SEVENTEENTH ANNUAL
BiTS
Burn-in & Test Strategies Workshop
March 6 - 9, 2016
Hilton Phoenix / Mesa Hotel
Mesa, Arizona
Archive- Session 1
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Session 1
Ila Pal
Session Chair

BiTS Workshop 2016 Schedule

Frontiers Day

Monday March 7 - 10:30 am

Marketplace Report & Thing One, Thing Two, and Test Them We Do

"Marketplace Report"

Ira Feldman - Feldman Engineering Corp.

"How Internet Of Things Will Change Back End Processing"

Mike Frazier & Laurie Wright - Xcerra Corporation

"Serialized Programming Solutions for IoT Secure Elements"

Robert Howell - Exatron

"Internet of Things Testing Challenges"

Anthony Lum - Advantest

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Marketplace Report

Ira Feldman & Deb Ahlgren
Feldman Engineering Corp.

2016 BiTS Workshop
March 6 - 9, 2016

Outline

- The Future is Close
- Change in Purchasing Habits
- Semiconductor Market
- Test & Burn-in Socket Market

BMW's Latest i8 Concept (Spyder)

http://www.digitaltrends.com/cars/bmw-i-vision-future-interaction-specs-pictures-tech/#/2

When "Less" is More

Roofless…

Doorless...

Autonomous!

i8 Spyder Display

http://mashable.com/2016/01/05/bmw-i8-vision-future-interaction/#VvdWztjyFsqT

Marketplace Report

Three Driving Modes

Pure

- Driver in control
- Safety systems monitoring road but not intervening

Assist

- Car will "shunt" accident
- Display is more prevalent – more info available

Auto

- Steering wheel retracts to dash
- Display is entertainment center – AirTouch is active

http://mashable.com/2016/01/05/bmw-i8-vision-future-interaction/#VvdWztjyFsqT

BMW i8

http://www.nytimes.com/2016/02/05/automobiles/end-of-the-road-may-be-near-for-side-mirrors.html

Marketplace Report

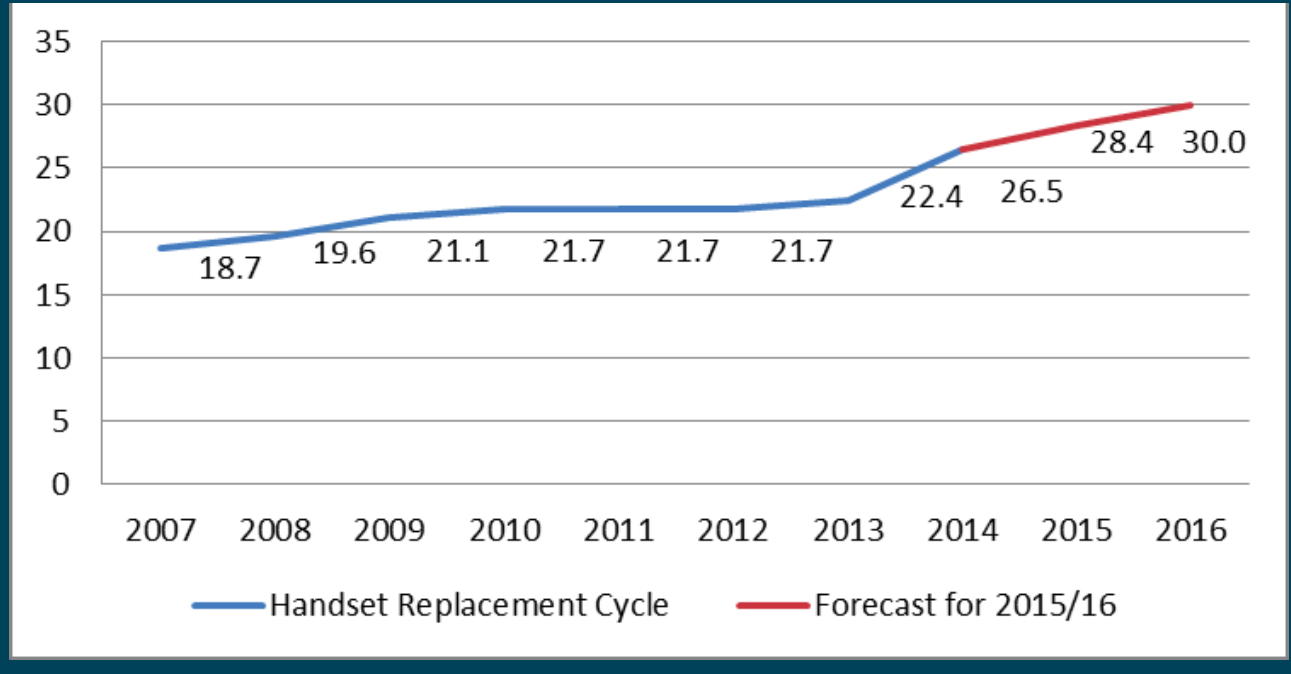
i8 “Mirrorless”

