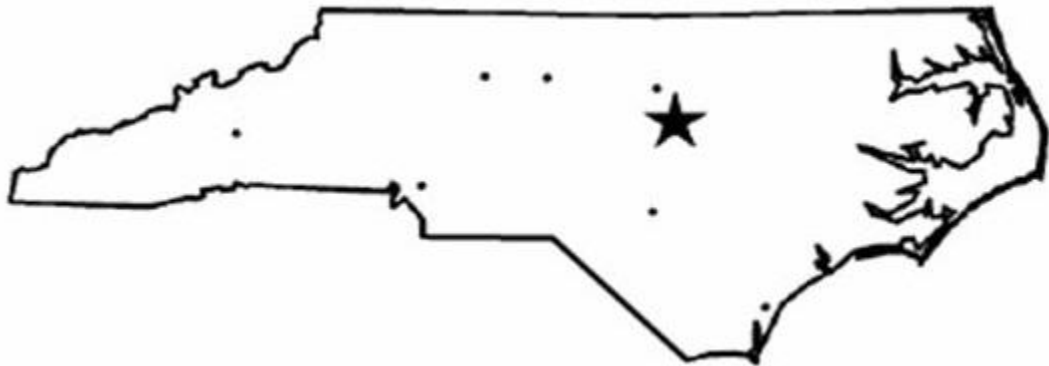


**The RTP Chapter  
of the  
IPC Designers Council**

**Presents:**

**PCB CAROLINA 2010**



**Exhibitor and Technical Conference Guide**

**October 5<sup>th</sup>, 2010**

**Raleigh Convention Center**

# Welcome to *PCB Carolina 2010*

IPC Designers Council encourages you to take full advantage of everything this free one-day show has to offer from vendor exhibits and technical presentations to all of the great meals and door prizes. This is a prime opportunity for you to network with your peers, begin new business relationships, and develop your technical skills.

Our show guide includes an alphabetical listing and a brief summary of each exhibiting company and descriptions of the technical presentations.

Pick up your complimentary show t-shirt and tote-bag, and be sure to check the door prize postings before you leave today.

Today's show would not be possible without the endless volunteer hours donated by your chapter officers and board of directors -

<b>Tony Cosentino</b>	<b>President</b>
<b>Peter Cerbone</b>	<b>Vice President</b>
<b>Randy Faucette</b>	<b>Treasurer</b>
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<b>Bruce Schmidt</b>	<b>Board of Directors Member</b>

IPC Designers Council offers a special thank you to [Cisco Systems](#) for sponsoring this show guide, to [Mentor Graphics](#) for sponsoring the cocktail reception, and to [NXP](#) for sponsoring the show tote bags.

We would like to recognize the following companies for their generous support: [Better Boards](#), [Benchmark Electronics](#), [Concord Components](#), [DuPont](#), [Flextronics](#), [Isola Group](#), [I. Technical Services](#), [Polar Instruments](#) and [ViaSystems](#).

We would like to thank all the exhibiting companies, speakers and most importantly, YOU our attendees.

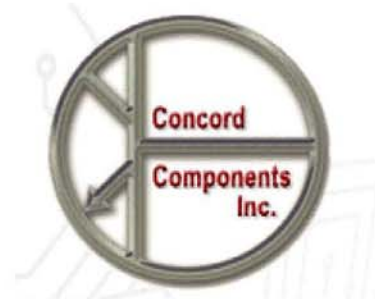
Enjoy the show!

