

Company Profile

BIWIN STORAGE TECHNOLOGY CO., LTD.

BIWIN®

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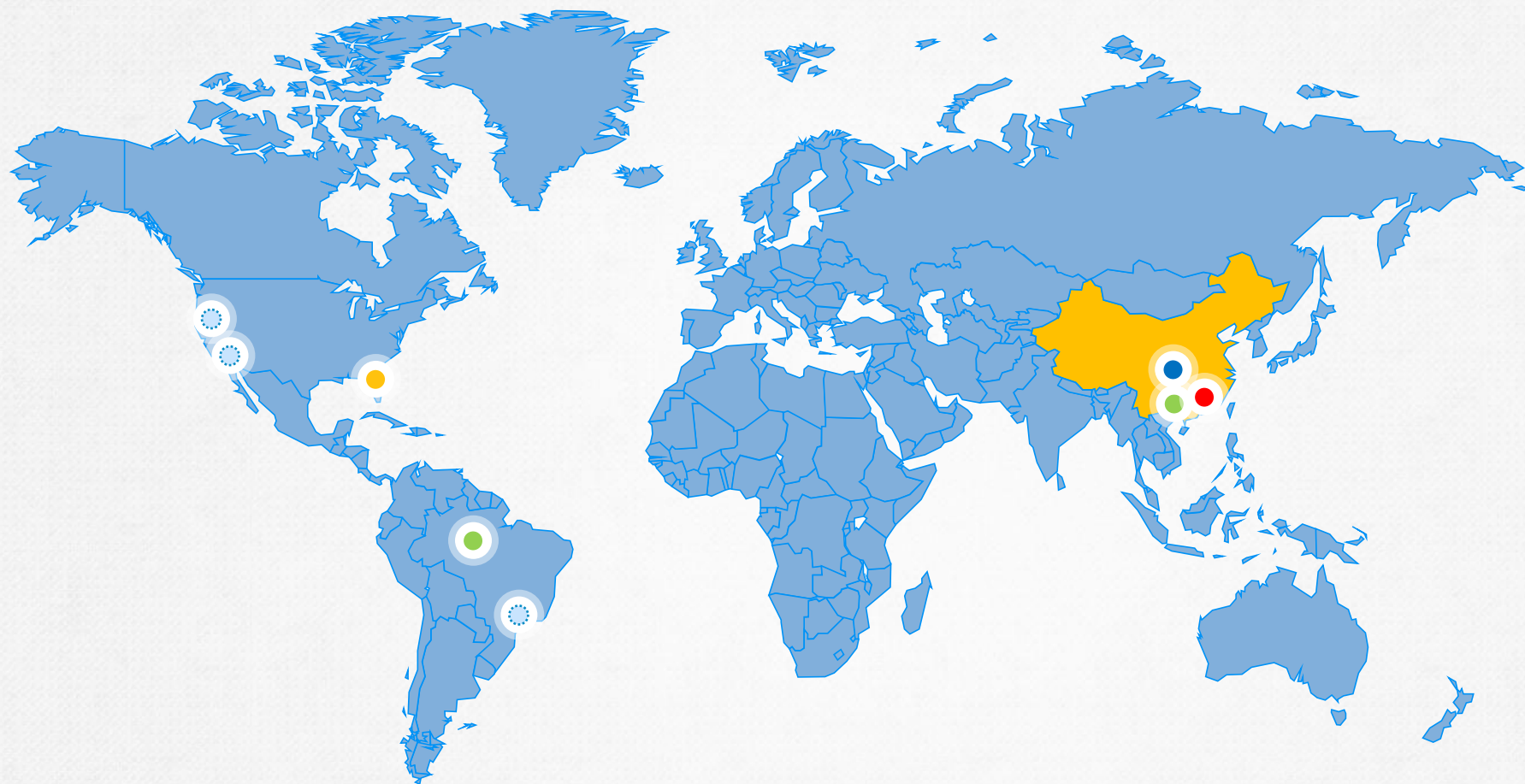
About BIWIN