Source: BWM Images

Future Vehicles

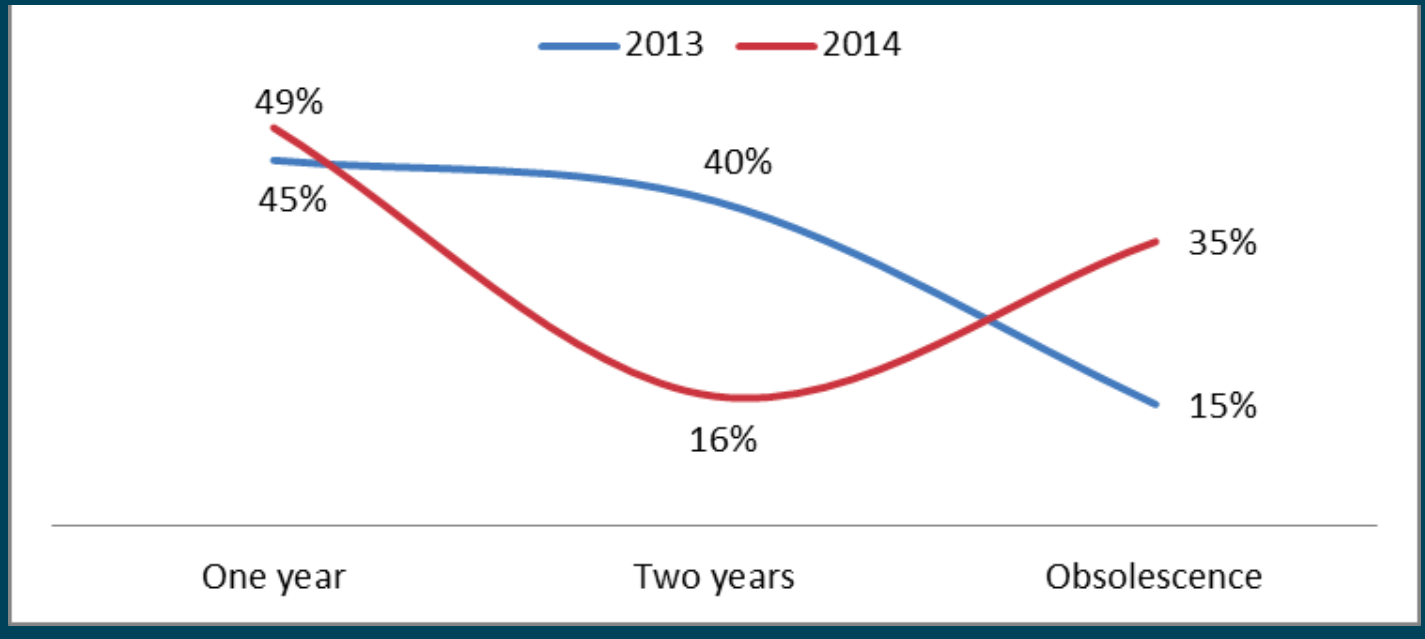
- Autonomous Concept Proven
  - Google, Tesla, etc.
- Advance Technology gated by legislation
- Increasing Semiconductor Content
  - Assistance
  - Safety
  - Infotainment
- Business & Usage Model Shifts
  - Sharing economy & on-demand

