

ENGINEERING *TOMORROW'S* ELECTRONICS



EAST 2025

Conference & Exhibition

SHOW GUIDE

Conference: April 29 – May 2

Exhibition: April 30

Boxboro Regency Hotel & Conference Center, MA

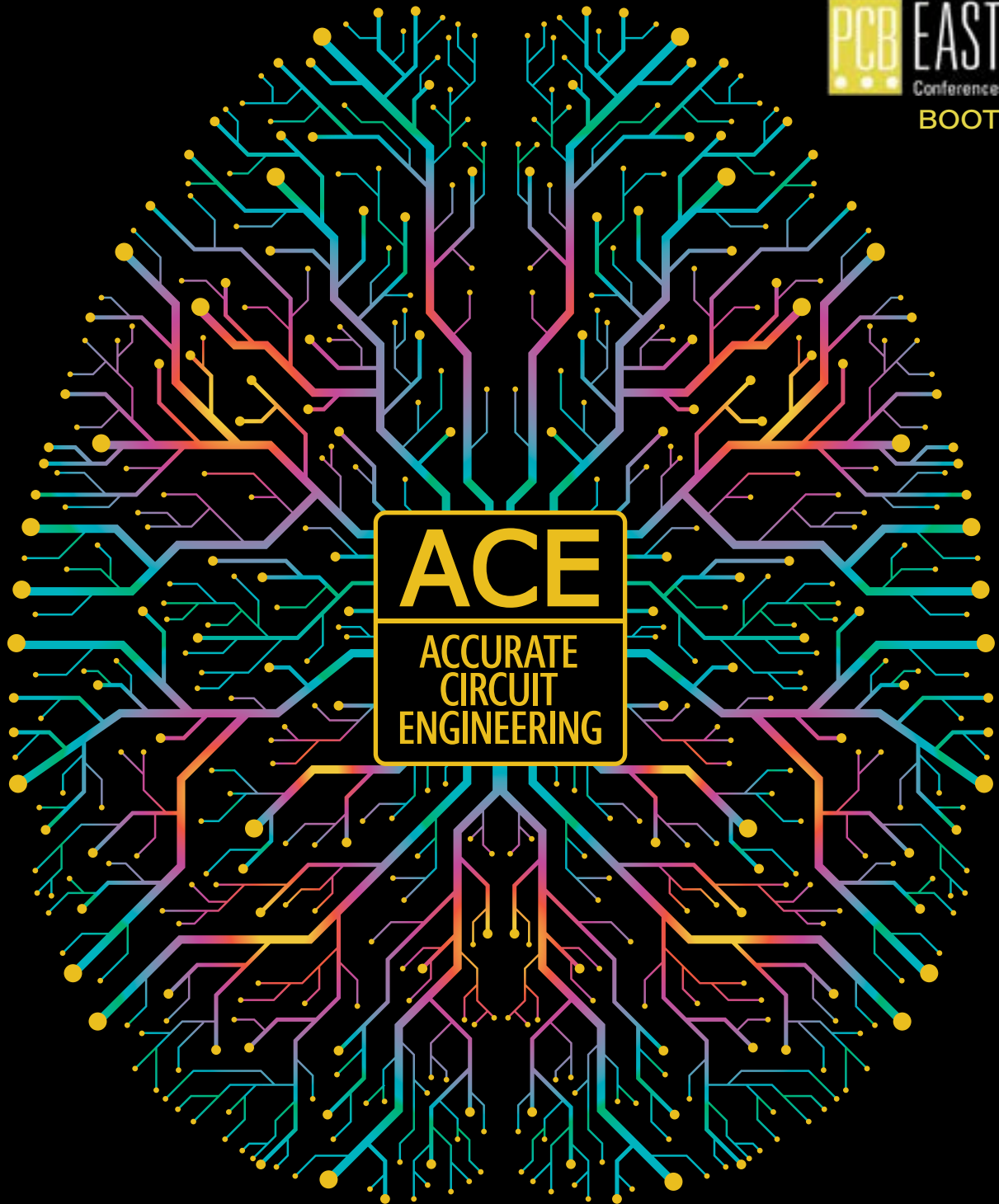
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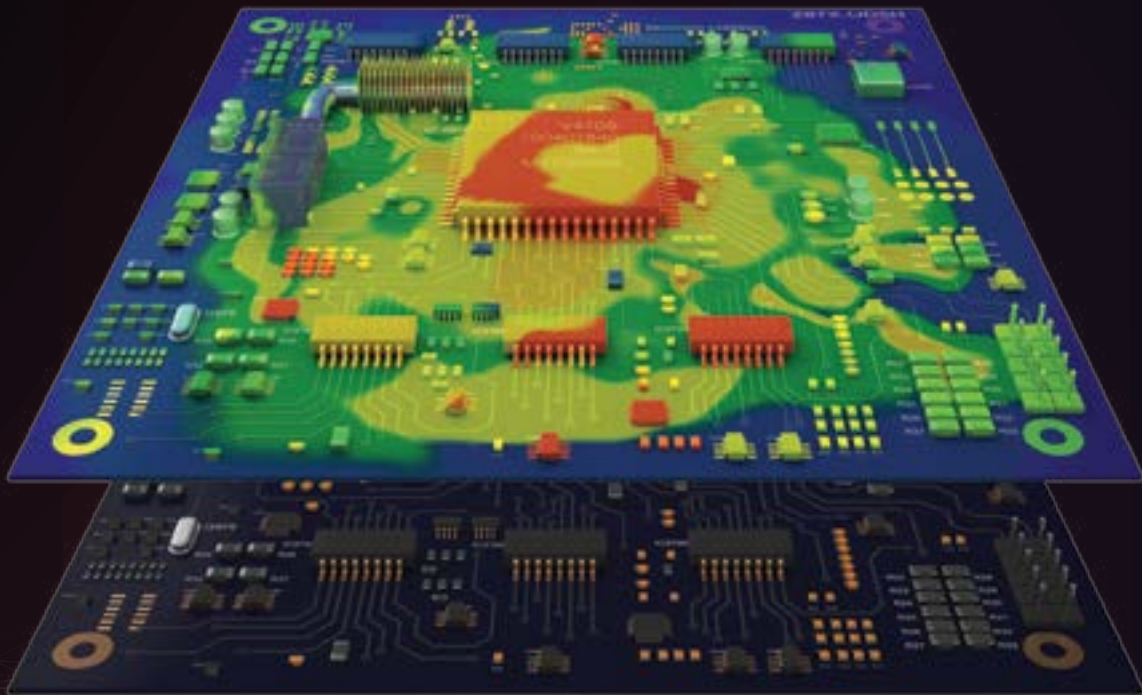
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FROM THE CONFERENCE CHAIR



