 AM-12:00 PM
Manufacturing Technology Centre (MTC) Session: Factory of the Future Advancements
AFFOA Session: Advancements in E-Textiles 1

FRIDAY | MARCH 12 | 10:30 AM-12:00 PM
iNEMI Session: 5G/High Frequency Challenges and Opportunities
AFFOA Session: Advancements in E-Textiles 2

THE TECHNICAL PROGRAM COMMITTEE MEMBERS

Beverley Christian, Ph.D. | HDP User Group
Bhanu Sood, Ph.D. | NASA Goddard Space Flight Center
Jason Keeping | Celestica International L.P.
Julie Silk | Keysight Technologies
Martin Goetz, Ph.D. | Northrop Grumman Corporation
Miloš Lazić | Indium Corporation
Russell Nowland | Nokia
Stanton Rak, Ph.D. | Udo Welzel | Robert Bosch GmbH
Weifeng Liu | Flex
Technically Speaking, IPC APEX EXPO 2021 is the place to learn, and change to this year’s virtual professional development includes something for everyone. Whether it’s advanced classes exploring the details and depth of specific topics, or informative classes catering to engineers ready to improve their careers, we’ve got courses for every role and experience level. Take full advantage of these courses with the All-Access Package which gives you the freedom to explore all classes during our virtual conference and for 90 days after.

ASSEMBLY PROCESSES

PD01 | Reflow Soldering Process and Influence on Defects - An In-Depth Look
MONDAY | MARCH 8 | 9:00 AM–12:00 PM
S. Manian Ramkumar, Ph.D. | Rochester Institute of Technology

PD02 | Design and Assembly Process Challenges for Bottom Terminations Components (BTCs) such as QFN, DFN and MLF in Tin-Lead & Lead Free World.
MONDAY | MARCH 8 | 9:00 AM-12:00 PM
Ray Prasad | Ray Prasad Consultancy Group

PD07 | Low Temperature Soldering, Assembly, Inspection & Defects - Causes & Cures - Part I
THURSDAY | MARCH 11 | 9:00 AM-12:00 PM
Bob Willis | Bobwillis.co.uk

PD08 | Stencil Printing Process and Solder Paste Inspection - An In-Depth Look
MONDAY | MARCH 8 | 2:00 PM-5:00 PM
S. Manian Ramkumar, Ph.D. | Rochester Institute of Technology

PD14 | Low Temperature Soldering, Assembly, Inspection & Defects - Causes & Cures - Part II
THURSDAY | MARCH 11 | 2:00 PM-5:00 PM
Bob Willis | Bobwillis.co.uk

PD19 | Lead-Free Wave Soldering & Process Troubleshooting - Failures Causes & Cures - Part I
TUESDAY | MARCH 9 | 9:00 AM-12:00 PM
Bob Willis | Bobwillis.co.uk

PD24 | Lead-Free Wave Soldering & Process Troubleshooting - Failures Causes & Cures - Part II
TUESDAY | MARCH 9 | 2:00 PM-5:00 PM
Bob Willis | Bobwillis.co.uk

PD25 | J-STD-001 Section 8 Objective Data – Where Do I Start?
THURSDAY | MARCH 11 | 9:00 AM-12:00 PM
Doug Pauls | Collins Aerospace
Co-Presenters: Mark McMeen and Mike Bixenman, DBA | Magnalytix, LLC
PD26 | Troubleshooting and Process Optimization - Lessons Learned from the Trenches and a Decade of Board Talk - Part I
THURSDAY | MARCH 11 | 9:00 AM-12:00 PM
Phil Zarrow & Jim Hall | ITM Consulting

PD28 | Designing Reliable Electronics in Accordance with IPC-J-STD-001 Section 8 Cleanliness
THURSDAY | MARCH 11 | 2:00 PM-5:00 PM
Mike Bixenmann, DBA | Magnalytix, LLC

PD29 | Troubleshooting and Process Optimization - Lessons Learned from the Trenches and a Decade of Board Talk - Part II
THURSDAY | MARCH 11 | 2:00 PM-5:00 PM
Phil Zarrow & Jim Hall | ITM Consulting

CIRCUIT DESIGN AND COMPONENT TECHNOLOGIES

PD03 | Designing with HDI Technology
MONDAY | MARCH 8 | 9:00 AM-12:00 PM
Susy Webb | Design Science

PD06 | Design for Excellence: DFM (Design for Manufacturing), DFR (Design for Reliability), DFA (Design for Assembly), DFF (Design for Printed Board Fabrication) and More - Part I
MONDAY | MARCH 8 | 9:00 AM-12:00 PM
Dale Lee | Plexus Corporation