- Founded in **1995**, headquarter in Shenzhen, China
- **25** years R&D in storage and micro electronics
- **12"** wafer packaging factory of Biwin built in 2009
- **11,000m²** total area of the factory
- **1K** level Dust-free workshop
- **800** staff around, multiple patents of storage core technology, self-developed software and hardware, firmware development, storage algorithm as well as craft development.
- **3** types of product & service: Storage, IOT Module, Wafer Packaging
- **One-stop service**: Circuit Design, ID Design, Module Design, Software Development, Application Development, Wafer Packaging and Testing, Turnkey Solution (Total solution).

About BIWIN

Global Network

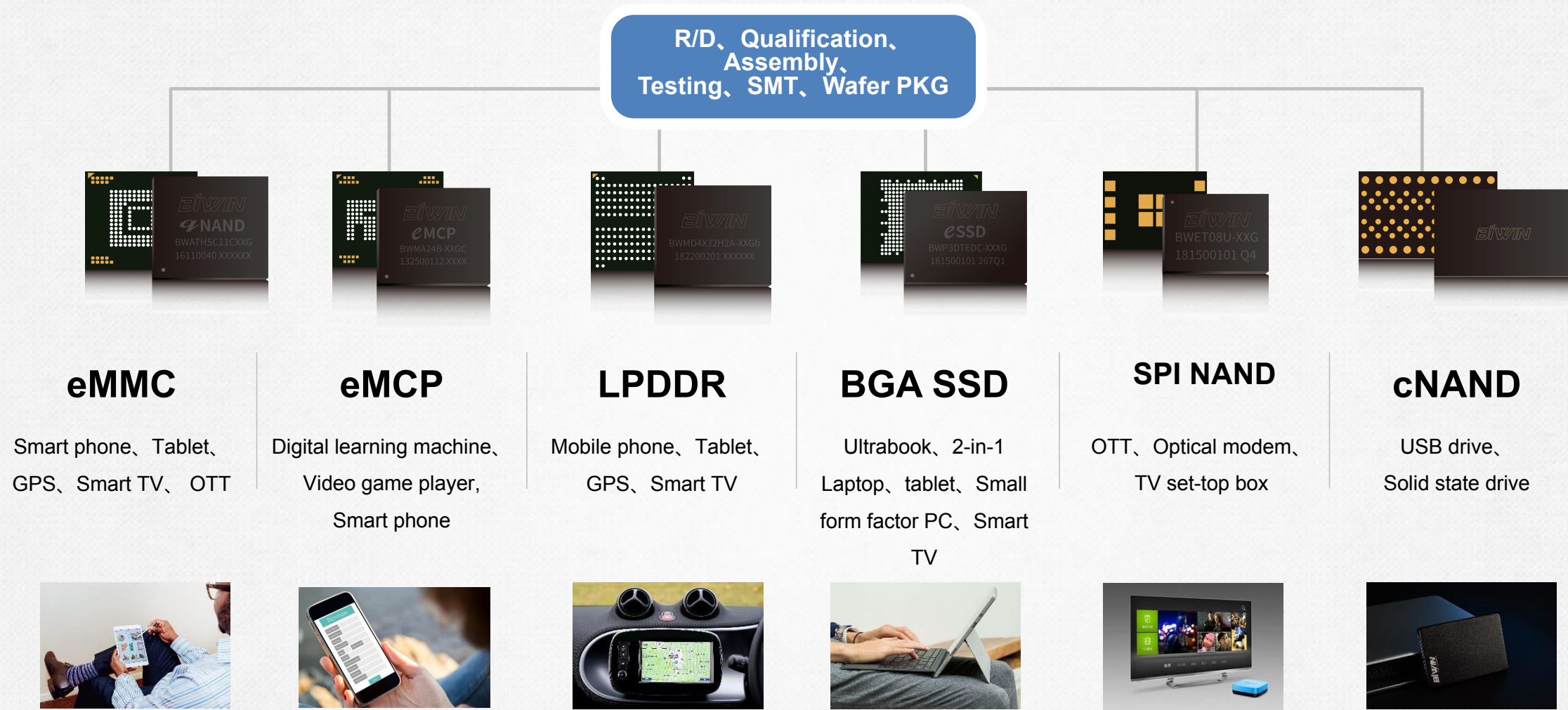


● R&D center x 2

● Production location x 3

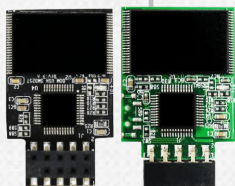
● Headquarter

Overview Of BIWIN Embedded Products



Overview Of BIWIN SSD

R/D、Qualification、
Assembly、
Testing、SMT、Wafer PKG



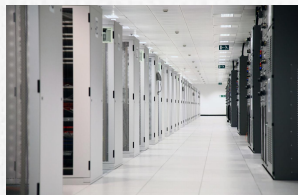
Industrial Storage

Monitor 、 Medical equipment
、 NC machine、 Industrial
Computer、 ATM、 POS



Enterprise Storage

Data analysis and storage、
Media stream、 Server
、 Image and video
workstation



Client Storage

Laptop 、 Desktop 、 All-
in-one PC



Electronic Sports

Gaming
Laptop、 Gaming
Desktop



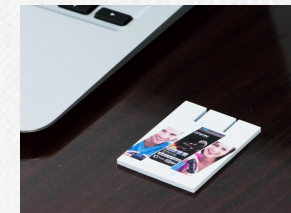
Portable SSD

Business man、 Mobile
Office



Customized SSD

We can provide
customized service for
SSD