Tony Cosentino, President

RTP Chapter, IPC Designers Council

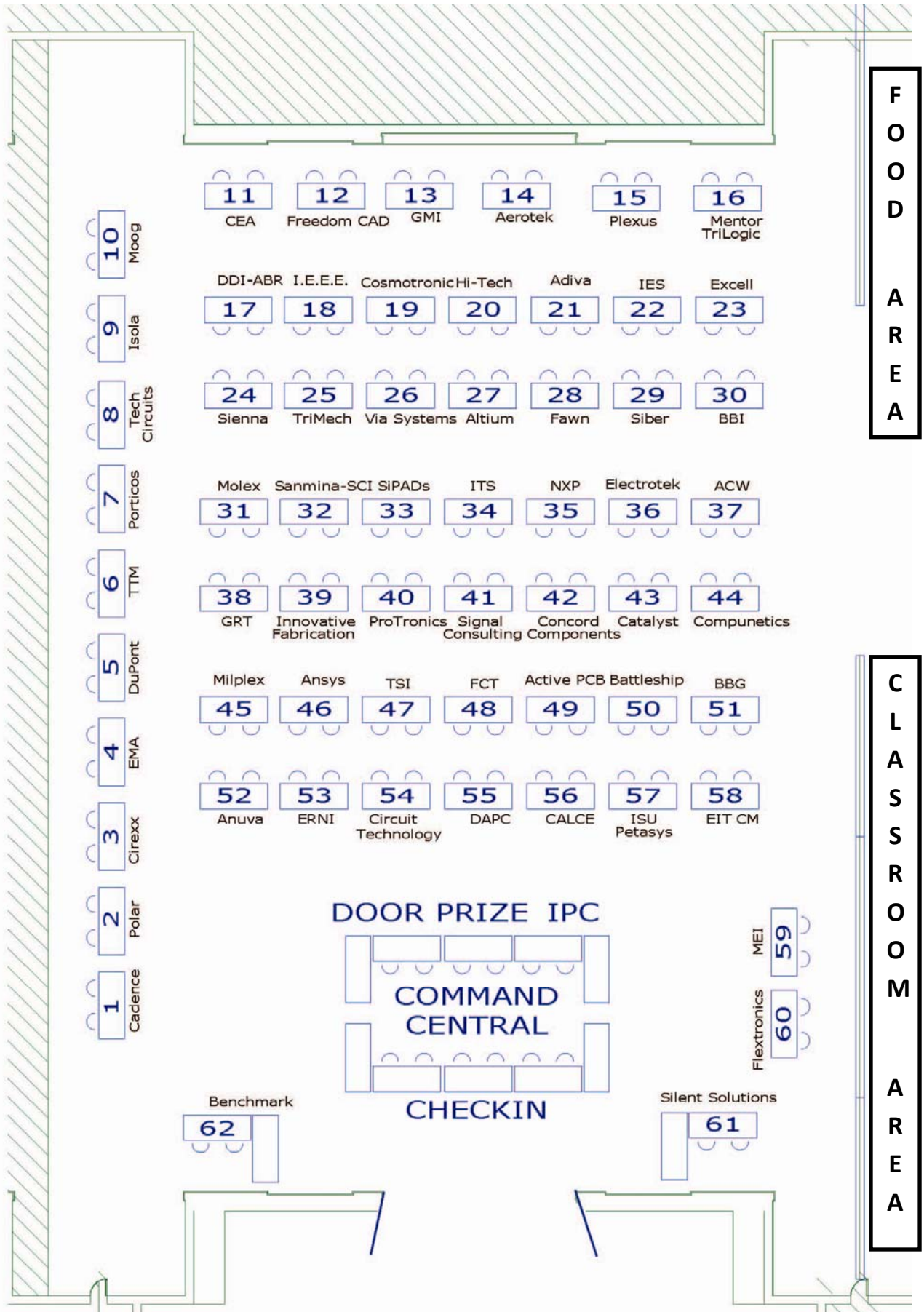
[www.ipc-rtp.org](http://www.ipc-rtp.org)

# Major Sponsors



"THANK YOU"

# PCB Carolina Show Floor Layout



# PCB Carolina Show Schedule

## SHOW TIME

7:45 – 5:00 pm	Registration / Check-In
8:30 – 5:00 pm	Technical Sessions
11:30 – 6:00 pm	Exhibition Floor Open

## FOOD SCHEDULE

7:45 – 9:15 am	Continental Breakfast with sausage, egg, and cheese biscuits
11:30 – 1:30 pm	Lunch – Southern Fried Chicken with pulled pork BBQ
5:00 – 6:00 pm	Beer and Wine Reception with more food ....

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# Technical Sessions

The logo for SILENT, featuring the word "SILENT" in white, uppercase, sans-serif font, centered within a dark blue rectangular background.

**Session #1 (8:00 – 9:45 am)**

**Presenter: Lee Hill (Silent Solutions, LLC)**

## **“Myths and Mistakes in Modern PCB Design for Electromagnetic Compatibility”**

Lee Hill's presentation will include a number of interesting and entertaining PCB EMC design mistakes and design recommendations. Many of the discussions will include screen shots of actual design problems that were either found, fixed, designed out by SILENT's EMC engineering staff. Lee will also include references to peer-reviewed research and clear explanations of what TO do and what NOT to do in actual physical designs.



