



6th Annual IPC Flex Conference

Mosey down to Dallas!!!

Talk to your boss now! Get your trip approved for the Sixth Annual IPC Conference on Flexible Circuitry. No other conference provides so much timely info on the miracle of flex. Anyone using, designing or manufacturing flexible circuits will find this a great opportunity for learning and networking with other industry professionals.

The conference will be held on Thursday, June 8th and Friday, June 9th, at the Doubletree Hotel at Campbell Centre in Dallas, TX. In addition, three different all-day workshops are offered on Wednesday, June 7th. The keynote address will be given by Don DuPriest from Lockheed Martin. The full agenda and workshops are on pages three through five.

Throughout *The Flex Circuit News* there are links to the web pages of those companies or individuals mentioned in the articles, as well as links to advertisers web pages. Look for the pointing finger.



Industry News

Innovex Sends Litchfield Production to Arizona Plant

Innovex, continuing to digest its acquisition of AdFlex Solutions, is moving production of non-disk drive flex circuits from Litchfield, MN to the AdFlex facility in Chandler, AZ.

Tom Woznicki

While this makes sense for Innovex, it is sad news for the industry. Litchfield Precision had always been a designer and manufacturer of highly complex and intricate flexible circuits - if the circuit was so technically challenging that no one else could build it, you could go to Litchfield and they would find a way. Some of these programs were scaled back after Innovex bought Litchfield Precision back in 1996. Now most of these customers, many in the medical equipment industry, will be asked to buy their circuits elsewhere because they will not meet the volume requirements of the Chandler plant.

Continued on page two

Mektec Closes Fremont Plant

Mektec, the US branch of Nippon Mektron, will be no longer be manufacturing flex circuits in the USA. The manufacturing plant in Milpitas, CA will be closed and programs transferred to Nippon Mektron's other plants in the Far East.

Financially and strategically, the move makes sense. Almost all of Mektec's production gets shipped to the Far East anyway, so why pay the high cost of Silicon Valley real estate? Also, the opening of Nippon Mektron's Taiwan plant has made the Milpitas plant unnecessary.

US Customers should see very little difference, since all the sales and customer support people will remain in Milpitas. This includes the application engineers, designers and CAM operators. One thing customers will miss is the proto shop. There was thought to keeping it open, but the decision was made to send it overseas too.

The last shipments will be made from the Milpitas facility on June 30th.

Continued from page one

Innovex also continued to move their high volume flex circuit production from it's Mexican plants in Agua Prieta to it's new facility in Thailand. This transfer is expected to be completed in August, 2000.

Two weeks ago Innovex reported revenue of \$41.4 million for its second quarter ending March 31, 2000, compared to revenue of \$20.7 million in the second quarter of fiscal 1999. The Company's net loss was \$1.2 million in the second fiscal quarter, or \$0.08 per share. This compares to net income of \$2.5 million or \$0.17 per diluted share in the second quarter of fiscal 1999. You can read the full press release at <http://www.innovexinc.com/invest/prfiles/NEWS80.shtml>.

The Flex Circuit News is a bimonthly newsletter published by Tom Woznicki and Flex Circuit Design Company in San Jose, California. It is dedicated to providing information about all aspects of and promoting the use of flexible printed circuits in interconnection and electronic packaging.

The Flex Circuit News is a free publication that is delivered to subscribers by e-mail.

Flex Circuit Design Company is a consulting company that specializes in designing flexible printed circuits for OEMs and flex circuit manufacturers.

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Got a question?

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Cirexx Adds Laser Drill

Finally, a proto shop with a laser! Cirexx is installing an Excellon Laser LVD-2001 drilling machine with both CO2 and YAG laser capabilities. The YAG laser is used for drilling through copper for making microvias. The CO2 laser will remove dielectric but is reflected by copper - for making blind and buried vias.

Cirexx expects to have it ready to go by the end of May. You can get more info on the new laser's capabilities at www.cirexx.com/sitehtml/cirexx_install.html.