US Handset Replacement Cycle



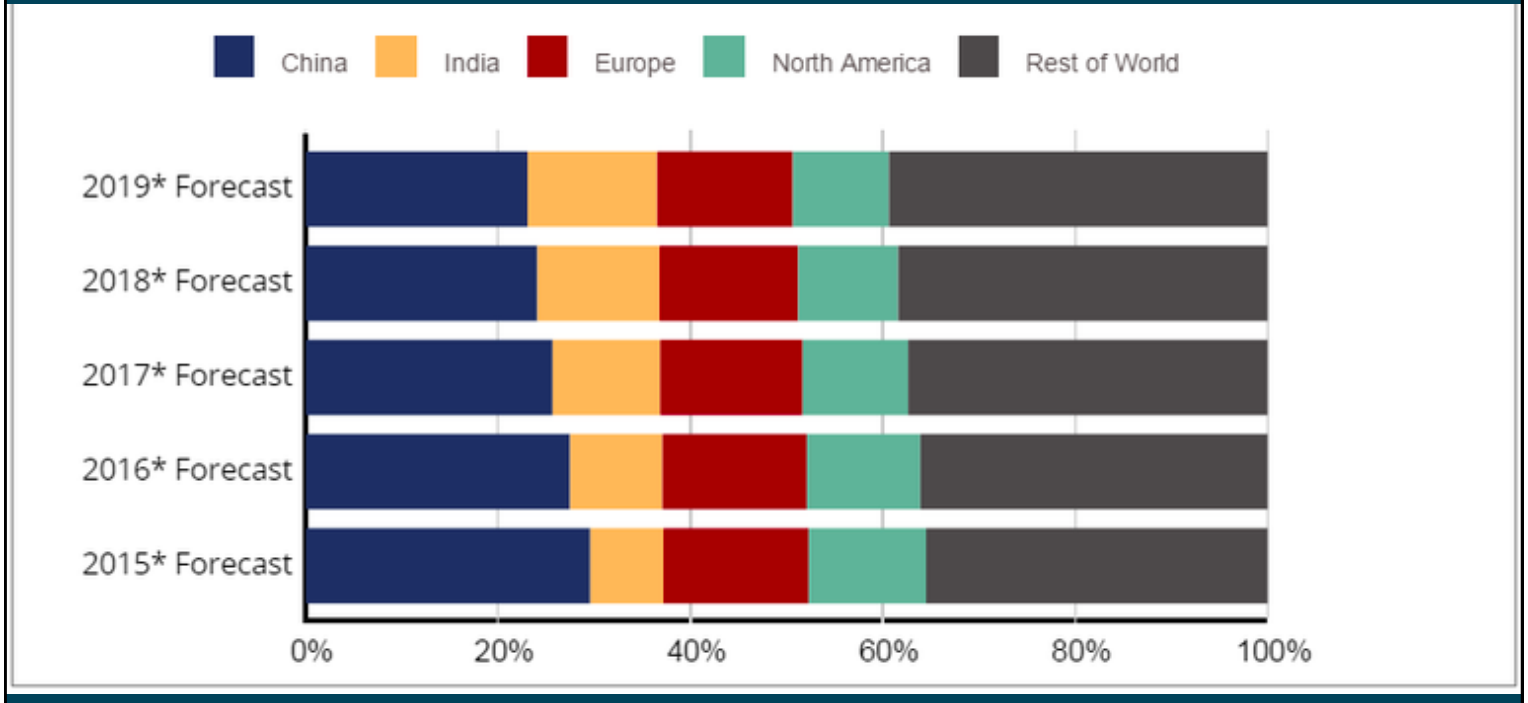
Recon Analytics 2/2015

US Consumer Upgrade Cycles



Recon Analytics 2/2015

Smartphone Shipments



IDC 8/2015

Smartphone Shipments (M Units)

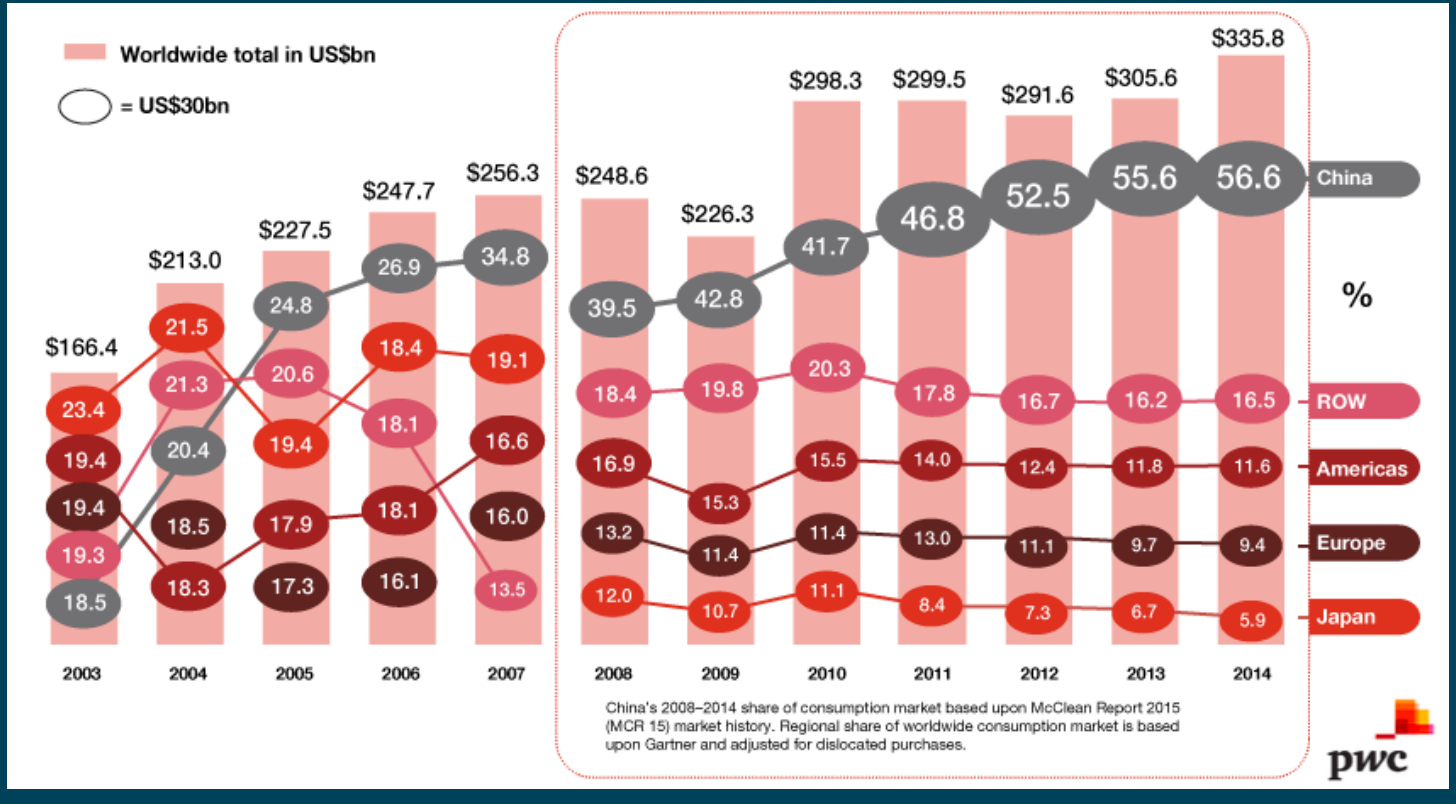
Region	2015* Shipment Volumes	2015* Market Share	2015* YoY Growth	2019* Shipment Volumes	2019* Market Share	2019* YoY Growth	5 year CAGR
Android	1,161.1	81.2%	9.5%	1,538.1	82.6%	4.8%	7.7%
iOS	226.0	15.8%	17.3%	263.4	14.1%	3.1%	6.5%
Windows Phone	31.3	2.2%	-10.2%	43.6	2.3%	11.4%	4.5%
Others	11.3	0.8%	-16.8%	17.1	0.9%	6.5%	4.7%
TOTAL	**1,429.8**	**100.0%**	**9.8%**	**1,862.3**	**100.0%**	**4.7%**	**7.4%**

