Nanya Technology

Cathay Securities 1Q2017 Investor Summit

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Nanya Memory
for
Automotive
Home Entertainment
Home Automation
Office

Safe Harbor

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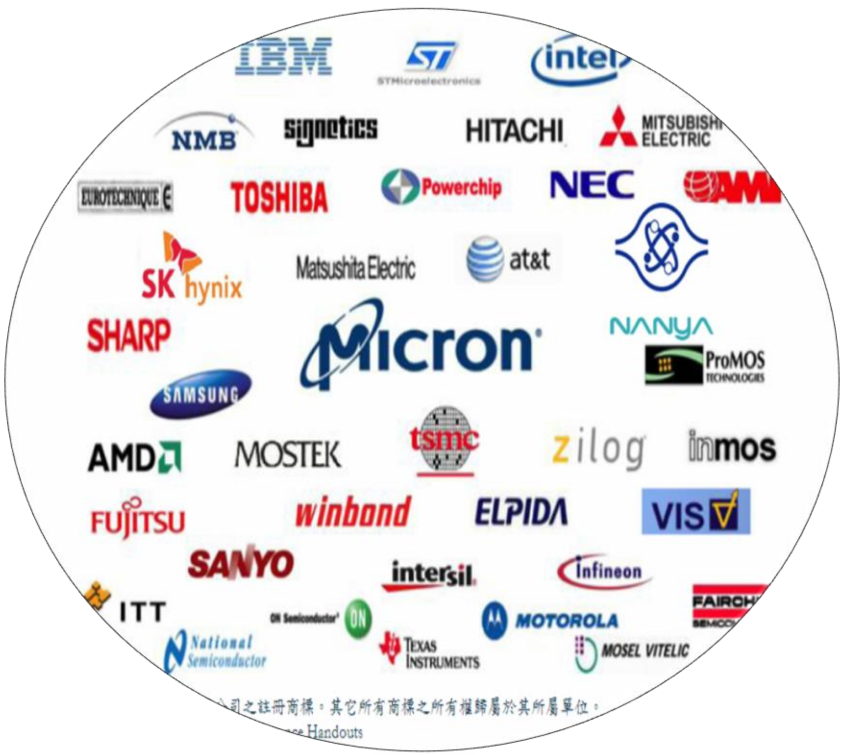
Outline

01.	**DRAM Industry Environment**
02.	NTC Overview
03.	Business Strategy

Oligopoly in DRAM Market

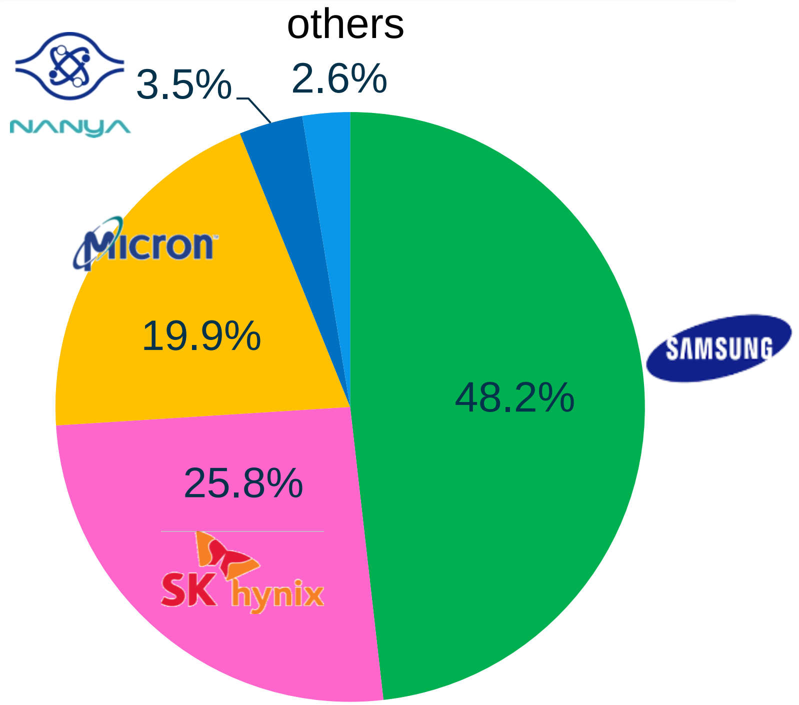
- From 2013, DRAM market fluctuation stabilized

1990 (more than 16 suppliers)