**Session #2 (10:00 - 11:45 pm)**

**Presenter: Robert Farrell (Benchmark Electronics)**

## **“Conversion of High Reliability Products to Lead-Free: Lessons learned – 4 years into RoHS”**

The Restriction of Hazardous Substances (RoHS) took effect in July of 2006 requiring many products sold in the European Union to be Lead (Pb) Free. However, a number of products were exempt including Product A from Customer A and the exemption is valid until 2012 at the earliest. Product A is a high reliability network communications product designed to have a 25 year life in Central Office conditions in which the operational temperatures can vary between -5° C and +50 ° C, relative humidity can be as high as 90% and shock and vibration conditions range from transportation profiles to Zone 4 earthquake environments. The Tin-Lead (SnPb) version of this product has been operating reliably in the field under these conditions for more than 20 years and the objective was to convert a limited quantity of Product A to Pb-free for internal development. The primary goal was ensure the Pb-Free version of the product had reliability metrics equal to or better than the SnPb version and the secondary goal was to do this in a cost and time effective manner. A key benefit of doing this work is that Customer A can offer an environmentally friendly product free of the six hazardous substances restricted in the RoHS Directive. Moreover, SnPb components are getting more difficult to purchase. This paper provides an overview of the process used and lessons learned. Topics covered will include industry studies, Bill of Materials review, components with limited temperature ratings, key Design for Manufacturing improvements, selection of a high reliability solder paste and wave solder flux to drastically reduce the risk of dendrite growth, product analysis by a leading university consortium, reflow profile development, cardboard and pH paper test to ensure proper wave solder spray fluxing, 45° X-Ray inspection to validate through hole solder fill, forced rework of BGA's and through hole components, cross sections, dye and pry tests, thermal cycling, vibration testing, mechanical shock testing. The work involved multiple manufacturing and design locations within the Electronic Manufacturing Supplier (EMS) and the key steps required to ensure good communication and teamwork will be discussed.

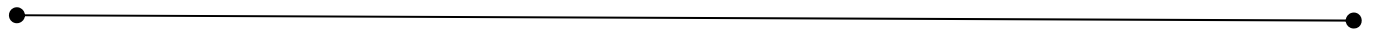


**Session #3 (1:30 – 2:00 pm)**

**“High Speed PCB Design Challenges and Techniques”**

**Session #4 (2:00 – 2:30 pm)**

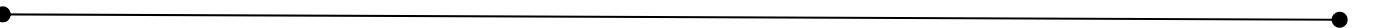
**“Integrating ELM into a Collaborative Engineering Environment for Sharing Ideas, not just files”**



**Session #5 (2:30 – 3:30 pm)**

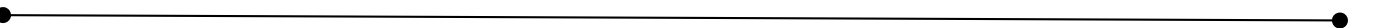


**“Signal Integrity Laminate Considerations”**



**Session #6 (3:30 – 4:30 pm)**

**“Solid State Lighting Challenges: Thermal, EMC, Compliance”**



**Session #7 (4:30 – 5:00 pm)**

**“Models and Metrics: Get your Signal Integrity Simulations Right”**

**Presentations / Bios are available at [www.pcbcarolina.com](http://www.pcbcarolina.com)**

# ACTIVE SALES ASSOCIATES

## Active PCB

[www.activepcb.com](http://www.activepcb.com)

Table # 49

Active PCB provides high reliable PWBs electronic devices. Customers with diversified printed circuit board needs can have all of them fulfilled by one source, Active PCB. Our expansive capabilities extend from single sided boards to high-layer count multilayers, with ball grid array (BGA) interconnections, buried and blind vias, and heatsinks or metal cores. Prototype- Quick Turn and production capability. ISO/TS 16949:2009, ISO9001-2000, U.L. E189010.



## ADIVA CORPORATION

[www.adiva.com](http://www.adiva.com)

Table # 21

ADIVA Corporation is the provider of the leading set of PCB Design Validation tools. The ADIVA Tools consist of ADIVAnet - Net list compares CAD NetList to Manufacturing Data; ADIVAdrc - Design Rule Checking finds and reports problems; ADIVAvue - Intelligent Viewer for Design Review, Troubleshooting, Revision Comparison.



## Altium Inc

[www.altium.com](http://www.altium.com)

Table # 27

Altium is the leading developer of solutions that help engineers design and build the next generation of electronic products. From its foundation in 1985, Altium's vision has been to level the playing field for electronics designers by offering an alternative to expensive, difficult-to-use tools. Altium is now a global company with a passion for innovation, and the goal of redefining the way electronic products are developed.



## ACW Technology

[www.acwtech.com](http://www.acwtech.com)

Table # 37

ACW Technology is a UK-headquartered contract electronics manufacturer (CEM). We specialize in all areas of manufacturing, engineering, sourcing, repair and logistics. Our markets include commercial, industrial, aerospace and defense. The company has built a valuable bank of knowledge and developed systems and practices that deliver outstanding value to its customers. ACW has a reputation for quality, and for straight-forward honest dealing with its customers, suppliers and staff.



