Lierda
利尔达

In the Internet of Everything, Lierda serves the world

Lierda Science & Technology Group Co.,Ltd.

Contents

01

Overview of Lierda

Lierda Science & Technology Group Co.,Ltd.

Lierda
利 尔 达

Brand Positioning：

In the Internet of Everything, Lierda serves the world

What do we do?

We provide one-stop service including IoT product development, technology application and service implementation

Headquartered in Hangzhou, China, Lierda Technology Group Co., Ltd. (Stock Code: 832149) officially listed on the Beijing Stock Exchange in 2023.

Established for more than 20 years, Lierda provide products for the whole the wireless field, and offer customers with complete solutions in online platforms, industrial application and terminals, making "Internet of Everything" come easier!

Headquarters: Hangzhou
Lierda Internet of Things Technology Park

Lierda

■ Achievement

Founded more than **20 years** ago,
Lierda has been deeply engaged in the IoT industry.
Our solutions cover all fields, continuing to help traditional
industries to upgrade intelligently.

LoRa Module
No.1
Global Shipments

NB-IoT Module
Top3
Global Shipments

Cellular Module
Top5
Global Shipments

IoT Module
250+
Million pcs
Cumulative Shipments

MCU
2.3+
Billion pcs
Cumulative Shipments

Lierda Product Map

Lierda 利尔达

Smart agriculture

Smart industry

Medical equipment

Internet of Vehicles

Smart transportation

POS

Wearable

Photovoltaic/New Energy

Wireless meter reading

Smart home

Security

Communication

IC technology value-added distribution

WIZnet · HiTrendtech · ROHM SEMICONDUCTOR · HEADCON 华冠电容器 · SCT · O Micro · NORDIC SEMICONDUCTOR · MagnTek · AzureWave · GOODiX 汇顶科技 · NOVOSENSE 纳芯微电子 · AIPULNION 爱浦电子 · SGMICRO 圣邦微电子 · ST life.augmented · CEPOWER 新功率 · GRECONsemi 聚晟微电子 · AltoBeam · QORVO all around you · LRC · LITEON · apmemory · KDS DAISHINKU CORP. · Ruichips 锐骏半导体 · 云速 YUNSU · 国硅集成 · Horizon Robotics 地平线 · Silan · Nation 国民技术 · HIKSEMI 海康存储 · CHIPSEA 芯海科技 · Zbit Semi, Inc. 恒烁半导体 · UTC · GEO-CHIP 地芯科技 · Gomore

Communication modules

1000Mbps	5G	
	WiFi	
	RedCap	
10Mbps	Cat.1	
	UWB	
	Nearlink	
1Mbps	Bluetooth	
		NB-IoT
100kbps		
	ZigBee	LoRa

10m   100m   1000m   5000m

Application solution

Instrumentation and Meters
Smart Water Meter | Smart Gas Meter | Gas Alarm

Smart Industry
Industrial control board | AI visual recognition product
5G Industrial Gateway | Electric/Garden Tools

Smart Building
Smrrt control | Smart panel | Smart door lock
intelligent contro | Smart sensing | Smart lamps

Positioning application
iBeacon Bluetooth Beacon | Cellular Location
UWB indoor personnel positioning system

