



# **WIN** Semiconductors

*Compound Semiconductor Solutions  
From RF to Light-Wave*

**Company Presentation**



**June 2017**

- *This presentation contains certain forward-looking statements that are based on current expectations and are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements.*
- *Except as required by law, we undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise.*

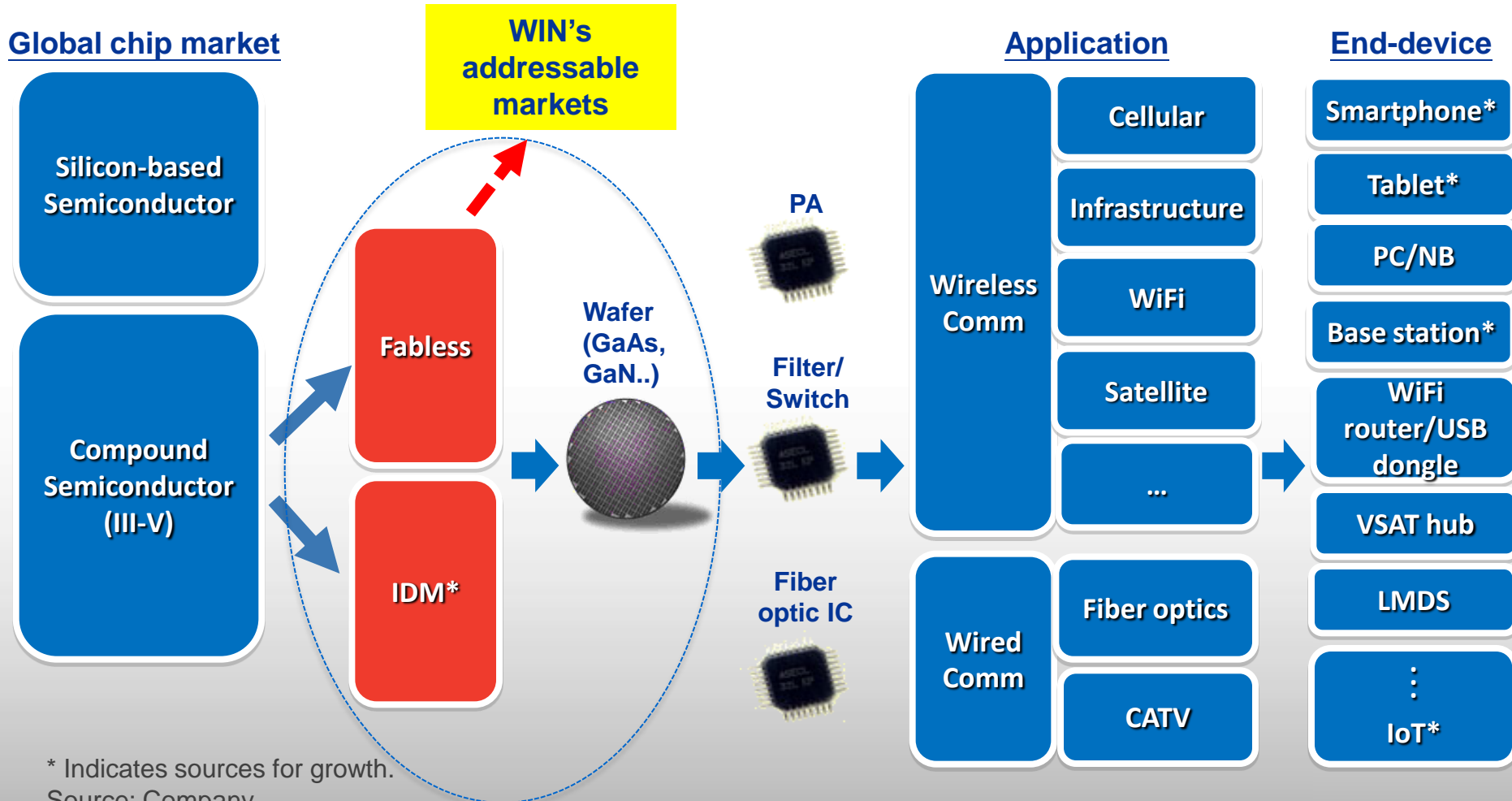
# Outline

- ✓ **Market Outlook**
- ✓ **Technology**
- ✓ **The WIN Strategy**
- ✓ **Financial Review & Guidance**
- ✓ **Q&A**

