

Dec. 9th, 2011 FRIDAY
9:00 A.M. to 3:30 P.M.
SMTA Members/Non Members \$35/\$55
Student members/Non-members \$5/\$10
Lunch Included. Cash or Check at the Door
RSVP ASAP (by Dec. 5th, 2011) to
bcrane@bird-technologies.com



The Connector



Bob Willis



Meeting Location:
LCCC Entrepreneurship Innovation
Center EIC132 **AB**
151 Innovation Drive
Elyria, Ohio 44035

Detailed Campus Map page 3
West of Cleveland near I80, I90 & I480
Maps & Directions Pages 3,4,& 5

The SMTA Ohio Valley Chapter, the Northern Ohio Student Chapter,
and the Richard Desich SMART Commercialization Center for Microsystems
Present:

Schedule of Events December 9, 2011:

9:00 AM – 10:00 AM Registration, Coffee, Tea, & Danish
Dick Tormet SMTA Welcoming Remarks

10:00 AM – Noon **Bob Willis**
Ball Grid Array, CSP, Flip Chip Design and Assembly Overview
and

LGA (Land Grid Array) QFN (Quad Flat No-Lead) Design, Assembly & Rework
Guide

Bob welcomes you to bring your circuit board challenge to the meeting. You
can also e-mail him with questions or pictures for him to be prepared to discuss your
special topic. Must-See Speaker information on page 2.

Noon – 1:00 PM Lunch by LCCC

12:30 PM – 1:30 PM Smart Center Introduction
Dr. Roy Church LCCC, Matt Apanius and Chris Mather

1:30 PM – 3:00 PM **Ray Fillion**
Wafer Scale, 3D and Embedded Chip technologies
Must-See Speaker information on page 3.

3:00 PM – 3:30 PM **SMART Center Facilities Tour**

Become a member and attend this meeting Free: Individual \$75, Student \$15

Contact VP Membership, Mike Dickey for details: dickeymike@aol.com

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Bob Willis Bobwillisonline.com

Ball Grid Array, CSP, Flip Chip Design and Assembly Overview

Introduction:

Ball Grid Array packages have been used in the industry for many years. Just like surface mount, the use of BGA's can affect printed board layout, assembly, inspection and repair process. BGA's do however provide significant advantages over fine pitch components particularly in terms of process assembly yield. Correct design, printing and profiling is necessary to obtain the highest yields and reliably interconnection.

Everyone blames the BGA, CSP often because you can't see under the package but is it the real failure mode. Bob produced the first video tape and interactive CD-ROM on BGA technology in 90's, practical advice is what you get on any of Bobs' sessions.

Who Should Attend

All staff involved in the process of area array soldering with tin/lead and lead-free BGA assembly processes; including procurement, design engineers, reliability, quality personnel, failure analysts, and management involving is setting standards, inspection and product assessment of boards containing BGA, CSP, LGA and other area array components. As this workshop deals with many of the common issues in manufacture its also valuable to shop floor staff.

LGA (Land Grid Array) QFN (Quad Flat No-lead) Design, Assembly & Rework Guide

Bob Willis Bobwillisonline.com

Introduction:

LGA and QFN have fast become a common package type often used in many professional portable products. With any new device type there is always a learning curve for design, process and quality engineers who have to get to grips with the challenges that these packages bring. Each step of the implementation process for LGA/QFN devices will be reviewed along with results of practice process trials with these devices.

Available to delegates who attend this webinar will be a FREE set of optical and x-ray inspection charts for each delegate to use in manufacture. The charts are valued at \$90.

Bob Willis currently operates training and consultancy business based in England and has created one of the largest collections of interactive and online training material in the industry. Although a specialist for companies implementing lead-free manufacture Mr Willis provides world-wide consultancy in most areas of electronic manufacture over the last 25 years. This is based on working contract assembly, printed board manufacture, failure analysis and environmental test facilities. This earned him the SOLDERTEC/Tin Technology Global Lead-Free Award for his contribution to the industry. He has also been presented with the SMTA International Leadership Award, IPC Committee Award for contribution to their standards and awards from SMART Group and Institute of Circuit Technology

He has worked with the GEC Technical Directorate as Surface Mount Coordinator for both the Marconi and GEC group of companies and prior to that he was Senior Process Control Engineer with Marconi Communication Systems. Following his time with GEC he became Technical Director of an electronics contract manufacturing company where he formed a successful training and consultancy division. Over the years Bob has been Chairman and Technical Director of SMART Group and holds the title of Honorary Life Vice President for his contributions to the group since its inception.