## Aerotek Contract Engineering

[www.aerotek.com](http://www.aerotek.com)

Table # 14

Aerotek is a leading provider of technical recruiting and staffing services. Aerotek Contract Engineering specializes in the electronics industry with over 250 offices worldwide including Raleigh, NC. Aerotek connects talented software, hardware, mechanical, verification, RF, and quality engineers with leading telecommunications, medical device, energy, government, consumer electronic, and semiconductor companies in a contract, contract to hire, or direct hire capacity.



## ANSYS, Inc.

[www.ansys.com](http://www.ansys.com)

Table # 46

ANSYS, Inc. develops and globally markets engineering simulation software used by designers and engineers across a broad spectrum of industries. The company develops open and flexible simulation solutions that enable users to simulate design performance directly on the desktop, providing a common platform for fast, efficient and cost-effective product development, from design concept to final-stage testing and performance validation.



## Anuva Services Inc.

[www.anuvaservices.com](http://www.anuvaservices.com)

Table # 52

Anuva Services Inc. provides comprehensive electronic manufacturing services, quick turn prototyping, electromechanical assembly, test engineering, rework and turnkey box build assembly.



## BattleShip Technologies, Inc.

[www.battleshiptechnologies.com](http://www.battleshiptechnologies.com) Table # 50

BattleShip provides representation for a limited number of synergistic principals. We provide professional sales, marketing, engineering and consulting services to our customers in the electronics components industry. We have been in business over seven years and cover the SouthEast.



## Better Boards, Inc.

[www.betterboards.com](http://www.betterboards.com)

Table # 30

“Not all boards are alike”. Better Boards provides PCB Design and Engineering Services. We specialize in PCB Layout using the Cadence and Altium toolsets. Better Boards offers many engineering disciplines and manufacturing as well. Contact us to see how Better Boards can offer you a Better Solution.



## Bare Board Group

[www.bareboard.com](http://www.bareboard.com)

Table # 51

Bare Board Group has the sourcing and distribution experience necessary to assist customers in obtaining quality offshore printed circuit boards at competitive prices through a prequalified network of UL and ISO and QS approved manufacturers. Whether your order is large or small, BBG will deliver high-mix, low to medium volume PCBs.



## Benchmark Electronics, Inc

[www.bench.com](http://www.bench.com)

Table # 62

Benchmark Electronics, Inc. is in the business of manufacturing electronics and providing services to original equipment manufacturers (OEMs) of telecommunication equipment, computers and related products for business enterprises, industrial control equipment, testing and instrumentation products and medical devices. We provide specialized engineering services including product design, printed circuit board layout, prototyping and test development.



## Cadence Design Systems Inc

[www.cadence.com](http://www.cadence.com)

Table # 1

Cadence enables global electronic design innovation and plays an essential role in the creation of today's electronics. Customers use Cadence Allegro technology, methodologies, and services to design many of today's latest electronic products, from advanced SiP's to ultra-dense PCBs. Learn more about the company, its products, and services at [www.cadence.com](http://www.cadence.com).



## CALCE

[www.calce.umd.edu](http://www.calce.umd.edu)

Table # 56

The Center for Advanced Life Cycle Engineering (CALCE), the largest electronic products and systems research center focused on electronics reliability, is dedicated to providing a knowledge and resource base to support the development of competitive electronic components, products and systems.



## Carolina Electronic Assemblers

[www.ceamanufacturing.com](http://www.ceamanufacturing.com)

Table # 11

Carolina Electronic Assemblers, Inc. (CEA) specializes in the development and manufacturing of PCB assemblies, Cable assemblies, Box Builds and related electronic products. We offer a full range of services from simple prototype assemblies to full turnkey solutions. You will find that our quality workmanship, quick turn-around and competitive pricing make CEA a valuable partner for all of your contract manufacturing needs.



## Catalyst Manufacturing

[www.catalystsystems.com](http://www.catalystsystems.com)

Table # 43

Catalyst is a full service EMS provider for the industrial, medical, security/military, and telecom/datacom marketplaces. We specialize in the manufacture of low to medium volume, medium to high mix EMS requirements including prototype and quick-turn requirements, for both turnkey and consigned inventory programs. Some of our certifications include ISO9001, ISO13485, ITAR, AS9100.



## Circuit technology, Inc.

[www.circuittechnology.com](http://www.circuittechnology.com)

Table # 54

IPC certified master training center. Certifications in the IPC 7711/7721 rework and repair, 610 acceptability of electronic assemblies, J-STD-001 solder and soldering process, 620 WHMA acceptability of wire and cable assemblies. Onsite and custom classes also available. Training centers located in Maryland, Florida, North Carolina and Indiana.