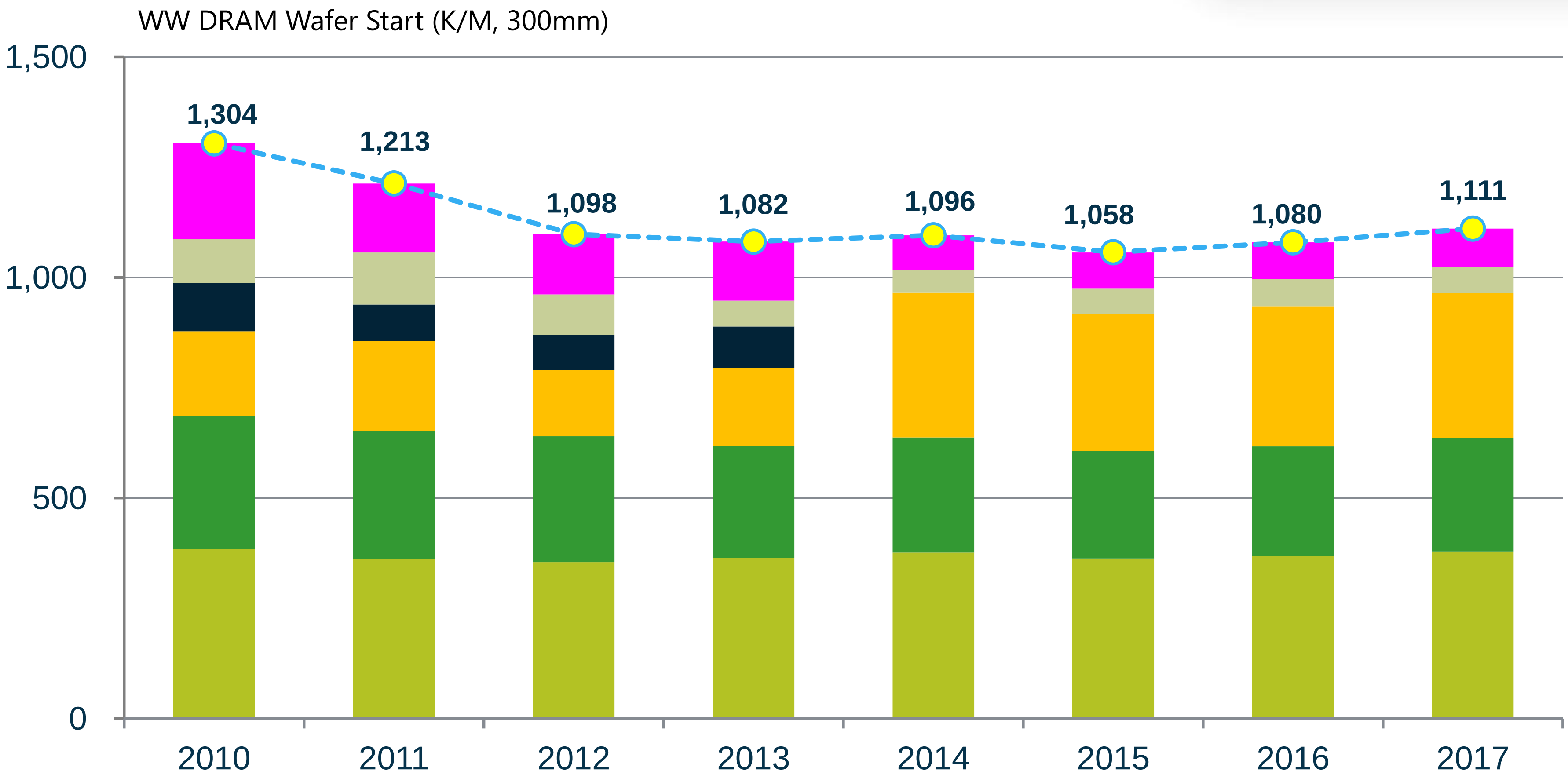
Consolidation

2017 (3 plus major suppliers)



Source: Gartner, NTC

Rational DRAM Supply Growth



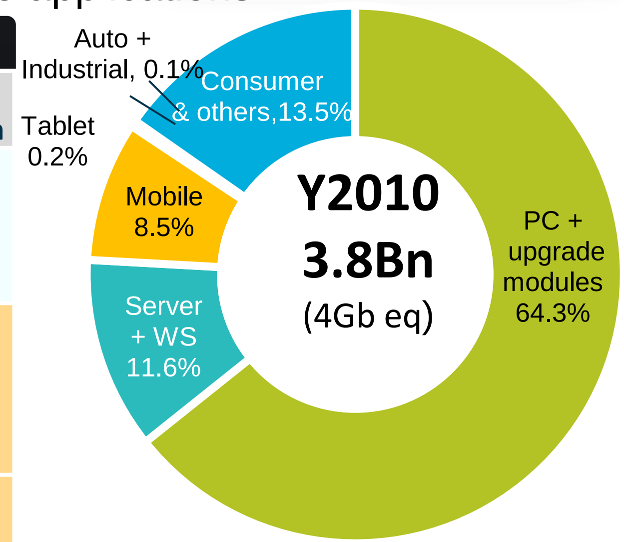
- Limited supply growth contributed mainly by advanced process conversion
- About 20% supply growth in 2017 expected

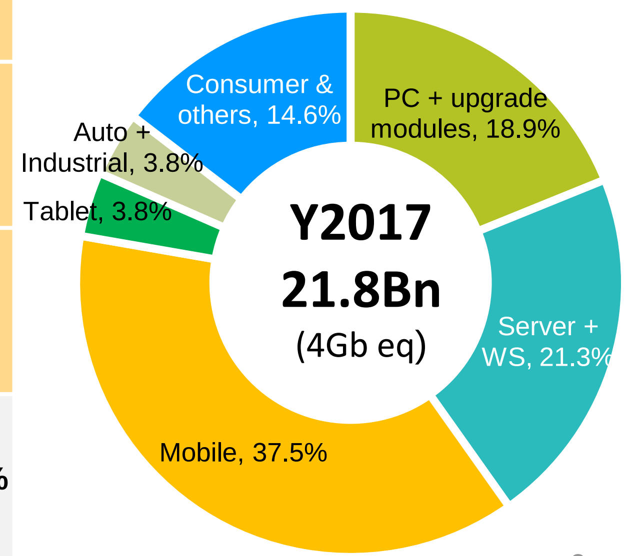
Source: DRAMeXchange, NTC MKT

Diversification of Demand

- 22% yoy bit demand increase in 2017 projected
- Ongoing growth momentum from cloud computing and mobile applications

