Company Profile

INTERFAB ELECTRONICS (INDIA) PVT. LTD.

INTERFAB means INTER-active FAB-rication
Company profile

- An ISO 9001: 2000 company
- A total solution company having in house facility for
  - Embedded design
  - PCB CAD Centre for up gradation of design layouts
  - Fast prototype assembly
  - Electronic Manufacturing Services
  - In circuit & functional testing
  - Conformal coating & encapsulation
  - Reliability testing
Directors’ background

• Deepak G, Sawant
  Managing Director
  Post graduate in Solid State Electronics
  Worked with Indian Institute of Science, Vikas Hybrids, Rolta India Limited
  Professional Experience: 27 Years
  Member of SMTA, IMAPS, ELCINA

• Supriya D. Sawant
  Director
  Science Post graduate and Management Professional
  ISO 9001:2000 Lead Auditor
  Worked with Hoechst Research & Multinationals like Cadburys, Hindustan Unilever Limited as QA Head
  Professional Experience: 21 Years
Mission & Vision

MISSION STATEMENT
Emerge, as a leader in Surface Mount Technology (SMT) by providing Total Solution for customized needs in Design Conversion & Manufacturing.

VISION STATEMENT
To be recognized as the most successful & low cost electronics manufacturing service provider in organized corporate sector.

Values: (Guiding Principles at all levels)

• Motivate performers to see a bigger picture and set goals with execution & end result in mind.
• Train & treat employees with respect, cultivate confidence & decision making abilities.
• Practice Innovation, Integration & Involvement. Emphasize on vision, not supervision.
• Develop systems with emphasis on customer focus & continual improvement
Quality Policy

• The company will strive for total customer satisfaction by providing engineering solutions through Surface Mount Technology (SMT).

• The company will regularly review the effectiveness of its Quality Management System (QMS) for continual improvement of systems and operations.

• The company will adopt latest technological trends to enhance business operations in high-end technology based products.

• The company will motivate & train competent employees to enhance their technical capabilities.

• The company will maintain an open communication channel with its customers & will carefully monitor their feedback to upgrade Products, Services and Quality Standards.
Quality Objectives


- Minimize the customer complaints by evaluation of documented data and target for maximum yield by adapting six sigma techniques.

- Effective utilization of Automated machines by installing additional Quality Control equipment for consistency & reliability in the processes.

- Use innovation in design & standardize design methods by using state of Art CAD, CAE, CAM tools to support industries in India & Abroad.

- Define and implement an operation model suitable to adapt QMS, E-business (Internet, web enabled), Enterprise Resource planning. Cultivate simplicity, consistency & productivity in business model.
Quality Objectives

• Achieve yearly sales growth of 50% in contract manufacturing of Printed Circuit Board (PCB) Assemblies.

• Collaborate with leaders who need support in EMS technology support, associate with institutions like SMTA, ELCINA, IMAPS to acquire latest know how.

• Focus efforts on application of allied technologies such as Electronics Design Automation (EDA), Lead-free Soldering Technology, and Computer Aided Manufacturing (CAM).

• Introduce INTERFAB’s services to export market and step forward to exhibit our products & services in international fairs.
Our Business Activities

• Electronic Manufacturing Services

• Contract Manufacturing (Equipment building)

• Conversion of conventional assemblies into mix technology SMT cards

• Design & Development of hybrid microcircuits

• Prototype support for embedded design

• Repairs, rework & maintenance of PCB cards
Fast prototyping & Evaluation

Engineering support to select latest in wide variety of components & packages

Faster evaluation based on availability of reliable components, a Lean process approach

Integrated design environment to support documentation needs

Flexibility to generate offline CAM data for quick turnaround & optimization.

BBT tested Bare Board

Prototype/Evaluation Card
Contract Manufacturing (Box Building)

Intelligent Black Box

HVAC Power control Module

Portable POS Thermal Printer

Energy Management System
Design Development of SMT & Hybrid Modules

Hybrid Micro-Circuits (HMCs)  Surface Mount Technology Assemblies (SMAs)
Products

ACTEL FPGA Evaluation Card

Embedded design Solutions

Hybrid Micro-Circuits (HMCs)

SPM Control Card

Printer Driver Interface Card
Products

INTRUMENTATION CONTROL CARD

ETHERNET CARD
Human Resources

• 42 employees

• Government approved apprentice training centre

• Managerial staff: Engineers, Electronics Post graduates with vast industry & management experience

• Supervisors & asst. managers:
  • Diploma engineers, graduates

• Operators: ITI, NCTVT certificate holders

TEAM INTERFAB
INTERFAB believes in interaction with OEMs to help them organize their needs in manufacture of clean, reliable & globally acceptable products.
Supply Chain Management

- Technically qualified and efficient purchase team

- Stores equipped with MRP (material resource planning) with wide component database

- In house vendor development program implemented

- Supplier evaluation & records of delivery schedules & quality inward inspection maintained.

