

2017



Welcome to Kaifa



# Mission, Vision & Values

**Reliable**  
**Respectable**



## Mission

To provide world class electronic products R&D and manufacturing services to our customers while creating value for our society and establishing a platform for the career development of our employees.

## Vision

**To be a reliable and respectable enterprise**

## Values

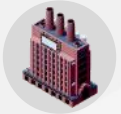
Teamwork  
Strive for Excellence  
Integrity & Honesty  
Financial Stability

People Oriented  
Innovation  
Collaborative Growth  
Contribution to Society

# Company Introduction



Leading **EMS** company providing **manufacturing , supply chain, logistics, R&D, system solution services**



Founded in **1985**, Public Listed in **1994 (000021.SZ)**



Head Quarter in **Shenzhen**, **9** Production Sites



Over **30,000** Employees



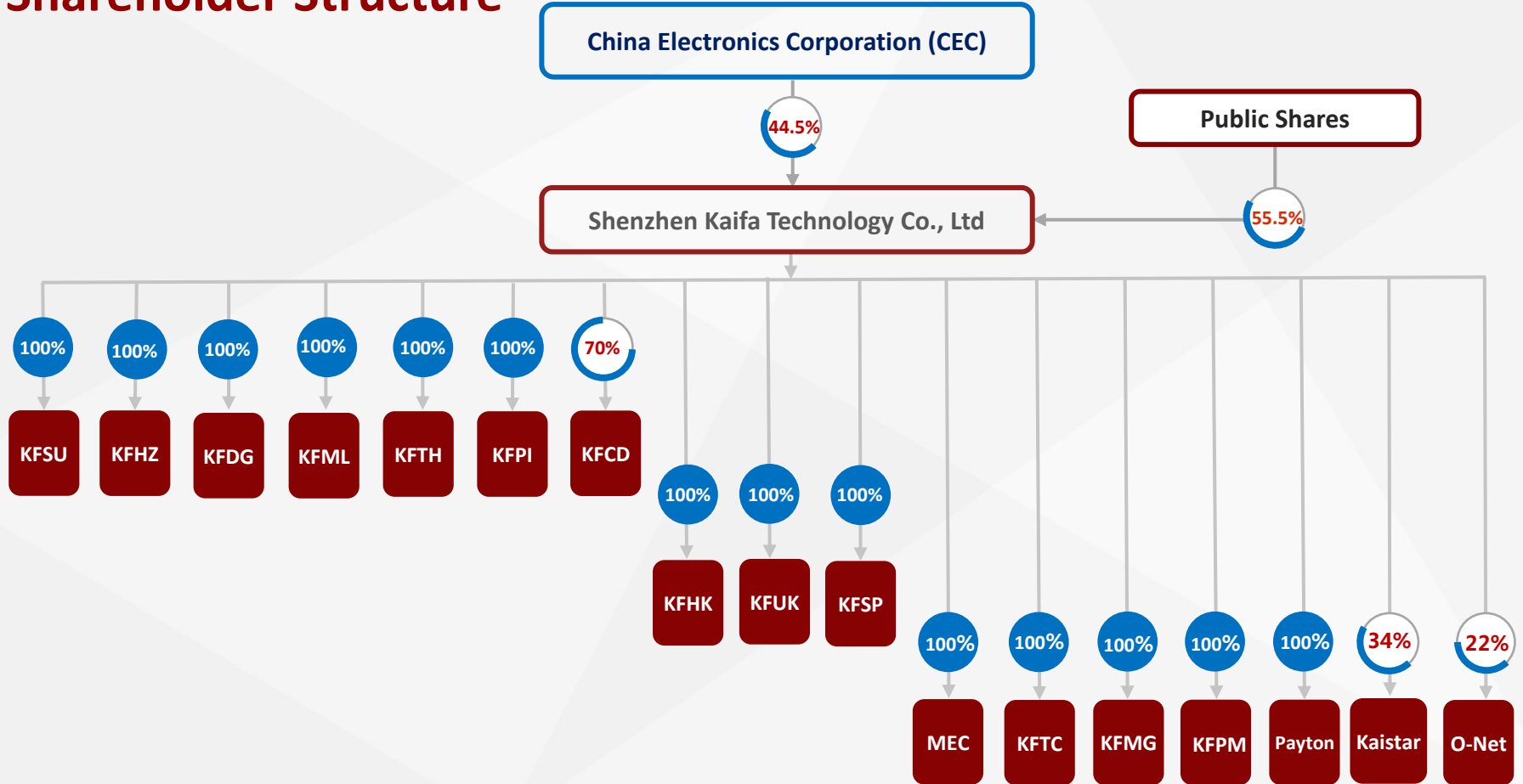
Sale Revenue **USD 2.3 billion** in 2016