Mike Buetow

President, PCEA
PCB East Conference Chair

When industry colleagues ask what's new with the Printed Circuit Engineering Association (PCEA), I sometimes don't know where to start.

Do I bring up our AI in Electronics project, which to date has produced the first industry roadmap outlining the status of the technology and the requirements for broad implementation of this exciting (and often confusing) game-changer?

Do I point to the PCEA Training certified printed circuit designer curriculum, the only one developed by a cadre of experts like Stephen Chavez, Mike Creeden, Gary Ferrari, Rick Hartley and Susy Webb, and how it is being adopted by blue chip companies and major academic institutions around the world?

Do I mention our new Discord server, bringing together PCEA members from around the world on a private channel for discussing technical questions and career opportunities? (Want to join the PCEA Discord? Send a note to membership@pcea.net.)

Do I highlight the chapters forming in Missouri, Virginia and Michigan?

Do I share the news of our newest event, PCB Detroit, a two-day technical conference in the heart of Michigan's largest city?

Indeed, PCEA has more going than we have room to mention. So while you're here at the show, be sure to stop by the PCEA booth, or grab one of the staff or board members with a PCEA badge, and ask about anything you are interested in. Whatever it is, we are probably working on it.

See you at the show!

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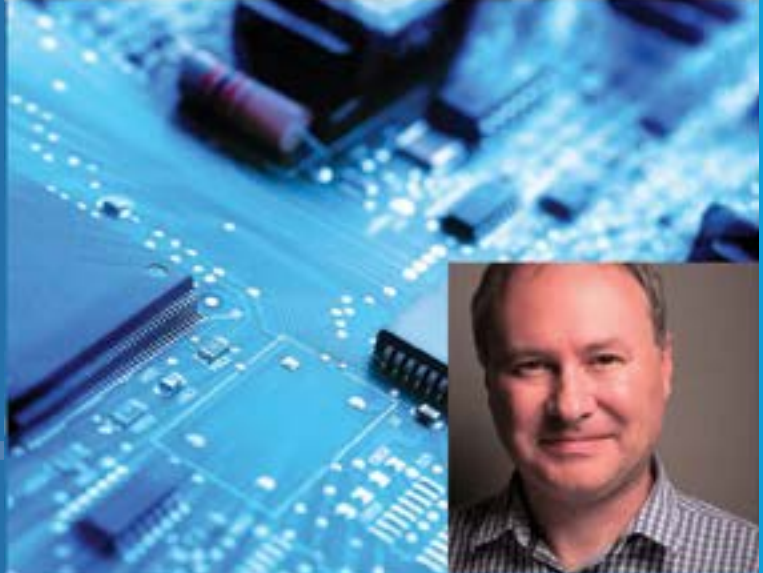
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SCHEDULE-AT-A-GLANCE

TUESDAY, APRIL 29

REGISTRATION: 7:30 a.m. – 6:00 p.m.