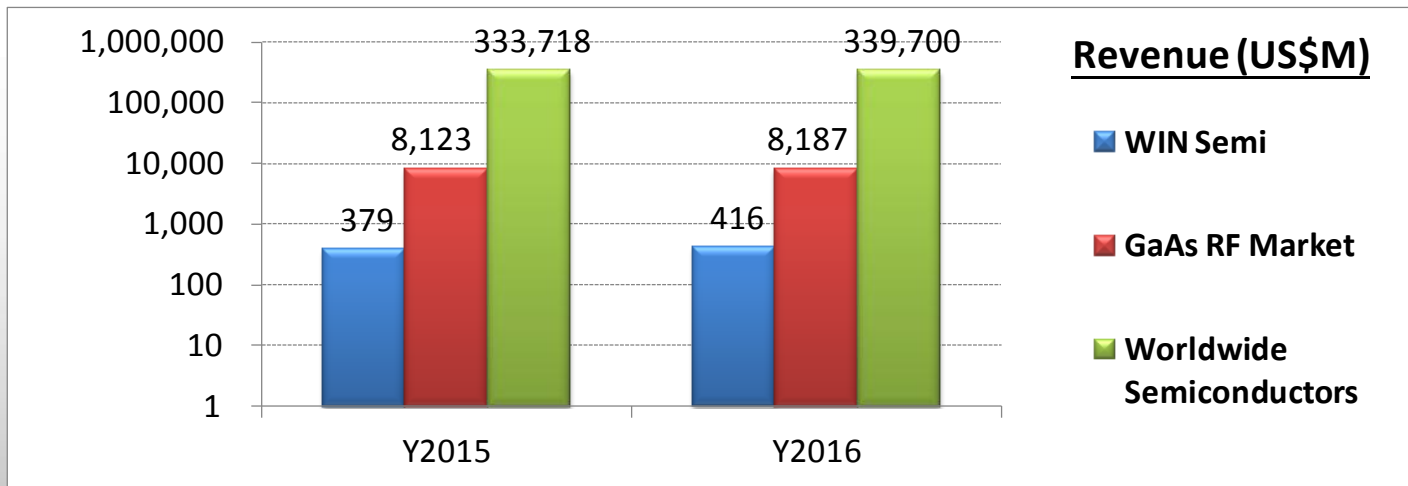
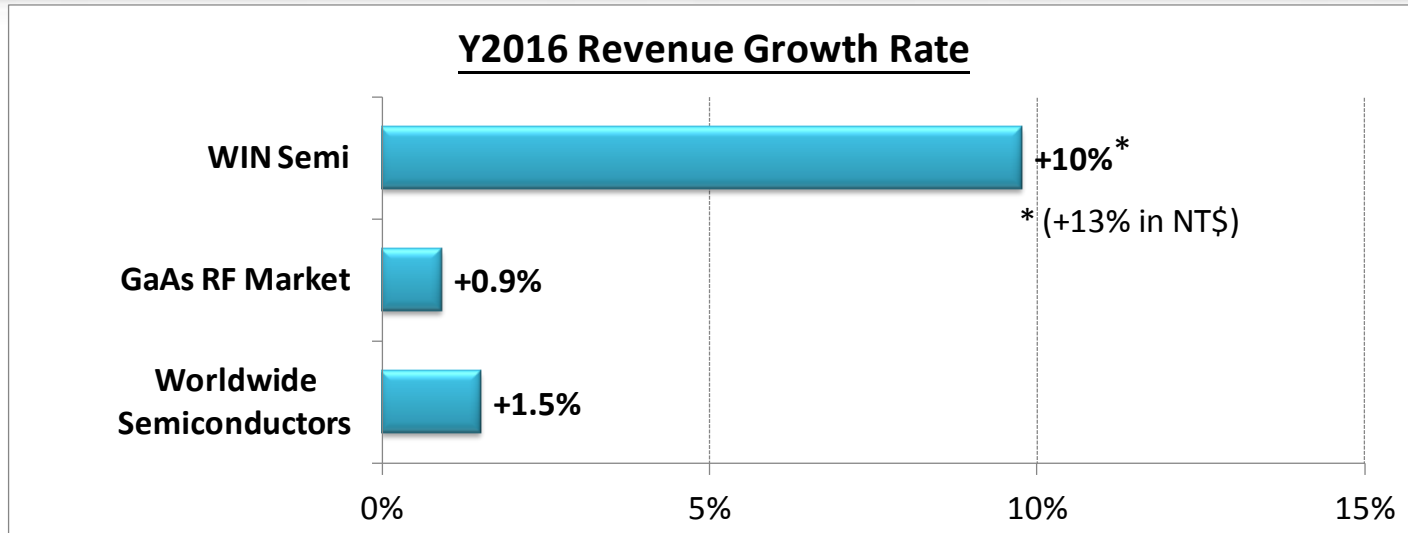
# Market Outlook

# WIN's Market Positioning

- WIN positions itself as a dedicated compound semiconductor wafer foundry offering foundry works to fabless and IDM customers who target in communication applications.