Smart Travel
Cat.1VCU | Electric Vehicle Intelligence

Manufacturing Capability

Lierda
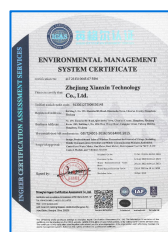
Manufacturing Capacity

9.56 million
The maximum monthly capacity of components > 956 million
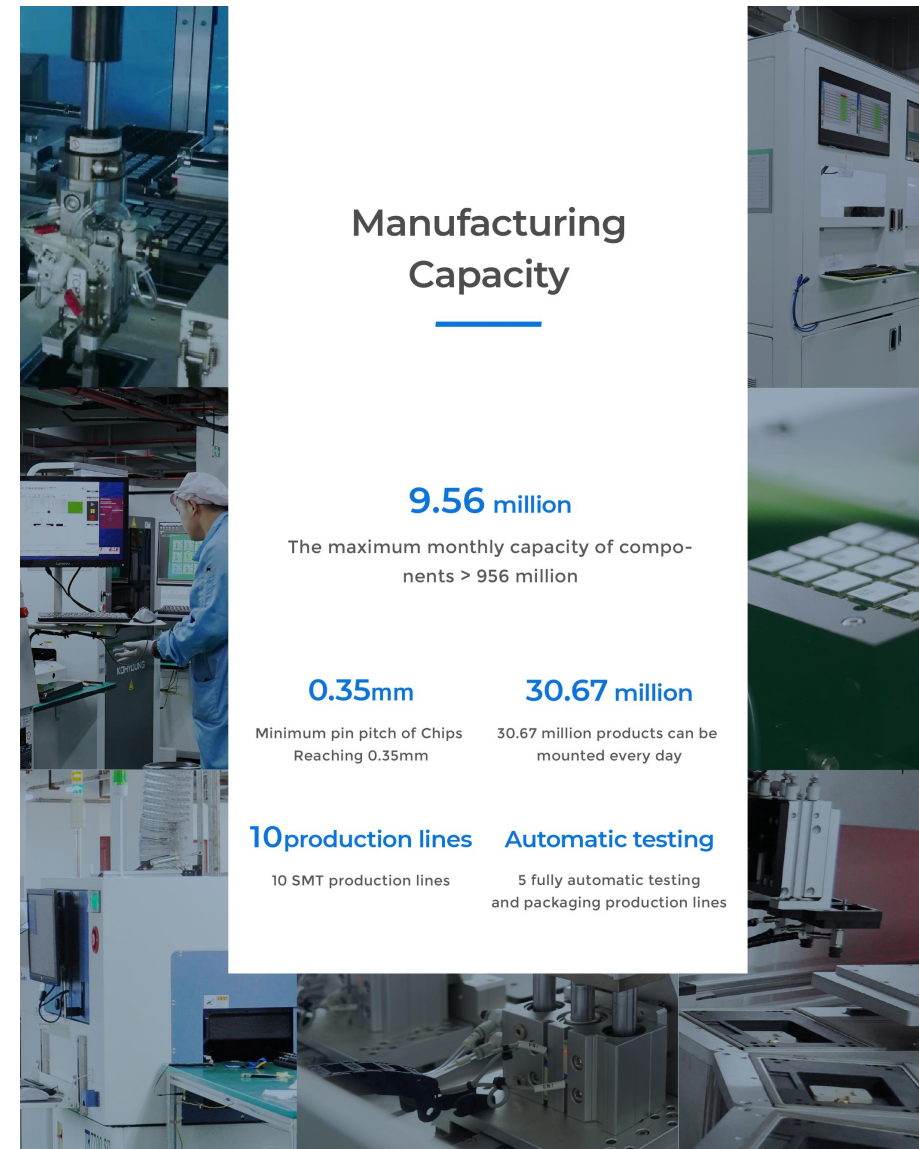
0.35mm
Minimum pin pitch of Chips Reaching 0.35mm

30.67 million
30.67 million products can be mounted every day

10 production lines
10 SMT production lines

Automatic testing
5 fully automatic testing and packaging production lines

ISO 9001:2015
International Organization for Standardization

ISO 14001:2015
International Organization for Standardization

ISO 45001:2015
International Organization for Standardization

ISO ISO13485

ATF 16949:2016

02

Electronic Components Distribution

1+X Framework

Lierda

Memory
- EEPROM
- eMMC
- Nor Flash
- PSRAM

Power supply
- AC/DC
- DC/DC
- LDO
- Charger
- REF
- PMIC
- LED driver
- LCD driver
- eFuses
- POE
- WLC
- AFE

Power component
- MOSFET
- IGBT
- SCR
- IPM

Communication
- CAN
- LIN
- 232
- 485
- PHY
- Type-C
- BLE
- Zigbee
- Wi-Fi
- NB-IoT
- LTE-M
- 4G
- UWB
- GNSS
- NFC
- KNX

Sensor
- Temperature
- Humidity
- Liquid level
- Pressure
- Barometric pressure
- HALL
- In-ear detection
- Heart rate/blood oxygen
- 3 axises,6 axises, and 9 axises
- Speech recognition
- Face recognition
- Laser ranging
- Magnetic
- Microwave radar
- Electric current
- CMOS image

Signal chain
- Operational amplifier
- Comparators
- Door drive
- Amplifier
- Isolator
- ADC
- I/O EXPANSION
- Logic
- ANALOG SWITCH
- High and low side drive
- PA
- DAC
- FEM
- Barron

MCU/MPU

Discrete device
- Second-level and third-level tubes
- ESD
- TVS
- Resistance-capacitance sense
- Crystal oscillator