PD09 | Power Electronics in Manufacturing: Operations and Applications
MONDAY | MARCH 8 | 2:00 PM-5:00 PM
Brian Zahnstecher | PowerRox

PD10 | Mentoring Extended PCB Design Techniques
MONDAY | MARCH 8 | 2:00 PM-5:00 PM
Susy Webb | Design Science

PD13 | Design for Excellence: DFM (Design for Manufacturing), DFR (Design for Reliability), DFA (Design for Assembly), DFF (Design for Printed Board Fabrication) and More - Part II
MONDAY | MARCH 8 | 2:00 PM-5:00 PM
Dale Lee | Plexus Corporation

PD16 | A Beginner’s Guide to RF and Microwave PCB Design and Prototyping - Part I
TUESDAY | MARCH 9 | 9:00 AM-12:00 PM
Benjamin Jordan | Autodesk

PD18 | PCB Designers Guide for Flexible and Rigid Flex Circuits - Planning, Design, Fabrication and Assembly Process Principles
TUESDAY | MARCH 9 | 9:00 AM-12:00 PM
Vern Solberg | Solberg Technical Consulting

PD21 | A Beginner’s Guide to RF and Microwave PCB Design and Prototyping - Part II
TUESDAY | MARCH 9 | 2:00 PM-5:00 PM
Benjamin Jordan | Autodesk

PD23 | PCB Designers Guide for Implementing Advanced Semiconductor Package Technologies- Flip-Chip, WLP, FOWLP, 2D, 2.5D and 3D
TUESDAY | MARCH 9 | 2:00 PM-5:00 PM
Vern Solberg | Solberg Technical Consulting
**PCB FABRICATION AND MATERIALS**

**PD05** | Role and Selection Criteria of Surface Finish for Next Generation PCB Technologies - 5G, HDI, RF-Microwave, High Frequencies  
THURSDAY | MARCH 11 | 9:00 AM-12:00 PM  
Kunal Shah, Ph.D. | LILOTREE

**PD12** | PCB Fabrication Basics: Process and Specification  
THURSDAY | MARCH 11 | 2:00 PM-5:00 PM  
Jim Vanden Hogen | San Diego PCB

**PD15** | PCB Quality Metrics that Drive Reliability  
TUESDAY | MARCH 9 | 9:00 AM-12:00 PM  
Bhanu Sood, Ph.D. | NASA Goddard Space Flight Center

**PD17** | PCB Problem Solving- PCB 102 - Part I  
TUESDAY | MARCH 9 | 9:00 AM-12:00 PM  
Paul Cooke | AGC Nelco America, Inc.

**PD22** | PCB Problem Solving- PCB 102 Part II  
TUESDAY | MARCH 9 | 2:00 PM-5:00 PM  
Paul Cooke | AGC Nelco America, Inc.

**QUALITY, RELIABILITY, TEST AND INSPECTION**

**PD04** | Preventing Manufacturing Defects and Product Failure  
MONDAY | MARCH 8 | 9:00 AM-12:00 PM  
Jennie Hwang, Ph.D. | H-Technologies Group

**PD11** | Reliability of Electronics - Role of Intermetallic Compounds  
MONDAY | MARCH 8 | 2:00 PM-5:00 PM  
Jennie Hwang, Ph.D. | H-Technologies Group

**PD27** | Measurement System Analysis For Electronics Assemblies - Part I  
THURSDAY | MARCH 11 | 9:00 AM-12:00 PM  
Jose Servin | Continental - Vitesco

**PD30** | Measurement System Analysis For Electronics Assemblies - Part II  
THURSDAY | MARCH 11 | 2:00 PM-5:00 PM  
Jose Servin | Continental - Vitesco
Meeting the increasing demands of electronics manufacturers

Manufacturers are demanding improvements in throughput, yield and performance. Miniaturization and other technical challenges require continuous advancement in manufacturing equipment.

ITW EAE is focused on developing technology that addresses these needs. We have a strong relationship with the world’s leading manufacturers and work directly with them to identify areas that need further innovation. We are actively pursuing the benefits to be realized by Industry 4.0 and the resulting improvements in yield, overall equipment effectiveness, and lights out factory capabilities envisioned by our collective customers.

Visit us virtually at IPC APEX, March 9-11 or contact us to schedule a live virtual demo
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**Novagard’s innovative UV/Dual Cure Silicones offer competitive advantage**

Novagard’s UV/Dual Cure Silicone Conformal Coatings combine a UV primary cure that is tack free in seconds with a secondary alkoxy moisture cure that eliminates unreacted coating in shadow areas.

