



TestConX 中国
China™

October 23 - 25 2018

Suzhou - Shenzhen, China

Archive

COPYRIGHT NOTICE

The presentation(s)/poster(s) in this publication comprise the Proceedings of the 2018 TestConX China workshop. The content reflects the opinion of the authors and their respective companies. They are reproduced here as they were presented at the 2018 TestConX China workshop. This version of the presentation or poster may differ from the version that was distributed in hardcopy & softcopy form at the 2018 TestConX China workshop. The inclusion of the presentations/posters in this publication does not constitute an endorsement by TestConX or the workshop's sponsors.

There is NO copyright protection claimed on the presentation/poster content by TestConX. However, each presentation/poster is the work of the authors and their respective companies: as such, it is strongly encouraged that any use reflect proper acknowledgement to the appropriate source. Any questions regarding the use of any materials presented should be directed to the author(s) or their companies.

The TestConX China logo and TestConX logo are trademarks of TestConX. All rights reserved.

www.TestConX.org

Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

Lin Fu

VLSI Research Europe



Suzhou ▪ October 23, 2018
Shenzhen ▪ October 25, 2018



Contents

- 1 Global Semiconductor Market
- 2 Asian Market
- 3 Chinese Market
- 4 Global Socket Market
- 5 Summary



Overview of Semiconductor Market 2017

*Key
Revenue
Drivers*



Memory

60%↑



22%↑



20%↑

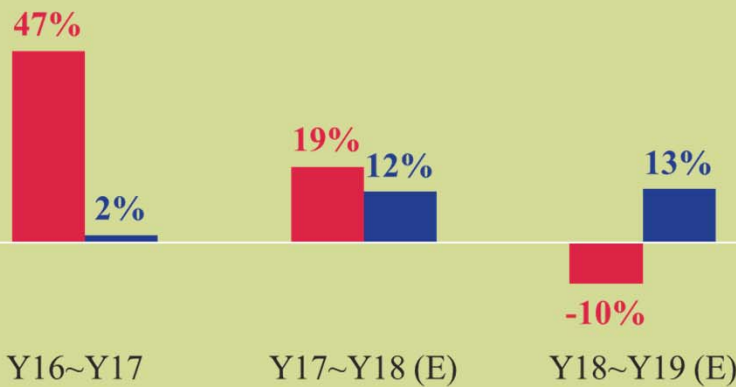
IC Sales > \$350Bn

Semi Sales > \$400Bn

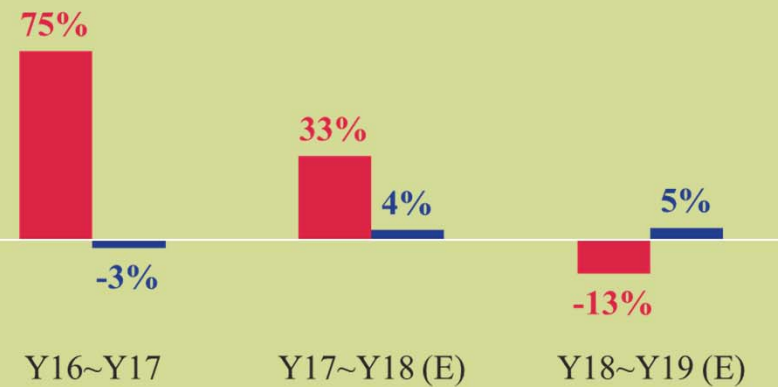


Outlook of Memory Market

NAND Flash Growth: **Revenues** vs. **Units**



DRAM Growth: **Revenues** vs. **Units**



- Growth for memory market in 2017 was price-driven
- Weakening NAND and DRAM prices will slow down the revenue growth in 2018 and may result in the negative revenue growth in 2019 even if unit shipments steadily increase

