



1ST-LABS GROUP CO.,LTD

Incubation Investment
Electronic R&D Engineering Service



About 1ST-LABS

1ST-LABS



Focus on Electronic R&D Engineering Service

Improve R&D and MP Quality/Efficiency

**Full-system Certified Enterprise
Professional and Systematic Operation Management**

**Focus Electronic Incubation Investment Supporting
Platform**

More than 6600+ Customers Worldwide



1ST-LABS Quality System and Focus Filed

1ST-LABS



ISO13485

Medical



Medical Electronic



Automotive

TÜV IATF16949

Automotive

TÜV ISO9001

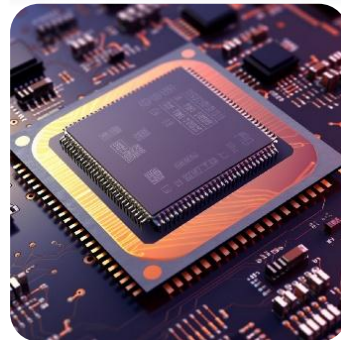
Quality

ISO14001

Environmental



Industrial Control



Semiconductor

Famous Customers: 6600+ in Wide Field

1ST-LABS





1ST-LABS Technology Group

1ST-LABS



incubation & RD Service platform
investment management

EECraftsman Technology



Products Design, Embedded
system, PCB Layout, Products
Optimize

Focus-Talents Consultant



Talent Support Platform
for Entrepreneurship Incubation

KnowHow Technology Co.,Ltd



KnowHow-Tech

PCB, Components, Pilot Run/MP
SMT/PCBA, Testing, BGA Rework,
CNC, Tooling, Product
Manufacture

IP-Plant Management

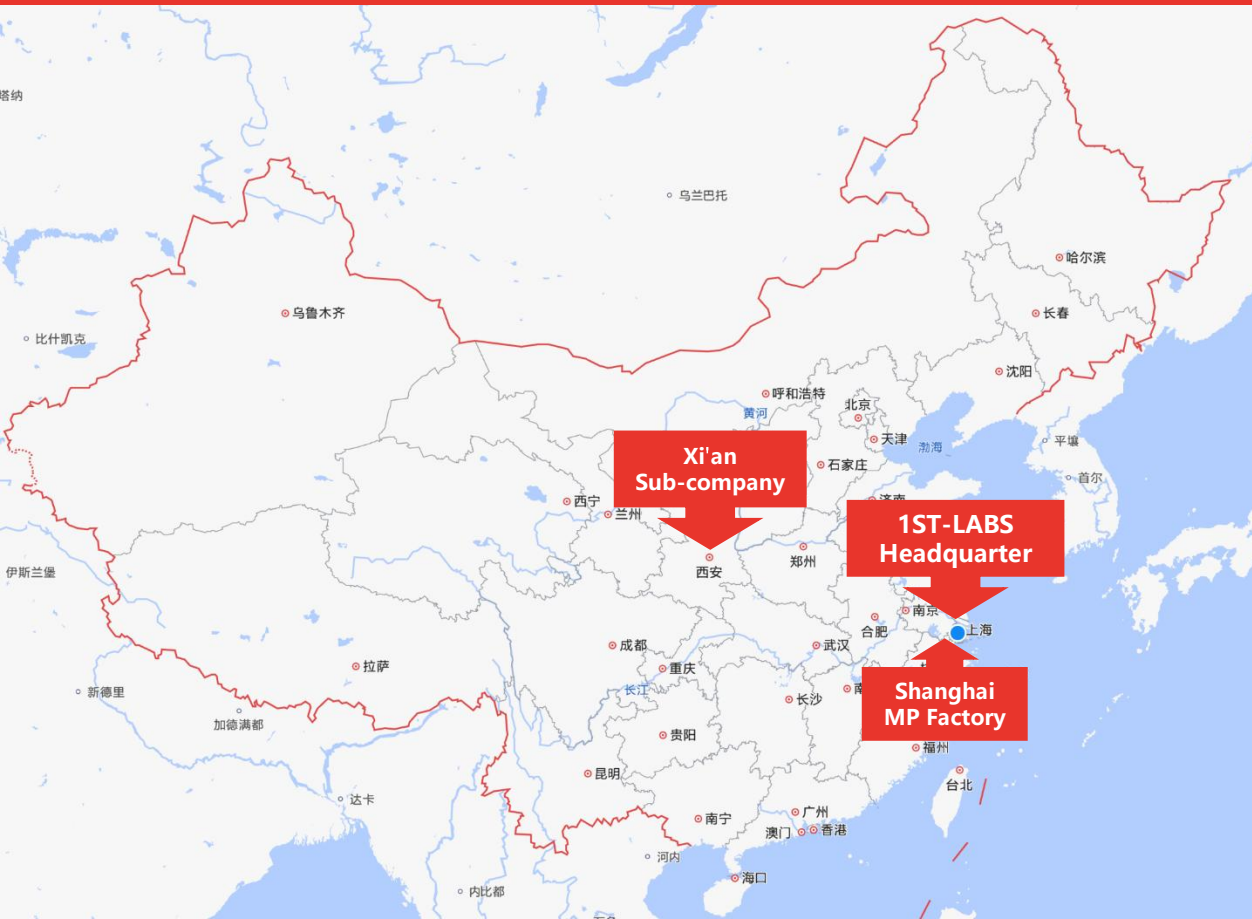


IP-Plant

Intellectual Property
Support Platform
for Entrepreneurship Incubation

1ST-LABS Operation Location

1ST-LABS



R&D Center



Operation
Headquarter



MP
Factory

Xi 'an R&D Branch

1ST-LABS



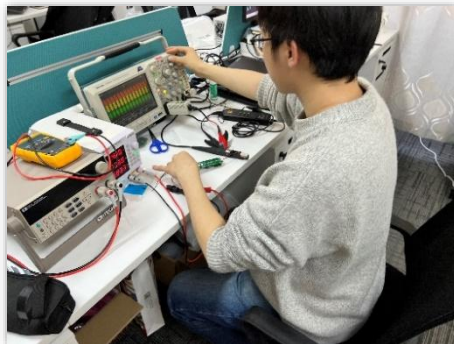
Xi'an Yanta District
Greenbelt Blue Sea
Building L16