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IPC Conference - *continued*

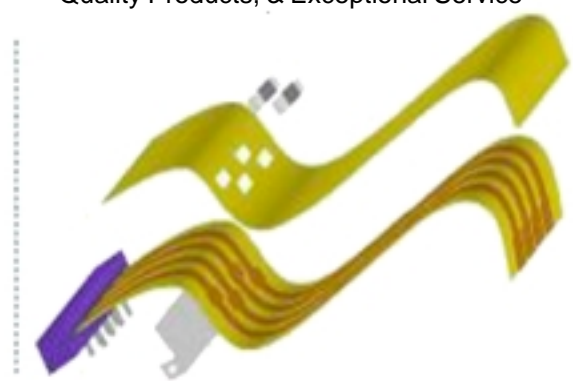
Registration Information

Workshop fees are \$350 for IPC members and \$450 for nonmembers. Conference fees are \$450 for IPC members and \$550 for nonmembers. A Super Package, which includes registration to the Conference and one Workshop, is \$695 for IPC members and \$795 for nonmembers. All workshop registrants receive course materials, refreshments, and lunch. All conference registrants will receive conference proceedings, continental breakfast and lunch on both days, and admission to the tabletop exhibits and the June 8th reception. **Please register by June 2, 2000.** For more information or if the registration deadline has passed, contact the IPC registration department at 847/790-5361.

All events will take place at the Doubletree Hotel at Campell Centre, 8250 N. Central Expressway, Dallas, Texas. Workshops will take place from 8:30am to 4pm on Wednesday, June 7, 2000. Sleeping rooms are available at the hotel for the special IPC meeting rate of \$99 (single/double) night. For reservations, contact the hotel at 214-691-8700. Rooms and rate are subject to availability after May 16, 2000, so make your reservations early.



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Back issues of The Flex Circuit News are now available on our web page - www.flexdude.com!



REGISTRATION FORM: IPC 6TH ANNUAL NATIONAL CONFERENCE & WORKSHOPS ON FLEXIBLE CIRCUITS - JUNE 7-9, 2000			
Please check appropriate box: <input type="checkbox"/> I am a member of IPC (MB) <input type="checkbox"/> I am not a member (NM)			
<div style="border: 1px solid black; padding: 5px;"> <p style="background-color: #0056b3; color: white; margin: 0; padding: 2px;">WORKSHOP REGISTRATION</p> <p><input type="checkbox"/> Workshops - \$350 (MB) or \$450 (NM) I am registering for one workshop on June 7th only. I am selecting Workshop (<i>circle one</i>): W-01 W-02 W-03</p> </div>	<div style="border: 1px solid black; padding: 5px;"> <p style="background-color: #0056b3; color: white; margin: 0; padding: 2px;">CONFERENCE REGISTRATION</p> <p><input type="checkbox"/> Conference - \$450 (MB) or \$550 (NM) I am registering for the Conference on June 8th - 9th only.</p> <p style="background-color: #0056b3; color: white; margin: 0; padding: 2px;">SUPER PACKAGE SAVINGS REGISTRATION</p> <p><input type="checkbox"/> Conference and 1 Workshop - \$695 (MB) or \$795 (NM) I am selecting Workshop (<i>circle one</i>): W-01 W-02 W-03</p> </div>		
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Workshops: June 7, 2000

8:30 AM to 4:00 PM

W-01: Flex Circuit Fundamentals

Bill Jacobi - William Jacobi & Associates
Thomas Stearns - Brander International Consultants

This workshop will focus on the materials, manufacture, characteristics, and end uses of flexible circuitry.

W-02: Principles of Flex Circuit Design

Russell Griffith - Tyco Printed Circuits

This course presents the electrical, mechanical and material properties of flex, and reviews the flex circuit manufacturing process. Designers will be taken through a checklist of considerations when utilizing flex circuits.