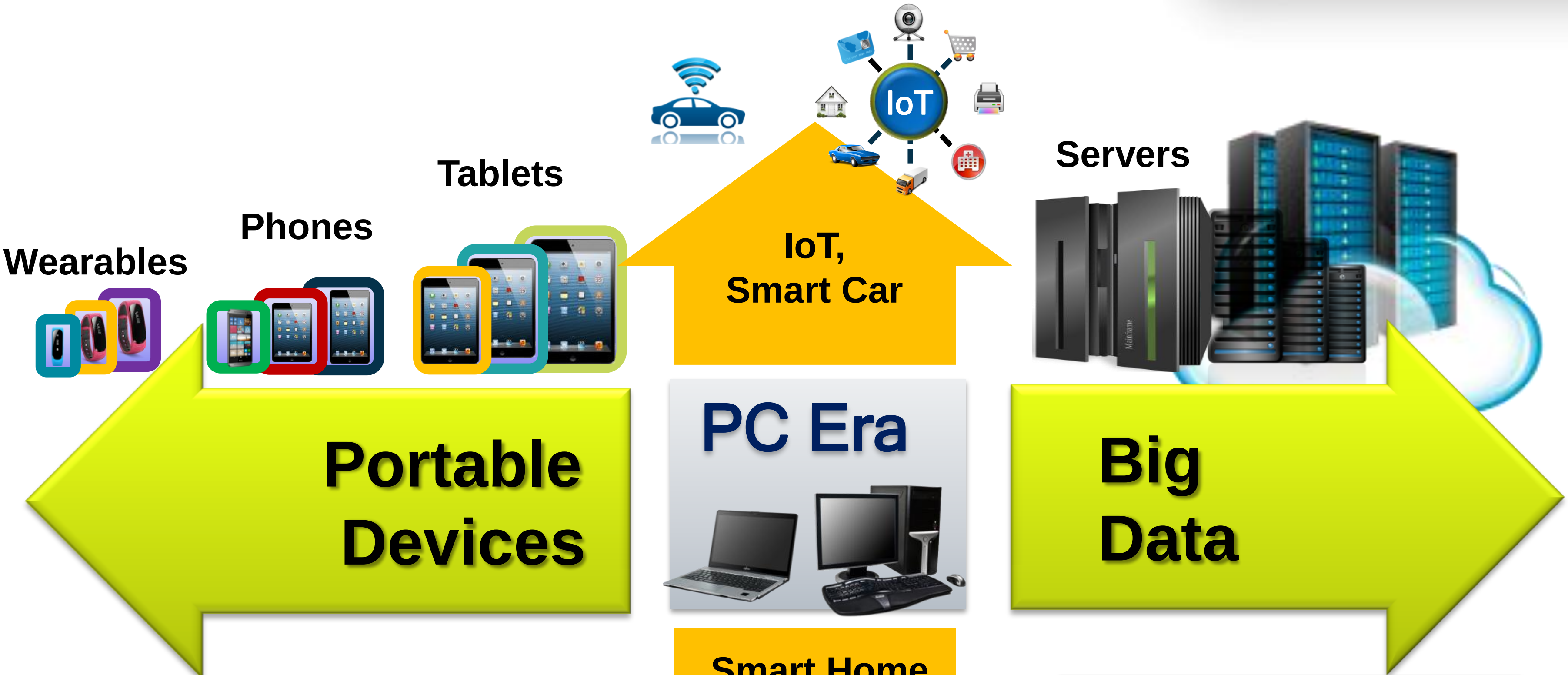
		Y2016		Y2017		YoY		
Unit : QTY(Mu) | C/B(GB)		QTY,	C/B	QTY	C/B	QTY(Y/Y)	C/B(Y/Y)	Bit Growth
Cloud	Server	17	110	17.6	133	3.5%	20.9%	25.2%
P2P	PC	270	5.1	263	5.6	-2.6%	9.8%	7.0%
P2P	Tablet	180	2.1	164	2.6	-8.9%	23.8%	12.8%
P2P	Smart Phone	1,480	2.1	1,482	2.7	0.1%	28.6%	28.7%
P2P	LCD TV	223	1.8	219	2.0	-1.8%	11.1%	9.1%
M2M	Car	91.3	0.6	93.8	2.1	2.7%	250.0%	259.6%





Source: Gartner, IHS, NTC MKT

DRAM Essential to New Data Era



Main DRAM Features

- Low power consumption
- High Bandwidth for data transit
- Small form factor by stacking
- DRAM allotment by application needs

Main DRAM Features

- High Density for big data
- High Bandwidth for data transition

DRAM Pricing Fluctuation Stabilized

$/4Gb equiv., PC DRAM

- Limited DRAM supply expected in 2017, leads to healthy market condition

Outline

Nanya Technology Overview

IDM Company

- Founded in 1995,
  IPO in 2000
- DRAM Process, Design, Production & Sales
- Headquarters:
  New Taipei, Taiwan
- Employees: >2,600
- Focus on value-added DRAM market
- Formosa Plastic Group (FPG) has 75.8% equity ownership

Technology & Capacity

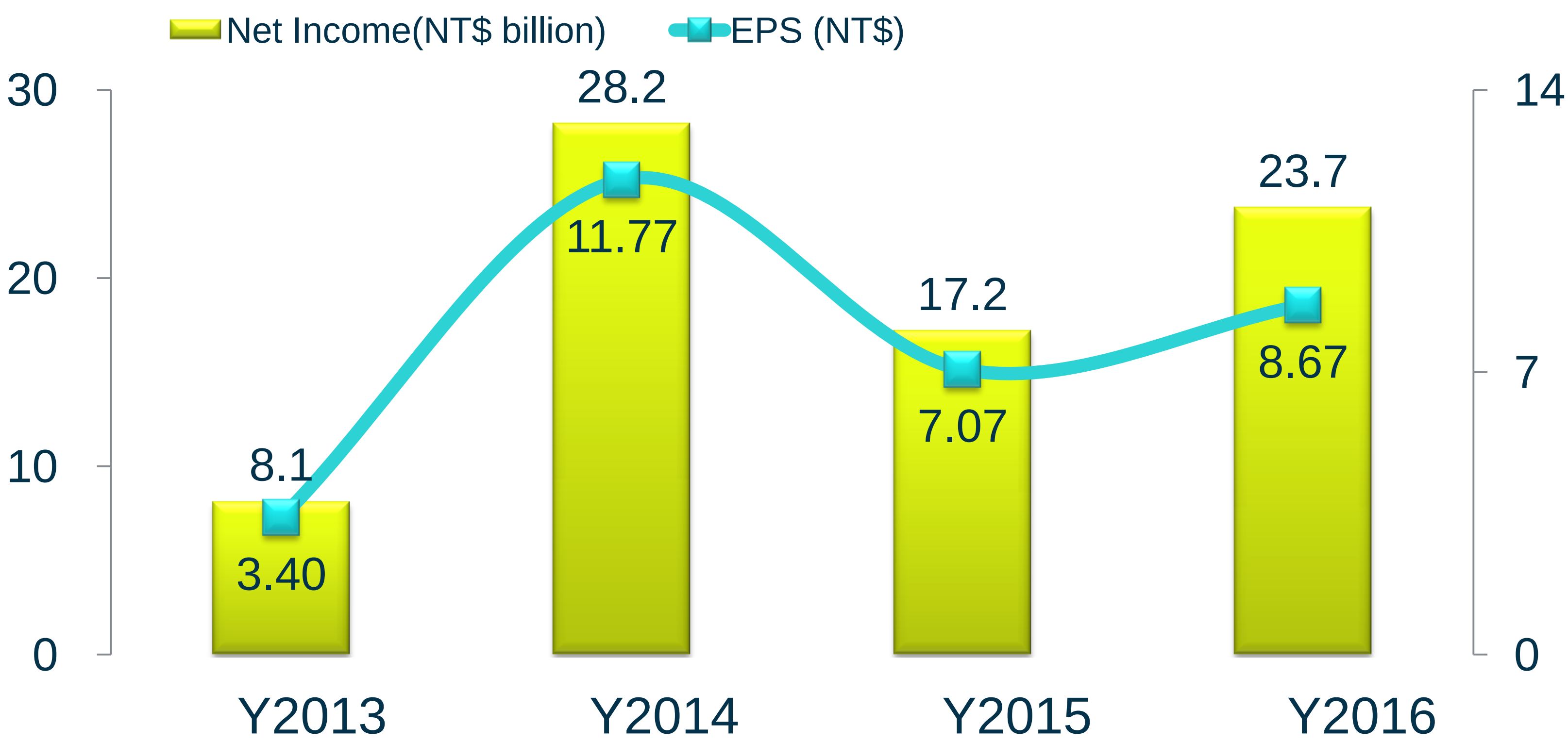
- **Technology** :
  - Starts 20nm piloting in Jan.’17
  - Plan to ramp 20nm to 38K WSPM in 1H’18
- **Capacity:**
  - Current: 60,000 WSPM(12”)
  - 2018: 68,000 WSPM(12”) (38K 20nm + 30K 30nm)