IDC 12/2015

IC Unit Volumes

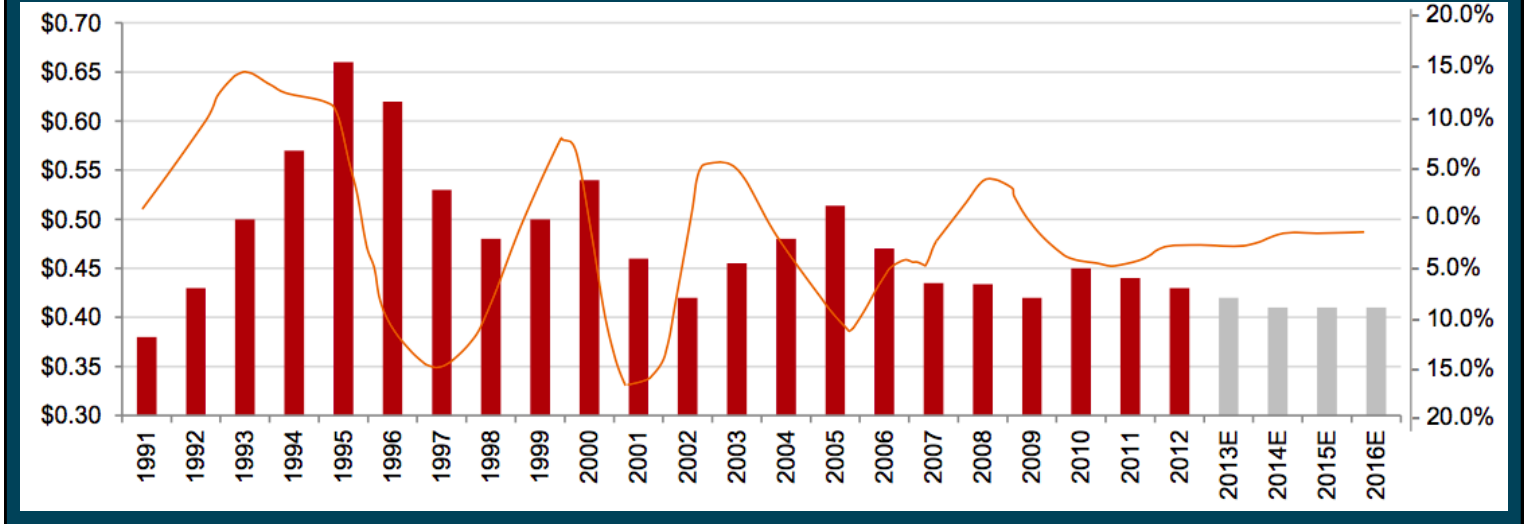
IC Insights

Semiconductor Consumption



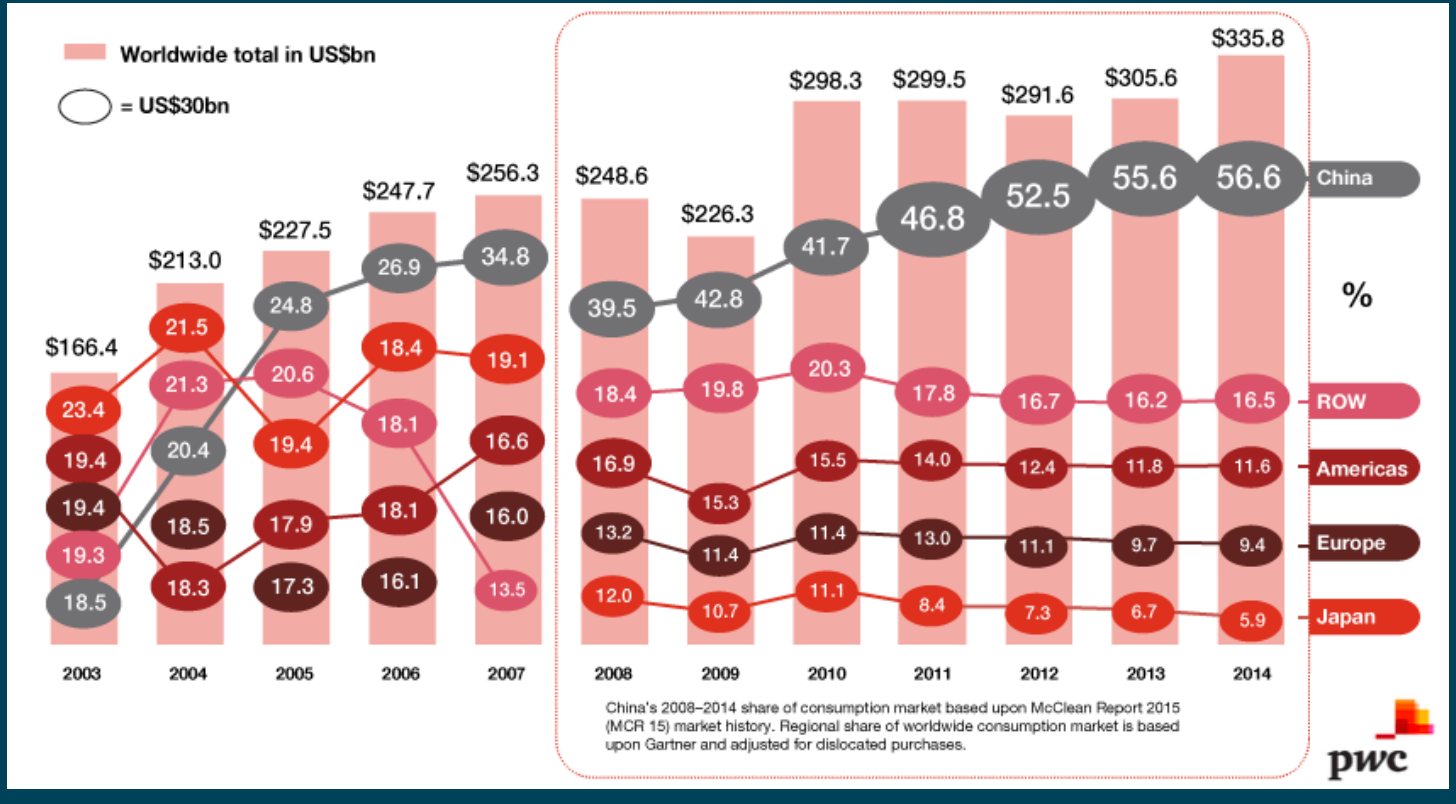
www.pwc.com/chinasemicom