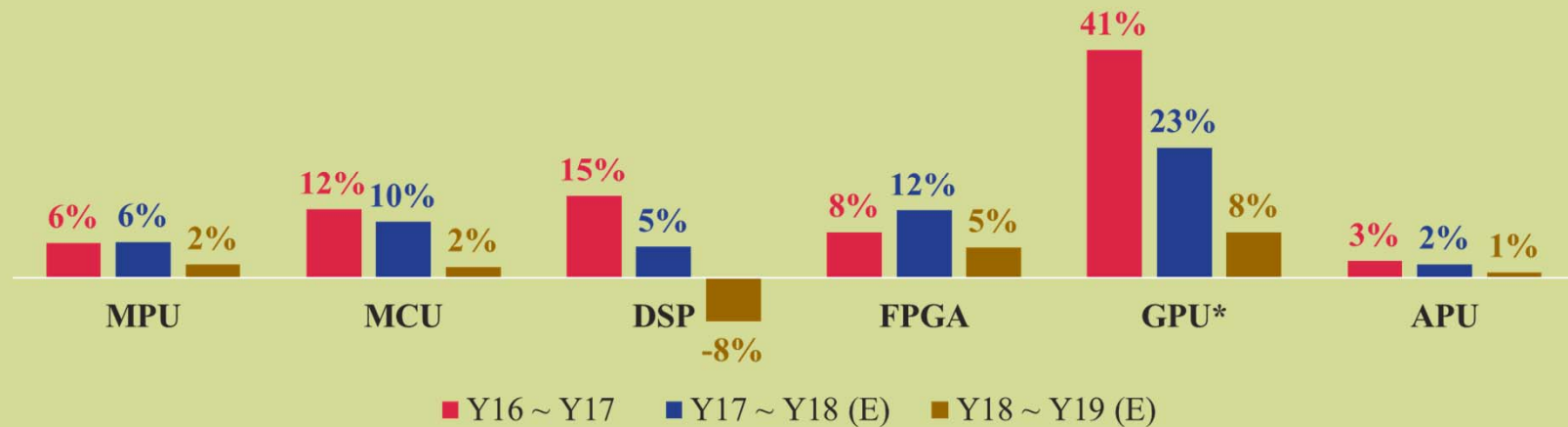


Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

2018

Outlook of Non-Memory Market

Revenue Growth of Non-Memory Market



- Graphics processor sales strong due to AI and Blockchain
- Applications processor sales weak as smartphone and tablet sales mature

ICs Consumption vs. Supply by Region 2018 (E)



	Consumption	Supply
China	\$160B	\$20B
Japan	\$30B	\$25B
South Korea	\$25B	\$90B
Taiwan	\$50B	\$50B



Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

2018

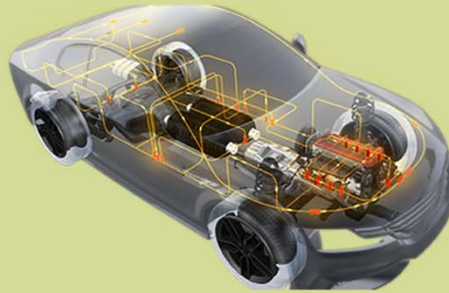
8

Japanese Market



Advanced Image Sensor Technology

will be widely used in AI, IOT , driverless vehicles etc.



Mature Automotive Electronics Market

strong demand on power chips etc.



Devaluation of Japanese Yen

helpful to export and increase international competitiveness



Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

2018

9

Korean Market

- Korean test consumables' suppliers concentrate on local market, more than 80% burn-in sockets consumed locally



- Strongly dependent on two chip designers: Samsung and SK Hynix. (Main growth drivers for elastomer socket business)
- Samsung started to reduce the cost of test in 2018, which was a bad news for Korean suppliers