Partnerships

- **Technology license form MU**
  Option rights to license Micron 1x and 1y nm technologies and products.
- **Shareholding in Micron**
  Acquired about 5.26% of Micron’s share.

*WSPM: Wafer Starts Per Month

Strong Performance



Net Income (NT$ Billion)	8.1	28.2	17.2	23.7
EPS(NT$)	3.40	11.77	7.07	8.67

2016 P&L Results

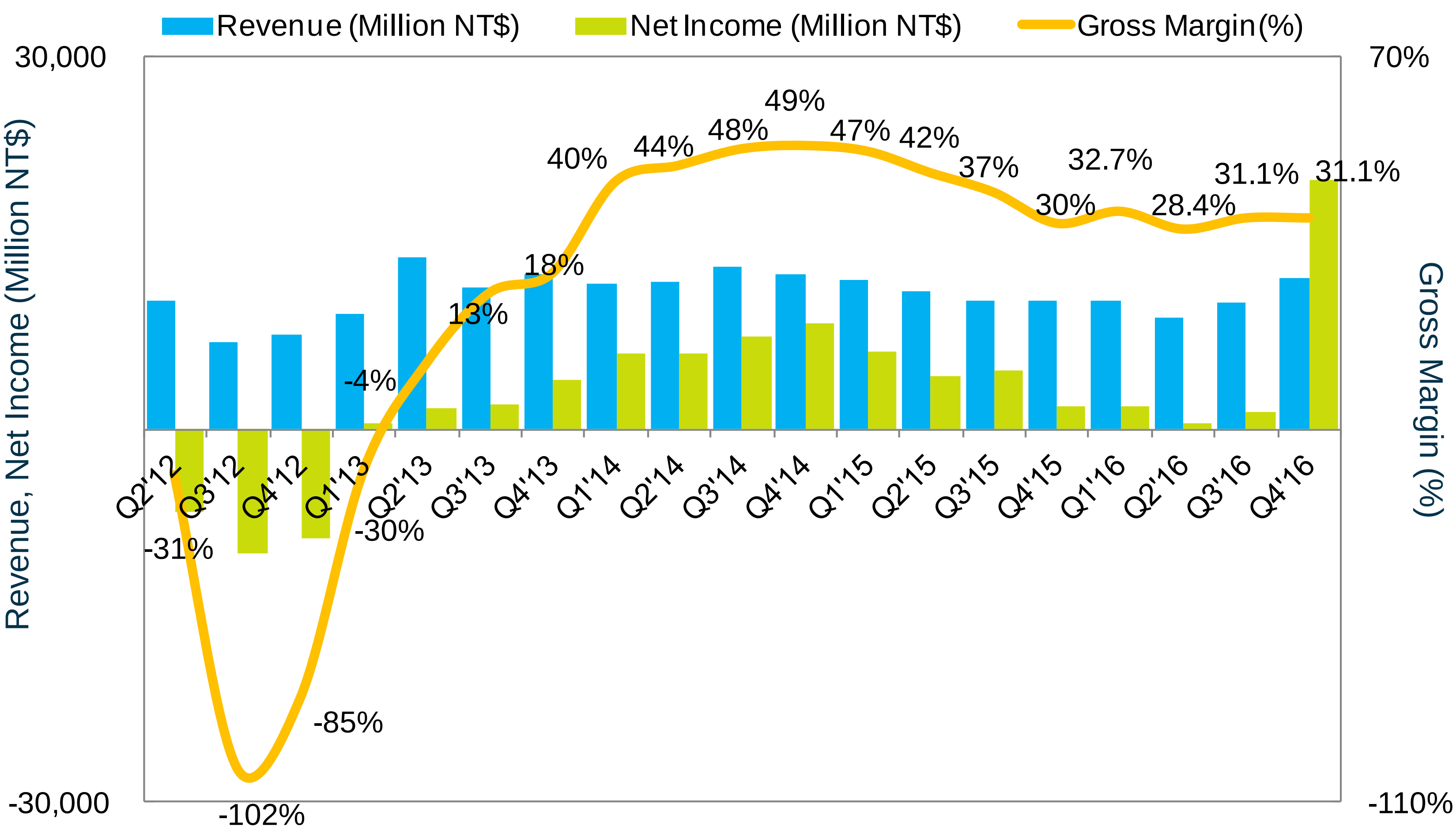
NT$B: Billion	2015	Q1'16	Q2'16	Q3'16	Q4'16	2016
Revenue	43.9B	10.4B	8.9B	10.2B	12.1B	41.6B
Gross Profit ***Gross Margin (%)***	17.3B *39.4%*	3.4B *32.7%*	2.5B *28.4%*	3.2B *31.1%*	3.8B *31.1%*	12.9B *30.9%*
Operating Income ***Operating Margin (%)***	13.5B *30.7%*	2.6B *25.3%*	1.7B *18.5%*	1.7B *16.6%*	2.6B *21.2%*	8.6B *20.5%*
Non-operating Income	4.2B	-0.79B	-0.6B	-0.3B	18.8B	17.2B
Net Income ***Net Margin (%)***	17.1B *39.1%*	1.8B *18%*	0.4B *4.4%*	1.4B *13.7%*	20.1B *165.9%*	23.7B *57.0%*
Capital	24B	27B				
EPS	**7.07**	0.68	0.14	0.51	7.33	**8.67**

Company highlights in 2016

- NT$ 23.72B net income of 2016, EPS NT$ 8.67.
- Shipment increased 20.3% yoy, ASP decreased 22.1% yoy.
- Recognized NT$ 17.94B from Inotera share disposal.
- Debt ratio 37.5% at the end of the 31st of Dec, 2016.