## Cirexx International, Inc.

[www.cirexx.com](http://www.cirexx.com)

Table # 3

Cirexx offers Quick turn prototypes for Seamless Integration manufacturing services for in house Design, fabrication and assembly of rigid-flex circuits, flex circuits and RF Microwave/Hybrid Circuit boards. With 30 years of manufacturing expertise we are able to offer engineered products to solve a variety of technical challenges. We offer consulting engineering services from concept to program volume manufacturing. MIL PRF 31032 and AS9100B certs; ITAR registered.



## Compunetics, Inc.

[www.compunetics.com](http://www.compunetics.com)

Table # 44

Compunetics, Inc., located in the Pittsburgh, PA area, offers PCB manufacturing and drafting. Compunetics capabilities include flex, rigid-flex, controlled impedance, BGA's, high-speed laminates, buried and blind vias. Also, buried passives, multichip and single chip modules using fine line technology (2 mil lines and spaces).



## Concord Components, Inc.

[www.concordcomponents.com](http://www.concordcomponents.com) Table # 42

Concord Components, Inc. is an electronics distributorship with 350,000 line items of obsolete and hard to find Integrated Circuits, Passive and Electro-Mechanical Components. we are an Authorized Reseller for Semicoa Corp & Kamaya Inc. and we offer Inventory Management Services.



## DDi - ABR

[www.ddiglobal.com](http://www.ddiglobal.com) Table # 17

DDi has been a leading provider of time-critical, technologically advanced printed circuit boards for 30+ yrs. Headquartered in Anaheim, California, DDi and its subsidiaries offer PCB engineering, fabrication and manufacturing services to leading electronics OEMs and CMs.



## Dynamic & Proto Circuits Inc.

[www.dapc.com](http://www.dapc.com) Table # 55

Dynamic & Proto Circuits Inc is a leading manufacturer of technologically advanced, multilayer printed circuit boards. Our state-of-the-art technology enables production of quick-turn prototype, pre-production and volume board production for our customers.



## Cosmotronic

[www.cosmotronic.com](http://www.cosmotronic.com) Table # 19

Cosmotronic has provided Rigid, Flexible and Rigid-Flex PCB's with complex interconnection requirements for military, aerospace and industrial applications for nearly 45 years. By partnering with you and listening to your concerns and needs, we can help you deliver the most cost effective products to your customer.



## DuPont Circuit and Packaging

[www.electronics.dupont.com](http://www.electronics.dupont.com) Table # 5

DuPont continues to deliver advanced material solutions for the PCB industry. DuPont will feature three key new materials at PCB Carolinas: DuPont™ Pyralux® TK flexible circuit material, DuPont™ Coolam™ and Zeta™ Cap ultra thin all high performance materials. Come by our table for details.



## EIT LLC

[www.eit.com](http://www.eit.com) Table # 58

EIT provides electronic manufacturing, engineering and support services from our three facilities. EIT is ISO registered and offers mechanical assembly and order fulfillment. A strong in house engineering group offers design, PCB layout, test and mechanical engineering services. Manufacturing capabilities include wire & cable harness assembly, mechanical assembly, machine & sheet metal services and conformal coating.



## Electrotek

[www.boards4u.com](http://www.boards4u.com)

Table # 36

Electrotek is a manufacturer of complex multi-layer PCBs for the high end commercial and military markets. Product styles include filled vias, sequentially laminated blind/buried vias, and aluminum backed material. In addition to ISO 9001.2008, we are ITAR registered and qualified to MII-PRF-31032/55110.



## ERNI Electronics, Inc.

[www.erni.com](http://www.erni.com)

Table # 53

ERNI is a leading global manufacturer and worldwide supplier of a broad line of interconnects for the telecommunications, data communications, computer, industrial and medical markets. The Systems Division at ERNI focuses on the development and production of backplanes, electronic assemblies and integrated systems. ERNI has manufacturing operations in Europe as well as sales offices in over 40 countries.



## Fawn Electronics

[www.fawn-ind.com](http://www.fawn-ind.com)

Table # 28

Fawn Electronics offers a complete solution for projects of any complexity. Its design through production support includes: strong engineering support; automated board-level assembly; fabrication of cable and wire harnesses; mechanical/electromechanical assembly; integration of metal, plastics and electronics into a final package; depot repair and spare parts services; and lead-free RoHS compliant manufacturing.



## EMA Design Automation

[www.ema-eda.com](http://www.ema-eda.com)

Table # 4

EMA Design Automation, a Cadence Channel Partner, offers leading product development solutions including a complete range of product lifecycle management systems, electrical and mechanical CAD tools, services, training, and technical support. EMA manufactures the Component Information Portal™, TimingDesigner®, and CircuitSpace™, and all are distributed through a worldwide network of value added resellers.