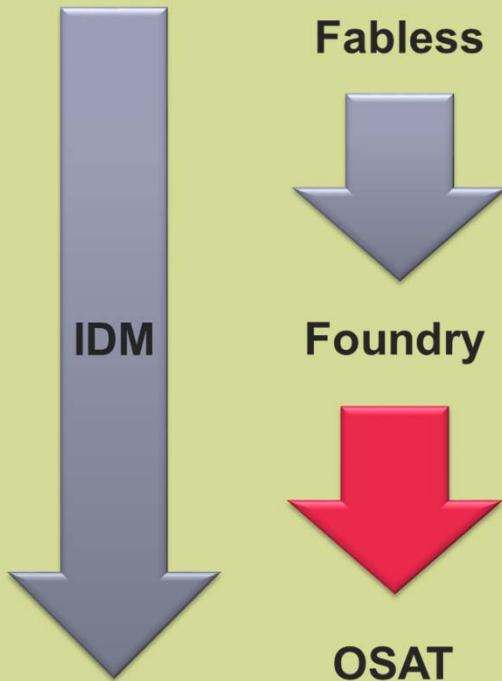


Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

2018

10

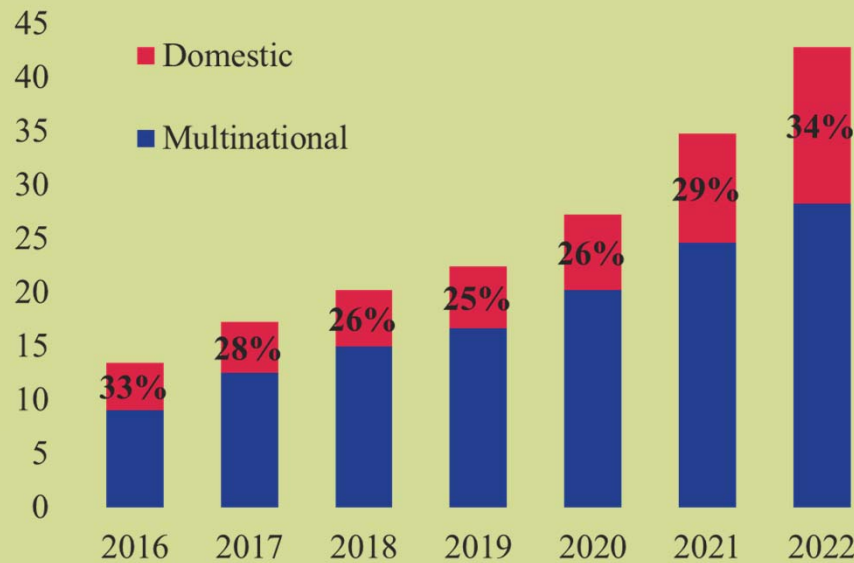
Taiwanese Market



- Major Foundries and OSATs in Taiwan, but no powerful local IDM or fabless companies except MediaTek
- Most decisions still heavily influenced by companies outside Taiwan, especially the North American chip designers
- Chinese chip designers also prefer to use Taiwanese foundries

China-Sourced IC Sales

China - Sourced IC Sales, \$B



- \$17.4B in 2017
 - Domestic 28% of sales
- \$42.8B in 2022 at CAGR ~ 20%
 - Domestic 34% of sales
- Domestic 17-22 CAGR ~ 25%
- Multinational 17-22 CAGR ~17%



Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

2018

12

China-Sourced ICs: Memory and Non-Memory

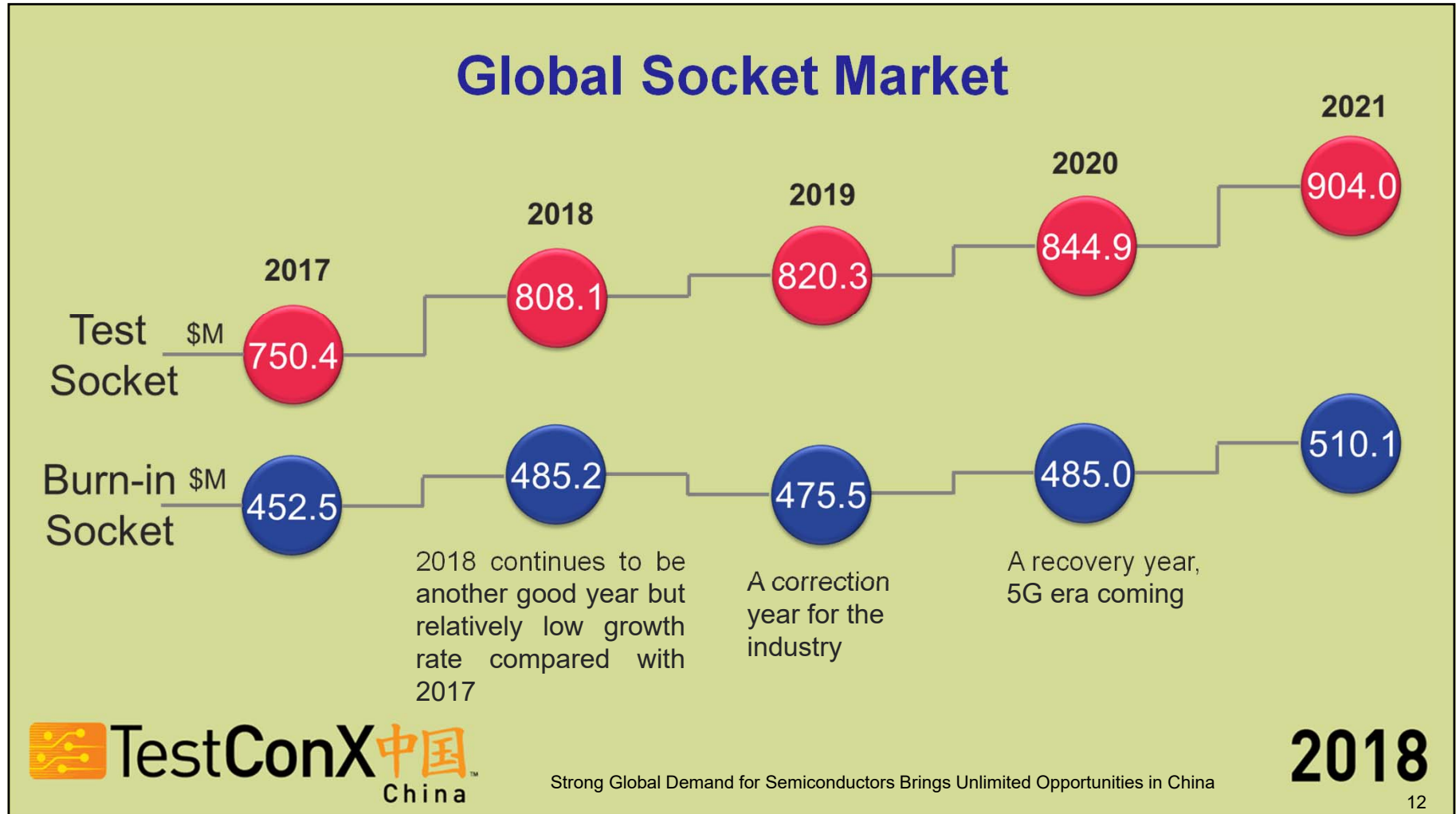


- Most of China sourced IC sales by domestic vendors are for non-memory applications. Domestic memory Capex will increase significantly over the next five years



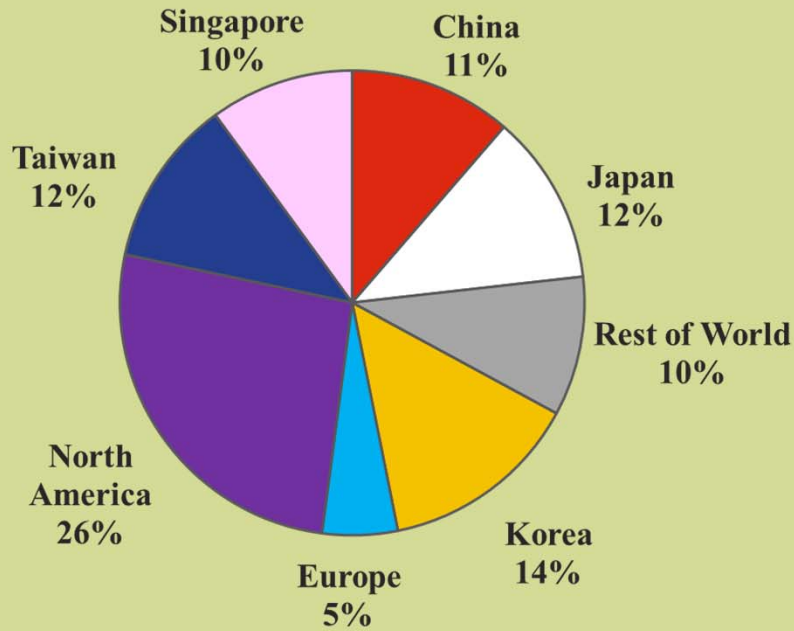
Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