# Semiconductor Revenue Growth



Source : (1) Worldwide Semiconductors Revenue\_Gartner\_2017 Jan.

(2) RF GaAs Device Revenue Hits Record Level in 2016\_Strategy Analytics\_2017 Mar.

# Summary of Growth Momentum



**Smartphone  
MIMO**



**Wireless  
Infrastructure**



**Optical  
Devices**



Vehicle to Vehicle

**V2V, V2X**



**Pre-5G Network  
5G Network**

## Near Term

1. Rapid increase of 5/6-mode smartphones
2. Strong WiFi adoption in smartphones, routers, and IoT devices
3. Strong infrastructure growth

## Mid Term

1. Pre-5G launch (sub 6GHz)
2. Cellular MIMO CA
3. Automobile connectivity
4. Optical Devices

## Long Term

1. 5G launch for broadband satellite, dense cells, ...
2. 5G launch along with massive IoT deployment

## Cellular PA



- Global total frequency band count continues to increase (2016-2019 CAGR=17%)
- Rapid adoption of 5/6-mode smartphone (45% of total smartphone)
- Performance requirement continues to increase
  - CA, ET, PAE, higher frequency, higher output power

## WiFi

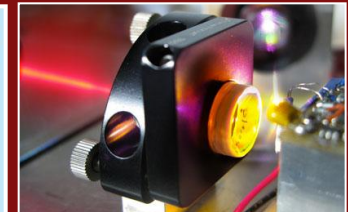


- Flagship phones adopt dual band (2G/5G) MIMO
- Mid/low-end phones start to adopt 5G band and MIMO
  - trend to include 5GHz 11ac Wi-Fi in China made smartphones
- Router and IoT gateway (e.g. 8x MIMO) markets are rapidly increasing

## Non-handset



- Satellite communication Ku/Ka bands
- Fiberoptics is moving toward 25Gbps, 40Gbps, and even >50Gbps per channel
- Point-to-point radio
- Optical devices:
  - 3D sensing, depth camera





## Cellular / Wi-Fi



- Continue to move toward higher frequency (sub 6GHz) as the pre-5G
- Cellular MIMO CA
- MU-MIMO enabled Wi-Fi chipset shipments (2017-2019 CAGR >60%)

## Non-handset



- V2X; V2V (e.g. 5.9GHz) :
  - V2V DSRC will rapid ramp-up from 2018 to 2021 (CAGR 115%)
- Broadband satellite communication using Ku/Ka bands

## Optical Device



- LD and PIN diodes for 2.5/10/25Gbps
- VCSEL for LiDAR (anti-collision and self-driving cars)

# Long Term 5G Opportunities

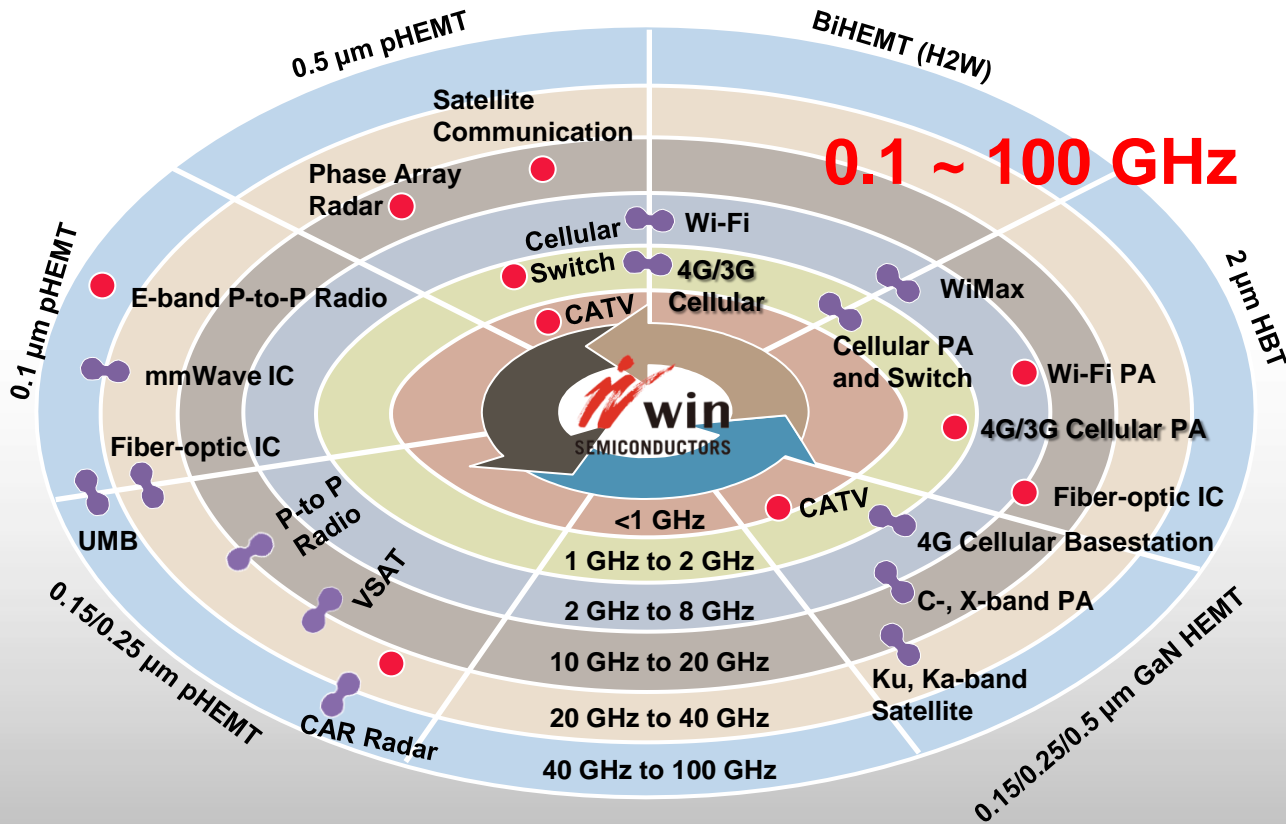
- 5G sub-6GHz (<6GHz) spectrum bands for ubiquitous network coverage
- 5G mmWave (~30GHz) likely for fixed wireless access as a start followed by extreme mobile broadband in the longer term