03

IoT Module

5G eMBB Module

NE16U-CN — M.2

NE26U-CN OF — LGA

IMEI: 86XXXXXXXXXXXX
SN:PPPYYWWSSSSSS
5G模组 中国制造

High Speed	OpenWRT	Rich Interface	3GPP R16
UL 1Gbps DL 2Gbps	Flexible development	USB, PCM, I2S, I2C, UART, B_CODE...	Compliant with all R16 features

5G Redcap Module

NR90-HEA — M.2

NR90-HEA — Mini PCIe

NR90-HEA — LGA+LCC

IMEI:86XXXXXXXXXXXX
SN:PPPYYWWSSSSSS
NR90HEAA00NNA
5G模组 中国制造
Engineering Sample 2.0

High Speed	OpenWRT	3GPP R17	Low Cost
UL 120Mbps DL 226Mbps	Flexible development	Compliant with all R17 features	Low power consumption and low cost

■ 5G eMBB Module

NE16U and NE26U series is 5G eMBB module, supporting 5G SA/NSA and compatible with LTE/WCDMA. NE16U features 3GPP Rel.16 capabilities like 5G LAN, network slicing, 99.99% reliability, ms-level latency, and 1μs-precise timing.

■ 5G Redcap Module

NR90 series is a 5G RedCap module. Leveraging 3GPP Rel.17, it supports 5G SA mode and is 4G-compatible. With peak speeds of 226Mbps (DL) and 120Mbps (UL), it exceeds Cat.4 modules for mid-high speed needs. It enables 5G LAN, precision timing, network slicing, low-power high-accuracy positioning, uRLLC, SUL, and other 5G features.

■ Application Scenarios

CPE

Mi-Fi

Powerbank with Mi-fi

UFI

Gateway

Cat.1

Lierda

NT26 -FCN

NT35F

■ Cat.1

NT26 and NT35 Cat.1 bis Series module supports 3GPP Rel.14 and FDD/TDD-LTE standards. Featuring compact size, fast network access, and ultra-low power consumption, it integrates rich network protocols and multiple industry-standard interfaces, with support for diverse drivers and software functions to expand M2M applications.
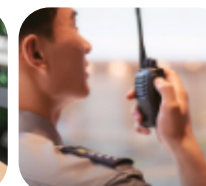
■ Application Scenarios

4G LTE Cat.1 bis
UL 5Mbps
DL 10Mbps

Protocol
Build-in multiple
network protocols

Fast Attach
2~3 seconds
access to the nwk

Low Power
low power conumption
sleeping current 3.5 uA

WiFi Scan
WiFi Scan for
Location Aiding

FOTA
Firmware upgrate
over the air

AT
AT Command via
UART and USB

Open Cpu
Open Cpu SDK
for developer

Codec
Intergraged audio codec
NT35F only

IPC
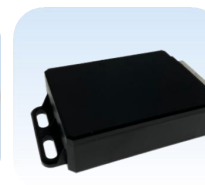
E-bike VCU

SOS

Tracker

E-Meter

POS

POC

Sharing

Charging

NB-IoT

Lierda

NB860

IMEI: XXXXXXXXXXXXXX
MAC:XXXXXXXXXXXX
SN:PPPYYWWSSSSSS

Low Power
3uA@PSM, 3.6V

Wide Voltage
2.2~4.2V

FOTA
Firmware upgrate

BLE 5.0
Support BLE 5.0

MB26-A
Y0B-Z-B01

IMEI: XXXXXXXXXXXXXX
SN:PPPYYWWSSSSSS

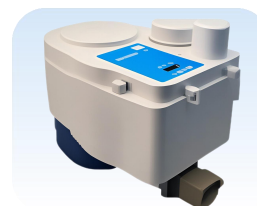**Low Power**
1.5uA@PSM, 3.6V

Wide Voltate
2.2~4.5V

FOTA
Firmware upgrate

Low Cost
Extreme low cost

■ NB-IoT

The Lierda NB-IoT module supports 3GPP standards and bands 2, 3, 5, 8, 20, 28. With a compact design, low power consumption, long-range transmission, and strong anti-interference, it enables easy, flexible product development for applications.