**TOP** EMS Provider



# Shareholder Structure



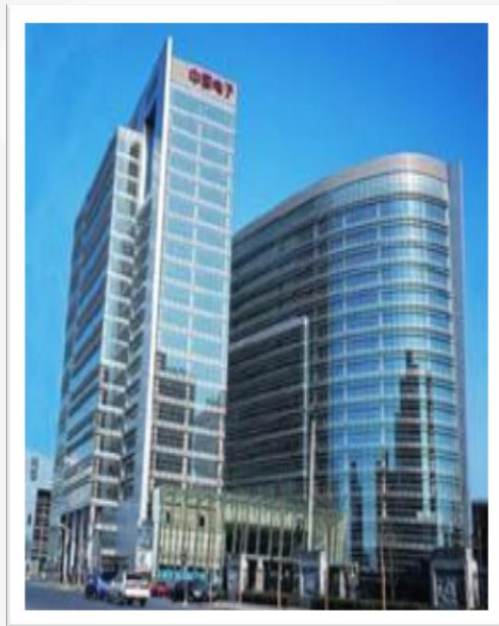
# China Electronics Corporation (CEC)

Founded : **May 1989**

Sale Revenue: **30 billion USD** (2017)

Fortune Global **Top 500** : Rank 362 (2017)

Employees:**140,000**



PANDA 熊猫



TPV  
VISION INNOVATOR



光谷联合  
OPTICS VALLEY UNION



中国·振华



桑达股份



IRICO



彩虹集团新能源股份有限公司  
CAIRING GROUP NEW ENERGY COMPANY LIMITED

中國電子集團控股有限公司

# Factory Location

● SMT Lines : 160    ● Plant area : 455,900 m<sup>2</sup>



## USA(NPI) : 2017

- Plant area : 1,000 m<sup>2</sup>
- Employee : TBD



## Chengdu: 2016

- Plant area: 10,000 m<sup>2</sup>