	<b>Mobile Device</b>	<b>Infrastructure/CPE</b>
<b>Sub-6GHz</b>	<ul style="list-style-type: none"><li>• GaAs HBT</li><li>• GaAs pHEMT</li></ul>	<ul style="list-style-type: none"><li>• GaN HEMT</li></ul>
<b>mmWave</b>	<ul style="list-style-type: none"><li>• Integrated GaAs technologies</li></ul>	<ul style="list-style-type: none"><li>• GaN HEMT</li><li>• GaAs pHEMT</li></ul>

# Technology

# Broad Portfolio of Advanced Technologies

The most comprehensive technology portfolio in industry enables customers to develop optimized products for a wide range of applications



- ✓ **Dominant market share for high-performance HBT used in LTE PAs**
- ✓ **Leading BiHEMT technology for advanced integrated FEM**
- ✓ First and only foundry worldwide to commercially develop 0.1 μm pHEMT on 6" GaAs wafer
- ✓ Industry leading 0.15–0.25 μm pHEMT technology
- ✓ Supports broad range of products such as PAs (from 50MHz–100GHz), switches, and fiber optic IC
- ✓ Developing GaN for high power devices (4G base station)

Unlike Si semiconductor technology in the digital world focuses on gate/line dimension shrinkage, the RF technology roadmap focuses on the following perspectives:

- Better Performance

GaAs vs CMOS

- ✓ Higher power efficiency → Longer battery power



- ✓ Better linearity → Faster speed



- ✓ Lower noise → Better quality of signal



- Higher Functionality Integration

**WIN provides all of the GaAs solution for the above!**

WiFi FEM : PA + LNA + Switch + Logic

BiHEMT = HBT + E/D pHEMT

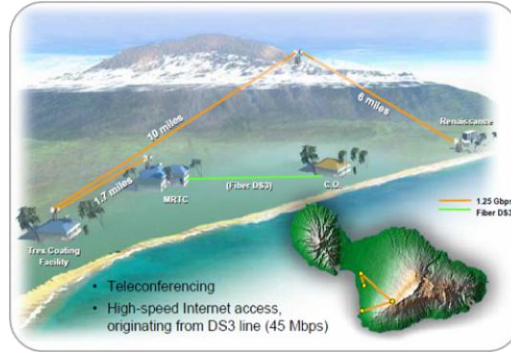
PA + LNA/Switch/Logic

PA/LNA/Switch/Logic

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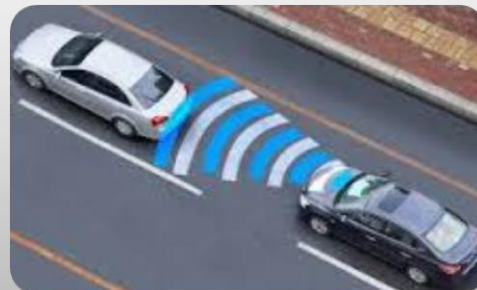
Cu Pillar Bump Flip Chip

# WIN 0.25/0.15/0.10 $\mu$ m pHEMT Inside!



Ultra high frequency semiconductor technology provider!