■ Application Scenarios

Water Meter

Gas Meter

Smoke Detector

Smart Parking

Industrial Equipment

LoRaWAN

Lierda

Gateway
OG45

Node
WB26

SN:0G8YYWWXXXXXX
MAC:XXXXXXXXXXXX

WB26

High-Performance
Adopts NXP A53
quad-core CPU and
Semtech SX1302 chip

Built-in Network Server
Pure intranet transmission
supports MQTT/HTTP
data forwarding and API call

Industrial-grade Design
IP67 waterproof and dustproof
Wide temperature and voltage
High protection level

Alliance Public Standard
Complies with LoRaWAN
Specification 1.0.4
Class A/C standard

Low Power Consumption
Standby current < 2uA

Seamless Network Roaming
Real-time switching
between multiple gateways

Multiple _x0002_Access
Supports Ethernet,
4G, Wi-Fi, etc.
Multiple communica_x0002_tion
methods

Power Failure Alarm
Abnormal alarm
through email or SMS

Quick Installation and Deployment
Support wall-mounted
installation and
pole-mounted installation

Dynamic Path Optimization
Centralized manage_x0002_ment
in the cloud real-time path
optimization

Star Topology
Reduce latency and
improve network
stability

Long Range
Coverage radius up to
3 km to 7 km

Application Scenarios

Water Meter　　**Gas Meter**　　**Robot Lawn Mower**　　**Solar**　　**Smart Building**　　**Street Light**　　**Agriculture**　　**Indoor Personnel Positioning**

BLE

Lowcost
M/S 1 conections

Master-Slave
8 conections

Wide Temp.
-40~105℃, Slave Only

Long Range
Mater-Slave

Nodic
Based on the Nodic platform

Applicaions
Support Various applications

Rich packaging
Rich packaging demensions

Low Power
low power conumption

Long Range
Long communication range

FOTA
Firmware upgrate

Wide Temp.
Wide temperature range

■ BLE

Lierda provides Bluetooth modules and solutions that meet Bluetooth LE and SIG Mesh standards. The products fall into four main series: E, S, T, and K. In each series, both hardware and software are highly compatible, which helps customers' products quickly achieve Bluetooth functions.

■ Application Scenarios

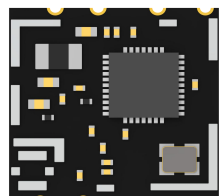**E-Bike**

E-MotorBike
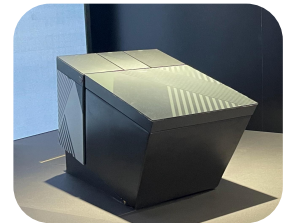
Toilet

Industrial Equipment

Meter

Matter Applications

Wi-Fi

UB6L

UB64 — USB

USB

DB6L-XX — SDIO

YB86-GP — UART

- High Speed Wi-Fi 6
- Support BLE
- Fully Certified
- Mainstream Packaging
- Rich Interfaces
- 2.4G/5.8G
  UB64 only

Wi-Fi

The Wi-Fi product line includes stand Wi-Fi Module, IoT Wi-Fi module and Wi-Fi solution. With excellent RF and complete certifications, the standard suits mainstream OS like Linux, Android, Windows, and is widely applied in IPC and TV. The IoT version, featuring flexible dev via transmittance and OPEN MCU, provides cost-effective solutions.

Application Scenarios

IPC

Video Doorbell

Robo-vac

Appliance

Car DVR

NearLink

USB
with Wi-Fi

SDIO
with Wi-Fi

UART
with BLE

Polar Codes
anti-interference

Long Range

Low Latency

High Speed

Compatible Packaging

Low Power Consumption

NearLink

NearLink is a new generation of short-range wireless connectivity technology brand native to China. NearLink features characteristics such as low latency, low power consumption and strong anti-interfer_x0002_ence ability. Lierda, a front-runner in China for SparkLink modules and solutions.Its excellent RF capabilities and full-fledged certifications allow it to meet various application demands.
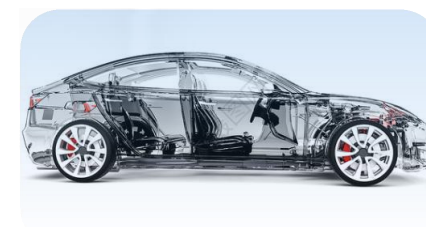
Application Scenarios