2018

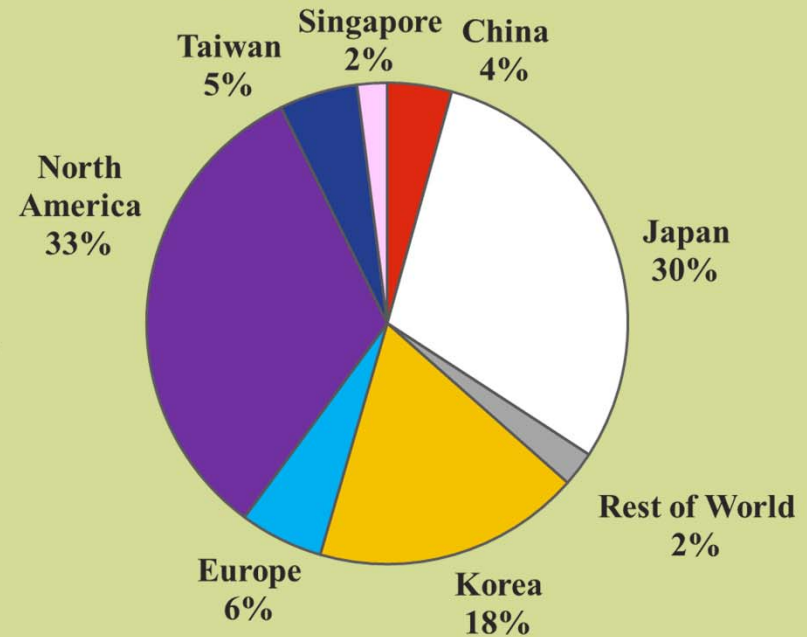


Socket Consumption vs. Supply 2017

Consumption by Region



Supply by Vendor HQ



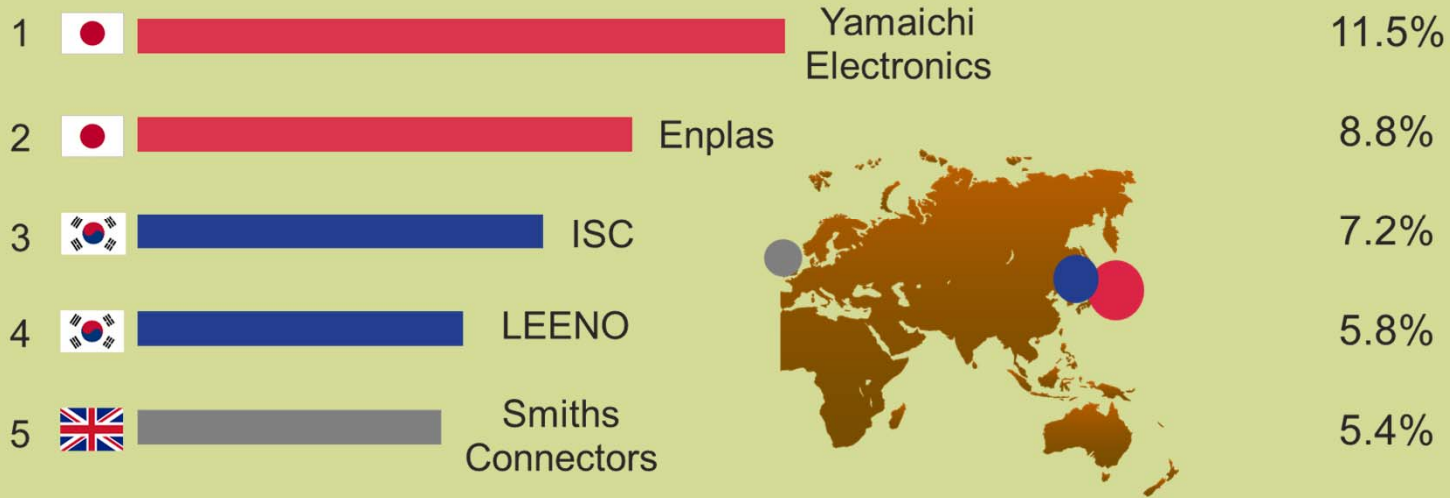
Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

2018

Top 5 Socket Suppliers 2017

Top 5 Suppliers of Test and Burn-in Sockets 2017

Market Share 2017



Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

2018

Favorable Environment in China

- Domestic China sourced ICs will grow greatly over the next five years, especially for memory chips
- With China likely to be home to the lion's share of new 5G subscribers over the next five years, it will create a favourable environment for semiconductor industry
- More and more decisions made in China will be from local chip designers, which is good news for local vendors
- Sockets consumed inside China are mostly supplied by foreign vendors. However, local suppliers will have more opportunities for sales of higher margin products in the future.



Strong Global Demand for Semiconductors Brings Unlimited Opportunities in China

2018

17