Reception



Office Area



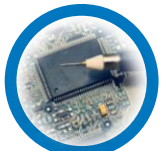
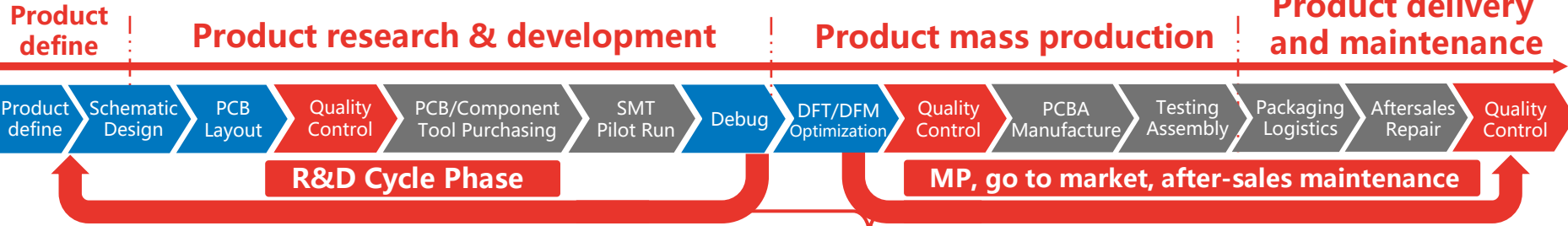
Laboratory



Meeting Room

1ST-LABS-Electronic R&D Engineering Service

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Hardware Schematic Design



Product Development



Component Analysis



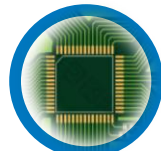
Embedded Software



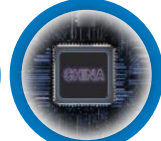
Encryption Protection



Reverse Engineering



PCB Layout



Alternative Design



R&D Tools



PCB Production



BGA Reballing



Chip Decap



Component Purchasing



BGA Fly Wire



R&D SMT Pilot Run



BGA Rework



Quality Control



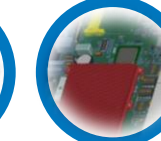
3D Printing



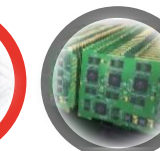
CNC Machining



Chip Authenticity Comparison Library



DFT/DFM



PCBA Mass Production



Testing Assembly



Aftersales Repair Service



Entrepreneurship Incubation Support Platform



Packaging Logistics



More Details

1ST-LABS – Quality Control

1ST-LABS



Participate in R&D, and get involved in process of optimizing in advance

Control the whole process from parts to production process

Participate in designated ICT and FCT test programs

TÜV management system, excellent yield rate

Provide high quality delivery at low total cost

1ST-LABS – Chip Authenticity Comparison Library

1ST-LABS



Establishment of
authentic database

Device screen printing
model comparison

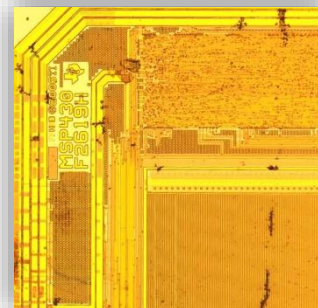
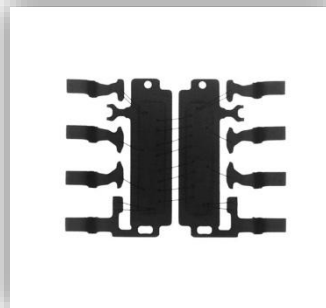
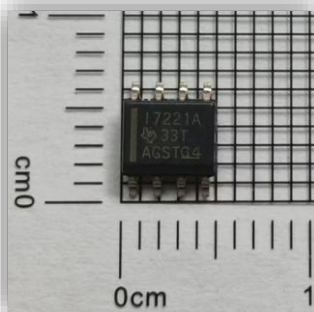
Device thickness
comparison

X-Ray structure
comparison

Decap silicon chip
comparison

Comparison of pin
impedance measurements

Device function and
performance test



| Function | Pin Number | Earth Impedance |
|----------|------------|-----------------|
| Vbb | 1 | 8.8MΩ |
| IN1 | 2 | 51.7KΩ |
| ST1 | 3 | 11.3MΩ |
| ST2 | 5 | 1.65MΩ |
| IN2 | 6 | 0.52KΩ |
| Vbb | 7 | 8.7MΩ |
| Vbb | 8 | 8.8MΩ |
| OUT2 | 9 | ∞ |
| OUT2 | 10 | ∞ |
| SPU | 11 | 3.9MΩ |
| OUT1 | 12 | ∞ |
| OUT1 | 13 | ∞ |
| Vbb | 14 | 8.8MΩ |

EECraftsman – Hardware Schematic Design

1ST-LABS



MCU/ARM

Adopt leading ultra-low power architecture chip in this industry to achieve more robust and efficient interconnection, and develop products in industrial products, cloud connectivity, artificial intelligence and other fields to provide complete solutions.



FPGA

Provide one-stop services such as FPGA logic design, FPGA related circuit development, embedded system design, high frequency and high speed board, prototype or template and mass commissioned production.



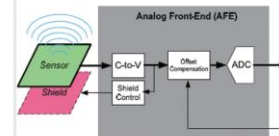
HCI

Provide a wealth of human-computer interaction hardware and software design solutions, including resistance screen, capacitive screen, touch control, human-machine control interface, information feedback, actuator, etc.



DC/DC Power

Railway, traffic, harsh environment industrial control, ultra-low noise sampling system power supply, low noise and of medical equipment power supply product design, commissioning, certification, mass production one-stop service.



AFE

We have a wealth of sensor signal acquisition, small signal processing, low noise amplifier circuit, low delay, high precision reference source, high precision ADC sampling circuit R & D, design, manufacturing experience.