Semiconductor Device ASP



PwC / Semiengineering.com

Semiconductor Consumption



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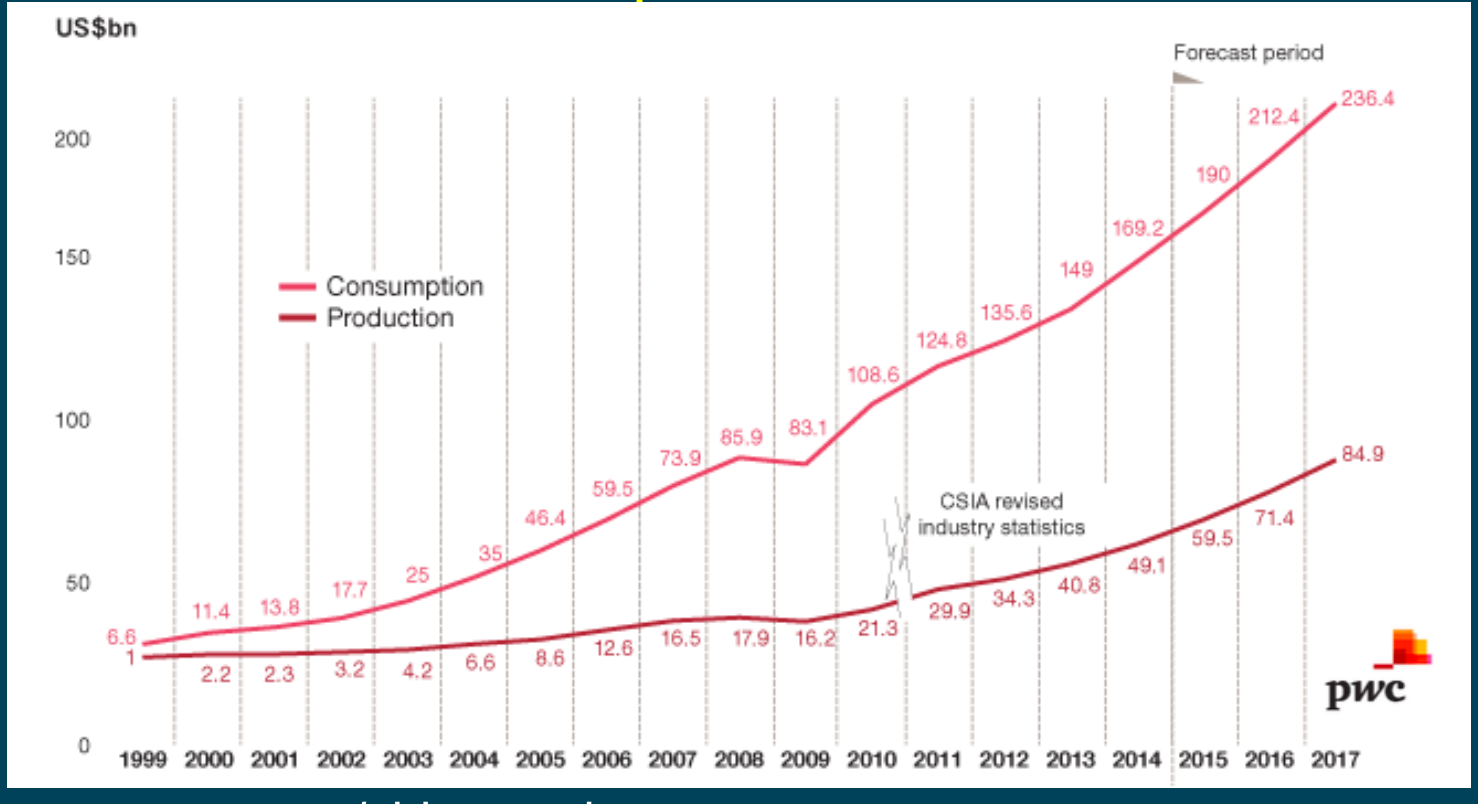