Bob Willis

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www.Bobwillis.co.uk Hands on training, training videos and CD ROM

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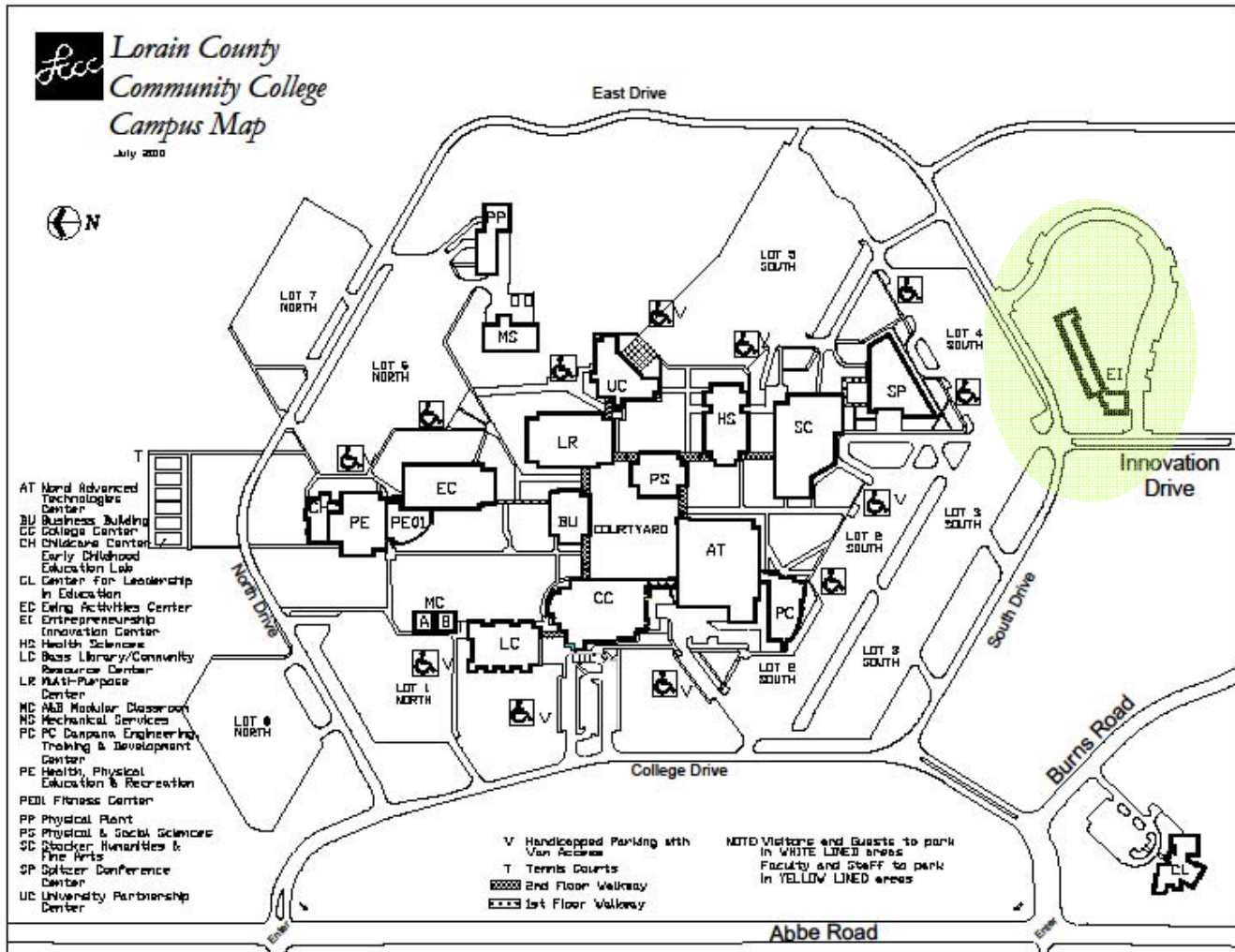
Ray Fillion, Fillion Consulting

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Ray Fillion is an independent microelectronics consultant with more than 40 years' experience at GE's Global Research Center and at GE's Aerospace Electronics Laboratories in all aspects of microelectronics. Ray focuses on advanced packaging and interconnection for next generation microelectronics systems including portable electronics, high-end processors, and power conversion. He was the lead inventor of the GE embedded chip technologies. He has 31 issued and 12 pending US patents in embedded chip, 3D, SIPs, CSPs and power packaging. Ray has served as a technical advisor for a variety of technical societies, industry boards, academic institutions and governmental panels. He has taught courses on advanced packaging for SMTA, IMAPS, GE, Cornell, SUNY and Georgia Tech. Ray has authored more than 150 papers, tutorials and journal papers, receiving ten best paper and outstanding paper awards and multiple GE technical awards. He has been active in IEEE, IMAPS, ECTC and SMTA as a board member, committee member, session chair, technical chair and presenter. He has a BSEE from the University of Massachusetts.