Satellite Communications, Fiber optic Communication, Wireless infrastructure ...



# The WIN Strategy

Invest in capacity to capture demand growth and improve margins through product remix

**Scale & Remix**

**Technology Leadership**

Invest in technologies to maintain competitive edge and sustain leadership

**Cost & Efficiency**

**Customer Diversification**

Leverage on technology and manufacture expertise to lift efficiency and drive cost down

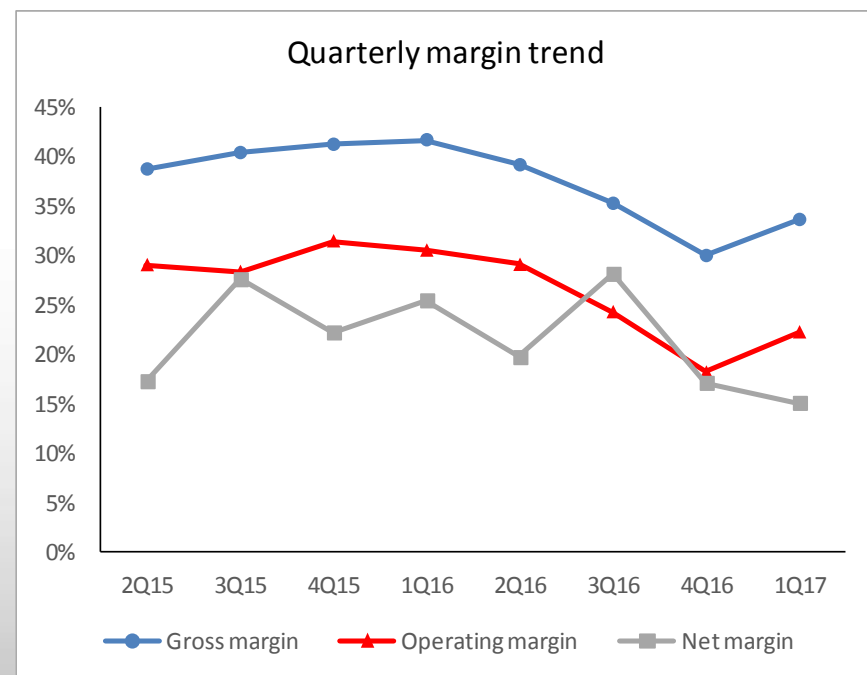
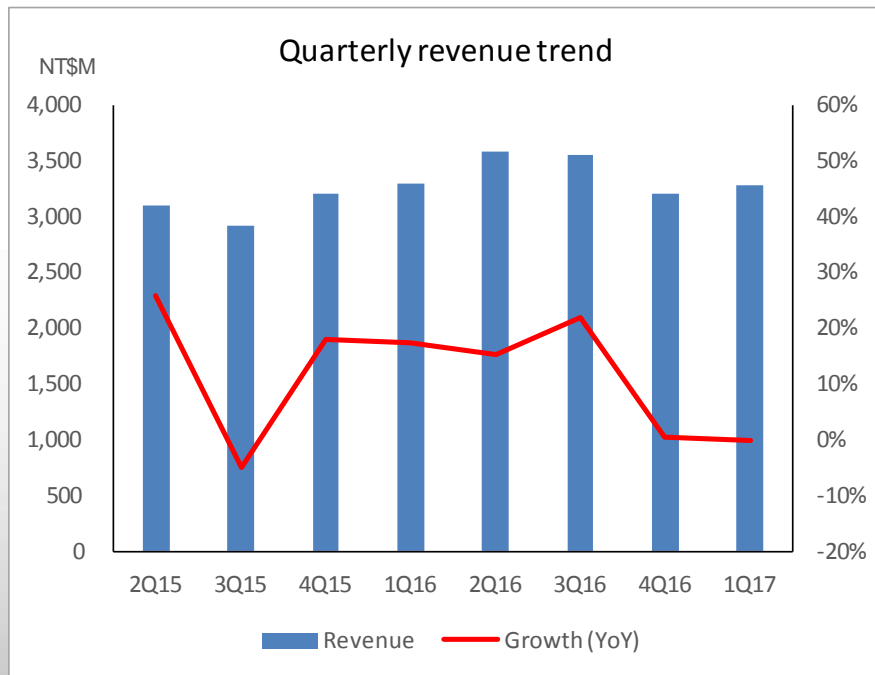
Grow and acquire new customers in existing and new markets to diversify customer base