TIME	TITLE	SPEAKER
9:00 a.m. - 10:00 a.m.	PCEA Annual Meeting	Stephen Chavez Siemens
9:00 a.m. - 6:00 p.m.	PCB Design for Engineers	Susy Webb DesignScience
10:00 a.m. - 12:00 p.m.	Differential Pair Design for 112 Gbps and Faster Systems	Zachariah Peterson Northwest Engineering Solutions
10:00 a.m. - 12:00 p.m.	IPC-6012F Applied to PCB Manufacturing	Michael Marshall and Ryan Miller NCAB Group

LUNCH-N-LEARN: 12:00 p.m. – 1:00 p.m. with Polar Instruments
(Tuesday conference attendees and speakers only)

1:30 p.m. - 5:30 p.m.	Circuit Grounding to Control Noise and EMI	Rick Hartley RHartley Enterprises
1:30 p.m. - 5:30 p.m.	Precision and Clarity Crafting Effective PCB Documentation	John Watson Palomar College
2:30 p.m. - 5:00 p.m.	Improving Circuit Design and Layout: Strategies for Enhanced Accessibility and Success	Tomas Chester Chester Electronic Design

WEDNESDAY, APRIL 30

REGISTRATION: 7:30 a.m. – 6:00 p.m.

TIME	TITLE	SPEAKER
9:00 a.m. - 10:00 a.m.	High-Frequency Layout - Best Practices for PCBA Design to Avoid EMI	Gerry Callahan Pentair
9:00 a.m. - 11:00 a.m.	HDI Via Design: Planning the Energy Pipelines	Daniel Beeker NXP Semiconductor
9:00 a.m. - 3:00 p.m.	Shielding for EMI Concerns	Karen Burnham EMC United, Inc.

EXHIBITS OPEN: 10:00 a.m. – 6:00 p.m.

LUNCH ON EXHIBIT FLOOR: 12:00 p.m. – 1:00 p.m.

1:30 p.m. - 3:30 p.m.	System Mechanical Design to Control EMI	Rick Hartley RHartley Enterprises
1:30 p.m. - 3:30 p.m.	Libraries: I Hate Them. I Need Them. Help.	Kristen Aguiar Altium

RECEPTION ON EXHIBIT FLOOR: 5:00 p.m. – 6:00 p.m. Sponsored by Cofactr & EMA Design Automation

PCB Design Community Meetup – 6:30 p.m. to 7:30 p.m. – Hotel Atrium

SCHEDULE-AT-A-GLANCE

WEDNESDAY FREE SESSIONS

REGISTRATION: 7:30 a.m. – 6:00 p.m.

TIME	TITLE	SPEAKER
9:00 a.m. - 10:00 a.m.	AI and Other Upcoming Changes in PCB Design	Matthew Leary Newgrange Design
1:00 a.m. - 11:00 a.m.	Exploring the World of Ultra-High-Density Interconnect (UHDI) PCB Design	Stephen V. Chavez Siemens
11:00 a.m. - 12:00 p.m.	“Copper Pours” on PCB Signal Layers	Rick Hartley RHartley Enterprises

LUNCH ON EXHIBIT FLOOR: 12:00 p.m. – 1:00 p.m.

1:30 p.m. - 2:30 p.m.	Simulation vs. Reality – Analyze What You Will Really Build	Todd Westerhoff Siemens
2:30 p.m. - 3:30 p.m.	Why Do You Need to Care about Tin Whiskers in High-Reliability Electronics?	Karen Ebner Raytheon
4:00 p.m. - 5:00 p.m.	Basics of Flex Design	Lauren Waslick Newgrange Design

RECEPTION ON EXHIBIT FLOOR: 5:00 p.m. – 6:00 p.m. Sponsored by Cofactr & EMA Design Automation

PCB Design Community Meetup – 6:30 p.m. to 7:30 p.m. – Hotel Atrium

THURSDAY MAY 1

REGISTRATION: 8:00 a.m. – 5:00 p.m.

TIME	TITLE	SPEAKER
9:00 a.m. - 6:00 p.m.	Feeding The Hungry Lion – Power Delivery System Design For Today's Demanding Modern ICs	Chuck Corley Speeding Edge
9:00 a.m. - 11:00 a.m.	DDR5 Through the Eyes of the Designer	Charlene McCauley and Terrie Duffy McCauley Design Group
9:00 a.m. - 11:00 a.m.	Placement Techniques for a New Designer	Kristen Aguiar Altium

LUNCH-N-LEARN: 12:00 p.m. – 1:00 p.m. with PCB Technologies USA
(Thursday conference attendees and speakers only)

1:30 p.m. - 5:30 p.m.	RF and Mixed Signal PC Board Design	Rick Hartley RHartley Enterprises
1:30 p.m. - 5:30 p.m.	Principles of Building a PC Board Stackup	Susy Webb DesignScience
2:30 p.m. to 5:00 p.m.	Strategic Component Placement: Maximizing Routing Channels and Reliability of PCB Design	Syed Ubaid Ali Warsi Wavetroniks

SCHEDULE-AT-A-GLANCE

FRIDAY, MAY 2

REGISTRATION: 8:00 a.m. – 4:00 p.m.