China Semiconductor

Consumption & Production



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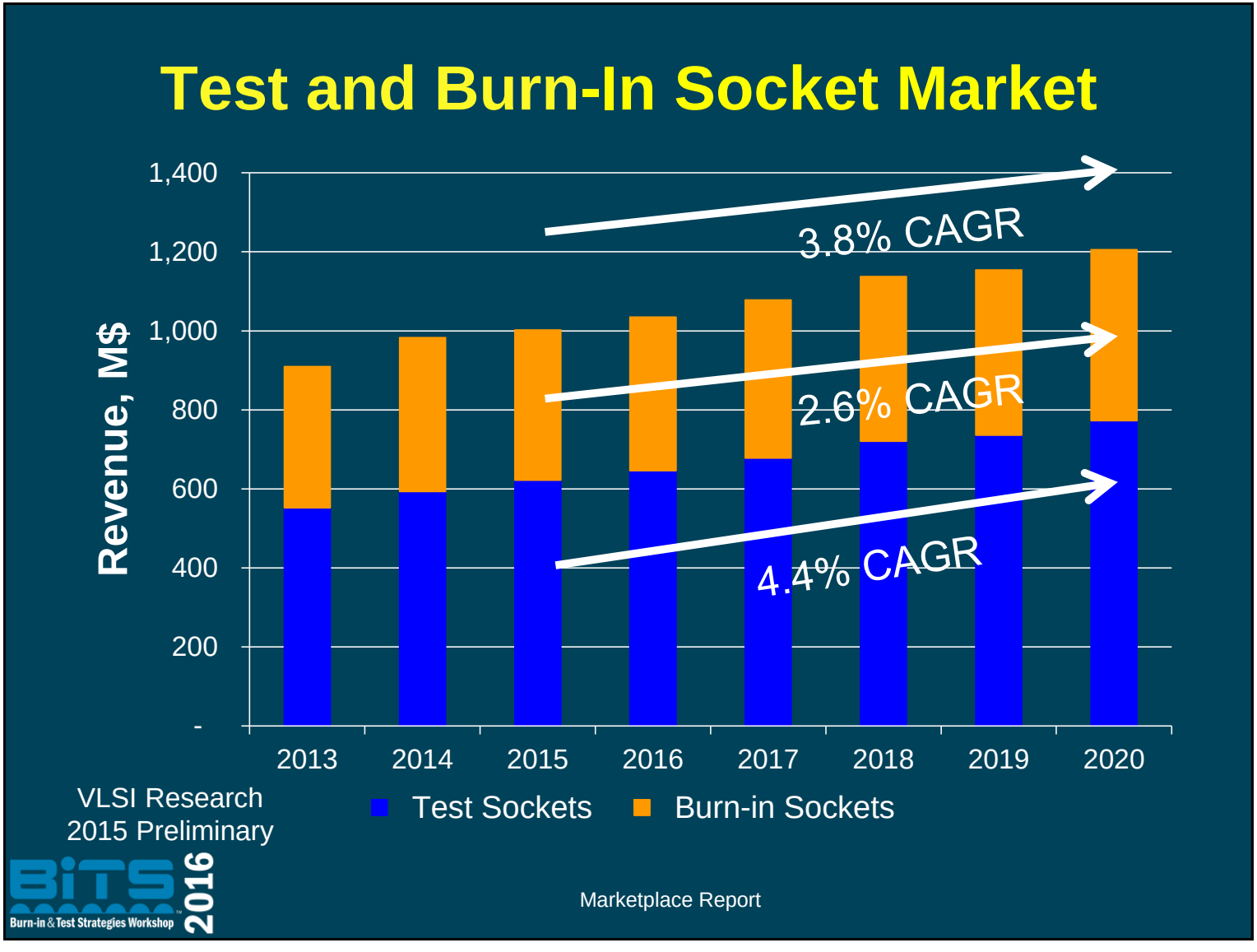
Marketplace Report