R&D Capability

Firmware R&D

FW Front End

- Custom script testing of Test Metrix
- Adjust Front-end protocol (eMMC) process for different host platform compatibility
- Meet the front-end protocol testing requirement of eMMC 5.0



FTL

- Develop production level Independent FTL codes
- Custom FTL algorithm and architecture for different industry customers
- Fully support the script test requirements



CTL

- Quickly import various new 2D or 3D Flash; achieve MP within 1~1.5 months.
- Independent flash feature analysis team; Adjust FTL and CTL algorithm according to the analytic results of different NAND flash



MP TOOL and Self-Test FW

- Adjust mass production aging process according to different Flash features
- Advanced pilot production aging test platform and terminal customer test platform



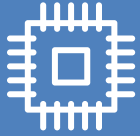
OTA and REMP

- Complete process of OTA and REMP
- Process of debug & rework



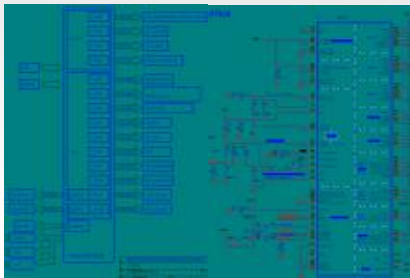
R&D Capability Capability

Hardware R&D



Principle Design

Reference PCB
Electromagnetic shielding
Signal integrity
Power protection



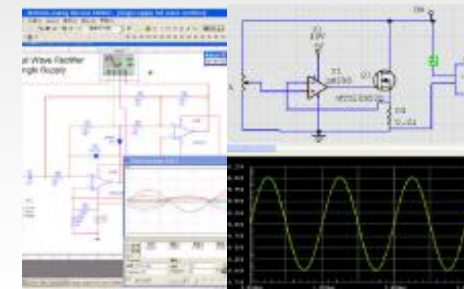
PCB Design

High integrated level
Signal masking
Abstract heat
Testability
Manufacturability



Pre-simulation

IX analysis, AC analysis, Transient analysis,
Heat analysis, Parameter analysis, Fourier
analysis, Monte Carlo analysis, Noise analysis,
Stress analysis, Distortion analysis, etc