IPC

Drone

Router

PC Components

HiFi Audio

NearLink to CAN

Embedded Core Module

Lierda

IC610
MPN:L-ODMICS1-AA185
SN:XXXXXXXXXXXXX

IC530
MPN:L-IDMICS0-BA005
SN:XXXXXXXXXXXXX

High Performance
A35+M33

Maximum Frequency
1.5 GHz + 400MHz

Rich Resources

1.35 TOPS NPU

Integrated GPU
900MHz

3-Channel CAN FD

3 Gigabit Ethernet

Dual Screen Display

High Performance
STM32MP135

Maximum Frequency
Up to 1 GHz

Rich Resources

Advanced Security

High Resolution
1920x1080

2-Channel CAN FD

Dual Gigabit Ethernet

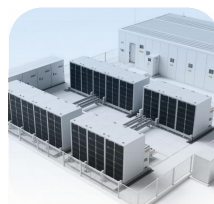**Industrial Design**

Application Scenarios

EV Charger

Photovoltaic Inverter

Energy Storage System (ESS)

Gateway

Industrial Control HMI

Medical Equipment HMI

04

IoT Module Success Case

■ Meter

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	Water-Meter	Gas-Meter	E-Meter
	WB26	WB26	
	NB860	NB86	NT26F
	NT26F	NT26F	

Platform
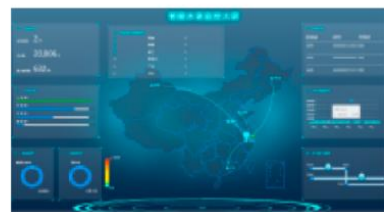
Cloud Server

Base Station

4G Base Station

NB - IoT Base Station

LoRaWAN Gateway

	Water-Meter	Gas-Meter	E-Meter
	China, India, Africa, Southeast Asia, South America	China, Australia	South Korea

Communication

4G LTE **NB-IoT** **LoRaWAN**

Terminal

Cat.1 E-Meter Dongle | Cat.1 Gas Meter | NB-IoT Water Meter | NB-IoT Gas Meter | LoRaWan Water Meter | LoRaWan Gas Meter

SmartHome

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IOT Wi-Fi Module
Supprt UART interface

UB6L Wi-Fi 6 Module

EB92/EB95 BLE Module
Support BLE MESH and Matter for Smart Home

DB6L Wi-Fi 6 Module
Low cost

S98B

SP98 BLE Module
Long range Max. to 700m

UB64 Wi-Fi 6 Module
24GHz/5.8GHz Dual Frequence

Video Doorbell|

EB95/EB92 BLE Module
Low power 6.3 uA(avg.)

EB95 BLE Module
Low cost

WB26 LoRa Module
Long range and Low power

SB97 BLE Module
Wide temperature up to 105℃

EB21 NearLink Module
Long range, Low latency, High speed, Replace the traditional witing harnesses of automobiles.

LoRaWAN Street Light

Lierda

NETWORK SERVER

Unicore3.0 NS

GATEWAY

TERMINAL EQUIPMENT

WB26

GREECE

SPAIN   1   2

SAUDI ARABIA   3

5   THAILAND

4
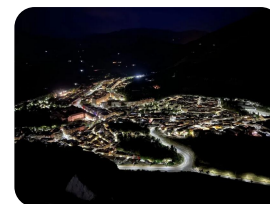
MALAYSIA

SPAIN

GREECE

SAUDI ARABIA

MALAYSIA

THAILAND

Industrial Equipment

Lierda

Industrial Control Mainboard	Gateway	Vacuum Pump	Industrial Lubrication Oil Pump	BMS
IC530 IC610	5G eMBB NE16U 5G Redcap NR90	BLE: SB97	NB-IoT: NB860 Cat.1: NT26F	BLE: SB97
Smart Factory & Smart Warehouse in China	Smart Factory & Smart Warehouse in China	North America	China & Asia	Europe
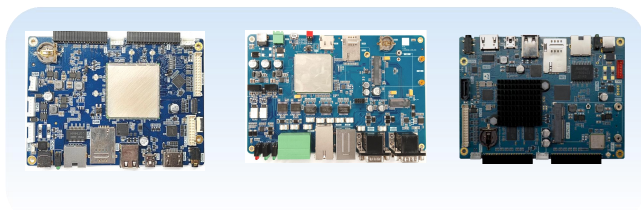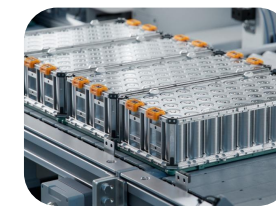
POS