- Import of raw material & components through authorized distributors, dealers
Infrastructure for sourcing

- Direct overseas purchase of critical items.
- Sourcing channels established for smaller quantities: Farnell, Mouser, RS components, Digikey etc.
- Secured storage of critical components in humidity/temp controlled atmosphere.
ERP used in company

- Well defined Quality Management System (QMS) to support for systematic
  - Material flow
  - Data flow
  - Work Instructions flow

- Evaluation of ERP service providers: (Is in progress)
  - Flow charts ready for operations, information work flow
  - Forms & formats devised for data generation
  - Data entered & maintained on desktops at each work stage process to easy retrieval of information.
  - Questionnaire, Benchmarks given to ERP vendors to satisfactory demonstrate its the end use.
Manufacturing set up

- Air conditioned, dust free, humidity controlled rooms
- Entire production facility equipped with anti-static flooring
- Static control & material handling aids being used
- The State of the art machines & equipments for PCB assembly
- Trained manpower

Wave Soldering

SMT line with Reflow process
High Density placements with flexibility & productivity

KE 2060 High-Speed Flexible Mounter
KE 2050 High-Speed Chip Shooter
The State of Art machines

Fine Pitch Multifunction Chip Mounter KE760M

High Speed Chip Shooter KE2050M, KE2060L

EPS Double Wave Soldering Machine

Multi zone Reflow Conveyor Oven
RoHS Compliant Soldering process

• Lead free (R-o-H-S) compliant Re-flow solder process.

• Pin & Chain, Conveyor-mesh for High volume production of double sided SMT Cards.

• Multi-zone closed loop monitoring to profile High density Multi-layer Boards with small delta t.

• Online Graphical display of Thermal profile supporting PC for easy data/programmed recall

• Conveyorised mesh, pin & chain for High volume

• Can solder double sided SMT component on multilayer PCBs.

• High density Boards with delta T

• Computerised thermal profile
Test performance: ICT & FCT

Tailor made Test Jigs

Function Test Modules

In Circuit Tester Focus 2000
Concurrent Engineering Environment

Integrated CAD CAM Software environment

Multilayer PCB Assemblies

Continual improvement for highest standards in Quality

Support from in-house CAD Center & Prototypes Facility
Design for Manufacturability (DFM)

Design methodology for LEAN Process

At Design stage assembly is categorized based on flow of applied Manufacturing stages. This helps to even an operator to select & identify an appropriate Quality Plan. This in turn facilitates an easiest way to understand & apply work instructions on shop floor.
# Machines & Equipment

<table>
<thead>
<tr>
<th>Name</th>
<th>Make</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine pitch Chip Mounter KE 760 M</td>
<td>Juki corporation, Japan</td>
<td>Built in Component verification, coplanarity check, Height measurement, suitable for BGA &amp; CSP assembly</td>
</tr>
<tr>
<td>High Speed Chip Shooter KE 2050 M</td>
<td>Juki corporation, Japan</td>
<td>High speed board assembly with HLC &amp; flexiCAD software</td>
</tr>
<tr>
<td>High Speed Multi function Chip mounted KE 2060 M</td>
<td>Juki corporation, Japan</td>
<td>Fine pitch chips assembly (0402 to 50 mm chip size)</td>
</tr>
<tr>
<td>Lead free Reflow Oven CR M 7HAO</td>
<td>Tangtek Corporation, Taiwan</td>
<td>Pin &amp; chain conveyor, multi zone PID, Built in Thermal profile, RoHS compliant</td>
</tr>
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<tr>
<td>Stencil Printer</td>
<td>Integrated Ideas &amp; Technologies Inc, USA</td>
<td>X,Y, Theta &amp; Snap off Z control</td>
</tr>
<tr>
<td>Wave soldering machine</td>
<td>Elektra Aries, Sweden</td>
<td></td>
</tr>
<tr>
<td>Wave soldering machine ISO DWSM 300 LF</td>
<td>EPS, India</td>
<td>Double SMD wave, SPC data provision, Off line data log in, RoHS compliant</td>
</tr>
<tr>
<td>Selective Soldering Machine M56</td>
<td>Wenesco, USA</td>
<td>Rework &amp; repair facilitation of through hole components</td>
</tr>
<tr>
<td>IR Reflow Oven 540 .25</td>
<td>SEF, Germany</td>
<td>Quick Thermal profiling to support fast prototyping</td>
</tr>
<tr>
<td>Inspection camera</td>
<td>Menzel, Taiwan</td>
<td>50X, 100X magnification for Fine pitch components</td>
</tr>
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<tr>
<td>Hot Air Oven</td>
<td>IEC, India</td>
<td>Endurance testing</td>
</tr>
<tr>
<td>Hot Air Oven</td>
<td>Lifelong, India</td>
<td>Thermal Ageing</td>
</tr>
<tr>
<td>CAD work station</td>
<td>Allegro Cadence, U S A</td>
<td>Concurrent engineering Environment, CAM support</td>
</tr>
<tr>
<td>Assorted test &amp; measuring instruments</td>
<td>Textronics, Sanwa, Aplab, Rishabh, Meco, Bonkot</td>
<td>Digital oscilloscopes, Digital multimeters, LCR meters</td>
</tr>
<tr>
<td>Solder paste dispensers STD 208</td>
<td>I &amp; J Fishner, USA</td>
<td>Paste dispensing for Prototyping</td>
</tr>
<tr>
<td>De humidifiers</td>
<td>Arctic India</td>
<td>Humidity control</td>
</tr>
<tr>
<td>Cutting, Bending &amp; Forming machines</td>
<td>OLMF, Italy</td>
<td>Pre solder setting</td>
</tr>
</tbody>
</table>
Quality Assurance system