R&D Capability Capability Testing

Reliability Testing

HTOL
LTOL
HTSL
ESD
Temp cycling
Mechanical Shock
Vibration

Compatibility Testing

Chipset
O/S
Board maker
Brand PC/Notebook

Electrical Testing

Power
Signal
Timing
R/W performance
IOPS

Production-Manufacturing Capability

Factory Introduction

2009 year of fundation, Shenzhen base

Factory Areas : 12,042 square meters

Product line: embedded memory chip, USB storage module, memory card, solid state drive, package testing

	Solid State Drives (Monthly)	Flash (Monthly)	Embedded Chip (Monthly)	Package & Testing (Monthly)
SHENZHEN	350K	2M	5M	7M

New Factory Facility Introduction

New R&D center estimated completion time: 2020 Q2, based in Huizhou

Factory Areas : 110,000 m²

Production line: embedded memory chip, USB storage module, memory card, solid state drive, package testing

	Solid State Drives (Monthly)	Flash (Monthly)	Embedded Chip (Monthly)	Package & Testing (Monthly)
HUIZHOU	1.5M	20M	15M	40M

Package Testing

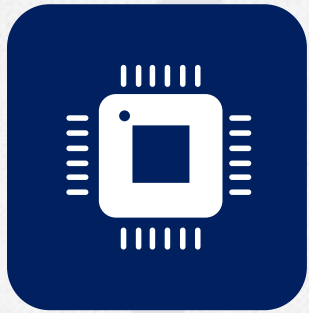
Introduction to Huizhou Science and Technology Zone



The construction of BIWIN Huizhou Science and Technology Zone was started on 2018, which is the key project in Guangdong Province. This project is located in Daoguantian village, Chenjiang Street, High-technology Zone, Huizhou City. The total investment of the first phase project, which covers an area of 35,561 and has total construction area of 110,000 m^2 , is 350 Million RMB.

Production-Manufacturing Capability

Wafer Packaging Process



Back Grinding

Machine Model

TSK PG300RM

Precision

The wafer can be grinded to 50um thickness, tolerance +/-10um



Die Sawing

Machine Model

TSK AWD-300TXB & Disco

DFD6361

Precision

Die Sawing process is to cut the wafer into separate pieces.



Die Bonding

Machine Model

Hitachi DB700

Precision

Tolerance +/-5um



Laser Cutting

Machine Model

HAMIs semiconductor-3000

Precision

Tolerance +/-30um



Molding

Machine Model

Towa Auto Mold Y-1

Precision

Tolerance +/-0.1mm



Wire Bonding

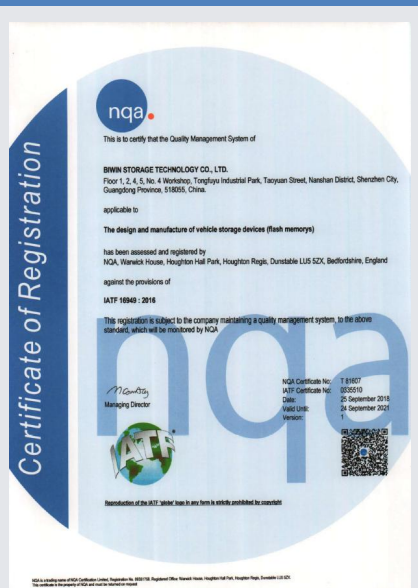
Machine Model

K&S Iconn

Precision

Tolerance +/-5um

BIWIN Quality System Certifications



IATF:16949



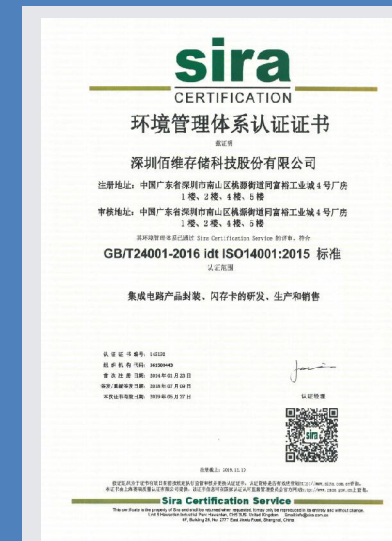
**AEO
CERTIFICATE**



**IECQ-CQ
080000**



ISO9001:2008



ISO14001:2004



ISO9001:2015

QCO80000/ISO14001/ISO9001/BSCI/AEO
We passed the validation of **IATF:16949** in 2018