- Employee: 1,000



## Suzhou: 2005

- Plant area: 70,000 m<sup>2</sup>
- Employee: 1,600



## Huizhou: 2013

- Plant area: 120,000 m<sup>2</sup>
- Employee: 8,000



## Thailand: 2014

- Plant area: 2,000 m<sup>2</sup>
- Employee: 100



## Dongguan: 2015

- Plant area: 170,000 m<sup>2</sup>
- Employee: 13,000



## Malaysia: 2014

- Plant area: 9,500 m<sup>2</sup>
- Employee: 800



## Philippines: 2017

- Plant area: 4,400 m<sup>2</sup>
- Employee: 300

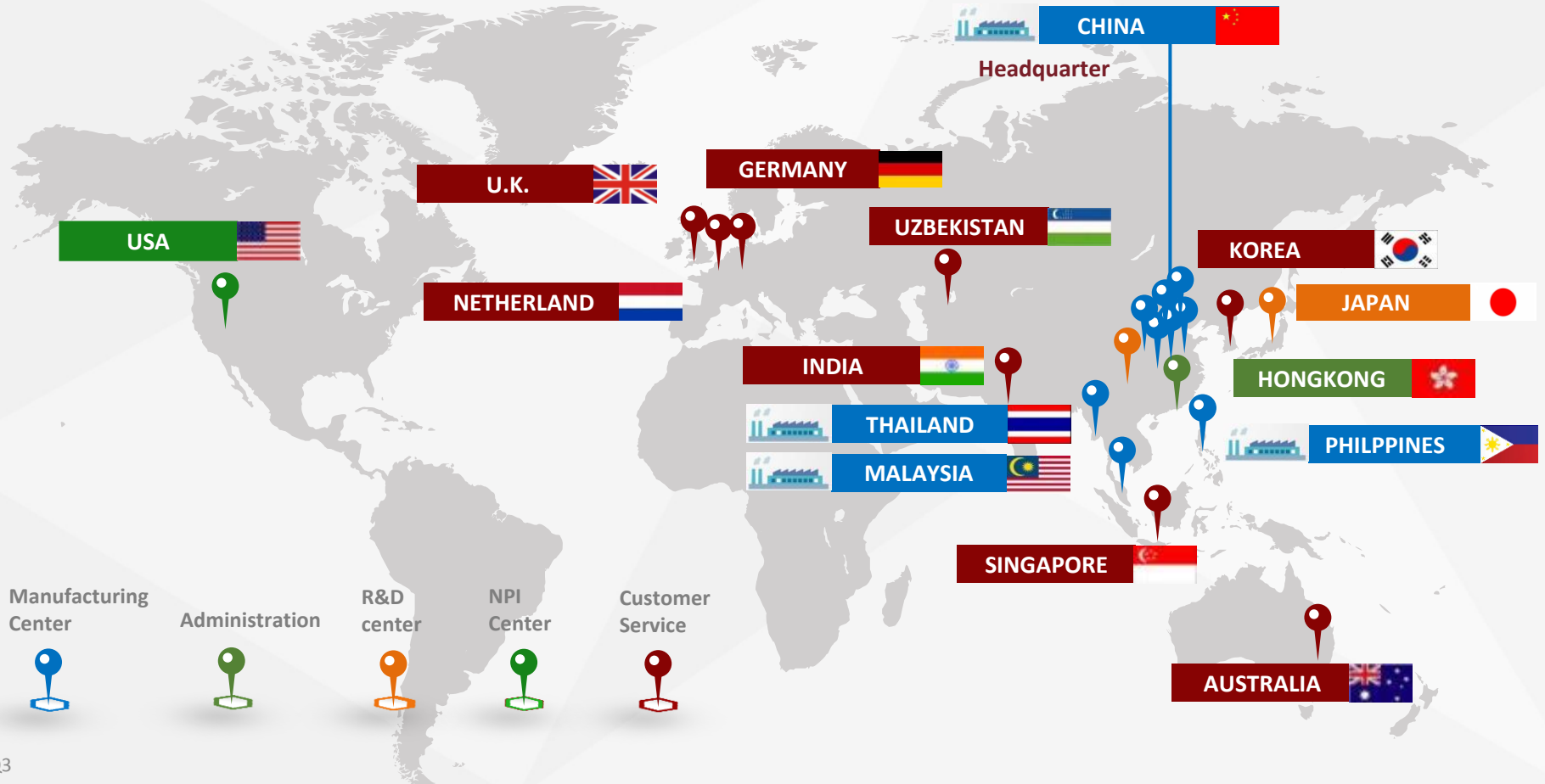


## Shenzhen: 1985

- Plant area: 50,000 m<sup>2</sup>(Futian)+20,000 m<sup>2</sup>(Shiyan)
- Employee: 3,000(Futian) + 1,000(Shiyan)