## Excell Electronics Corp.

[www.excellpcb.com](http://www.excellpcb.com)

Table # 23

Excell is one of the premier U.S. manufacturers of bare printed circuit boards (PCBs). The company is debt-free and offers competitive pricing, unparalleled service, and world-class quality.



## FCT Electronics

[www.fctgroup.com](http://www.fctgroup.com)

Table # 48

FCT designs and manufactures complete lines Hoods, Connectors, Contacts, Mil and Circular connectors and specific tools needed these products. FCT also has comprehensive value add harness capabilities. Our commitment to growth and effectiveness is closely related to our goal of customer satisfaction. Both core statements are of great importance to us and are reflected in our products and solutions which generate sustainability with our customers.

# FLEXTRONICS

## Special Business Solutions



### Freedom CAD Services

[www.freedomcad.com](http://www.freedomcad.com)

Table # 12

Freedom CAD is a multi-disciplined engineering team specializing in design services for complex high-speed and large electronic systems for the Telecom, Computer, Medical, Mil-Aero, Industrial, Storage and Consumer Electronics markets. Our engineering and printed circuit board (PCB) design team has over 1000 years of combined experience using the industry's leading PCB CAD tools: Allegro, Expedition, PADs and mechanical design tools: SolidWorks, AutoCAD and Pro/ENGINEER.

### Flextronics

[www.flextronics.com](http://www.flextronics.com)

Table # 60

Flextronics is a full spectrum design, manufacturing, and logistics services company which is vertically integrated with world class component capabilities to help OEMs create market leading products.



### General Microcircuits, Inc.

[www.gmimfg.com](http://www.gmimfg.com)

Table # 13

EMS provider with Operations in Central America and Asia. Providing Manufacturing services to clients throughout the US. Prototype, Production, full Turn-Key . PCA, Sub-Assemblies; Complete Box builds and Systems Integration.



### GRT Electronics, LLC

[www.grtelectronics.com](http://www.grtelectronics.com)

Table # 38

GRT Electronics, LLC is a contract manufacturing company. We assemble boards based on customer specifications. Our manufacturing includes surface mount technology, through hole assembly and mechanical assembly.



### Hi-Tech Fabrication, Inc.

[www.htfi.com](http://www.htfi.com)

Table # 20

HI-TECH FABRICATION is a world-class, global supplier of close tolerance fabricated metal products and assemblies. Our services include: Metal Fabrication and Finishing, Contract Manufacturing of Electro-Mechanical Assembly, CNC Machining, Lean Manufacturing, Laser Cutting, Box Build Forming, Hard and Soft Tooling, Welding, Spot Welding, Painting, Design & Engineering, Short Run Stampings, Silk Screening.



### I. Technical Services

[www.itechserv.com](http://www.itechserv.com)

Table # 34

I. Technical Services (ITS), is a provider of Electronics Manufacturing, Test, Engineering, Logistics and Repair Services. We provide competitive domestic manufacturing and repair solutions to insure there is no disruption of supply to our customers supply chain due to world events, reduce overseas transportation costs, time to market and protection of intellectual property. Our goal is to be competitive on a global basis, while preserving technology and jobs in the USA.



## IEEE Eastern NC Section

<http://www.ieee.org>

Table # 18

IEEE is the world's largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity. IEEE and its members inspire a global community through IEEE's highly cited publications, conferences, technology standards, and professional and educational activities.



## Innovative Fabrication, Inc.

[www.innovativefabrication.com](http://www.innovativefabrication.com)

Table # 39

Innovative Fabrication provides custom sheet metal fabrication, as well as secondary services such as anodizing, finishing, painting, timesaving, plating, and more, to a wide range of industries. We provide engineering and prototype services using state of the art software tools, giving us the ability to quickly turn parts. We also have an onsite machining center, making us your one stop shop for all things sheet metal.



## ISU Petasys

[www.isupetasys.com](http://www.isupetasys.com)

Table # 57

ISU Petasys is a manufacturer of high technology printed circuit boards. Recognized by industry leading OEMs for; excellent quality, reliability and technical capabilities as demonstrated by our award winning performance. ISU Petasys is committed to research and development of processes, materials and enabling technologies that afford customers a competitive edge.



## IES, Inc.

[www.iesgray.com](http://www.iesgray.com)

Table # 22

IES, Inc. specializes in Printed Circuit Board Assembly by SMT or Hand Solder. We can also perform rework, engineering changes & board layout and design as well as BGA (ball grid array) placement or repair.



