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MERIT



Manufacturing Electronics & Rework
Institute for Training

Manufacturing Electronics & Rework Institute for Training (MERIT) is a laboratory facility used to train students and workers in high-volume printed circuit board (PCB) manufacturing. The 2,000 sq ft facility was brought online in 2019 on LCCC's campus for teaching students in LCCC's bachelors degree of Microelectronic Manufacturing as well as providing incumbent worker training for workforce seeking training in the electronic manufacturing industry.

SMT Manufacturing



MERIT features wall mounted screens to broadcast the stencil printer, SPI, and SMT pick & place so teams of trainees can view the GUI easier.

MERIT has a manufacturing line with equipment for doing Surface Mount Technology (SMT) high-volume manufacturing. Beginning with the Panasonic SPG stencil printer, a PCB is loaded onto the line where solder paste is printed onto a PCB. The single lane transfers the printed PCB to the Omron VP5200-V stencil print inspection (SPI) system uses a 3D image to determine the accuracy and quality of the printed solder paste. Stencils are washed in the Kolb stencil cleaning unit to remove unwanted solder paste from the open holes.

The inspected PCB is then moved to the Panasonic NPM-W2 SMT pick & place tool. Two heads work rapidly to place components onto the PCB with the front using 16 pick up nozzles for placing small parts (as small as metric 0201) and a rear head with 3 pick up nozzles for placing larger parts from trays or tape & reel feeders. The PCB is then transferred to the Heller 1826 MK5 eight zone reflow oven where the components are soldered to the pads of the PCB.



The Panasonic NPM-W2 high-volume SMT pick & place unit can hold up to 60 feeders in the front and 20 feeders in the back with 24 JEDEC trays

PCB Inspection & Rework



Omron AOI programming and operation is taught along-side BGA rework

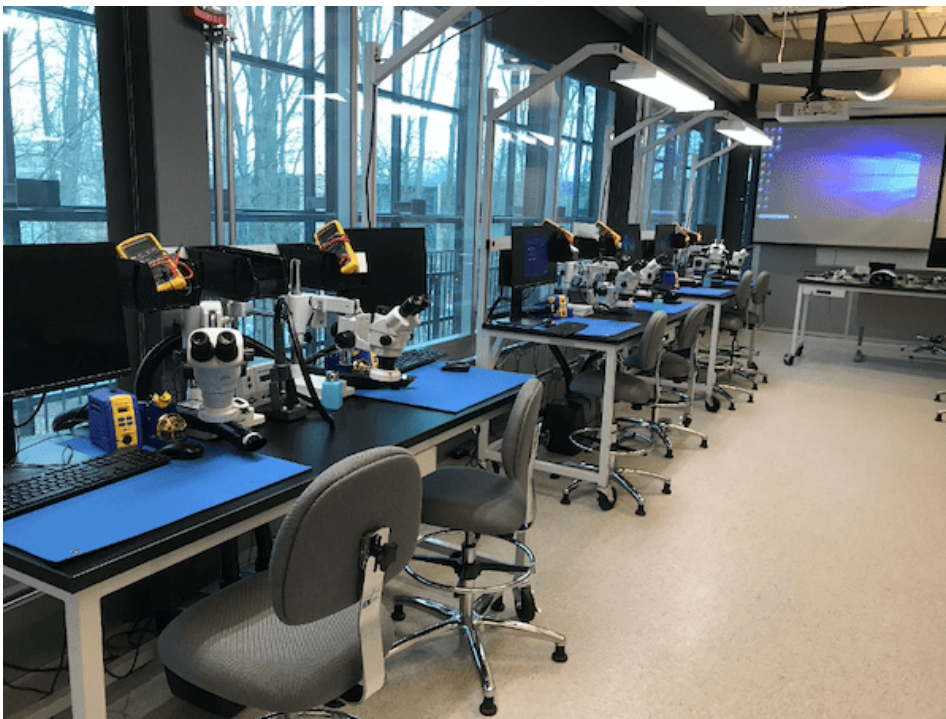
The finished PCB has the option of being inspected in a number of methods. An [Omron VT-S730](#) Automated Optical Inspection (AOI) system can be programmed to perform 3D inspection of solder

joints, polarity markings, missing components, and much more. For highly functional ball grid array (BGA) components a [Creative Electron TruView Prime](#) x-ray microscope can look through the BGA component to determine if all the joints have been correctly soldered into place. If an error has been determined we can perform BGA rework and reballing using a [Manncorp RW1210](#) BGA rework station. Additional inspection can be provided using our [Coxem EM-30N](#) scanning electron microscope.



Trainees use X-ray microscopes and an SEM to determine defects in a BGA placement before using the BGA rework equipment to repair the PCB

Bench Tech Soldering, Rework, Inspection and Test



Our new hand-soldering lab is meant to train workforce in IPC related certificates such as J-STD-001 or A610

Our soldering lab which utilizes Hakko solder stations and Quick hot-air rework stations can be used for soldering and training in SMT and THT components as well as how to use electronic testing and inspection tools using a microscope. Our training content is designed to be sufficiently similar to that of IPC A610 and J-STD-001 training but can be tailored to meet your specific needs.

Your Training Needs

We are interested in hearing from you what your training needs are for PCB manufacturing. Do you have someone who is new to electronic manufacturing? We want to bring them up to speed in our short term seminars. Anything from hands-on solder training with soldering irons to operator training on an SMT line to BGA rework. Let us know.

Contact Us

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Name

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Company Name

Email

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Describe your request for training or question:

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