EECraftsman – Embedded Software Development

1ST-LABS



Embedded C

Verilog

Linux

FreeRTOS

QT

Programming
Platform

PID

Motor Drive

Encoder

Motion Control

HMI

Algorithm
Development

EECraftsman – PCB Layout

1ST-LABS

cadence

Altium
Designer

Familiar with the Essence of
DFT and DFM

Standard Design Lib
Management System

Verify Optimization in Real
Time on the Production Line

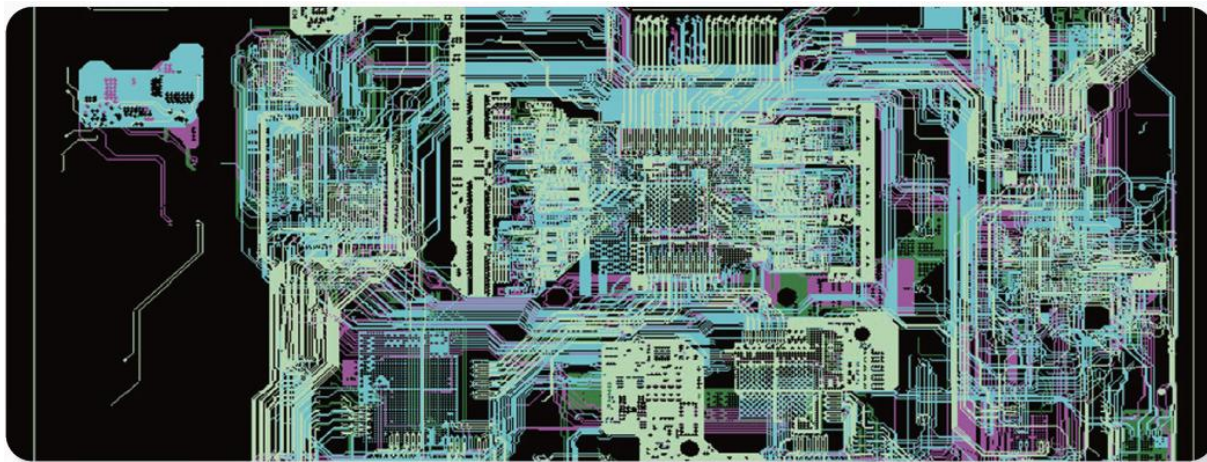
Exquisite Craftsmanship
Design Spirit



EECraftsman – PCB Layout

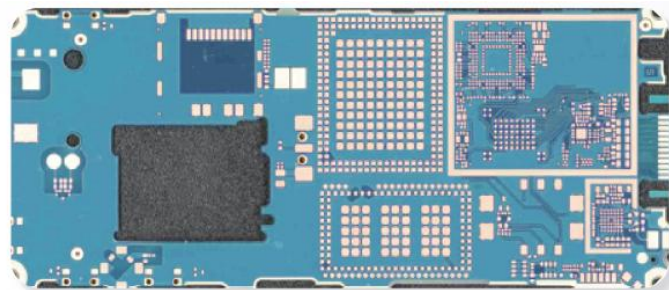
1ST-LABS

- 26+ layers of communication board
- F P G A
- C P L D
- D D R 4
- Low voltage and high current power supply



- HDI
- 8 layers of buried blind via
- Laser drilling
- High precision

| | | |
|--------|-------------------|--------------|
| 0.33oz | 1/3 O.Z. | 1.1mil |
| 0.33oz | 106 (76%) | 2.05mil |
| 0.33oz | 1/3 O.Z. | 0.9mil |
| 0.33oz | 106 (76%) | 2mil |
| 0.33oz | 1/3 O.Z. | 1mil |
| 0.33oz | 106 (76%) | 2.1633mil |
| 0.5oz | 0.19mm(0.16mm) HH | 7.4mil (6.1) |
| 0.5oz | 106 (76%) | 2.1633mil |
| 0.33oz | 1/3 O.Z. | 1mil |
| 0.33oz | 106 (76%) | 2mil |
| 0.33oz | 1/3 O.Z. | 0.9mil |
| 0.33oz | 106 (76%) | 2.05mil |





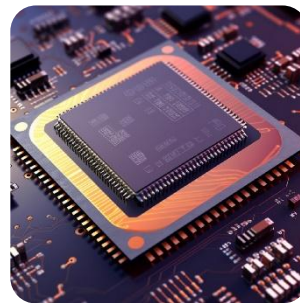
**Medical
Electronic**

- Precision stepping control system
- High performance, low noise LED light source
- Wireless data transmission within the organism
- Ultra-low power analog front end
- Software and hardware technologies such as sampling processing and algorithm optimization
- Wearable medical devices
- Ultra-miniaturization design and production



**Intelligent Vehicle
Transportation**

- Component selection and redundancy design
- Stability and reliability design
- Three defense and reinforcement
- Hardware and software redundancy
- PCB EMI optimization processing
- Encryption and security
- Systematic integration and fool-proofing structure



**Semiconductor
Chip**

- Wafer Scribing, fast package
- Bare die test board design
- Packaged test board design
- Test system PCBA
- DEMO board design
- Application development support
- Module design and batch delivery