Wafer Scale, 3D and Embedded Chip Technologies:

Microelectronic packaging developments are being driven primarily by portable electronics and their need for more functionality at lower power, in smaller footprints and for lower costs. This has led to the development and deployment of a broad array of packaging approaches that offer smaller size and higher electrical performance. Three of the leading developments are wafer level chip scale packages (WLCSP), 3D and embedded chip. This presentation will go into the basic functions of microelectronics packaging and will cover the structures, processes and features of the leading approaches for WLCSP, 3D and embedded chip technologies.



Approaching LCCC from the WEST

1. If you are driving on the Ohio Turnpike, take Exit 142 (old exit 8-A), which is a one-way eastbound connector to Routes 2 and I-90.

2. If you are driving on Route 2, remain on Route 2 as it merges eastbound with I-90.

Exit Routes 2 and I-90 at route 254 (exit 148). Turn right on Route 254. Stay in the right-hand lane. Turn right at the third traffic light (about 200 yards ahead).

You are now heading south on Route 301/Abbe Road.

Move to the left (center) lane and prepare to turn left into the LCCC North Campus at the second traffic light (about 3/4 of a mile ahead).

Approaching LCCC from the SOUTH

1. If you are driving on Route 58 (from the Ashland area), go north to the Route 2 connection in Amherst. Turn right (east) onto Route 2. Remain on Route 2 as it merges eastbound with I-90.

Exit Routes 2 and I-90 at route 254 (exit 148). Turn right on Route 254. Stay in the right-hand lane. Turn right at the third traffic light (about 200 yards ahead).

You are now heading south on Route 301/Abbe Road.

Get in the left (center) lane and prepare to turn left into the LCCC North Campus at the second traffic light (about 3/4 of a mile ahead).

2. If you are driving on Route 301 (which connects with I-71 in Medina County), follow Route 301 northward to LaGrange. Continue northward on Route 301, being careful to turn eastbound on divided highway (Routes 10 and 301) several miles north of LaGrange. At the second exit eastbound, Route 301 diverges from Route 10 at the junction with Route 57 North (right).

Continue on Route 57 North/Route 301 North to Abbe Road, making a turn onto Abbe Road/Route 301. Continue two miles on Abbe Road to the south entrance of the campus.

Approaching LCCC from the EAST

1. If you are driving on the Ohio Turnpike, exit at Exit 145 (old exit 8) and head north (right) toward Lorain. You will be on Route 57, immediately passing the Exit 8 Holiday Inn and Midway Mall. Stay in the right-hand lane and exit at the third right onto Routes 2 & I-90 heading east.

Exit Routes 2 and I-90 at route 254. Turn right on Route 254. Stay in the right-hand lane. Turn right at the second traffic light (about 200 yards ahead).

You are now heading south on Route 301/Abbe Road.

Move to the left (center) lane and prepare to turn left into the LCCC North Campus at the second traffic light (about 3/4 of a mile ahead).

2. If you are driving west on Routes 2 & I-90, the first exit in Lorain County is Route 83. Drive past the Route 83 and Route 611 exits. Exit at the Route 254 interchange (exit 148). Turn left at the exit ramp onto Route 254. Turn right onto Abbe Road/Route 301 at the third traffic light.

You are now heading south on Route 301/Abbe Road.

Move to the left (center) lane and prepare to turn left into the LCCC North Campus at the second traffic light (about 3/4 of a mile ahead).

3. If you are driving west on Lake Road (Route 6) from Cleveland, continue west through Avon Lake and into Sheffield Lake. At the first traffic light in Sheffield Lake (Abbe Road/Route 301), turn left. Head south past Route 611, French Creek Road and Route 254.

Move to the left (center) lane and prepare to turn left into the LCCC North Campus at the second traffic light (about 3/4 of a mile ahead).

4. If you are driving west on I-480, continue past the Ohio Turnpike. I-480 becomes Route 10. Continue west on Route 10 to the Route 57/Route 301 exit. Drive north on route 57/Route 301 to Abbe Road (Route 301). Turn right on Abbe Road and drive north two miles to the south entrance of the campus.