SSD Products form factor



2.5" SATA



2.5" PATA



M.2 SATA



M.2 PCIe



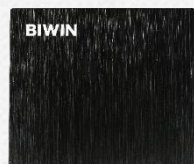
Industrial SSD



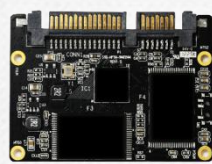
U.2 SSD



AIC PCIe SSD



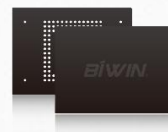
1.8" SATA



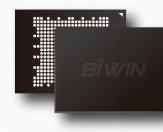
Half Slim SSD



mSATA/mSATA Mini SSD



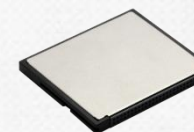
SATA BGA SSD



PCIe BGA SSD



CFast Card



CF Card



SiP SATA
Portable SSD



FPC Automobile Black Box SSD



SATA DOM SSD



USB DOM SSD



PATA DOM SSD

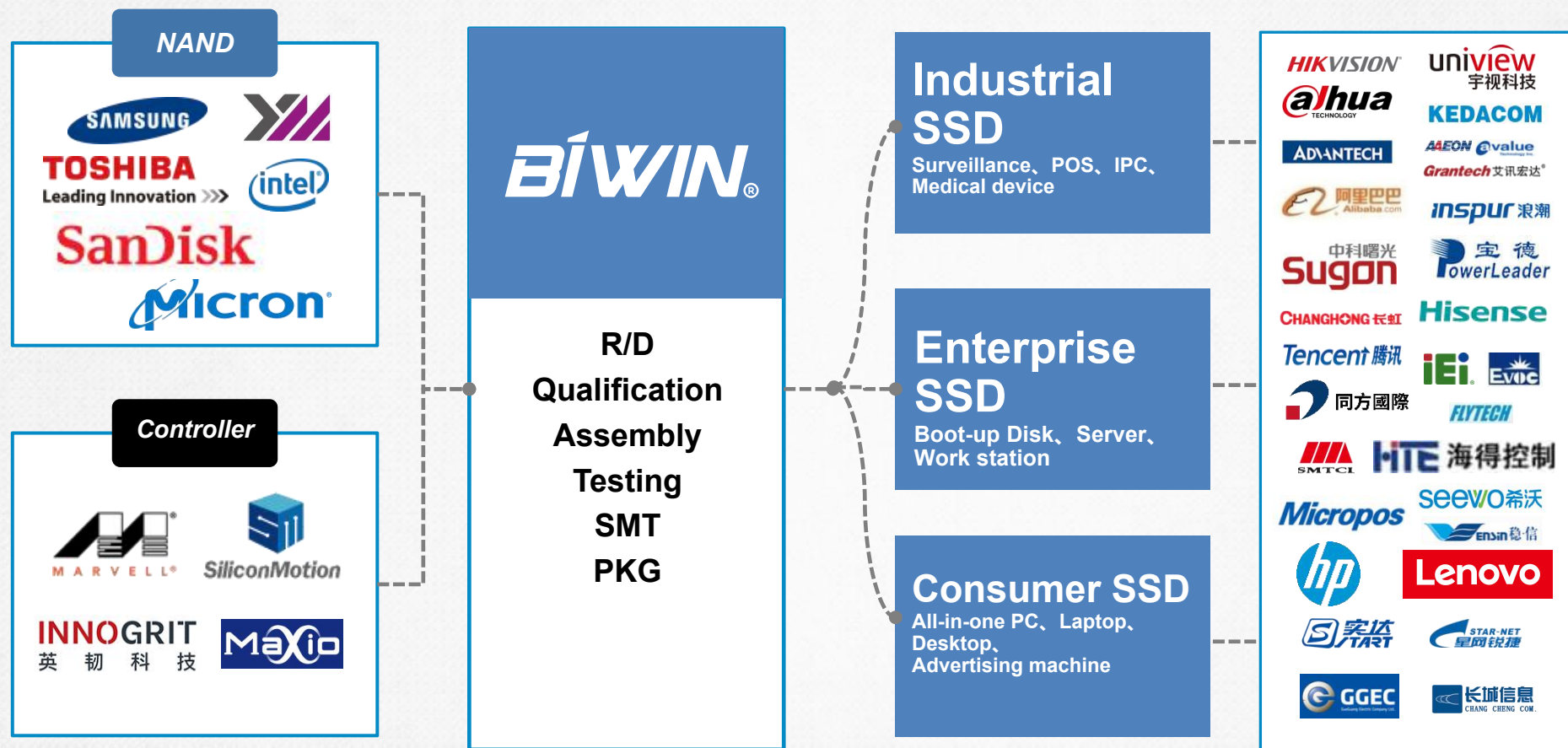


Thunderbolt™
Portable SSD



SATA Portable SSD

Market and Sales SSD

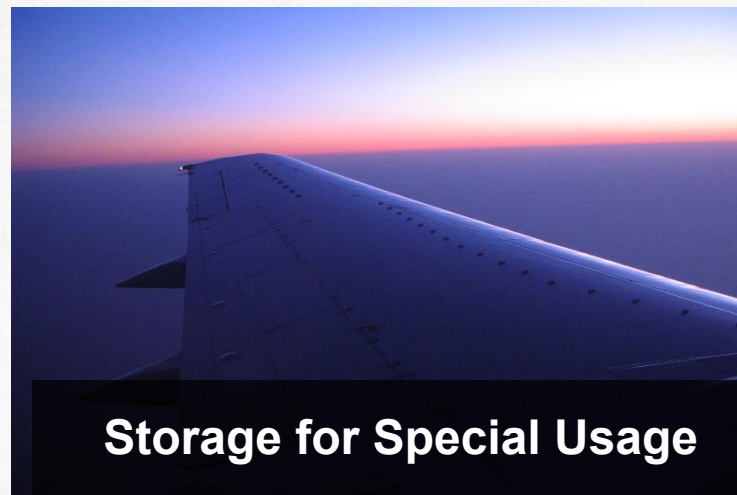


Solid State Drive

Bright Spots of BIWIN SSD



By positioning of High-end mark, we are widely accepted by customers and recognized by authorities. The Portable SSD P800 achieved CES 2018 Innovation Awards.



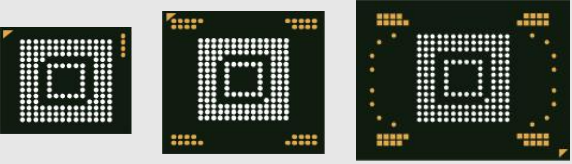
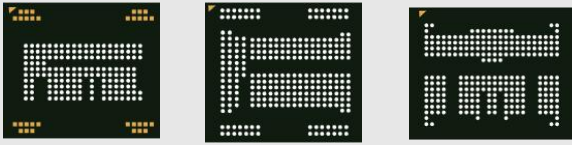
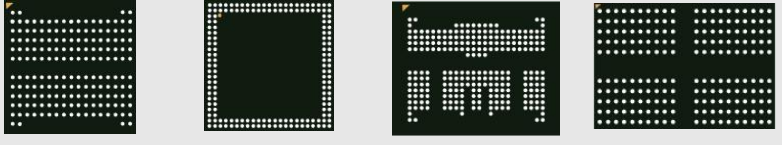
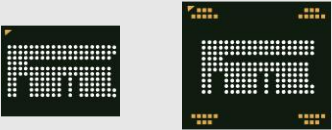