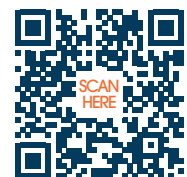
TIME	TITLE	SPEAKER
9:00 a.m. - 2:00 p.m.	Designing Boards with Today's BGAs	Susy Webb DesignScience
9:00 a.m. - 2:00 p.m.	Mixed Signal Design – ADCs and DACs	Keith Kowal Applied Materials
9:00 a.m. - 5:30 p.m.	How PCB Design Affects Fabrication	Paul Cooke AGC Multi Materials America
LUNCH-N-LEARN: 12:00 p.m. – 1:00 p.m. (Friday Conference Attendees Only)		
2:00 p.m. - 4:00 p.m.	Using AI in Hardware and PCB Design: Real Strategies to Increase Efficiency and Output	Ethan Pierce Dodec Labs
2:00 p.m. - 4:00 p.m.	The Design Process: Insights from Multiple Perspectives	Tomas Chester Chester Electronic Design and Adam Taylor Adiuvio Engineering
2:00 p.m. to 4:00 p.m.	Launching Electronics with Confidence: A Guide to Successful Design Release	Syed Ubaid Ali Warsi Wavetroniks

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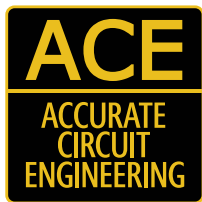
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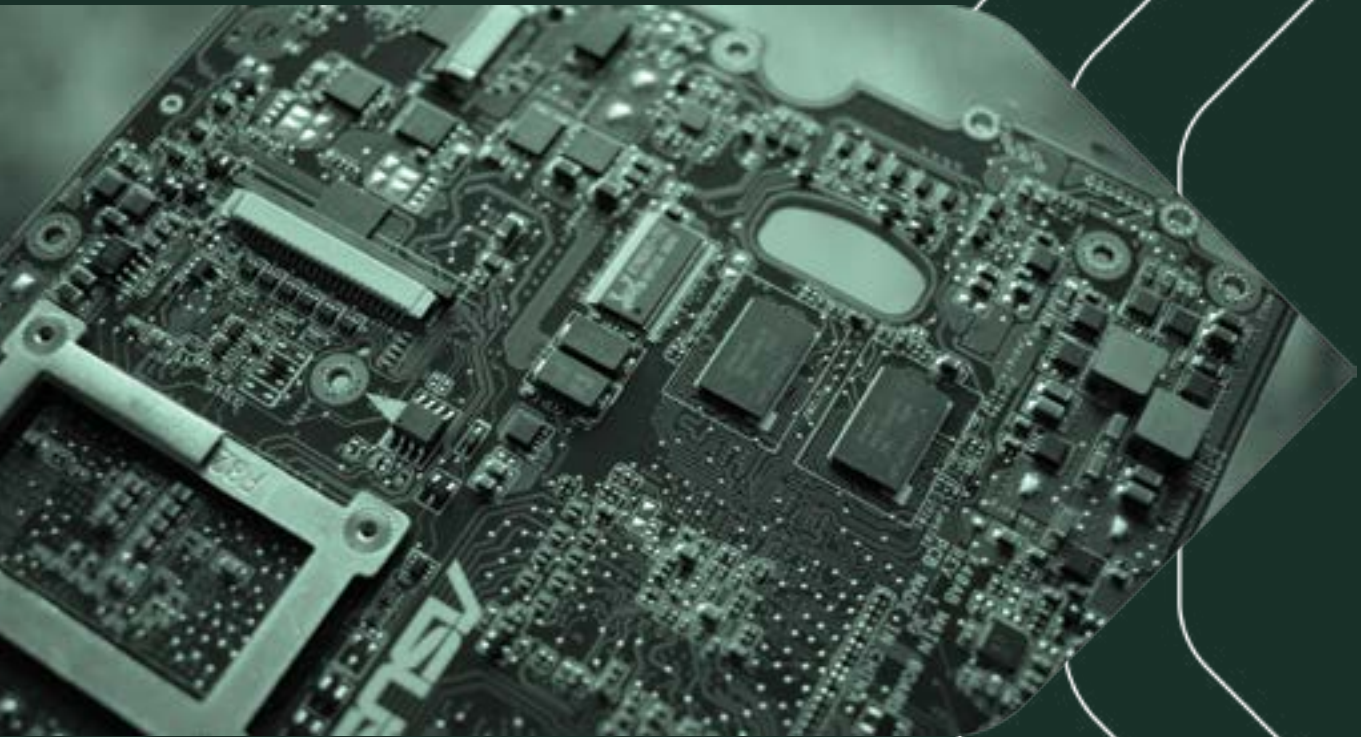
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They will be speaking about IPC-6012F Applied to PCB Manufacturing on **Tuesday, April 29 at 10am-12pm.**

This presentation, delivered by a certified IPC 6012F trainer and PCB design specialist, will offer an in-depth exploration of the modern PCB manufacturing process, with each step aligned to the latest IPC-6012F revision. Certain steps will include recommendations for exceeding standard requirements or best

practices to enhance sustainability.

Attendees will gain a comprehensive understanding of the production process through detailed explanations and brief factory videos. This session provides a complete and insightful overview of contemporary PCB manufacturing.

Meet us **April 30th** at **NCAB Booth 306**

to discuss PCB production, design, or IPC-6012F further, scan this QR code to quickly get in touch with Michael Marshall and Ryan Miller.