W-03: Flex as an Advanced Packaging Medium

Ken Gilleo of Poly-Flex Circuits Inc.
Joe Fjelstad of Tessera

This workshop covers the special characteristics

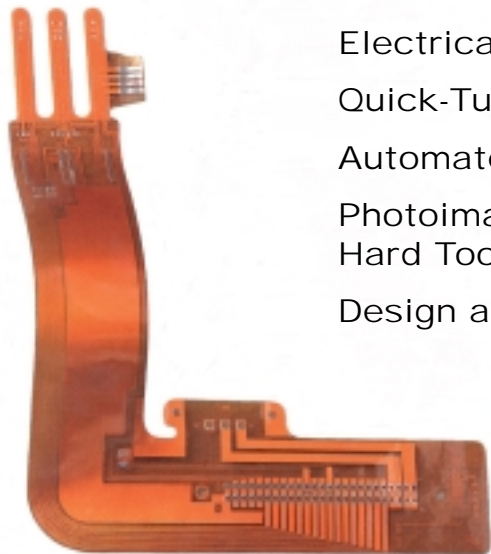
of flex and contrast them to rigid PCBs. A special section on flex-based chip carriers will include Flip Chip-on-Flex, TAB, TBGA and micro-BGAs. Other major topics will include materials, designs, processing, handling, applications and SMT assembly.

Day One: June 8, 2000

- | | |
|---------|--|
| 7:30am | Conference Registration and Continental Breakfast |
| 8:30am | Keynote Address: Flex in Missile and Aerospace Applications
Don DuPriest, Lockheed Martin (invited) |
| 9:00am | Flex Market Overview
Bill Jacobi, Conference Chair,
William Jacobi & Associates |
| 9:30am | Material Roadmap for High Density Flex Circuits
Dominique Numakura, Parlex |
| 10:00am | Rigid Flex: No Longer a Custom Solution - Greg Bartlett, Teledyne |
| 10:30am | BREAK |



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- 10:45am Patterned Microvia Connections in Multilayer Flex Circuit Manufacturing
Goran Matijasevic, Ormet
- 11:15am Roll to Roll Processing and Microvia Drilling by New Chemical Etching Solution
Masanori Akita, Toray Engineering
- 11:45am LUNCH AND EXHIBITS
- 1:15pm Recent Developments with Adhesiveless Copper on Polyimide
Tad Bergstresser, Gould Electronics
- 2:00pm Electrochemical Migration in Flex Circuits - Carlos Barton, Rogers
- 2:30pm BREAK
- 2:45pm A Novel, Chemical-Free, Roll-to-Roll Flex Processing
Tom Stearns, Brander International
- 3:30pm Progress Report on Flexible Circuit Standardization
- 4:15pm EXHIBITS AND RECEPTION

Day Two: June 9, 2000

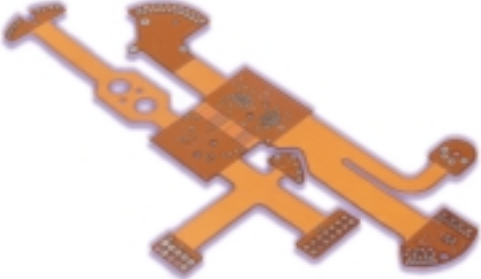
- 8:00am Continental Breakfast and Exhibits
- 8:30am High Density Interconnect: Flex Circuits for IC Packages
Jan Vardaman, TechSearch
- 9:00am Flex-Based Packaging Solutions - From CSPs to MEMS
Ken Gilleo, Cookson Electronics
- 9:30am Lead Free Soldering for Dynamic Flex Assemblies
John Burke, Smartflex Systems



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- 10:00am BREAK
- 10:15am Finite Element Modeling of Flex
Joe Fjelstad, Pacific Consultants
- 10:45am Non-Contact Testing of High Density Flexible Circuits
Troy Greenwald, OHT
- 11:30am Fine Line, Fine Pitch Processing of Adhesiveless Flex Circuits
Daniel Labzentis, IFT (invited)
- 12:00pm CLOSING, LUNCH AND EXHIBITS

Each edition of the *Flex Circuit News* contains a vintage Dilbert comic strip. Under our agreement with United Features Syndicate, we cannot include Dilbert in our archived editions. Please be sure to subscribe to *Flex Circuit News* at: www.flexdude.com