# Global Network



# Milestone



**1985**

Head Stack



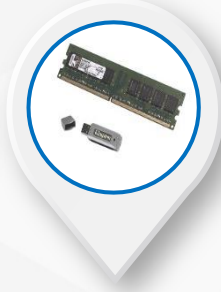
**1997**

Disk Substrate



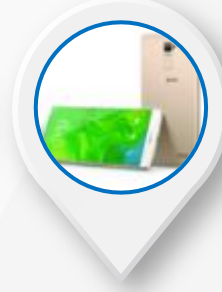
**1997**

Automation



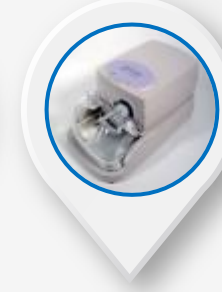
**2003**

Storage Memory



**2006**

Smart Phone



**2009**

Medical Device



**2015**

IC packing & testing



**1995**

Power Meter



**1997**

POS



**2003**

Projector PCBA



**2005**

Ultra Capacitor Module



**2006**

IOT Product



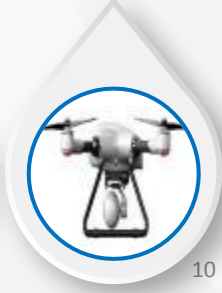
**2010**

Automobile



**2016**

Drone





# Business Scope

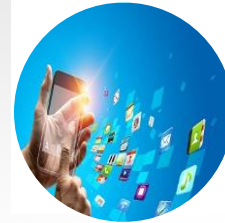
## Computer & Storage

- HDD PCBA
- HDD HSA
- HDD FPC
- Media substrate



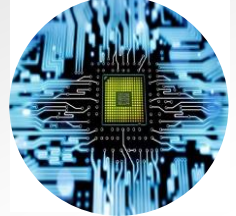
## Communication & Consumer

- Smart Phone
- Smart wearable
- Repair Service



## Semiconductor

- Memory/Fingerprint IC
- DRAM Module
- Flash Memory (CF/SD/USB/SSD)



## Medical

- Respirator
- MRI controller
- Parkinson Smart Spoon
- Smart Blood glucose meter



## Automobile

- Drone
- ABS Control
- Navigation System
- Advanced Sensor



## Commercial & Industrial

- Projector
- New Energy Products
- LVHM Products



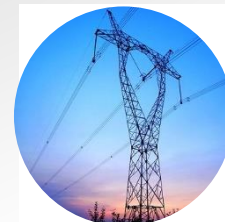
## Automation

- Automation Equipment
- Automation Solutions



## Metering System

- Smart Power Meter
- Smart Water Meter
- Smart Gas Meter
- Energy Management System



## Industrial IOT

- iDAS
- KEDAS– Real time ESD monitoring
- RTLS



# Market Positioning

The image displays a world map with various company logos positioned around it, indicating their market presence. The logos are arranged in a grid-like fashion, with some appearing in boxes that partially overlap the map's edges.

- Top Row:** Seagate, Western Digital, SUNCALL CORP. (Five Precision, Nine Solution), Kingston Technology, Micron, FINGERPRINTS, HUAQIN 华勤通讯
- Second Row:** IBM, SAMSUNG
- Third Row:** Enel Distribuzione, HUAWEI
- Fourth Row:** kt, ZTE 中兴
- Fifth Row:** A1, vivo
- Sixth Row:** ResMed (Changing lives with every breath), CVTE 视源股份
- Bottom Row:** Maxwell TECHNOLOGIES, Tecate, Amphenol Advanced Sensors, Nitto, EPSON EXCEED YOUR VISION, WACOM