Cat.1 NT26F, NT26K

10 milion pcs/year

→

China, Southeast Asia

IPC

Wi-Fi DB6L
Cat.1 NT26F, NT26K

5 milion pcs/year

→

China, Southeast Asia

Tracker

Cat.1 NT26F, NT26K

200 k pcs/year

→

Asia, Europe

Robot-Vac

Wi-Fi DB6L

500 k pcs/year

→

China, Southeast Asia

Robot Lawn Mower

Wi-Fi DB6L
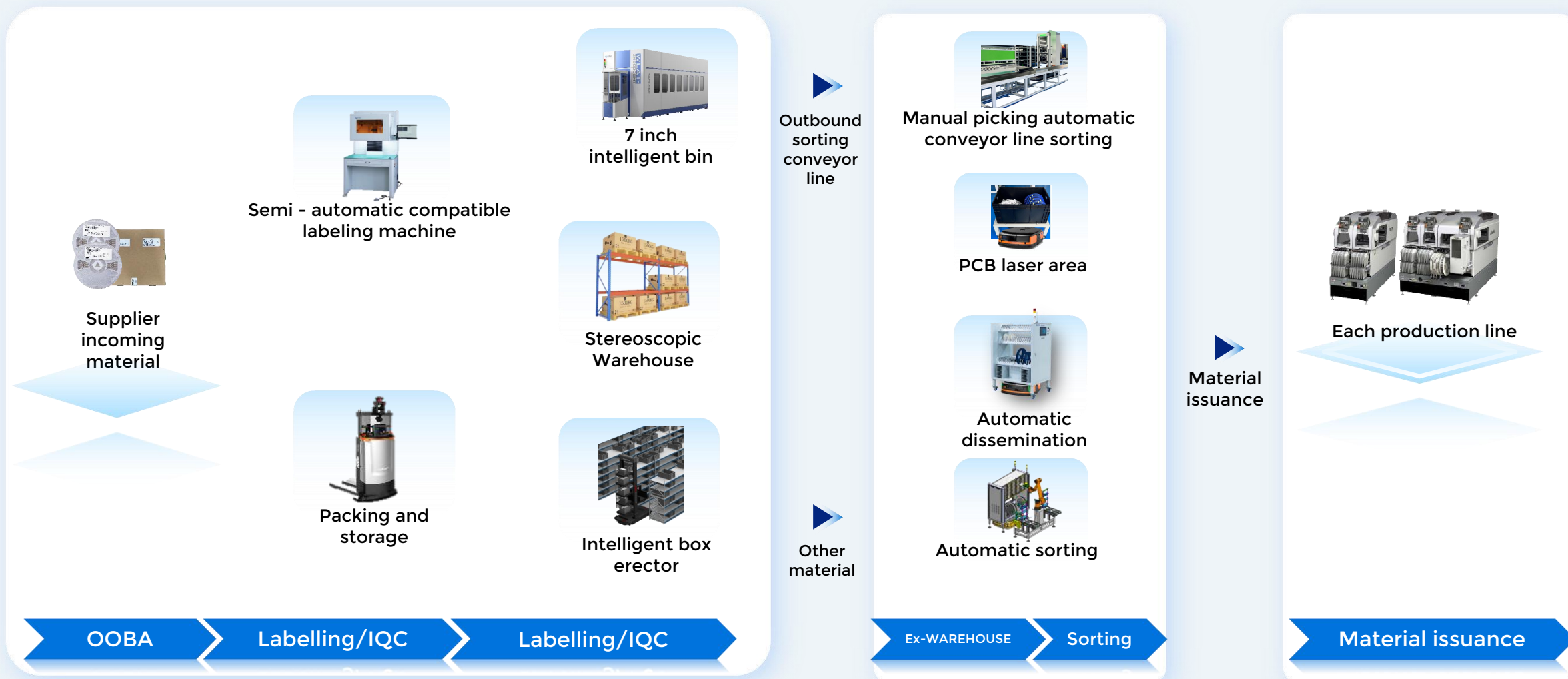
100 k pcs/year

→

China, Sutheast Asia
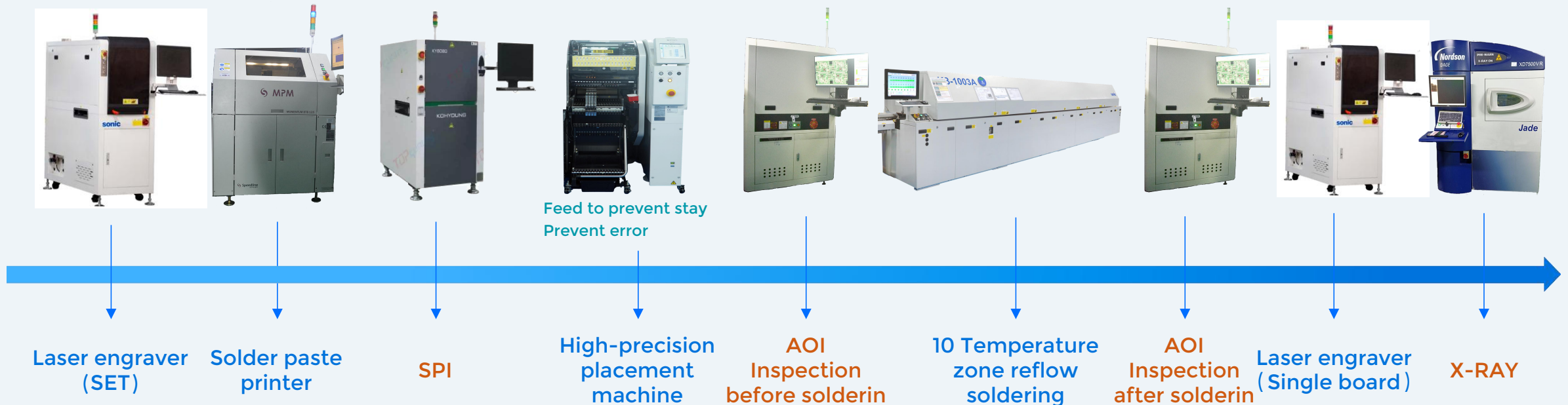
05

EMS
Electronics Manufacturing Services

Intelligent Warehousing

Lierda

WMS system — Intelligent storage, Automatic ingredients, FIFO, Automatic distribution

Supplier incoming material

Semi - automatic compatible labeling machine

Packing and storage

7 inch intelligent bin

Stereoscopic Warehouse

Intelligent box erector

Outbound sorting conveyor line

Other material

Manual picking automatic conveyor line sorting

PCB laser area

Automatic dissemination

Automatic sorting

Material issuance

Each production line

OOBA → Labelling/IQC → Labelling/IQC

Ex-WAREHOUSE → Sorting

Material issuance

Intelligent Manufacturing