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PCBAs

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Layer Count	≤ 24 Layers

Parts

SMT (2-Sided)	≥ 0201
Pitch (Fine/BGA)	$\geq 0.16\text{mil}$ (4mm)
BGA Ball Count	≤ 1932
Size	$\leq 2.2" \times 2.2" \times 0.06"$

Accepted File Types

- BOM: XLS/CSV
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- Eagle/Fusion 360
- Gerber: RS-274X
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GS Swiss PCB manufactures highly-miniaturized flex, rigid flex and HDI printed circuit boards. Our "core competencies" are needed whenever the most stringent requirements must be met in miniaturization and reliability. GS focuses mainly on these areas: medical applications, in particular implants and body-worn electronics; demanding industrial electronics; sensors; and wafer level packaging.

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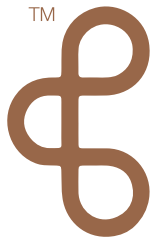
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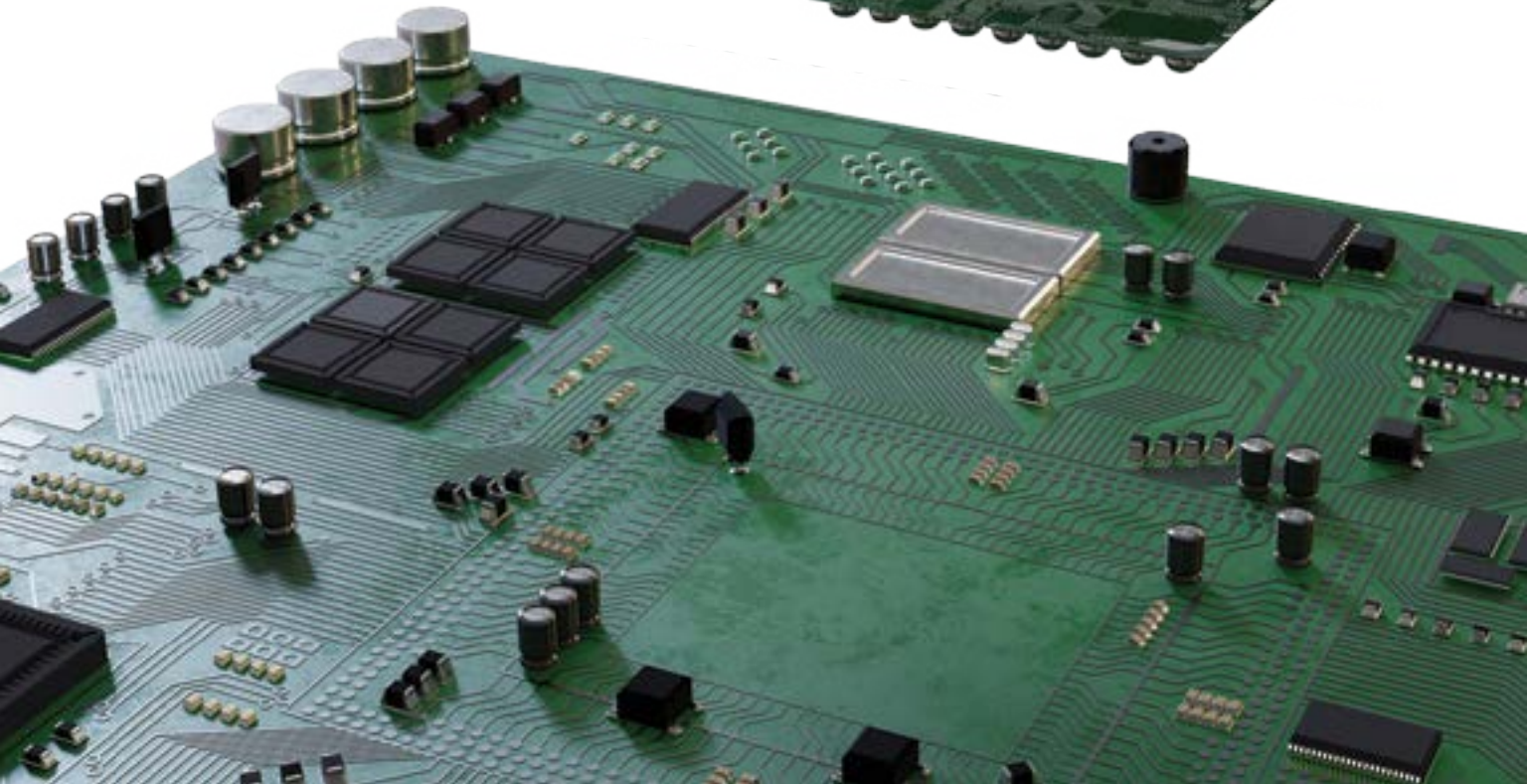
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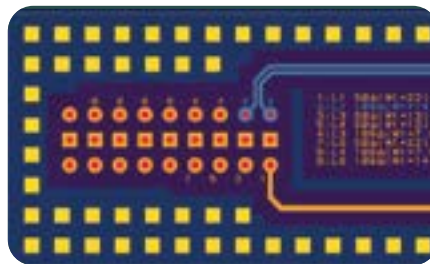
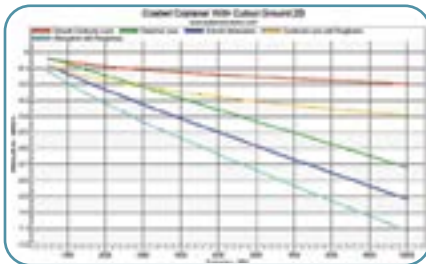
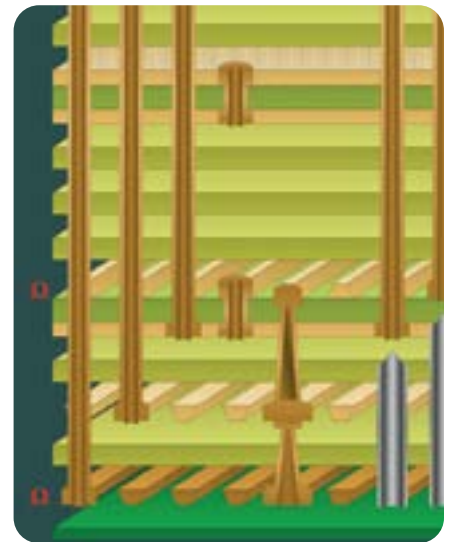
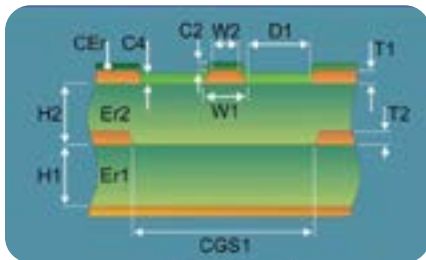
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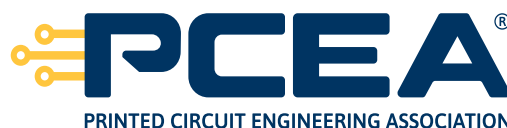
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Nonprofit association that promotes printed circuit engineering as a profession through the exchange of information and integration of new design concepts through a worldwide network of chapters. Products include a monthly digital magazine (digital.pcea.net); websites (pcdandf.com)/(circuitsassembly.com), e-newsletter (pcbupdate.com), online training(printedcircuituniversity.com), PCB East/PCB West/PCB Detroit (pcbeast.com)/(pcbwest.com)/(pcea.net/pcb-detroit) conferences and exhibitions, PCB Chat (pcbchat.com) podcast and design engineer certification (pceatraining.net).