Test and Burn-In Socket Market
Revenue, M$
1,400
1,200
1,000
800
600
400
200
-
2013
2014
2015
2016
2017
2018
2019
2020
3.8% CAGR
2.6% CAGR
4.4% CAGR
Test Sockets
Burn-in Sockets
VLSI Research
2015 Preliminary
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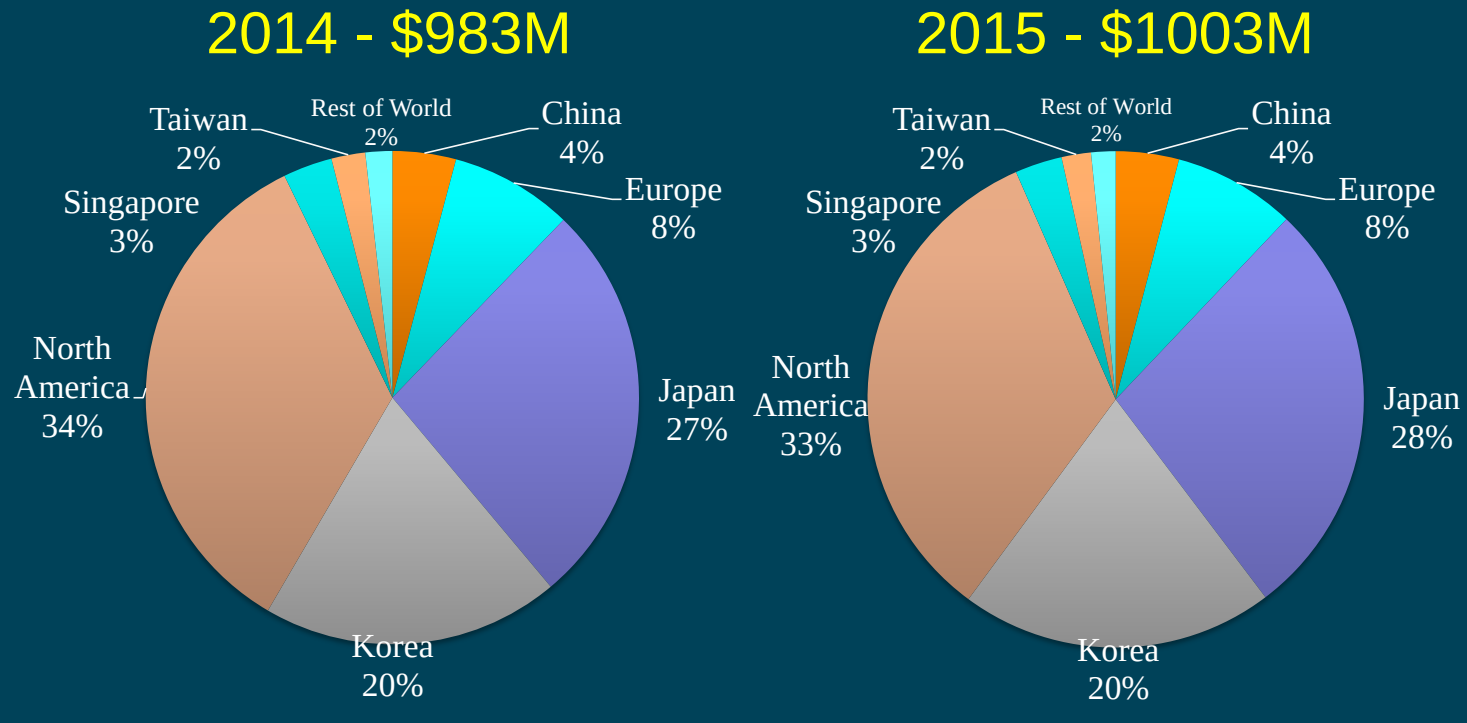
Marketplace Report