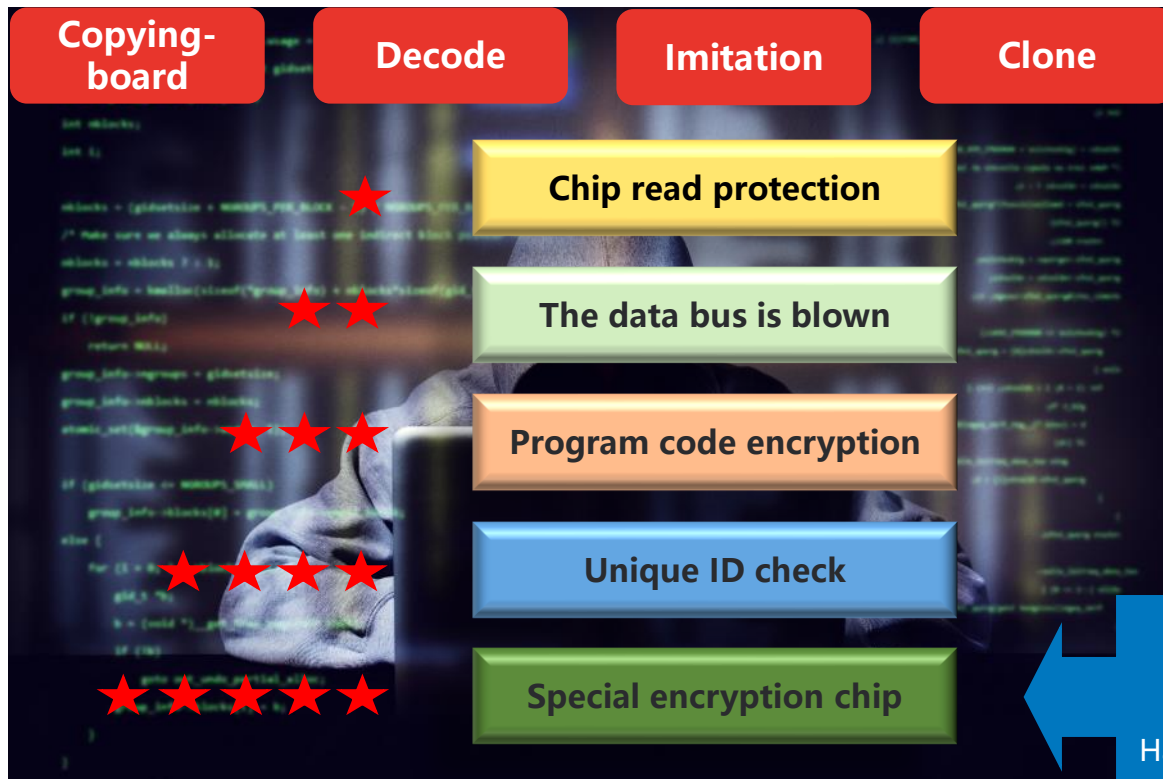


**Industrial
Control**

- Sensor optimization
- Wired transmission interface
- Wireless transmission interface
- Motor drive
- HCI interface
- Edge computing node
- Reliability and stability
- Tough environment prevention treatment
- CCC, UL, CE certification services

EECraftsman – SHA256 Encryption Solution

1ST-LABS

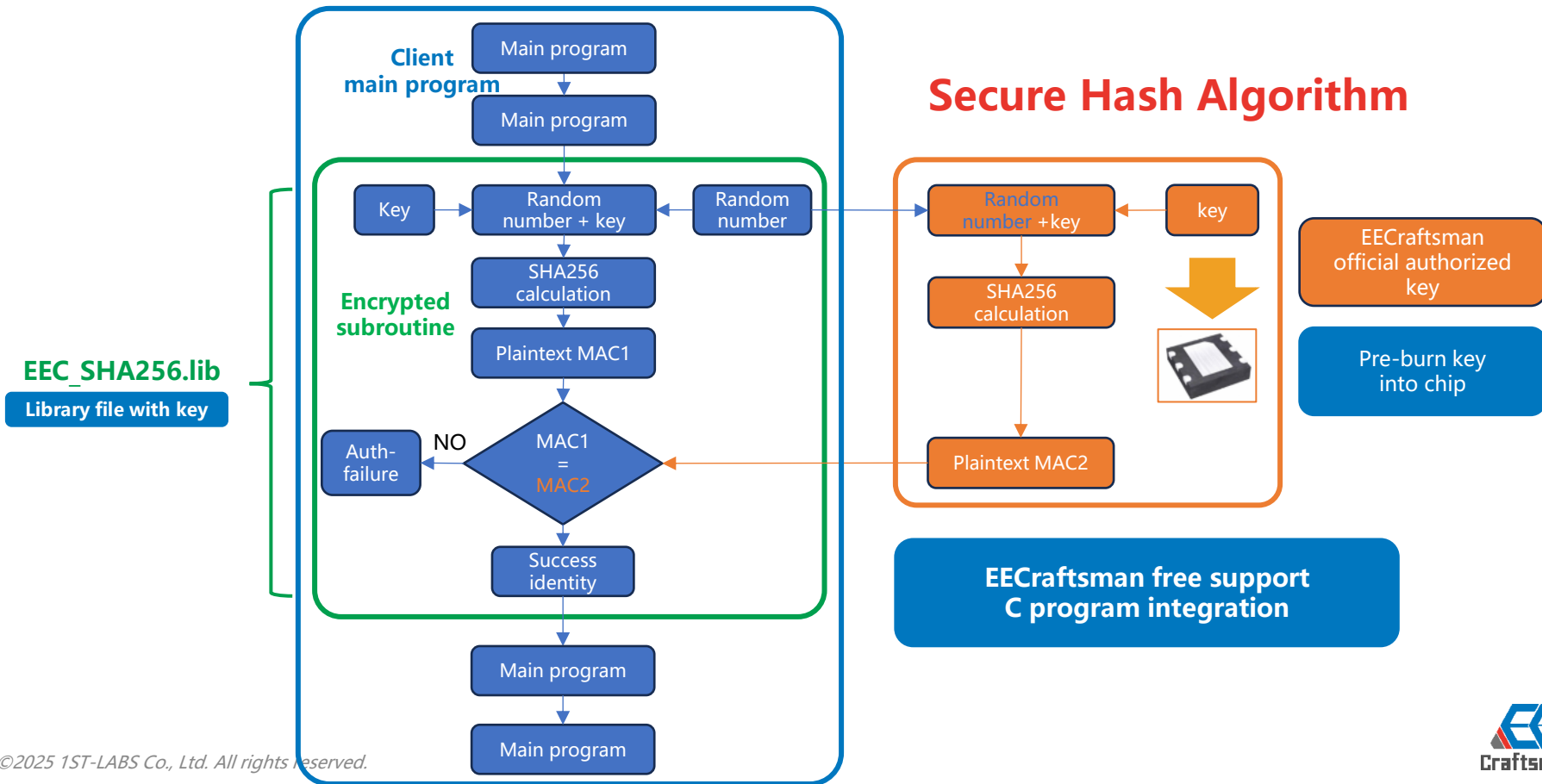


It is theoretically impossible to crack at present.