# Quarterly Results & Guidance

# Revenue & Margin Trend

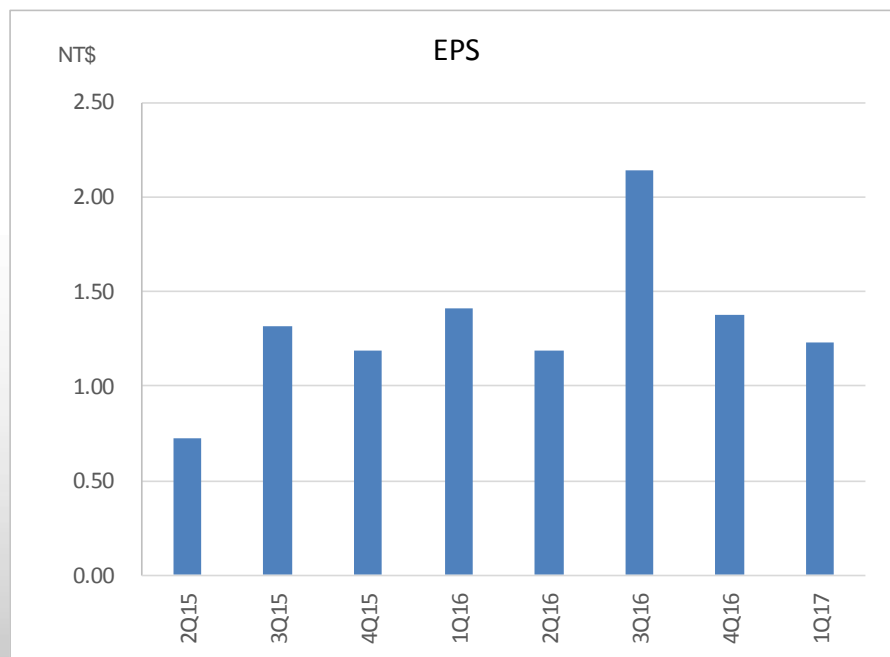
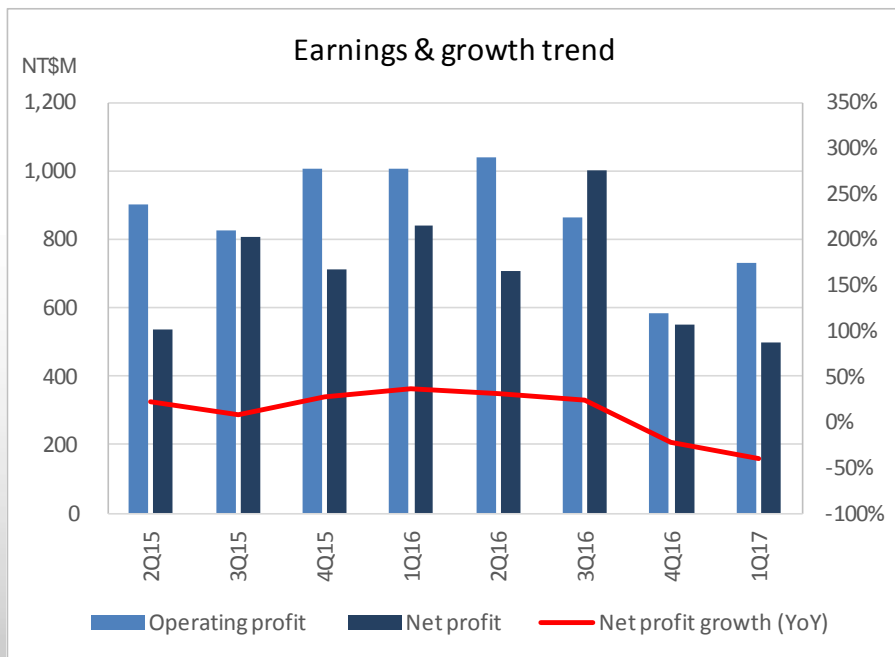
- 1Q17 revenue was NT\$3,282mn, up 2.4% QoQ and down 0.3% YoY.
- 1Q17 GM and OPM were 33.7% and 22.3%, respectively, with sequential increase of 3.7 and 4.1pp. This was a combined result of the removal of the one-off negative factors that occurred in 4Q16, slightly better product mix than 4Q16, and the sharp appreciation of NTD over USD.



Source: company.