## Isola Group

[www.isola-group.com](http://www.isola-group.com)

Table # 9

Isola Group leads the market in the design and production of innovative base materials used as the foundation for printed circuit boards. For over two decades, Isola has been the preferred laminate supplier to the top performing PCB manufacturers, delivering high quality innovative solutions that minimize costs and cut manufacturing time.



## Marcel Electronics International

[www.mei4pcbs.com](http://www.mei4pcbs.com)

Table # 59

Fabricator of high density rigid printed circuit boards for analog, digital and RF applications. Prototype through production quantities. FR4, Polyimide, Rogers. Have questions? We provide engineering support, prompt quote response and automated notification of order shipment. When you need it done right and on time call MEI.



## Mentor Graphics Corporation

[www.mentor.com](http://www.mentor.com)

Table # 16

Mentor Graphics® is a leader in electronic design automation. We enable companies to develop better electronic products faster and more cost-effectively. Our innovative products and solutions help engineers conquer design challenges in the increasingly complex worlds of board and chip design.



## Molex

[www.molex.com](http://www.molex.com)

Table # 31

Molex is a leading global supplier of electronic interconnects. Molex manufactures over 100,000 products, including everything from electrical and fiber optic interconnect solutions to switches and application tooling.



## NXP Semiconductors

[www.nxp.com](http://www.nxp.com)

Table # 35

NXP Semiconductors provides High Performance Mixed Signal and Standard Product solutions that leverage its leading RF, Analog, Power Management, Interface, Security and Digital Processing expertise. These innovations are used in a wide range of automotive, identification, wireless infrastructure, lighting, industrial, mobile, consumer and computing applications.



## Milplex Circuit Canada Inc

[www.milplexcircuit.com](http://www.milplexcircuit.com)

Table # 45

We are a Quality Conscious ISO Certified PCB Manufacturer specializing in D/S and Multi-Layer PCB's with special expertise in Thermal Management and RF Technologies. We have been in business 23 years and own our 42,000 sq ft manufacturing facility. Briefly, we offer multi-layer PWBs up to 14 layers using a wide range of materials: High Temp, RF, RoHS, Low Loss, Thermal, High Power, etc...



## Moog Components Group

[www.moog.com/components](http://www.moog.com/components)

Table # 10

Moog Components Group provides high reliability rigid, flex, and rigid flex PCBs. While our niche in the marketplace is primarily prototype, quick turn and low volume production, we also possess offshore capabilities that allow us to address mid to large volume production quantities. Our facility is ISO 9001:2008 certified. We build to IPC Class 2 & 3, MIL-PRF-55110, or MIL-P-50884 as specified by our customer. We supply answers to complex printed circuit board challenges.



## Plexus

[www.plexus.com](http://www.plexus.com)

Table # 15

The Product Realization Company! Plexus provides Electronic Manufacturing Services (EMS). Services include mechanical, electronic and software design, printed circuit board development, prototyping services, new product introduction, material procurement and supply chain management, printed circuit board and higher level assembly, test development, in-circuit and functional testing, final system box build, fulfillment, service, and repair.



## Polar Instruments, Inc.

[www.polarinstruments.com](http://www.polarinstruments.com) Table # 2

Polar is the industry-standard Field Solver for calculating impedance, loss, RLGC, S-parameters, etc. New lossless modelling for crosshatched planes. Bundle with Speedstack or Speedflex to design and document PCB stackup with controlled impedance traces on rigid and rigid-flex stackups. Use CGen to effortlessly generate impedance and SET2DIL loss coupon Gerbers and Atlas to measure SET2DIL loss.



## Porticos, Inc.

[www.porticos.net](http://www.porticos.net) Table # 7

Porticos is a full service Mechanical Engineering and Design Firm located in Research Triangle Park, NC, providing Mechanical Design services. Porticos specializes in designing mobile communication devices and their accessories with an emphasis on designing products that are smaller, lighter, more rugged, and more user friendly than their competition.



## ProTronics, Inc.

[www.protronics-inc.com](http://www.protronics-inc.com) Table # 40

Electronics Contract Manufacturer specializing in three market niches: 1 - Quick-turnaround, Prototype PCB Assembly; 2- Printed Circuit Board Assembly and rework services; 3 – Low volume Printed Circuit Board Assembly.



SANMINA-SCI®

## Sanmina-SCI

[www.sanmina-sci.com](http://www.sanmina-sci.com) Table # 32

Sanmina-SCI provides complete end-to-end solutions of complex, multilayer PCBs. We are committed to providing you with the right technologies and resources proven to lower cost and improve quality. Our commitment to outstanding PCB service and support is particularly evident in the following: Design for Manufacturability (DFM) and New Product Introduction (NPI). We use cutting-edge technologies and processes to create cost-effective solutions.