Lierda

SMT Equipment	SMT lines **10**	SMT mounting capability	**MES**

SMT lines 10
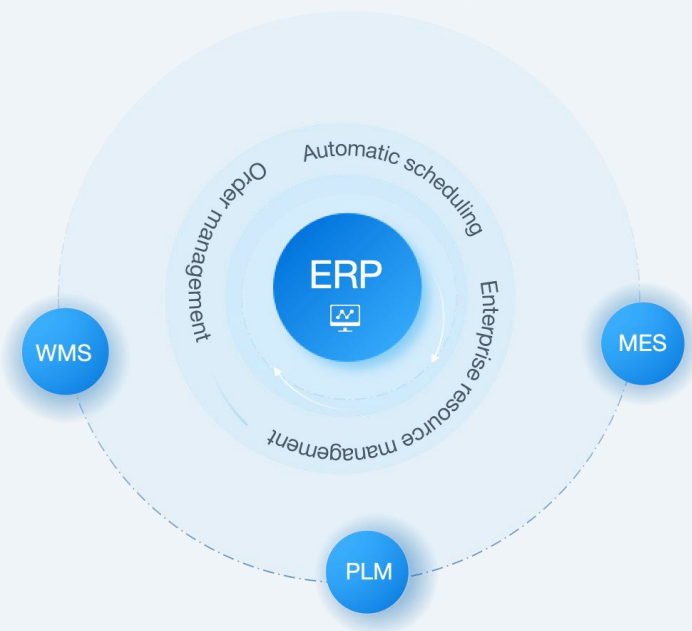**Each line is paired with SPI & AOI**

SMT mounting capability
Minitype: **01005**
High precision: **0.35mm BGA**
Large size: **90-120 mm** material

SMT patch welding straight rate **99.8%**
Pass rate **99.9%**

CPK 1.8-2.0

MES
Data acquisition,
Process control,
Material anti-freeze

Mounting Rate——Materials **100k+** (Line/hour), Total Material **4.8 billion** pcs/year；Cellular Module: **50 million** pcs/year

Feed to prevent stay
Prevent error

Laser engraver (SET)

Solder paste printer

SPI

High-precision placement machine

AOI Inspection before solderin

10 Temperature zone reflow soldering

AOI Inspection after solderin

Laser engraver（Single board）

X-RAY

Automated Production Workshop

Lierda

| Automatic | Automatic production lines 7
Daily output of modules 100k+ | MES
Process control,
The test data is saved in real time | The test efficiency is improved by 3 times
Pass rate enhancement 2% | Automation
VS Manual |