# Earnings Trend

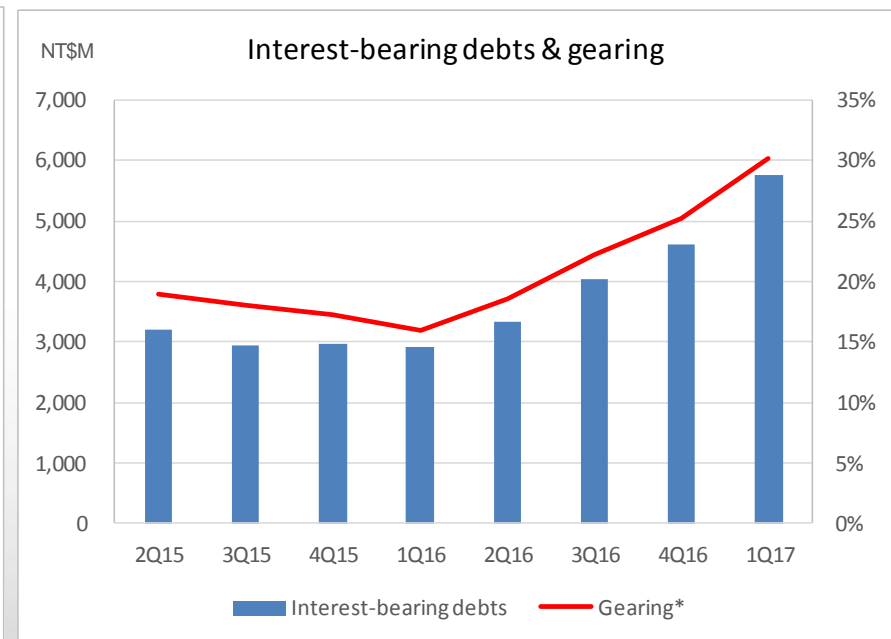
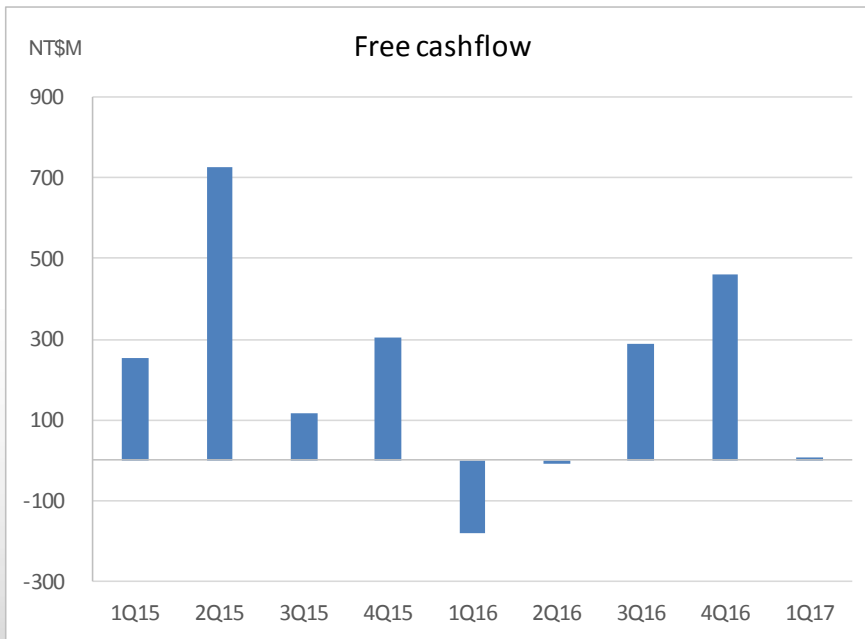
- 1Q17 net income was NT\$496mn, down 10% QoQ, mainly due to non-op items. Compared to non-op income of NT\$61mn in 4Q16, 1Q17 non-op expenses were NT\$140mn owing to a forex loss. Net income declined 41% YoY in the quarter. EPS came in at NT\$1.23, compared to NT\$1.38 in 4Q16.



Source: company.

