Agilent Gathers Thought Leaders in International Bead Probe Technology User Group

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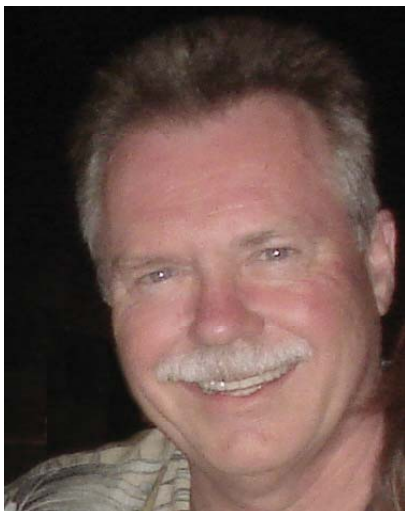

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Moore's Law is alive and well, and PCB trends indicate traditional test access will continue to disappear. This places the future of in-circuit test on innovations like Agilent's Medalist Bead Probe Technology– a licensed technology placing probe points directly on traces and µvias. Bead Probe early adopters gathered for the Second Annual Bead Probe Users Group on September 16, 2008, in Fort Collins, Colorado. 23 companies and 3 countries were represented.

Papers were presented sharing Bead Probe test results using each respective company's manufacturing process. At the end of the day, Bead Probe Technology works. In spite of this resounding success, adoption is still challenging. Two key obstacles impede Bead Probe adoption: Process Flow, and 1st Pass Contact.

Process Flow. Bead Probes must be added to the board in CAD design, but CAD systems don't know about Bead Probe Technology – yet. A very viable surrogate for CAD is offered by DeMille Research, its product TestSight, which takes the CAD output, automatically adds Bead Probes, and creates "board" and "board_xy" files. While this solution seems perfect, the problem is who owns this process step? CAD? TEST? This is the classic DFT dilemma which spans across process silos. Manufacturers who have bridged this gap in the past have enjoyed competitive advantages because the laws of test economics haven't changed: It is still cheaper to detect and repair defects earlier in the manufacturing process than it is later in the process.

1st Pass Contact. Flux is not Bead Probe's friend, and a lot of engineering is focused on eliminating this issue. Here's the problem. A Bead Probe is a single pin component made solely of solder. As the Bead Probe is formed it is left with a coating of flux. This flux can range from soft gooey liquid to hard shellac depending on the manufacturing process. The mid-range flux state of hard wax "steal" some of the deformation force from the bead and help prevent contact. The recommended probe style to contact the Bead Probe is a flat headed or non-headed 6 oz. probe. Getting good contact the first time is questionable. Getting good contact after a few vacuum cycles is a sure thing. Cycling the board on the fixture before starting the test are both throughput and false-call issues.

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One unexpected Bead Probe Technology benefit is identifying manufacturing process changes (i.e. problems) when Bead Probe contact-reliability changes. It makes sense: what's happening to the very visible Bead Probes is probably happening all over the not necessarily so very visible board.

Conclusion: Bead Probe Technology is viable and can be used in high volume manufacturing today with some engineering effort required.

The presentations are available for download on:
www.agilent.com/find/atug

For more information about Bead Probe see:
www.agilent.com/see/beadprobe.

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