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KRISTEN AGUIAR has been designing circuit boards for over 15 years on a wide variety of applications such as high power, high density and high-speed designs. She currently works for Altium as a certified trainer and content developer. She has an IPC CID+ certification.

DANIEL BEEKER is technical director at NXP Semiconductor, where he provides applications support and special function development tools and instrumentation for NXP Automotive customers worldwide. He has more than 43 years' experience in electronics system design and EMC. He also specializes in EMC and signal integrity design techniques for systems and PCBs. He has completed more than 200 PCB design evaluations for customers and internal NXP products. He teaches field-based design techniques at NXP and industry conferences worldwide, more than 100 sessions with more than 5,000 attendees since 2010. He is also involved with NXP IC package design and IC development tool teams to support improved EMC performance, working on more than 20 IC designs. His unique approach to EMC is the result of many years of collaboration with one of the fathers of the industry, Ralph Morrison.

KAREN BURNHAM has worked in and around the aerospace, defense, automotive and broader consulting world since 1996. She has a bachelor's in physics, a master's in electrical engineering and a talent for translating EMC to English. She has managed requirements and test planning for NASA and the Dream Chaser spaceship and others. She has done troubleshooting on electric vehicles for Ford Motor Co. and others. She sits on multiple international standards committees, landing her in her current role of VP of Standards for the IEEE EMC Society. Burnham founded EMC United, Inc. in 2024 to focus on helping companies and hardware designers solve EMC problems, ideally before they start. She believes that, far from being black magic, EMC can be understandable (and even fun!), and she hopes to spread that passion more widely.

GERRY CALLAHAN is a senior embedded systems engineer, with over 30 years of experience designing, programming and testing electrical circuits and systems. He has a BSEE from the University of Maryland, and has worked in a variety of defense and commercial settings for small and large companies. He also enjoys mountain hiking and zymurgy.

STEPHEN CHAVEZ, CPCD-I is a principal printed circuit engineer with three decades of experience. He is acknowledged throughout the industry as a global subject matter expert (SME) in PCB design. His continued career evolution has elevated him to industry thought leadership and as an industry influencer through printed circuit engineering. He is currently principal technical product marketing manager with Siemens. He's an editor/contributor to industry publications and host of the Printed Circuit Podcast. He is a coauthor and instructor of the PCEA Training curriculum and certification (PCEA Certified Printed Circuit Designer, or CPCD).

TOMAS CHESTER, P.ENG., CPCD-I, has over a decade of experience designing hardware products through all phases of its lifecycle. He has managed a variety of multifaceted, interdisciplinary projects, from simple interconnect interfaces to complex microprocessors. His creative designs utilize cutting-edge manufacturing techniques, while adhering to strict industry standards and specifications. Tomas has extensive experience designing standalone single-sided circuit boards, as well as multi-board assemblies with mechanical integration. With an engineering systems and computing degree from The University of Guelph, he is now sharing his knowledge by instructing Altium and PCB engineering design courses.