Financial Highlights

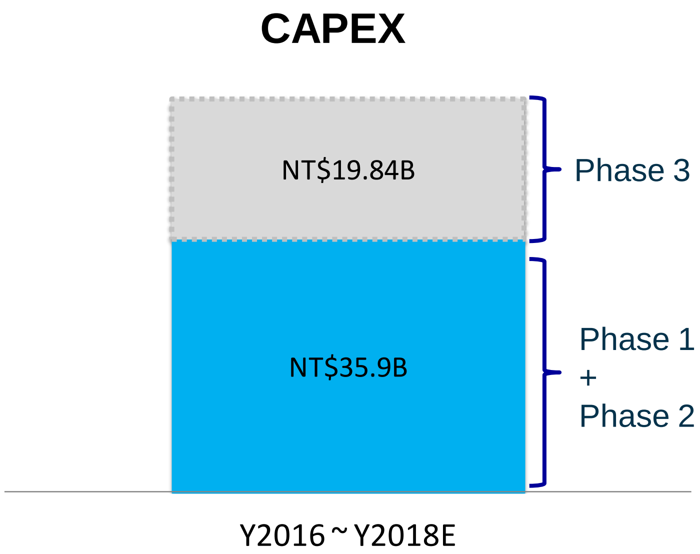
- Q1’17 gross margin likely to improve QoQ due to favorable market condition.

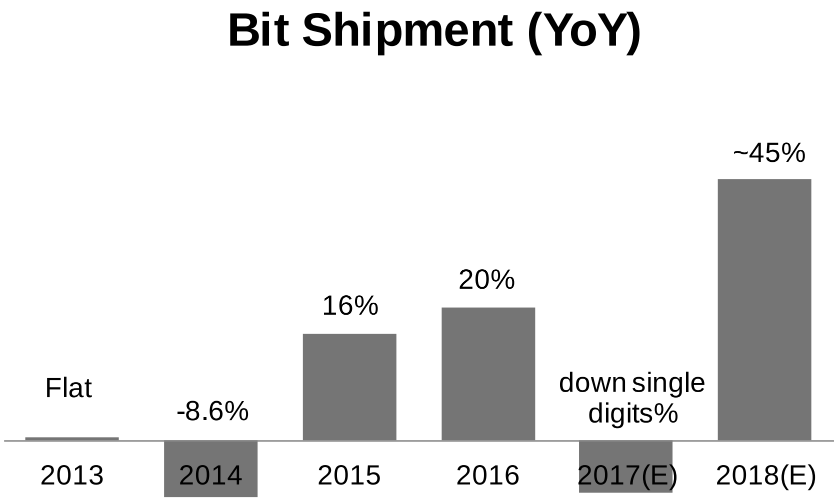


Dividend for Y2016

Subject	Cash dividend of NT$ 1.5 per common share
BoD Approval	• BoD approved cash dividend of NT$ 1.5 per common share on 2017/3/9 . • Will be proposed to the AGM for approval scheduled on 2017/5/26
Cash yields	• 3.32% (3/14 closing price NT$ 45.15)
Payout ratio	• 17.3% (NT$ 1.5 / EPS NT$ 8.67) • 70.8% (exclude disposal gain of Inotera, NT$ 1.5 / EPS NT$ 2.12)
Remark	• Exclude disposal gain of Inotera, EPS was NT$ 2.12 (EPS NT$ 8.67 – NT$ 6.55) • Net cash in NT$ 16B (Disposal of IMI shares(NT$ 47.5B), Acquisition of Micron's private placement (NT$ 31.5B)). • Expect NT$ 34.4 billion CAPEX in 2017 for 20nm ramping.

20nm CAPEX & Bit Shipment





- **Capital Expenditure** (CAPEX)
  - Anticipated CAPEX of NT$55.74B for 38K WSPM 20nm migration.
  - BoD approved 3rd stage 20nm CAPEX of NT$19.84B. (as of Mar. 9th, 2017)
  - Estimated 2017 CAPEX of NT$ 34.3B
  - 2017 CAPEX mainly from: 1. Cash on hand 2. US$5B ECB, 3. Cash from operating activities
- **Bit Shipment**
  - 2017 bit shipment down single digits. Bit shipment resume positive(2018 +45% yoy, 2019 +15% yoy).
  - 20nm cost per bit expected to cross over by end of 2017

20nm Plan

- Plan to convert 38K WSPM to 20nm Technology. Total capacity increase to 68K WSPM.
- 20nm volume production schedule in Q3’17, 30K wafers input expected in Q4’17.
- Cost cross over expected by end of 2017.
- Initial offering DDR4 & LPDDR4X.