Novagard has developed a range of UV/Dual Cure Coatings that are easily applied using standard PCB spray coating equipment and adhere to a variety of plastic and metal substrates, including FR-4, copper, aluminum, and PET.

Visit [novagard.com/lessthan5seconds](http://novagard.com/lessthan5seconds) for more information on our fast growing family of UV/dual cure silicone products, including sprayables, flowables, pastes, and gels.
GROUP DISCOUNT:
Register five or more colleagues from the same company and receive 20% off each eligible registration*. The group discount can be used in conjunction with the early bird discount if registered by February 5, 2021. If you would like to take advantage of this group discount, please reach out to KimDiCianni@ipc.org.

NEW COMPANY EDUCATION PACKAGES:
AN EXCLUSIVE IPC MEMBER BENEFIT!

BASIC PACKAGE:
Up to 100 employees from the same company gain access to the Full Conference and 100 professional development courses live or on demand for 90 days for $15,000.

PREMIER PACKAGE:
An unlimited number of employees for the Full Conference and up to 200 professional development courses live or on demand for 90 days for $25,000.

EARLY BIRD DISCOUNT:

EVENT ESSENTIALS PASS:
Keynote Presentations, Exhibitor Connection, Product Demonstrations, IPC at a Glance Presentation, IPC Annual Meeting and Awards Presentation, Networking Opportunity with IPC Hall of Fame and Emerging Engineers, and an Attendee Profile (to connect with attendees and exhibitors). FREE

PLAN AHEAD! SAVE THESE DATES FOR IPC APEX EXPO!
January 25 – 27, 2022 | San Diego Convention Center
January 24 – 26, 2023 | San Diego Convention Center
April 23 – 25, 2024 | Anaheim Convention Center
March 18 – 20, 2025 | Anaheim Convention Center
March 17 – 19, 2026 | Anaheim Convention Center
## TECHNICAL CONFERENCE**

<table>
<thead>
<tr>
<th>Event</th>
<th>NONMEMBER</th>
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<tr>
<td><strong>Full Conference</strong>*</td>
<td>$780</td>
<td>$625</td>
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<td>Includes 70+ technical conference sessions with live Q&amp;A, with on demand access for 90 days, and conference proceedings provided online.</td>
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<tr>
<td><strong>One-Day Conference</strong></td>
<td>$445</td>
<td>$355</td>
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<tr>
<td>Includes all technical conference sessions with live Q&amp;A on the day of your choice (Wednesday, Thursday, or Friday) and Event Essentials (not available on demand)</td>
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<tr>
<td><strong>Technical Conference Single Session Pass</strong></td>
<td>$120</td>
<td>$99</td>
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<tr>
<td>Register for Event Essentials Pass and add Technical Conference Single Session Pass under additional items. (not available on demand)</td>
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## EXECUTIVE MANAGEMENT PROGRAMS**

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<tr>
<td><strong>IPC EMS Management Meeting</strong></td>
<td>$700</td>
<td>$545</td>
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<tr>
<td>Includes live Monday meeting and Event Essentials. Attendance Requirement: must be a senior level executive of an EMS company to attend</td>
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<tr>
<td><strong>Managers Forum – Managing Challenges in Periods of Transition</strong></td>
<td>$525</td>
<td>$425</td>
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<tr>
<td>(Presented by the Raymond E. Pritchard Hall of Fame Council) Designed for new and experienced managers in the electronics industry. Includes live Monday meeting and Event Essentials</td>
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## PROFESSIONAL DEVELOPMENT COURSES

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<tr>
<th>Event</th>
<th>NONMEMBER</th>
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<tr>
<td><strong>Half Day Course</strong></td>
<td>$450ea</td>
<td>$360ea</td>
</tr>
<tr>
<td>Includes one three-hour live instructor led course with supporting materials. Register for Event Essentials Pass and add individual courses. (not available on demand)</td>
<td></td>
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</tbody>
</table>

Students are eligible for special pricing*, contact KimDiCianni@ipc.org for details.

* Eligible registration includes:
  - All-Access Package and Full Conference

**Event Essentials include:
  - Keynote Presentations, Exhibitor Connection, Product Demonstrations, IPC at a Glance Presentation, IPC Annual Meeting and Awards Presentation, Networking Opportunity with IPC Hall of Fame and Emerging Engineers, Attendee Profile (to connect with attendees and exhibitors).

**STANDARDS DEVELOPMENT COMMITTEE MEETINGS**

As IPC APEX EXPO 2021 goes virtual, face-to-face standards development meetings scheduled for March 2021 will also be moving to a virtual environment. Each staff liaison will work with committee leaders to select a time for their meeting, and following the SummerCom 2020 model, the meetings will be spread over a few weeks.