MODULE SERVICES: APPLICATION CENTER
MANUFACTURING OF ELECTRONIC ASSEMBLIES, INNOVATIVE MANUFACTURING TECHNOLOGIES AND TECHNOLOGY TRANSFER
ISIT APPLICATION CENTER FOR MANUFACTURING OF ELECTRONIC ASSEMBLIES, INNOVATIVE MANUFACTURING TECHNOLOGIES AND TECHNOLOGY TRANSFER

ISIT SMD-Line

Stencil printing, screen printing, jet printing, dispensing
- Application of solder pastes, solder flux, adhesives and underfill materials
- Automated and manual processes
- Pin-In-Paste-manufacturing, Pump-Print- and Step-printing processes
- Printing of glass frit paste on wafer level
- Processing of 8”-wafers (incl. Taiko-geometry)

Inspection of solder pastes
(manually, automated 2D-, 3D), 3D-Inline SPI
- Closed-Loop high resolution 3D solder paste inspection system

SMD-Placement
- Automatic, semi-automatic and manual SMD-placement
- Handling of Components sized 0,2 x 0,4 mm² to > 40 mm edge length
- FlipChip-Mounting from waffelpack as well as from diced wafer

Reflow soldering
- Convection reflow soldering under defined nitrogen and air atmosphere
- Multiple soldering processes by step soldering technology

Cleaning
- Automated semi-aqueous cleaning of stencils, screens, misprinted PCBs, soldering frames and assembled PCBs

ISIT Balling Center
- Manufacturing of all current substrates and single components incl. Taikowafers up to 8”
- Chemical NiAu UBM on wafer level
- Printing of adhesive flux
- Solder Balling
- Finepitch-solder paste printing of discrete and integrated circuits on wafer level
- Powerballing
- Convection reflow soldering
ISIT Rework Center
Rework, repair and modification considering valid industrial standards
Manual and semi-automatic processes for manufacturing of THT- and SMD-components by infrared-, hot gas- and combined rework stations
- Standardized handling of components and assemblies
- System selection for an optimized soldering process
- Rework, repair and modification of complex assemblies
- Selective soldering for completion of assemblies
- Gentle rework and repair soldering processes for electronic assemblies
- Quality control by optical and X-ray inspection as well as cross-section analysis
- Process training
- SMD- and THT-repair services
- Video documentation

ISIT Testwafer and Substrates
- 200 mm test wafers from silicon or glass for material screening, process development and machine demonstration
- Customized wafer designs as well as standard designs for typical applications
- Daisy Chain structures for automated measurement
- Glass wafers with precise alignment marks and Vernier structures for verification of placement accuracy
- Delivery as undiced wafers or diced wafers on tape
- Corresponding FR4 test substrates
- Measuring station for semi-automated measurement of daisy chain resistance and short detection

ISIT Workshops and In-House Offers
Periodically offered theoretical and practical workshops for manufacturing, quality evaluation and reliability of electronic assemblies

Controllable Manufacturing of Electronic Assemblies
Manufacturing quality, failure analysis, processes optimization

Solder Paste Application
Technologies, processes optimization, error prevention

Temperature measurement techniques
How to perform correct temperature measurements

Optimization of Reflow Profiles
From heat flow in the soldering equipment to the optimized soldering profile

The Optimized Rework Process
How to control the repair process safely

Customer and Application Specific Offers
- Theoretical and practical customized In-House workshops
- Technology days
- Manual soldering
ISIT Application Center Service Offers

- Evaluation, assessment, optimization, testing, and implementation of (innovative) technologies for manufacturing of electronic assemblies
- Processing of rigid and flexible substrates
- Enhancement of processes and process techniques, manufacturing machines, tools and auxiliary materials
- Technical certification of manufacturing equipment
- Benchmark tests
- Lead-free and leaded SMD- processes
- Design for Manufacturing, approval of manufacturing specific design
- Qualification and optimization of soldering profiles for in-line, selective and repair soldering processes
- Generation of application notes (footprint design, recommendation of soldering profiles)
- Assembling and development of prototypes, functional samples and pre-series
- Delivery of 200mm test wafers from silicon or glass for material screening, process development and machine demonstration (undiced wafers or diced wafers on tape)
- Delivery of corresponding FR4 test substrates
- Neutral validation of manufacturing processes
- Assistance to implementation of novel products and manufacturing processes
- Technology and process transfer to customized manufacturing processes
- Support in the conversion of manufacturing processes
- Testing of manufacturing parameters for RoHS conformity
- Qualification of components and materials, e.g. soldering heat resistance
- Moisture Sensitivity Level (MSL)-tests according to J-STD-020
- Validation of soldering pastes considering valid industrial standards
- Assistance to evaluation of suppliers performance
- Audit assistance
- Employee training

Fraunhofer ISIT is participant of the Forschungsfabrik Mikroelektronik Deutschland