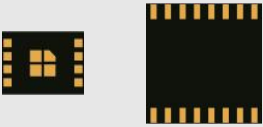
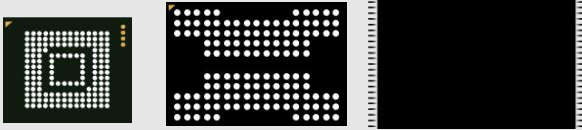
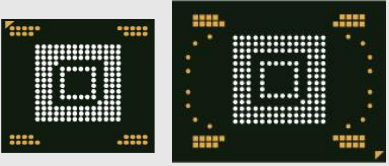
1. **Special Field.** High-end Storage for military. Applied to Many special storage research and development projects.
2. **Financial Terminal Field.** Supplied to more than 300,000 POS Machines, ATM Machines and other high-reliability storage equipment.
3. **Vehicle-mounted Field.** Served for nearly 100,000 vehicles , and applied to High-speed train monitoring, train monitoring, bus monitoring and other mobile monitoring)



Embedded SSD Products, High speed, Thin



Embedded Product form factor

	eMMC			eMCP			LPDDR			
Picture										
Dimension (mm)	8.0×8.0 9.0×11.0	11.5×13.0	12.0×16.0	11.5×13.0	11.5×13.0 11.66×13.16	11.5×13.0 11.5X14.5	11.5×11.0	12.0×12.0	11.5×14.5	10.0×14.5
Package	LFBGA153	LFBGA153	LFBGA169	LFBGA162	LFBGA221	BGA254	LFBGA178	LFBGA168	LFBGA254	LFBGA200
	nMCP		ePOP	SPI NAND		DMMC			UFS	
Picture										
Dimension (mm)	8.0×10.5	11.5×13.0	10.0×10.0	6.0×8.0	10.3×10.6	9.0×11.00 (Controller)	12.0×20.0 (FLASH)	12.0×18.0 (FLASH)	11.5×13.0	12.0×16.0
Package	LFBGA162	LFBGA162	LFBGA136	LGA 8	LGA 16	LFBGA153	BGA132	Tsop48	LFBGA153	LFBGA169