# Management System

## Certification



**ISO9001:2015**  
Quality Management System



**ISO14001:2016**  
Environment Management System



**OHSAS18001:2007**  
Occupational Health and Safety Management System



**ISO13485: 2003**  
Medical Device Quality Management System



**ISO/IEC27001:2013**  
Information Security Management System



**CNAS CL- 01:2006 (ISO/IEC17025:2005)**  
Accreditation Criteria for Testing and Calibration Laboratories



**ISO/TS16949:2009**  
Automobile Product Quality Management System

## Establish and Implement the management system

**QC080000:2012**  
Hazardous Substance Management System

**EICC**  
Electronic Industry Code of Conduct

**SA8000:2008**  
Social Accountability Management System

## Establish the BU BCP according the requirements

**ISO22301:2005**  
Business Continuity Management System

# Management System



Enterprise Resource  
Planning System



Balance  
Scored Card



Manufacturing  
Execution System



Business Process  
Reengineering



Six Sigma



Performance  
Management

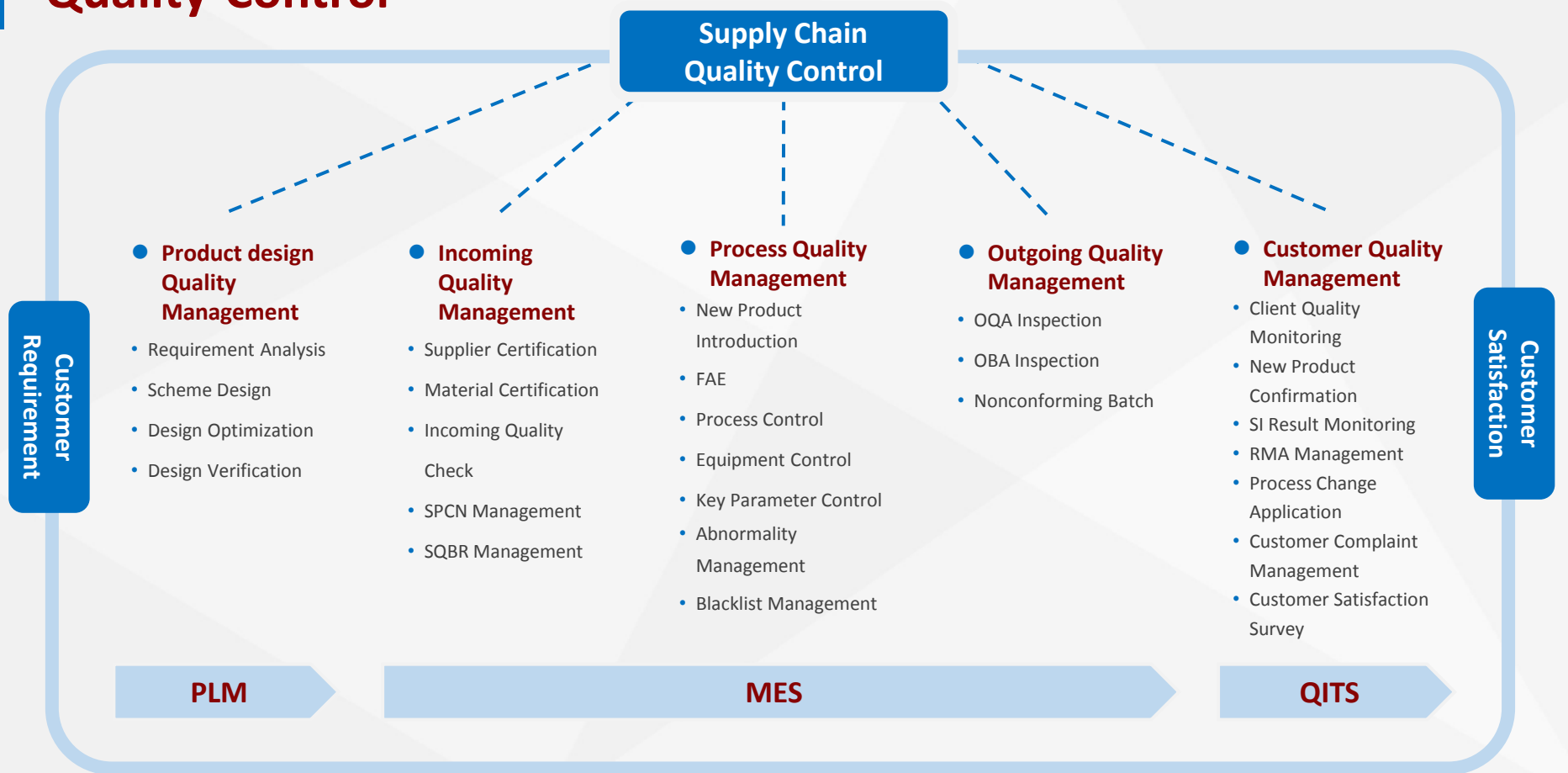


Product Lifecycle  
Management



Enterprise Intellectual  
Property Management

# Quality Control



# PCBA Capability

## ● Manufacturing Capability:

- 01005 Chip Assembly
- Online/Offline SPI
- BGA/PGA Repairing
- FPC Process Technology
- AOI & X-RAY
- MES Tracking System