EECraftsman
Developed Based on SHA256
Encryption Solution
Hardware chip + Algorithm Library

EECraftsman – SHA256 Encryption Solution

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EECraftsman – Domestic Alternative Design

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Reduce the overall
product cost

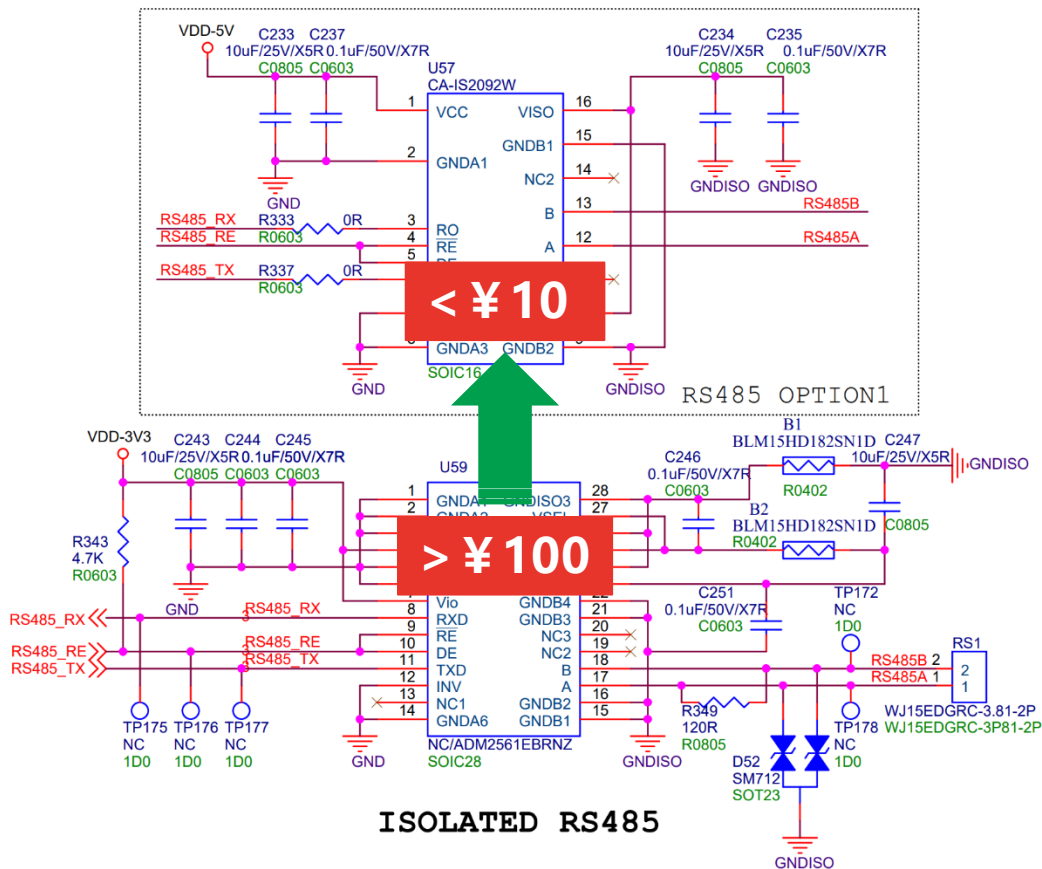
Solve the shortage of
material supply

Analog circuit domestic
substitution

Digital circuit domestic
substitution

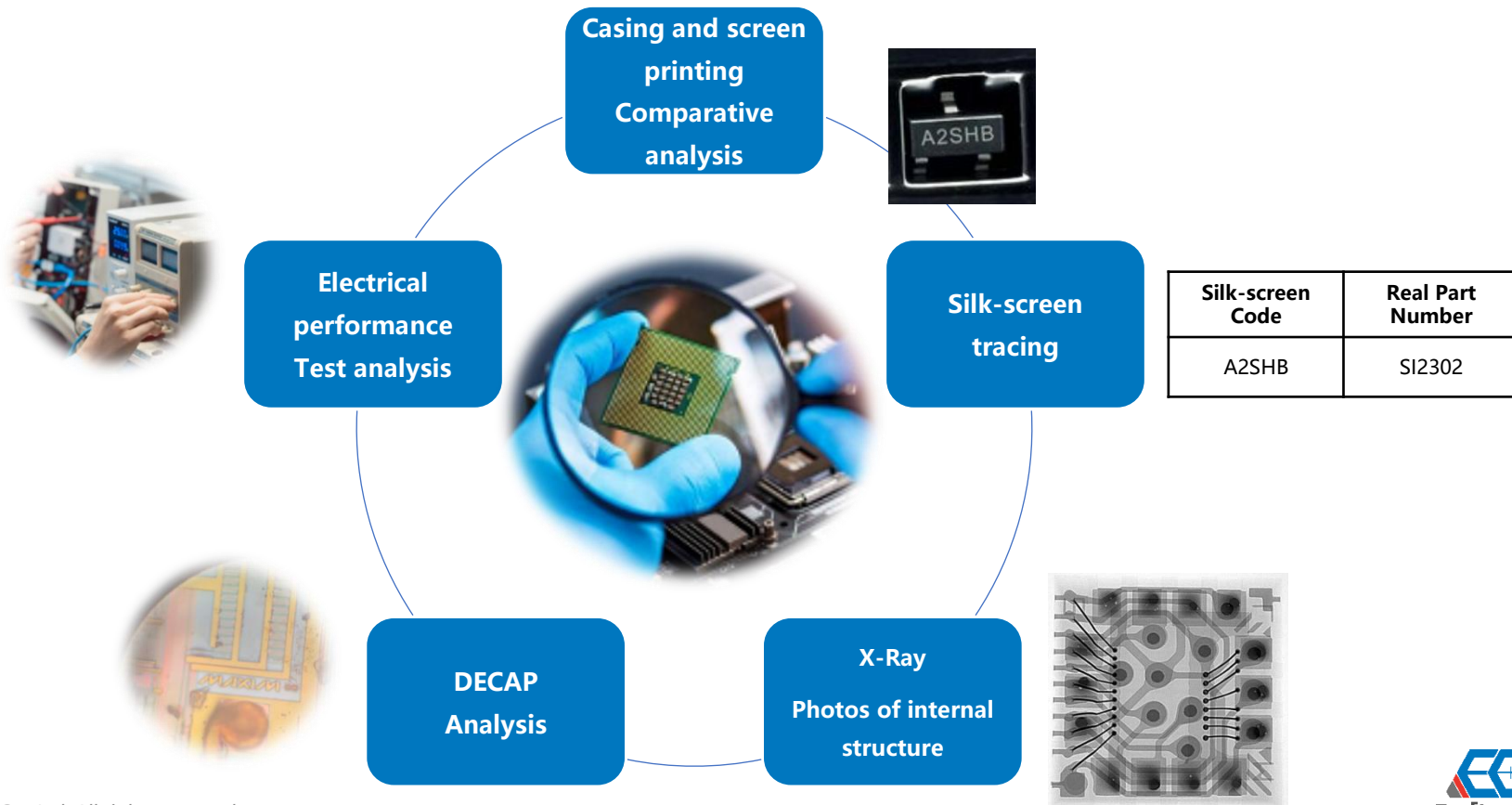
Performance
testing and verification

Domestic MCU
code transplantation



EECraftsman – Component Analysis

1ST-LABS



EECraftsman – Digital Reverse Analysis

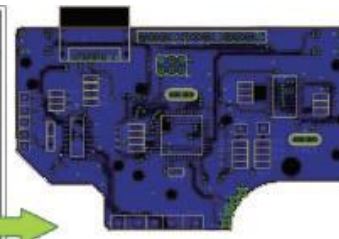
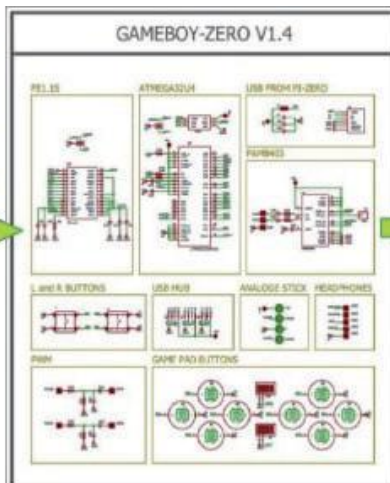
1ST-LABS



Fine mechanical grinding
Laser scanning
Digital modeling



Build the library of
schematics
Network reconstruction
Schematic backtracking



Rebuild Gerber
Reconstructed network table
Measuring component
parameter

Chip silk-screen tracing
Chip DECAP analysis
Chip code read

**Customers are required to declare legal compliance with
reverse analysis products
EECraftsman does not assume any legal risk or liability**