## Siber Circuits, Inc.

[www.sibercircuits.com](http://www.sibercircuits.com) Table # 29

Siber Circuits is a customer service driven company. Formally Network Circuits2000, Siber Circuits is a prototype and production supplier of printed circuit boards with an excellent blend of experience and new technology experience. Siber Circuits provides a broad spectrum of services. From simple low cost double sided boards to high layer count multilayers, we are ready to provide you the premium service our customers come to expect.



## Sienna Corporation

[www.siennagroup.com](http://www.siennagroup.com) Table # 24

Turnkey Electronic Manufacturing Services: PCB Design, PCB Assemblies, cables Assemblies & Wire Harnesses, System Integration, Injection Molded Plastics, Metal Fab, Machined Parts. Services: Hardware Design & PCB Layout, Prototypes, Pilot Production, Testing, Turnkey Products, Warehousing, Volume Production, Order Fulfillment & Manufacturing Software Solutions. ISO 9001, TS 16949, AS 9100, 6 Sigma.



## Signal Consulting Group LLC

[www.siconsultant.com](http://www.siconsultant.com)

Table # 41

SCG provides software and consulting for Signal and Power Integrity for PCB design. We believe that hardware still matters and so do you. From embedded design to high-speed layout we can help make your next product succeed the first time around. Getting your hardware design right the first time can be a challenge but we can back you up or take the lead and make your hardware rock.



## SIPAD Systems Inc

[www.sipad.com](http://www.sipad.com)

Table # 33

SIPAD Systems Inc. is a solid solder deposit (ssd) coating service bureau. SIPAD Systems applies solder to complex printed circuit boards in a solid form, enabling the placement and soldering of very small, fine pitch and blind leaded components, by hand, with perfect results. SIPAD Systems is one of 2 places in the world (United States and Germany) that offers this service and the only dedicated SIPAD ssd service bureau in the world.



## TriMech

[www.trimechsolutions.com](http://www.trimechsolutions.com)

Table # 25

For 12 years, TriMech™ has helped our clients design better products by partnering with them and offering, not only CAD/CAE/PDM/FEA/CAM software products, yet engineering solutions involving full-time and temporary staffing, contract design, analysis and drafting services, rapid prototyping, custom programming and implementation services. We are the local authorized reseller of SolidWorks 3D software.

The logo for SILENT Solutions LLC features the word "SILENT" in a large, white, sans-serif font centered within a solid blue rectangular background.

## SILENT Solutions LLC

[www.silent-solutions.com](http://www.silent-solutions.com)

Table # 61

SILENT is an independent consulting firm specializing in electromagnetic compatibility (EMC) and RF design and troubleshooting with emphasis on analysis and resolution of EMI emissions, immunity, electrostatic discharge (ESD), and circuit-to-circuit interference problems. SILENT has a proven track record of achievement servicing global manufacturers in all markets.



## Tech Circuits, Inc

[www.techcircuits.com](http://www.techcircuits.com)

Table # 8

Tech Circuits Inc. is globally recognized as a premier manufacturer of 'Time Critical' advanced technology printed circuit boards. Since 1979, Tech Circuits has focused on prototype and quick turn manufacturing of highly complex printed circuit boards. Our sales engineering team will help you with solutions on your next high technology design to ensure your projects' success.



## TSI

[www.tsieda.com](http://www.tsieda.com)

Table # 47

TSI offers products and services which allow our customers to solve their electronic design and development problems. Electronics Testing, Product Data Management, and PCB CAM TestShell from QualiSystems, LTD Omnify PLM from Omnify Software Blueprint PCB/CAM350 from Downstream Technologies. [www.tsieda.com](http://www.tsieda.com) (407) 339-4874



**TTM Technologies, Inc.**

[www.ttmtech.com](http://www.ttmtech.com)

Table # **6**

Printed circuit boards provide the foundation for virtually every electronic product. Industry leaders rely on TTM Technologies' unique combination of speed and technology to support their most demanding applications. From the navigation systems, to a high-speed routers, to an advanced diagnostic imaging systems, the breadth and scope of high-performance applications supported by our interconnect solutions is extremely varied.



**VIASYSTEMS®**  
**VIASYSTEMS**

[www.viasystems.com](http://www.viasystems.com)

Table # **26**

Viasystems Group, Inc. is a leading worldwide provider of complex multi-layer printed circuit boards (PCBs) and Electro-Mechanical Solutions to OEMs. Viasystems has the ability to support customer's new product introduction to high-volume, low-cost fabrication of complex boards – combined with comprehensive sourcing, assembly, and metal fabrication capabilities to supply subassemblies and finished products.