### Barcode Printing

#### Laser Marking



- Sonic LM-450
- Huagong LCD10C

### Solder Paste Printing

#### Stencil Printer



- Speedline MPM 100
- FUJI GPX-C
- DEK-03IX

### Solder Paste Inspection

#### 3D SPI



- Parmi Sigma X
- Pemtron 7700

### Component Placement

#### PnP Machine



- Fuji NXT M3 & M6 III
- ASM X4is & X4i
- Panasonic TT2 & NPM-D3

### AOI (Before-Reflow)

#### AOI



- JUTZE LI3000D
- MAGIC-RAY 2000D
- VI -7K
- Cyberoptic
- OMRON

### Reflow Soldering

#### Reflow Oven



- Rehm VXC 734
- ERSa HF 3/20
- BTU 125N
- Heller 1936MK5

### 3D AOI (After-Reflow)

#### 3D AOI



- Parmi Xceed

# PCBA Capability

- Manufacturing Capability:**

- Wave Soldering
- Automatic Welder
- Ultrasonic Cleaner
- Conformal Coating
- Automatic Cutting Machine
- Automatic Labeling Machine



## In Line X-Ray Inspection

### 3D X-Ray



- Vitrox V810i S2 EX



## Selective Wave Soldering

### Selective Wave Soldering



- Ersa Versaflow 3/45



## PCBA Wash

### Cleaner



- Speedline AQ200 C
- Trek Triton



## Conformal Coating

### Conformal Coating



- PVA DELTA8



## UV Curing

### UV Oven



- PVA Spectra



## Coating Inspection

### AOI



- PVA 20/20

# Testing Capability

## Testing Engineering

- ICT
- X-ray
- FCT
- RF Shielded test
- High Pot test, Ground bond test
- Burn-in/Thermal Shock etc.



ICT PCBA Testing



Flying Probe Tester



Shield Box



Customized Tester

## RF Test Equipment



- CMW500(FDD, TDD, or both)
- QTY : 350



- CMU200
- QTY: 270



- Agilent 8960
- QTY : 243



- Bluetooth (e.g. MT8852 etc.)
- QTY: 3 (N4010A)



- Wi-Fi (e.g. Litepoint IQ2010 etc.)
- QTY:26(PXI3000 2.5G) +4(PXI3000 5G) +7 (IQ2010)
- Total: 37



# Engineering Laboratory

- **Professional Labs:**

- **Material Science Lab**
- **Reliability Lab**
- Advanced SMT Lab
- ESD Lab
- Advanced Mechanical Lab
- Calibration Lab

- **Qualifications:**

- China National Accreditation Service ( CNAS Certification )
- Guangdong Engineering Technology
- Shenzhen Technology Center for Information Memory Industry Park
- Shenzhen Precision Electromechanical and Hard Disk Components Public Technology Platform



# Failure Analysis

## ● Non-destructive Analysis

- X-Section test
- C-SAM inspection for device package
- Defect external visual inspection
- Hidden Solder Joint Test



**3D+BGA Microscope**



**Cross Section**



**Solder Joint Strength Test**

## ● Destructive Analysis

- Cross Section
- Dye & Pry Test
- Solder-ability analysis
- Solder paste test
- IC De-cap
- I-V Curve Trace Test(with Micro Probe)
- Solder Joint Strength Test
- LC Hot spot (Current leakage detect)