R&D RC Sample Kit



Resistor Series

0201

0402

0603

0805

1206

1% 128 Value (Single box) 0Ω-1M

5% 170 Value (2 boxes) 0Ω-10M

1% 484 Value All Series (4 boxes) 0Ω-10MΩ

Capacitor Series

0201 52 Value 0.5pf-0.22μf

0402 68 Value 0.5pf-2.2μf

0603 73 Value 0.5pf-10μf

0805 66 Value 1pf-22μf

NR-2501



NR-2308



signal test point



Taobao Store

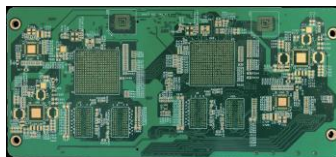
Genuine
Article

Complete
Category

Spot
Stocks

1ST-LABS PCB Production

1ST-LABS



PCB manufacturing management expert

Field visits to certified partner factories

Factory scale

Precision of equipment

Quality system

Delivery speed

Technological level

Industry reputation

Determine matching plant according to design

Professional DFM process adjustment

Deal with PCB EQ

VIP customer cost control

Quality first fast delivery

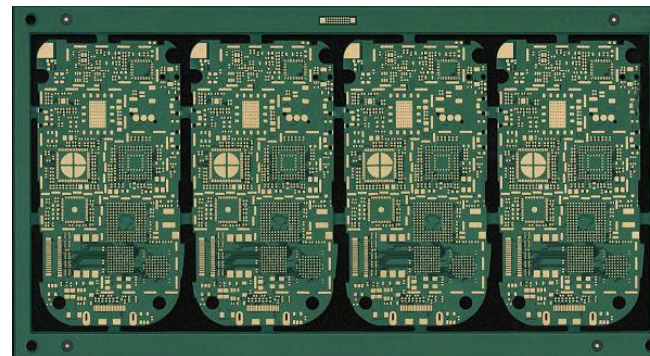
Process Analysis



Quality Control



Delivery Management



Up to 46 boards

High TG board

3mil Line width
Line distance

30:1 aspect ratio

HDI Blind buried hole

Rigid and flexible version

Up to 60Z copper thick

Max. 7mm plate thickness

Rogers high frequency plate

aluminum substrate

FPC board

impedance matching

1ST-LABS Component Purchasing

1ST-LABS

Conventional components,
spot stock

Authorised
Chanlel

4000+

Spot Stocks



Consignment
centralized
purchasing



Small batch/sample
distributor channel

High Volume agent
channel



KnowHow-Tech – R&D SMT Polit Run

1ST-LABS



**A nut can also be cracked
by a sledgehammer.**

**Intelligent flexible
manufacturing technology**

**Standardized Quality
Management System**



**Focus on Fast
SMT Pilot Run**



**One-piece welding
No minimum
consumption**



**Advanced
technology
Professional quality**



**Fast delivery in 72 hours
Fast-Pass in 24 hours**



ISO13485

TÜV ISO9001

ISO14001

TÜV IATF16949