PAUL COOKE has more than 35 years' experience in printed board (PWB) design and manufacturing. He has held senior positions in operations, quality, process engineering and field application engineering at some of the top North American PCB manufacturers. He serves on a number of IPC technical committees and cochairs the task group for IPC-9121, Troubleshooting for Printed Circuit Boards. He is a member of the IPC Technical Program Committee. He has coauthored numerous technical papers and works with Tier 1 designers in the avionics and space industry to design and develop products that need to have extended life, focusing on PCB design and reliability. Cooke has provided design for manufacture (DfM) consulting services to the industry along with extensive training/educational presentations from PCB 101 through enhanced reliability. He is also the team leader on a number of HDPUg projects and a member of numerous projects.

CHUCK CORLEY is one of the industry's foremost high-speed digital design and signal integrity experts. He was nicknamed "MacGyver" for his ability to solve complex technical problems when others had failed. Corley helped design many of the industry's leading products that pushed up to the "bleeding edge" of the highest clock speeds and complexity. His designs include core Internet networking and telecom transport hardware, WIFI technology, cellular 2G/3G/4G/5G technology, phased array radar, automotive radar, satellite communications, microwave instrumentation, and more. In addition to design work, over the past 40 years Corley has taught engineering classes at universities and private companies to help new and experienced engineers reach the cutting edge of high-speed digital circuit design, signal integrity, PCB design, design for manufacturing and design for reliability.

TERRIE DUFFY is a senior printed circuit board designer at McCauley Design Group, and an adjunct professor at Austin Community College. She has a bachelor's in computer science from Texas A&M.

KAREN EBNER is a principal mechanical engineer and Lead-Free Tin Whisker TIG Co-Chair at Raytheon. She is a senior engineering leader with a proven track record of developing and executing against comprehensive project plans while actively managing project risk. Her well-rounded technical background includes complex electronics and a strong ability to facilitate and coordinate diverse groups across multiple functions and suppliers.

SPEAKER BIOS

RICK HARTLEY retired from L-3 Avionics, is the principal of RHartley Enterprises, through which he consults and teaches internationally. Hartley's focus is on correct design of circuits and PCBs to prevent and/or resolve EMI, noise and signal integrity problems. He has consulted with major corporations in the US and 14 other countries. His career has focused on telecommunications, computers and aircraft avionics, as well as medical, appliance and automotive circuits. Hartley has taught seminars at numerous conferences, including PCB East and PCB West, IEEE EMC Symposium, AltiumLive, Freescale Technology Forum, IPC Apex/Expo and others. He is on the board of directors of the Circuit Engineering Association, is a past member of the editorial review board of Printed Circuit Design magazine and has written numerous technical papers and articles on methods to control noise, EMI and signal integrity.

KEITH KOWAL has been vice president of engineering at two startup companies including AT/Comm, a predecessor to EZPass, and at Ergo Computing, which developed a portable desktop PC as well as the first docking station. He was also part of a startup developing videoconferencing equipment, now called Polycom. He has experience at several medical companies, including Philips. He has published technical articles in PCB design and has been a presenter at many technical conferences. Currently, Kowal works for Applied Materials. He has taught at MIT as an electronic technical instructor, and holds a master's from Boston University in computer engineering.

MATTHEW LEARY has been a PCB designer for 28 years. He currently runs a 40 person, Boston-based service bureau that supports hardware development across many industries including medical and life science, consumer products, robotics, defense, automotive and research.

MIKE MARSHALL is a field applications engineer at NCAB Group USA in the North Central regional office. He has 40 years of experience in the PCB industry. His career began with PCB manufacturing processes and development including process engineering, equipment development, plating processes engineering, photoimaging techniques and NC-drill/route programming. Later in his career, he went on to develop experience in PCB assembly and electromechanical assembly operations in QA management before joining NCAB Group in 2019.

RYAN MILLER started as a field application engineer at NCAB Group in 2022. He is now a FAE with a primary focus on medical PCBs and PCB design. Miller began his PCB career in 2012 at a factory where he gained experience in manufacturing PCBs, DfM analysis, and stackup and impedance design. He graduated from DeVry University with a bachelor's in electronics engineering technology.

CHARLENE MCCAULEY has over 43 years' experience as a PCB and mechanical designer, 22 as the founder and manager of two design service bureaus. For the past 14 years, she has led McCauley Design Group, where she has served 50+ customers in the server, semiconductor, space, military aircraft, radar, satellite, medical, simulator and oil field industries. She has eight years' experience as an adjunct professor at Austin Community College teaching PCB design, electrical/electronic design, and technical drafting. She was employed at Dell for nine years as a senior PCB designer for the rack, tower, blade server, and storage systems, and now provides design services for Dell's Precision laptop and server systems. She also provides Allegro/OrCAD training for her customers' engineering departments.