Socket Supplier Revenue by Headquarter Region



VLSI Research
2015 Preliminary

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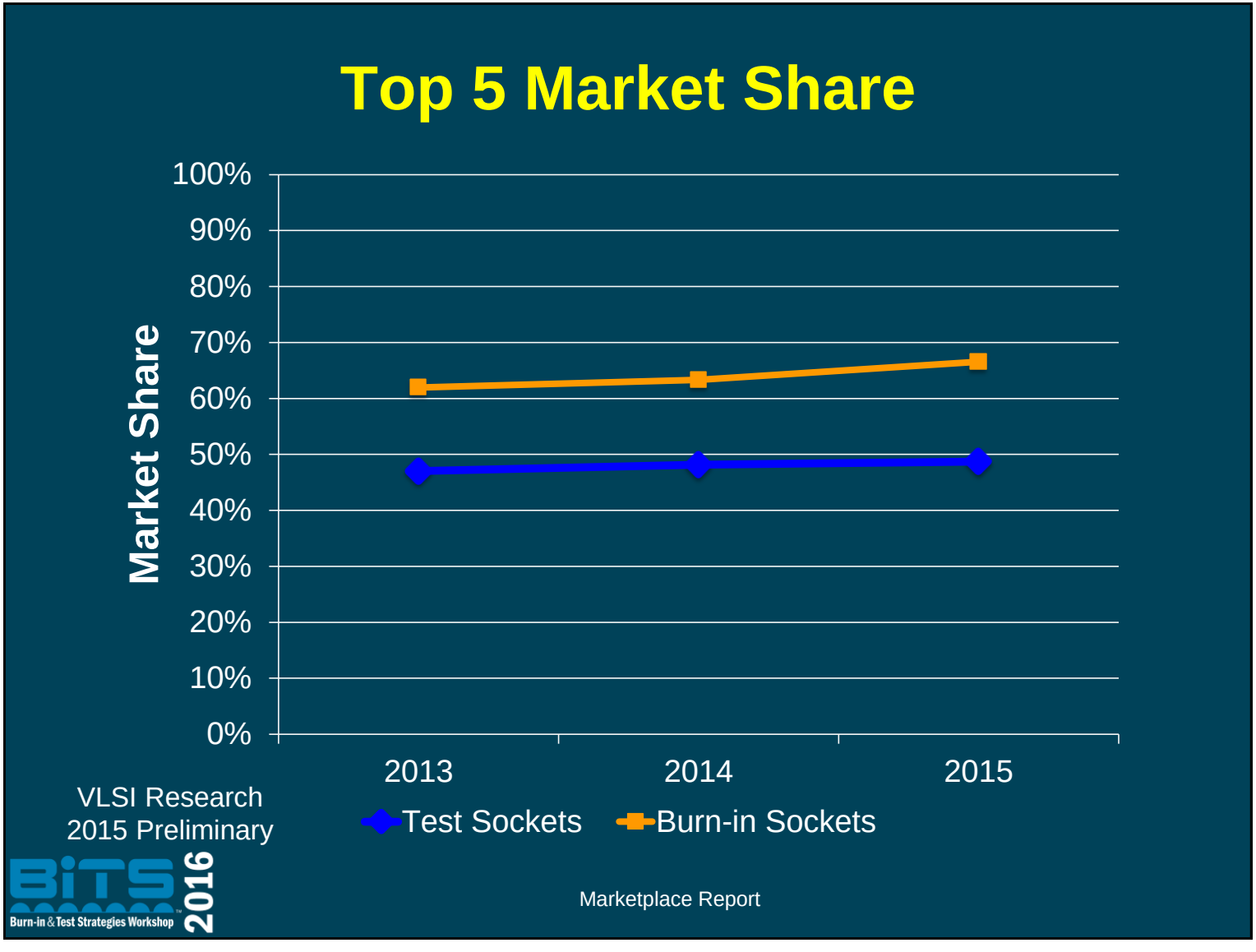
Marketplace Report


Top 5 Market Share
Market Share
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2013
2014
2015
Test Sockets
Burn-in Sockets
VLSI Research
2015 Preliminary
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Top Test & Burn-in Vendors

Rank	2013	2014	2015 Preliminary
1	Yamaichi Electronics	Yamaichi Electronics	Yamaichi Electronics
2	Enplas	Enplas	Enplas
3	Sensata Technologies	Sensata Technologies	Sensata Technologies
4	Smiths Connectors	Smiths Connectors	ISC
5	LEENO Industrial	LEENO Industrial	LEENO Industrial

VLSI Research
2015 Preliminary

Acknowledgements

- Test & Burn-in & Socket data courtesy of John West at VLSIresearch

i8 Give-Away @ Social Event

Amazon.com

Note: not full scale