**Stencil-free paste technology
Intelligent adjustment of the
thickness/area/size of tin spray**



**X-Ray Fast
Point
component**



**MYCRONIC
MY700 Solder
paste printing**



**Samsung 481
patch machine
Feeder switch**



**Samsung 482
patch machine
Feeder switch**



**ERSA14 Nitrogen reflow
welding is supported in the
warm zone**

KnowHow-Tech – R&D BGA Rework & Fly Line

1ST-LABS



Fast repairment in 24 hours

IPC Certified maintenance technician

Remedy design errors

Shorten debugging time

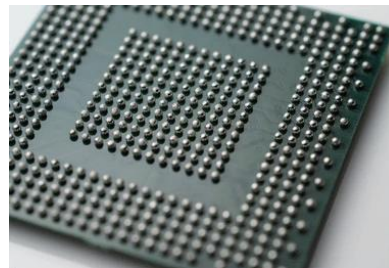
Reduce R&D costs

Improve R&D efficiency



BGA Fly Line

BGA Inside flight , BGA leads outward

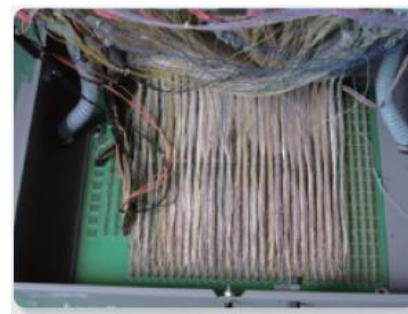


BGA Unsolder, reballing, rework

BGA, LGA, CSP, WCSP



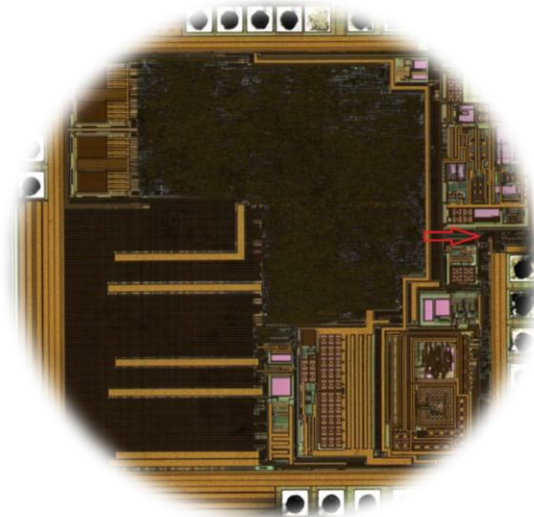
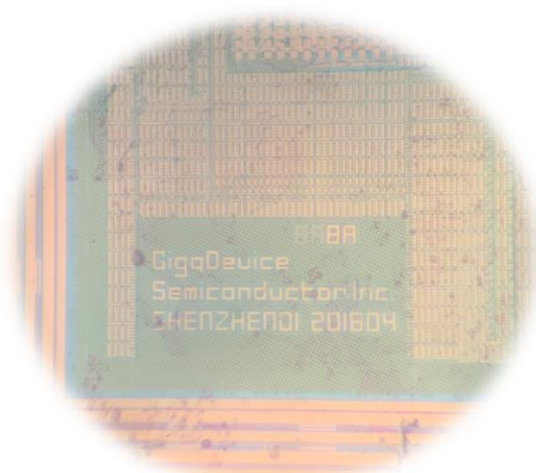
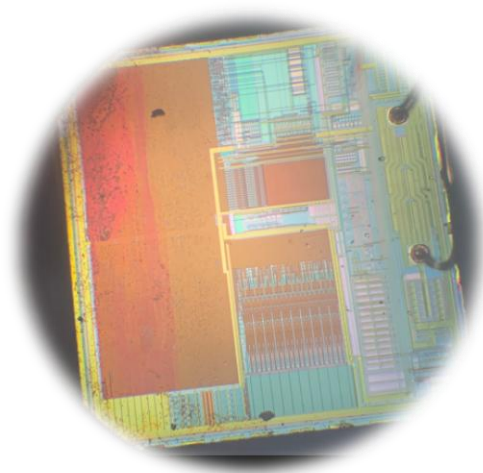
DC rework workstation



Case: IC test system, 28-layer PCB, thousands of lines, important core Socket non-destructive repair



Chip Part-Number Analysis



EECraftsman – 3D Printing & CNC Machining

1ST-LABS

R&D 3D Printing & small-lot CNC

3D printer/Professional CNC Machining center (30 sets)



3D structure printing, size error $\pm 0.1\text{mm}$



CNC precision machining center, size error $\pm 0.02\text{mm}$

EECraftsman – DFT/DFM

1ST-LABS

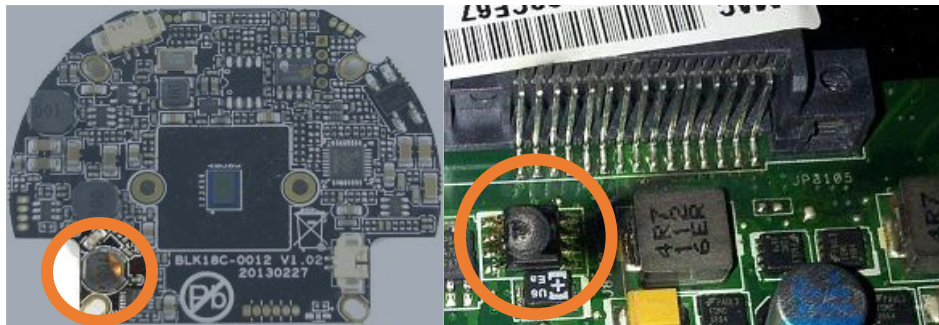
Mass production DFT/DFM optimization

Professional services from R&D to mass production

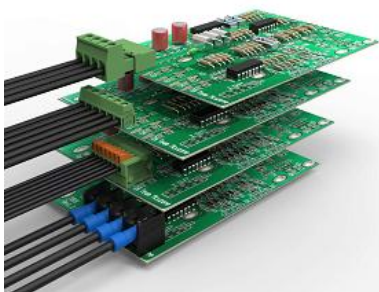
Manufacturability

Assembling ability

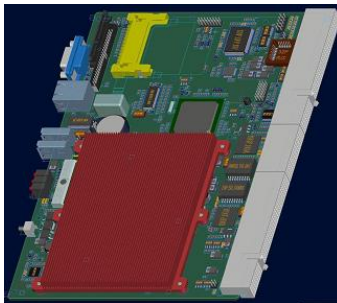
Yield of mass production



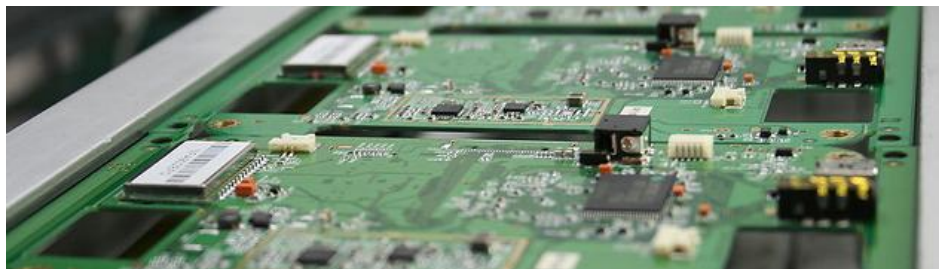
Failure analysis, ESD optimization, stress release optimization



Assembly reliability optimization



Structural process optimization



Batch production process DFT/DFM optimization, through rate and yield optimization