8Gb DDR4

8Gb LPDDR4X

Jul, 2015

Ground breaking of new HQ and additional 12” Fab for 20nm

Oct, 2016

- New 12” Fab (FAB-3A-N) complete

Jan, 2017

Jan. 2017 Piloting of 20nm Starts

2H, 2017

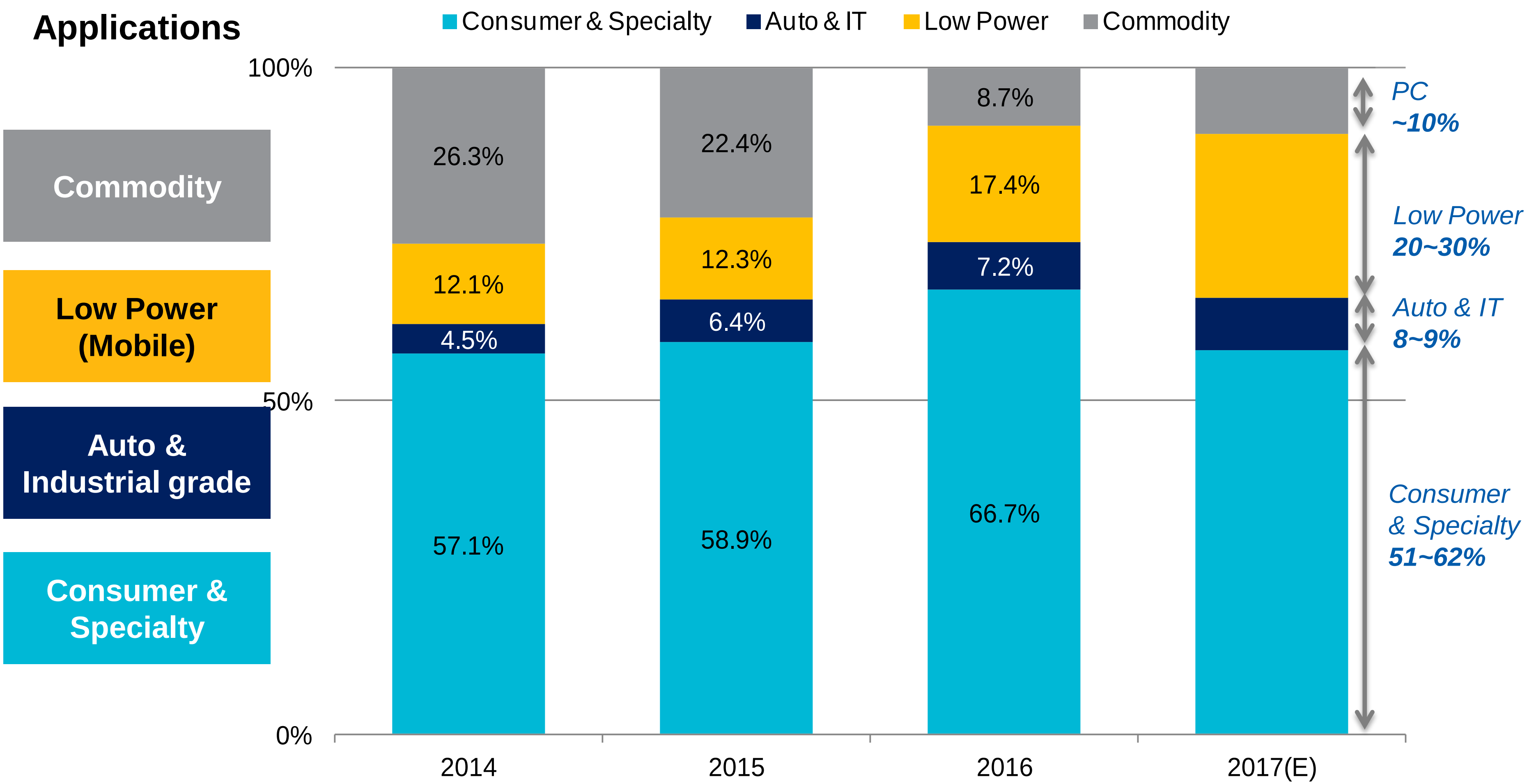
- 20nm Volume Production
- 8Gb DDR4 Mass Production in Q4’18
- Ramping up to 30K in Q4’17

