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Implementing Advanced and “Bleeding Edge” SMT Technology

Course Title: Implementing “Bleeding Edge” SMT Technology

Course Instructor: Phil Zarrow, ITM Consulting

Duration: 1/2 Day

Workshop Abstract:

The circuit board assembler is constantly challenged by components that seem to defy logic and manufacturability. Passives such as 0201s and 01005s, while bringing happiness to the designer with regard to layout densities are the bane of the assembler. IC packaging also has adhered to the mantra of “smaller, faster” taunting the assembler with land-grid arrays (or no lead packages) and high-density CSPs and Flip-chips. Yet, manufacturing PCBAs with these “bleeding edge” components is not insurmountable, (though not for the weak of hear).

This advanced course is intended to provide the experienced participant with a thorough yet practical approach towards dealing with the most challenging of component packages. The very latest and best methodologies and philosophies regarding process optimization will be presented and discussed. Optimizing the SMT assembly process, as it pertains to very small and high-density components will thus be covered, step by step including DFM guidelines, solder paste, Screen/Stencil Printing, Component Placement, Reflow, Inspection and Rework. The impact of lead-free and RoHS compliance will, of course, also be discussed. Case studies based upon the instructor’s experience will be presented.



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THE DEADLY SINS OF SMT AND LEAD-FREE ASSEMBLY

Workshop Title: The Deadly Sins of SMT and Lead-Free Assembly

Instructor(s): Phil Zarrow, ITM Consulting

Duration: 1/2 Day

Workshop Abstract:

Everyone has heard of the “7 Deadly Sins” that will, supposedly, lead one to Hell. There are also the “Deadly Sins” of SMT - there are more than just 7 – and they can make your assembly process a “hell on earth”.

During the course of our assembly process audits and troubleshooting work, we tend to see trends in the types of errors and problems. In other words, a lot of people are making the same mistakes. The resulting process problems wreak havoc with an impact on assembly yields ranging from 5 to 20%. In addition to this direct cost, there is also additional financial impact with regard to time spent reworking and repairing, the on corrective action by QC, Engineering and Management, and, of course, “do-over”.

This workshop identifies the “deadly sins” of SMT assembly, both for Pb-free and “leaded” processes. Besides the symptoms and consequences of each type of error, root-cause, rectification and prevention techniques will be presented. The workshop will, thus, provide the participant with an understanding of how to hopefully avoid, or at least quickly identify and correct the most common SMT assembly problems. It will include identification of vendor and source problems including components and materials as well as design related problems.

Phil Zarrow

President and Principal Consultant
ITM Consulting
Durham, NH USA

Phil Zarrow has been involved with PCB fabrication and assembly for more than thirty years. His expertise includes the manufacture of equipment for circuit board fabrication and assembly of through-hole and surface mount technologies. In addition to his background in automated assembly and cleaning, Mr. Zarrow is recognized for his expertise in surface mount reflow soldering technology and in the design and implementation of SMT placement equipment and reflow soldering systems. Having held key technical and management positions with Vitronics Corporation, Excellon-Micronetics and Universal Instruments Corporation, he has extensive hands-on experience with set-up and troubleshooting through-hole and SMT processes throughout the world.

In 1991, Phil began working for GSS/Array Technology, an EMS provider located in San Jose, CA. During his tenure as Director of Technology Development for GSS/Array Technology, Mr. Zarrow was responsible for specifying and setting up medium- and high-speed assembly lines, as well as investigating and implementing emerging and leading-edge technologies, equipment and processes.

Since forming ITM in 1993, Phil Zarrow has helped numerous clients in such areas as

- SMT Implementation and Assembly facility set-up
- Lead-free Process Implementation and Optimization
- Manufacturing yield improvement
- Equipment Evaluation and Selection
- No-clean solder paste evaluation and process implementation
- SMT Manufacturing Process Audits and process improvement
- On-site training for all levels of personnel
- Design for Manufacturability (DFM) specification development
- Reflow of Through-hole feasibility, development and implementation
- Implementation of BGA, CSP and Flip-Chip
- SMT process equipment benchmark testing and evaluation
- SMT product development
- Technical evaluations related to business acquisitions and mergers
- Technical assistance in legal disputes

Mr. Zarrow is a popular speaker and workshop instructor. He has chaired and instructed at numerous seminars and conferences in North America, Europe, and the Pacific Rim. He has published many technical papers and magazine articles as well as contributed a number of chapters to industry books. He is co-author of "SMT Glossary- Terms and Definitions", an industry reference book

Phil is a member of IPC, SME, IMAPS, a co-founder of ITM Incorporated, and is a past national level officer and national director of the Surface Mount Technology Association (SMTA). He was also Chairman of the Reflow Committee for SMEMA. He was the recipient of the SMTA's *Member of Distinction Award* (1995) and *Founders' Award* (2000). Mr. Zarrow has served on the Editorial Advisory Board for *Circuits Assembly Magazine* and is the author of the award winning "*On the Forefront*" and "*Better Manufacturing*" columns.