Embedded Product Platform Qualification

Embedded Focus Platforms--- AP/SOC/MCU strategy partner

Smart Speaker

CTM QTY: 106

MT8516
APQ8017
APQ8009
Smart Home Hub
A8
R16
RK3036
RK3229
RDA5981



Smart phone

CTM QTY: 57

MSM8909
MSM8905
MSM9x07
450
MT6580
MT6737、MT6735
MT6739
MT6761
SC9850
SC9853
SC7731E
SC9820E
SC9863A



OTT/IPTV

CTM QTY: 32

Hi3798
Hi3716
MSO9380
RK3228H
RK3228B
S912
S905
MT8696
MT8685
T966



Smart Device

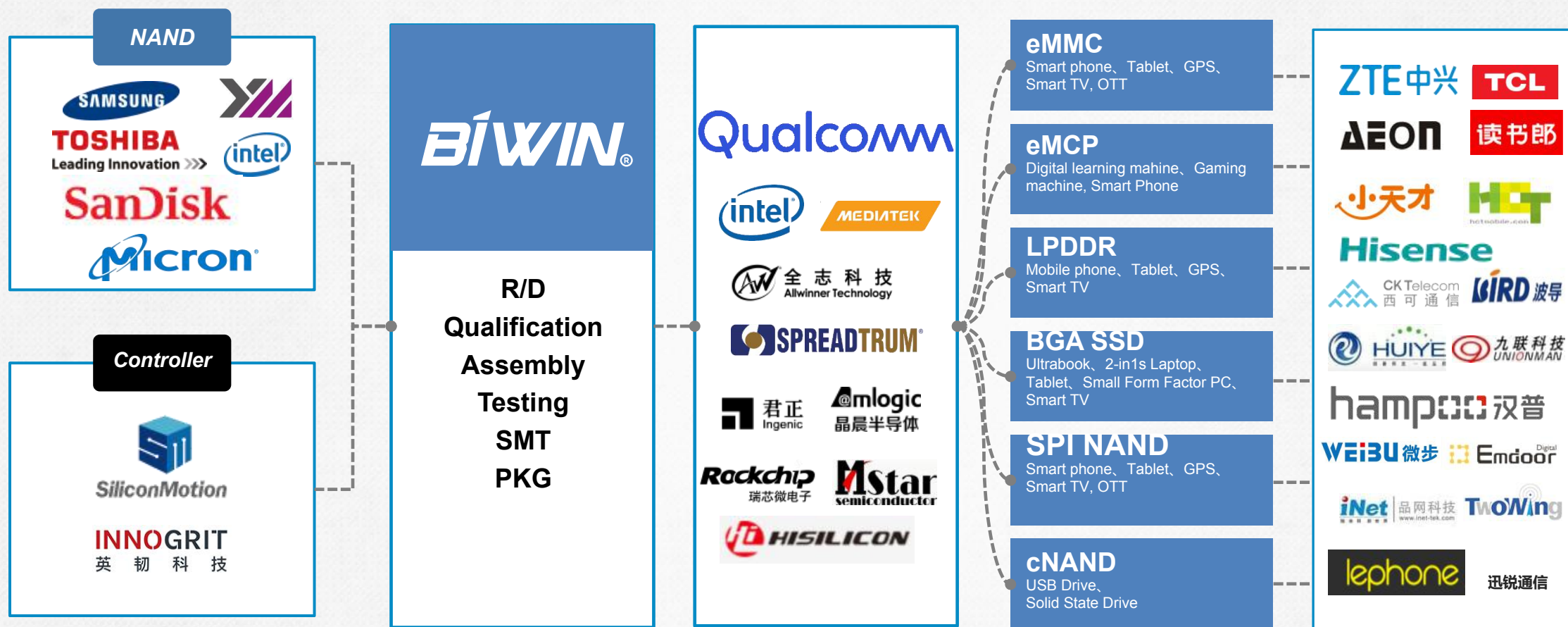
CTM QTY: 53

MT6261
MT2503
X1000
R40
Hi3518
MT8127
MT8183
MT8163



Market and Sales

Embedded Product



Embedded Memory Chip

Bright Spots of Memory Chip



STB(Set Top Box)

Deep into China mobile set-top box market, We are STB certificated original factory and the only one domestic investment Nand Flash factory.

Our annually supply of memory chips is 8 million which covers nearly 20% market share. Main partner: UNIONMAN, YSTEN, Xingfei, TwoWin.



Smart Phone

With the increasing shipments to smart phone customers, our customer structure is improving. We are one of the few domestic memory chip manufacturers which can break into tier 2 mobile phone supply chain. We are stepping into Tier 1 supply chain.



Intelligent Speakers, watches, etc

The shipments to intelligent terminals, such as intelligent Speakers, watches and so on are growing rapidly.



Vehicle-mounted and Internet of Things

We will focus on Internet of things and on-board electronics in our future development. We continuously supplies to Internet of things module manufacturers. We had passed the vehicle certification and began the supply.



BIWIN Strengths



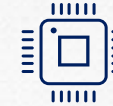
Specialization

Focused on development of flash and related software products for 25 years; Relying on its leading encapsulation technology, BIWIN actively promotes storage technology and SIP to business promotion and application



Quick Response

With the joint efforts of marketing team and R&D team, BIWIN constantly analyses the trend of the market, product development and customization service innovation, responses to market and customer requirements rapidly



Technology Advantage

Founded in 2009 with its own perfect 12' ' wafer packaging factory, BIWIN has put huge investment and energy to expand semiconductor packaging enterprise in the south of China



Win-win Philosophy

Our core advantages are packaging & testing services and industry resource integration for hardware cooperations in the field of micro electronics. BIWIN is willing to work with customers on the principle of complementary advantages to develop new cooperation for storage industry



THANKS!

BIWIN STORAGE TECHNOLOGY CO., LTD.

www.biwin.com.cn