2018

- Ramping up to 38k in 1H’18
- 8Gb LPDDR4X Mass Production in Q3’18

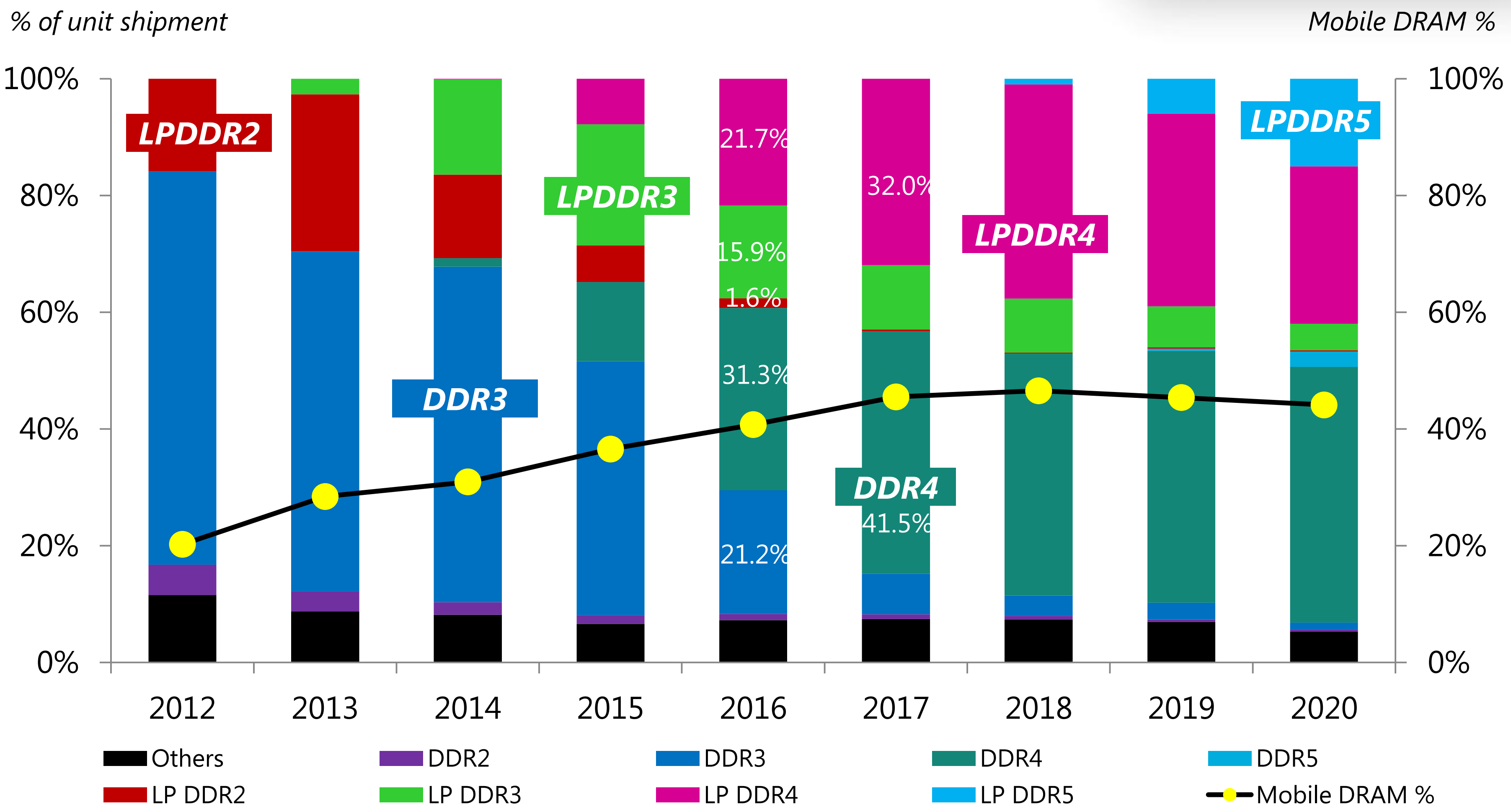
Outline

Focus on Specialty DRAM Business



* Revenue portion by Application

DDR4/LPDDR4:Dual Mainstream

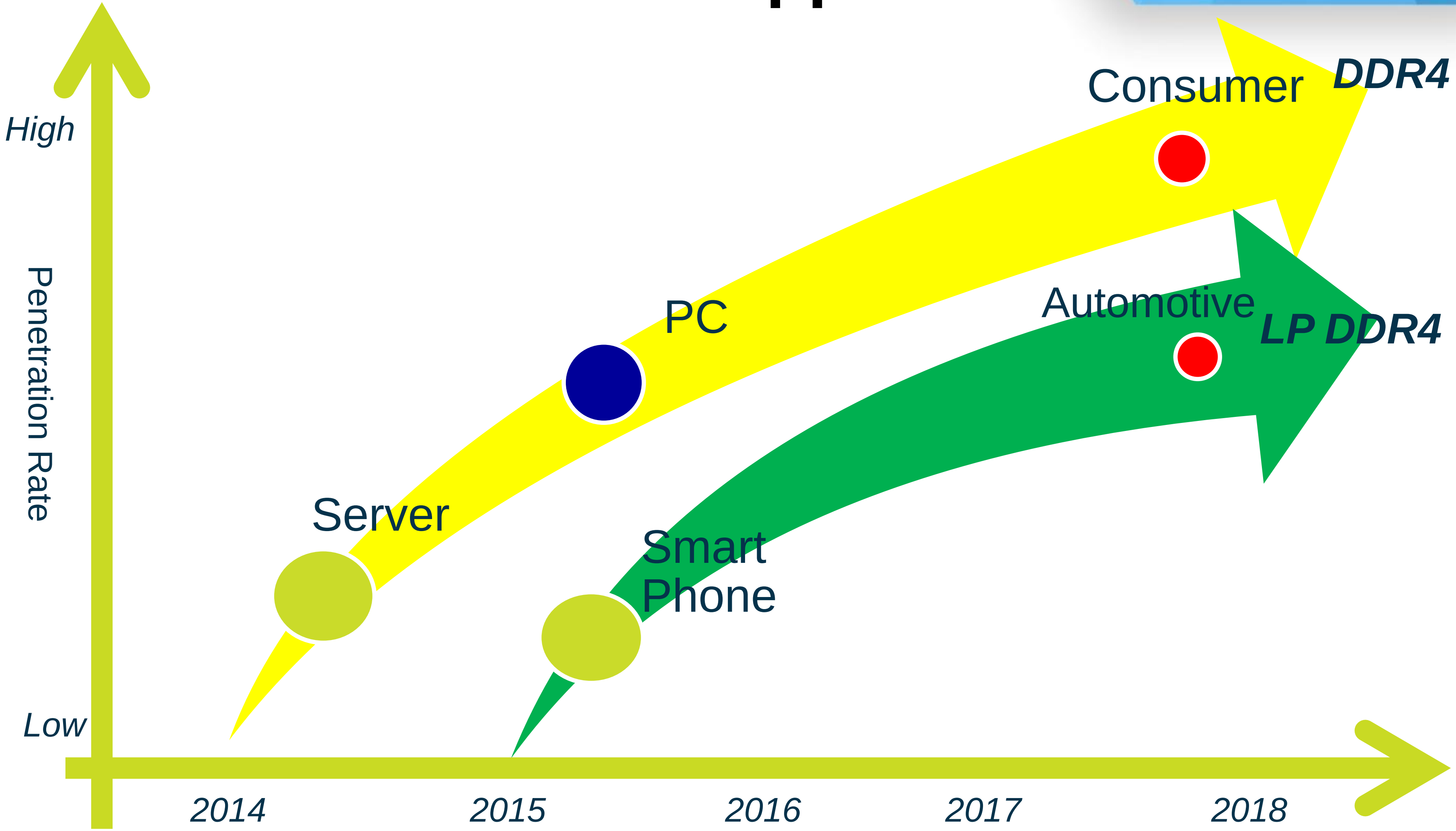


Source: Gartner, IHS, & NTC MKT

*Others include GDDR5, Wide I/O(I&II), SDRAM, DDR, & Mobile SDR/DDR

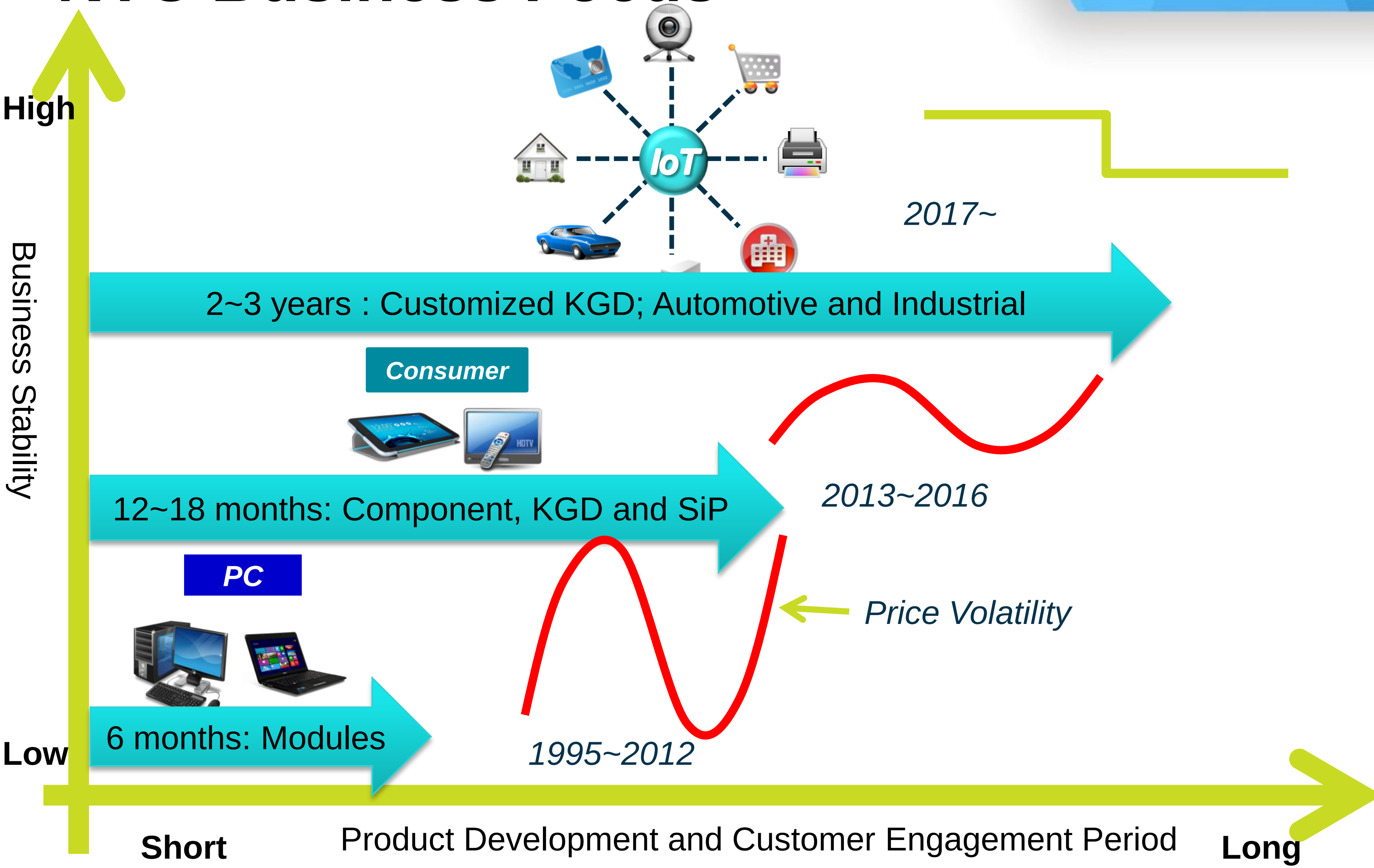
- 20nm required for initial DDR4 and LPDDR4 offering.

DDR4 and LPDDR4 Applications



- Consumer and Automotive to adopt DDR4 and LPDDR4 from 2018.

NTC Business Focus



- Continuously concentrating on premium and longevity markets.

High Growth from Automotive Demand

Smart Car Era: 2017~		
	ADAS (Now)	Autonomous Driving (2020~)
DRAM Content / Car	~3.5GB	Growth by 6X~8X
DRAM Drivers	• Infotainment • Connectivity • Adaptive cruise control • Parking assist • 3D navigation	• Adaptive security system • Artificial Intelligence • Real-time navigation • High definition display