Collage
burning

CNC
dividing board

Automatic
fitting machine

Automatic
RF Test

Appearance & Flatness
detection

Automatic
packaging

Equipments & Quality Guarantee

Lierda

Order management
Automatic scheduling
Enterprise resource management

ERP

WMS

MES

PLM
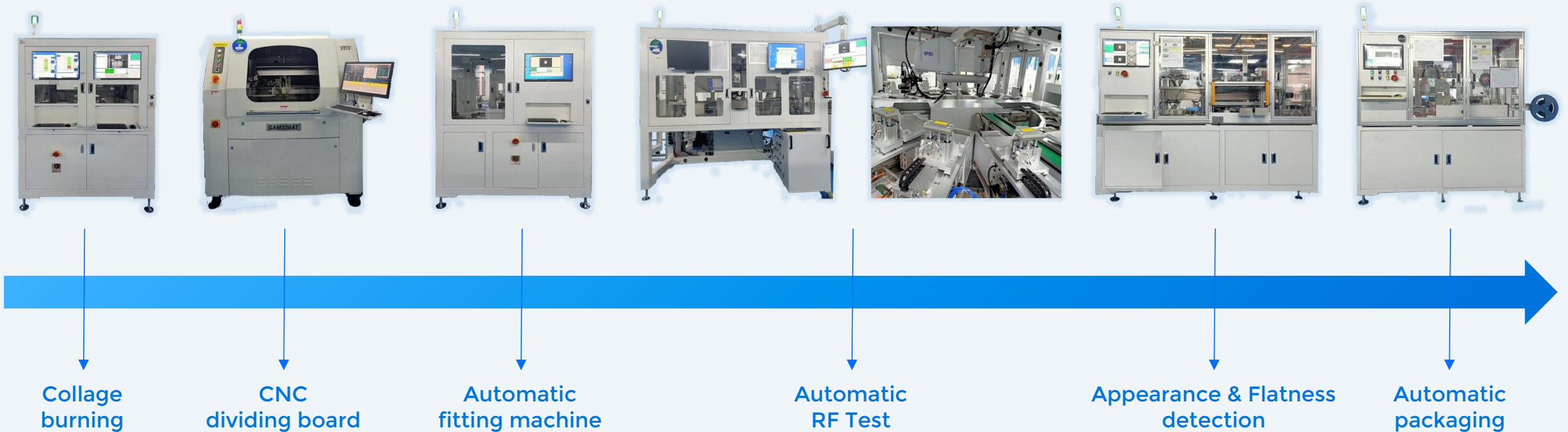
Constant Temperature Shielded Room

With **12** completely isolated wireless signal of the constant temperature shielding room, the maximum removal of external interference on the product test, so that the product test value is real and effective.

N9000A
Spectrum Analyzer

E4438C
Vector Signal Generator

CBT 32
Bluetooth Tester

WT-200&WT-160
Wireless Network Tester

Multi-DUT
wireless tester

WMS Warehouse Management System

MES Manufacturing Execution System
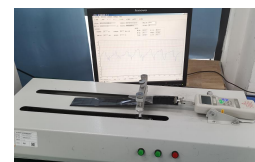
PLM Product Lifecycle Management

QC Test Equipents

High precision LCR tester

Solderability test tin furnace

Strip stripping tension tester

RoHS test instrument

First article inspection

Secondary image projector

Nano spraying equipment

Lierda

AUX AccoPower ACON BES TECHNIC 中国移动 China Mobile China unicom 中国联通 中国电信 CHINA TELECOM 长江汽车电子 Changjiang Automobile Electronic

CONTEC DAIKIN alhua TECHNOLOGY Deye 德業 ECOVACS FOX ESS 广汽乘用车 GAC MOTOR GOODiX

Goertek GOODWE HUAWEI Hisense HIKVISION Hanwei HEXING Horizon Robotics

HiTrendtech iFLYTEK INNOVER inmotion iHORN KOHLER NXP NORDIC SEMICONDUCTOR

NOVOSENSE OPPO QORVO all around you ROHM SEMICONDUCTOR ST life.augmented SITERWELL SGMICRO SUNGROW

SAJ Tanda 威星智能 VIEWSHINE VALUE WILLFAR yuwell ZENNER ZW ELEC

Lierda

Lierda Science &
Technology Group Co.,Ltd.

THANK YOU