KnowHow-Tech – PCBA Mass Production

1ST-LABS



Standardized batch
manufacturing

Standardized Quality
Management System



ISO14001

TÜV ISO9001

TÜV IATF16949

ISO13485



X-Ray Point
component



GKG solder
paste printer



Solder paste printing
local optimization



SPI Solder
paste detection



JUKI chip mounter



JT 12+3 zone nitrogen double track
reflow welding



AOI AOI
Detection



Wave-
soldering



First piece
detector



X-Ray
analysis



Daily full load mounting capacity of 1
million components

KnowHow-Tech – Testing & Assembly

1ST-LABS



Product Manufacturing

Standardized Quality Management System



ISO14001

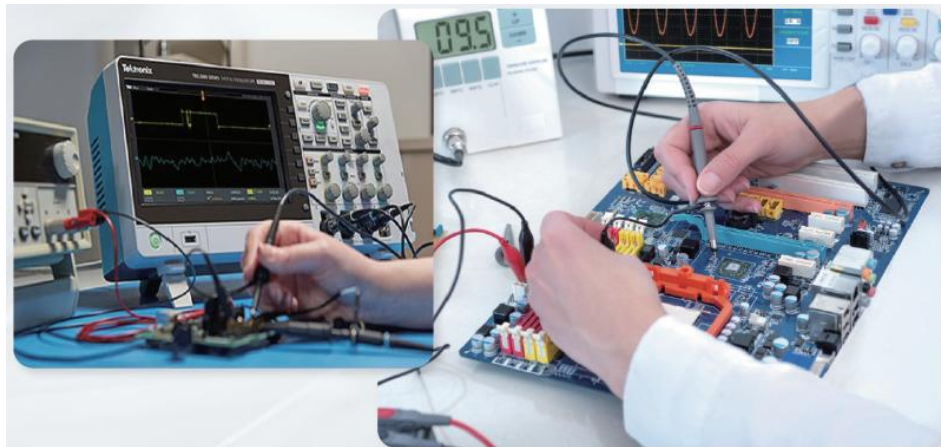
TÜV ISO9001

TÜV IATF16949

ISO13485



Test fixture, fixture design and processing



Performance Test



Product Assembly

KnowHow-Tech – Packaging & Logistics

1ST-LABS

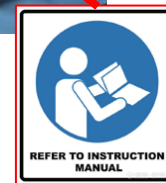


Small and micro enterprises one-stop product package service

Packaging customization, warehousing management, logistics assistance



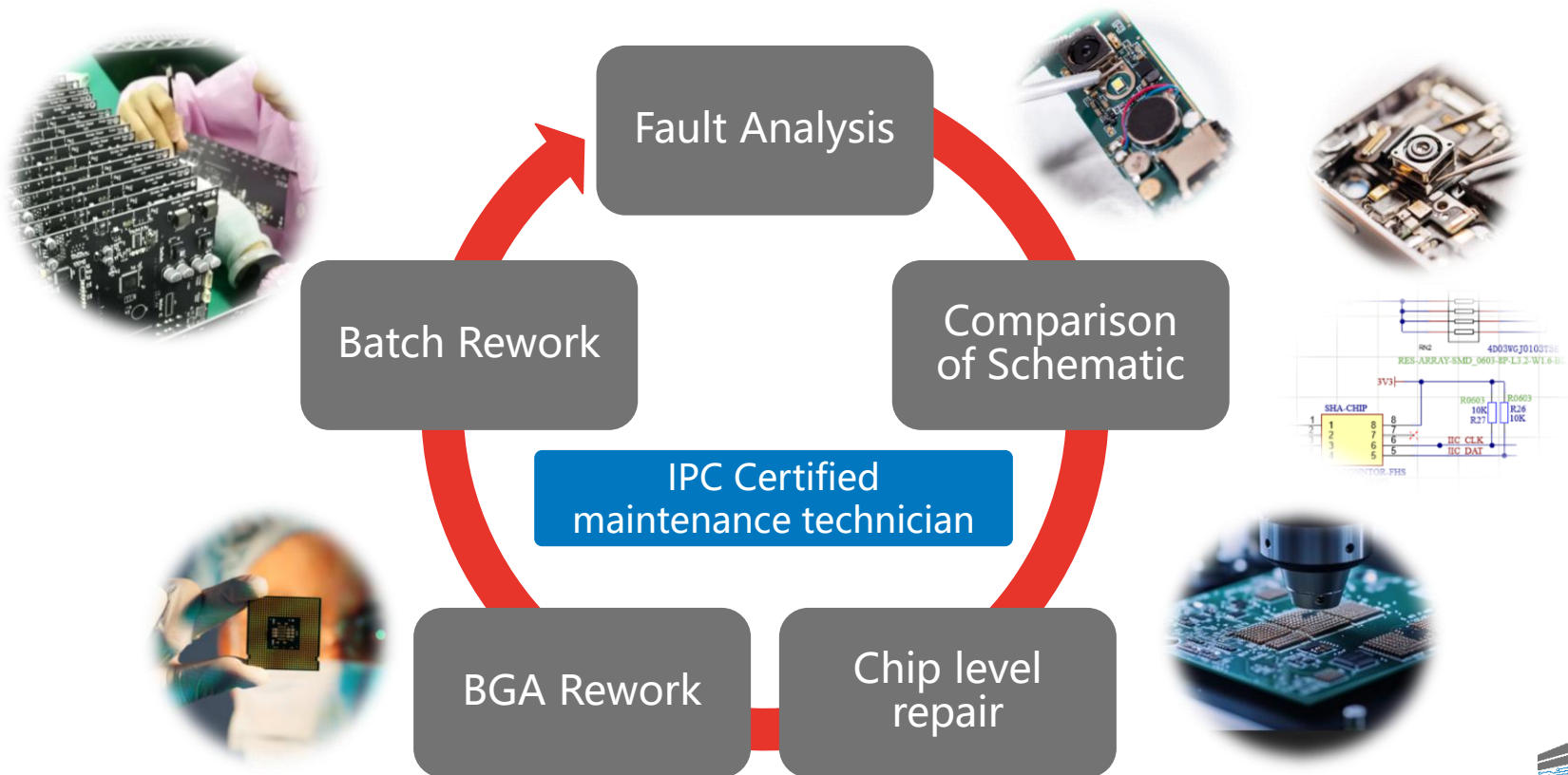
Batch board transfer framework, buffer material and packaging customization



KnowHow-Tech

KnowHow-Tech – Aftersales Repair Service

1ST-LABS



Entrepreneurship Incubation Support Platform

1ST-LABS



**Intellectual Property
Consultant**

**High-tech Enterprise
Application Consultant**

**IP Authorised Management
Consulting Services**

**IP Trading
Consulting Services**

**Incubation Resource
Management Services**

**Expert Advisory Services
on Key Technologies**

1ST-LABS



Thanks !

创馨科技集团： 创业孵化及电子研发工程服务

www.1st-labs.com