ZACHARIAH PETERSON has an extensive technical background in academia and industry. He currently provides research, design and marketing services to electronics companies. Prior to working in the PCB industry, he taught at Portland State University. His background in scientific research spans topics in nanoparticle lasers, electronic and optoelectronic semiconductor devices, environmental sensors and stochastics. His work has been published in over a dozen peer-reviewed journals and conference proceedings, and he has written hundreds of technical blogs on PCB design for a number of companies. He is a member of IEEE Photonics Society, IEEE Electronics Packaging Society, American Physical Society and the Printed Circuit Engineering Association (PCEA). He previously served as a voting member on the INCITS Quantum Computing Technical Advisory Committee and he currently serves on the IEEE P3186 Working Group.

ETHAN PIERCE is the founder of Dodec Labs. An electrical engineer by trade, he has spent his career building consumer, medical and defense connected products at leading companies from Apple to leading IoT companies Blues Wireless and Particle. His specialty is maintaining holistic design intent from concept to mass production, producing high performance hardware designs.

ADAM TAYLOR is a world-recognized expert in design and development of embedded systems and FPGAs. Throughout his career, he has used FPGAs to implement a wide variety of solutions from RADAR to safety critical control systems (SIL4) and satellite systems. He also had interesting stops in image processing and cryptography along the way.

Taylor is a Chartered Engineer, Senior Member of the IEEE, Fellow of the Institute of Engineering and Technology, Arm Innovator and Edge Impulse Ambassador. He is owner of the engineering and consultancy company Adiuvo Engineering and Training, which develops embedded solutions for high reliability, mission critical and space applications. Current projects include ESA Plato, and Lunar Gateway along with several other clients across the world. FPGAs are Taylor's first love, and he has authored numerous articles and papers on electronics design and FPGA design including over 500 blogs, amassing over 30 million views.

SPEAKER BIOS

SYED UBAID ALI WARSI is a seasoned IPC CID senior PCB designer with 20 years of diverse experience. His journey encompasses guiding boards from the initial design phase through prototyping, board bring-up, EMC compliance, and finally to full-scale production. Specializing in high-speed PCB design and EMC compliance, he navigates cutting-edge technologies like Intel's Agilex and Stratix series, PCIe Gen3/4, 56Gbps PAM4, and 28Gbps NRZ interfaces. A notable HDI technology expert, Syed contributes to breakthroughs in 0.2mm CSP multi-lamination breakout boards. Beyond his individual accomplishments, his mentorship has shaped the next generation of PCB designers. Through his mentorship, several professionals are now thriving at renowned companies like Intel, Xilinx, R&D Altanova, Hitek Systems, among others. As owner of Wavetroniks, his commitment to excellence and innovation drives success in the dynamic field of PCB and hardware design, serving clients across North America.

LAUREN WASLICK is PCB design director at Newgrange Design. She is also a senior PCB designer with over 12 years of experience. She runs the PCB design department, which includes over 25 designers, and oversees the training program. Working at a service bureau for 12 years has allowed her to gain extensive design experience across many industries including medical, consumer products, defense, aerospace, alternative energy, robotics and more. She specializes in flex design, as well as HDI and high-speed, and has worked on hundreds of circuit board designs in her career. In 2019, she received her MBA from Babson College.

JOHN WATSON has a career spanning over 44 years in electronics, with 24 working in the PCB design/engineering field. He has worked with several top companies including Teledyne API, Emerson Computer Power, Legrand Corp., and served in the US Army in the military intelligence field. Most recently, he was a technical expert with Altium, where he trained and mentored new customers on Altium tools and the PCB process, working alongside companies to better their proficiency with ECAD tools and the overall quality of the PCB design process. He is a college professor at Palomar San Marcos, teaching basic and advanced PCB design. He is a highly sought-after author and writer for various blogs and white papers and author of two library and data management books.

SUSY WEBB is a senior PCB design engineer with over 45 years of experience. Her career includes experience in coastal and oceanographic oil exploration and monitoring equipment, point-to-point microwave network systems, and CPCI and ATX computer motherboards. Webb is a regular speaker at PCB Conferences, IPC events, international design conferences and has consulted to individual companies and groups for the last 20 years. Her presentations discuss practical implementation of complex engineering concepts into board layout, and methods to improve the overall design and flow of printed circuit boards. She is CID certified, a former writer/columnist for Printed Circuit Design and Fab magazine, a chapter writer for Clyde Coombs Printed Circuits Handbook, an author of the PCEA Training Printed Circuit Engineering Professional handbook and curriculum, and a former judge for the annual TLA competition. Webb is also an active member of the PCEA Executive Board and Education committees.

TODD WESTERHOFF is a product marketing manager for high-speed system design in the Electronic Board Systems division of Siemens EDA. He has over 40 years of experience in electronic system modeling and simulation, including over 25 years of signal integrity experience. Westerhoff was heavily involved with the IBIS-AMI modeling specification during its inception. Prior to joining Siemens EDA, he held senior technical and management positions at SiSoft, Cisco and Cadence. He also worked as an independent signal integrity consultant developing analysis methodologies for major systems and IC manufacturers. Westerhoff holds a bachelor's in electrical engineering from the Stevens Institute of Technology.



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