- ADAS & Autonomous Driving to boost automotive DRAM demand.

Comprehensive DRAM Portfolio

Specialty

- DDR4 ~ DDR
- Packaged & SiP

Mobile

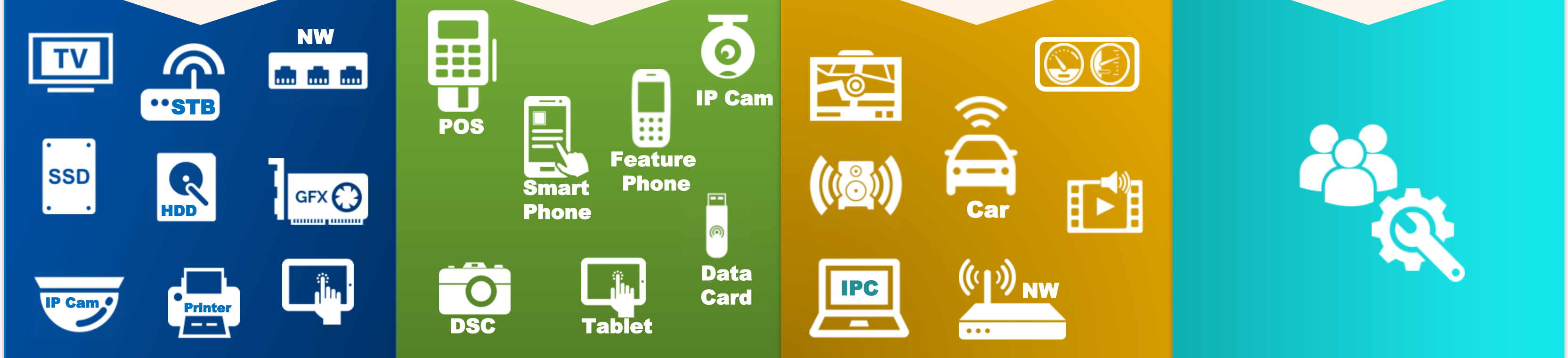
- LPDDR3 ~ LPDDR
- KGD, PoP & MCP

Auto & IT

- DDR4 ~ DDR2
- LPDDR3 ~ LPDDR
- Packaged & KGD

Custom

- Foundry
- Non-JEDEC DRAM



SiP = System in Package

KGD = Known Good Die
PoP = Package on Package
MCP = Multiple-Chip Package

Nanya Business Outlook

- Limited DRAM supply expected in 2017, leads to healthy market condition.
- Raised Q1'17 ASP guidance up 10-15% QoQ.
- 20nm volume production scheduled Q3'17, target 30K WSPM Q4'17.
- Target 38K WSPM of 20nm in 1H 2018 to better meet customers' needs and improve cost structure.
- DDR4 & LPDDR4 new product engagement.
- Nanya offers a comprehensive portfolio of DRAM solutions and continues to focus on specialty DRAM business.

*WSPM: Wafer Starts Per Month

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Thanks & Questions