- Comprehensive Quality Management Systems Manual covering detailed operating procedures & work instructions

- Well defined Quality plan includes procedures for
  - Inward goods inspection
  - In process checks
  - Final batch inspection
  - Functional Testing
  - Reliability / Endurance test
Quality Assurance System

• Customer complaint handling through
  – Root Cause Analysis
  – Other Fault finding Tools viz. 4M analysis,
  – Corrective Action
  – Preventive Action for Fool proofing (Poka Yoke)

• Traceability & product identification:
  – Unique numbering & labeling system
  – Log books maintained with details of batch codes, specific process parameter
  – Process inspection reports checked at each production stage.
  – Flow charts prepared & defined specific to each quality plan based on product type/mix.
Process parameters optimization

- Bond Strength & material properties
- Joint Dimensions, Geometry
- Skills, training, workmanship
- Environment (moisture, humidity)
- Solder alloy (Eutectic point, Melting point, phase diagram)
- Temperature (control & monitoring)
- Time (Heating transfer)
- Tools (conduction, Convection, Radiation)
- Wetting, Rheology
- Cleaning method
- Flux chemistry
- Coverage, Quantity

Reliability through INTERACTION & Constructive FEEDBACK from Shop floor
In process Quality checks

• In process Formats include multiple criteria for compliance to Quality Parameters

• The formats flow throughout the manufacturing process to monitor defects in the product throughout process cycle

• Check list prepared specific to
  – Inward inspection: of bare PCBs, Components, RM & consumables
  – Process parameters: Dispensing, Stencil printing, Assembly, Temp. profiling of Reflow & wave soldering
  – Final inspection: Criteria include specific customer inputs
  – Testing: 100% Test parameters tabulated as per Customer test procedures
In process testing set up

- Component solderability tests
- Component reliability tests on functional test circuits
- Tailor made pallets to identify missing components
- Validation of Critical Processes viz. Component Placement And Soldering
- In House Test jig fabrication set up for ICT & FCT specific to product test requirements
- Mechanical tooling, fixtures devised to get consistent result during cutting, bending, forming operations
Test Methods: Combination MDA, ICT & FCT

- Manufacturing Defect Analysis
- Check list for Functional test procedure
- Customized Test Jigs
- System Ready for Final Functional Test
Conformal coating

- Humidity controlled area to ensure RH < 40 %
- Degassing of moisture and air in forced hot air controlled temperature ovens at 80 C for 24 Hrs
- Latest equipment, tools and techniques for masking, spray coating and storage
Conformal coating

- Immediate soaking and curing of cards after encapsulation
- Special moulds made to mask & protect critical components during spraying
- Thermometer & Hygrometer to log in temp. & humidity in encapsulation area

Components Tests during Thermal Ageing

Dehumidifiers (RH control)
Final Quality checking

- Product specific checklist prepared to ensure
  - Component orientation, height, mechanical dimensions and tolerances
  - Adhesion of bulky components to prevent damage due to vibration and transport
  - Re-inspection of rework
  - Final inspection for Solder quality and manufacturing defects
  - Verification and approval of functional test reports

- Traceability: Unique board identification number created
Packaging

- Packing of Finished product in antistatic bags, static control bubble foam packaging
- Special enclosures with lid covers devised to ensure safe delivery of the product.
- Plastic crates devised with separators to compartmentalize packing to avoid finish product damage during transportation.
- During rainy season containers wrapped in Plastic covers to avoid moisture entry.
Commercial & Warranty Terms

• Test & performance guaranteed only for INTRFAB certified or approved products.

• DFM & DFT aspects checked & product can be certified or approved to qualify for warranty conditions.

• In case of Contract manufacturing or labour jobs workmanship guaranteed for commercial valid terms.

• Process improvement data or feedback sought from shop floor for continual improvement.

• Recommended changes, customer suggestions followed to go through design iterations, & for process & material improvement.

• In case of failure immediate corrective action & preventive measures taken. PDCA cycle followed to target for zero defect or no product failures again.
INTERFAB means INTER-active FAB-rication

Customer Satisfaction through INVOLVEMENT, INTEGRATION, INNOVATION
INTERFAB a Total Solution Company
Thanks!
We welcome you at

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