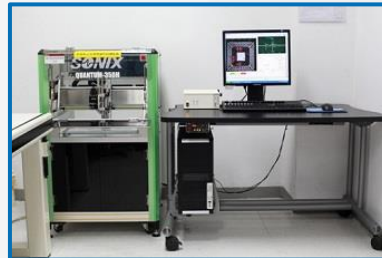
**X-Ray**



**Dye & Pry Test**



**IC De-cap**



**C-SAM Inspection**



**Solder-ability Analysis**



**I-V Curve Trace Test  
(with Micro Probe)**

# Reliability Testing

## Temp. & Humid

- Low & High Temp
- Damp Heat & Heat Cyclic
- Temp / Hum Cyclic & Change

## Mechanical Test

- Shock test
- Bump test
- Free fall test

## IP Code Test

- Water-proof
- Dust-proof

## Salt Spraying

- Neutral Salt Spraying Test



Temperature Rapid Change Test



Thermal Shock Chamber



Temp. & Humidity Test



Temp. & Humidity Test



Shock & Bump Test



Free Fall Test



Vibration Test



Water Proof Test



Salt Spray Test

# Analytical Tools

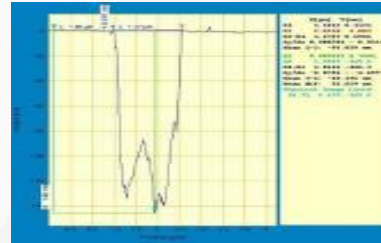
## Surface Analysis



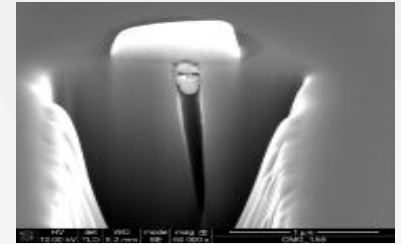
**FE-SEM/EDX**  
Mag: 80x ~ 300,000x  
Resolution : 3.5 nm



**AFM**  
Resolution : 0.1 nm



**Defect Cross section**  
AFM and SEM/FIB



## Inorganic Material Analysis



**XRF**  
Zn, Ni, Cr, Cu, Ag, Au, Sn  
Area : > 1 mm<sup>2</sup>  
Thickness : 0.25~65um



**IC**  
F, Cl, Br, NO<sub>2</sub>, NO<sub>3</sub>,  
PO<sub>4</sub>, SO<sub>4</sub>, Li, Na,  
NH<sub>4</sub>, K, Mg, Ca  
Limit : 2 ppb

## Organic Material Analysis



**FTIR**  
Resolution < 0.1 cm<sup>-1</sup>



**ATD-GC/MS**  
Range: 1.5~1050 amu  
Resolution : 2 nano gram

# MES

## Plant Resource Management

- Refined arrangement of production line
- Training and assessment



## Implementation Of Plan

- Undertake SAP work order
- Automatic working hours record



## Equipment Management

- Equipment PM
- Equipment check
- Equipment monitoring



# MES

## Lean Manufacturing

- Process control, Line inspection, WIP management
- Rework management



## Real-time Quality Management

- IQC/IPQC, etc.
- On-Line SPC



## Comprehensive Material Management

- Barcode management
- Material traceability
- Kanban system



# Customer Awards



2016.11

**Huawei** · Year 2016 The Best Quality Partner

2016.11

**vivo** · Year 2016 The Best Quality Partner

2016.11

**Nova Lumos** · Year 2016 Excellent Performance Award

2016.11

**Maxwell Technologies** · Year 2016 Supplier Recognition Award

2015.11

**Huawei** · Year 2015 The Core Partner, The Best Quality Partner

2015.04

**Seagate** · Best Supplier of Quarter Award, D2S ( Dock to Stock )

2014.04

**ResMed** · First Certified Supplier

2014.07

**Nitto** · Best Supplier Award for Special Contribution

2014.03

**Samsung** · Achievement Award

2014.03

**Samsung** · 2013 Best Award for Comprehensive Compliance Management

2014.01

**Tecate Group** · Outstanding Supplier Award



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