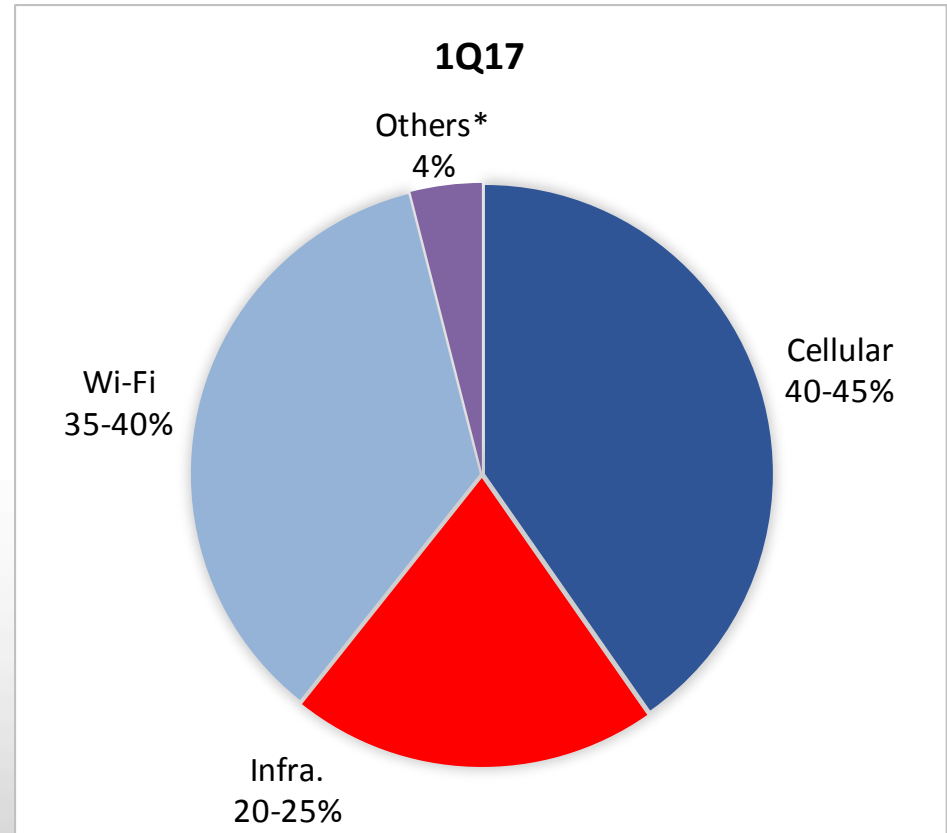
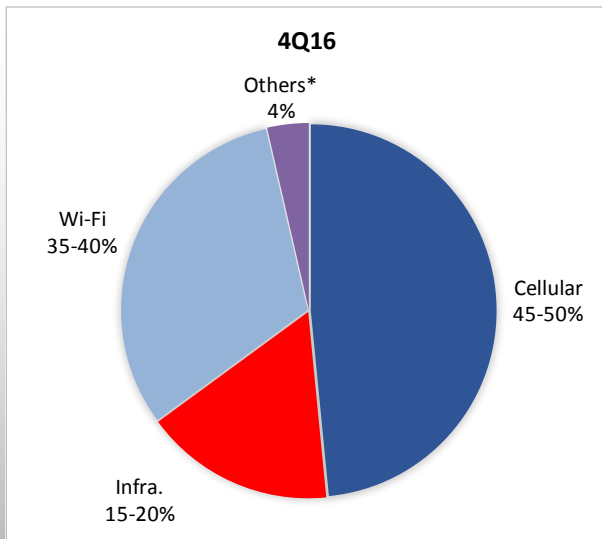
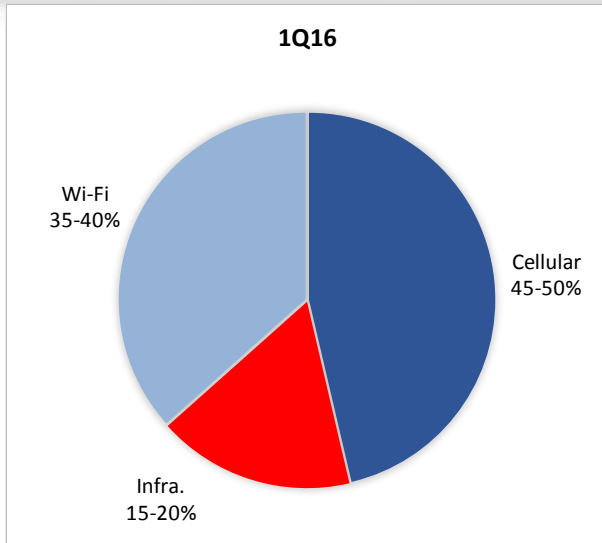
# FCF & Gearing Trend

- 1Q17 capex was higher than 4Q16, leading to lower free cash flow.
- Interest-bearing debts and gearing ratio modestly increased, as we moderately increased leverage while maintaining a healthy financial structure.



\* Gearing = interest-bearing debts / equity  
Source: company.

# Product Mix



\* Others: additional revenue being consolidated in accordance with IFRS

Source: company.

# 2Q17 Guidance



- We expect 2Q17 revenue to increase by 13-17% QoQ.
- We expect 2Q17 gross margin to be better than 1Q17.

# Appendix - Financial Summary

# Consolidated Statements of Comprehensive Income - Quarterly



Unit: NTD Million	1Q'16	4Q'16	1Q'17 (unaudited)	QoQ	YoY
<b>Net revenue</b>	<b>3,292</b>	<b>3,206</b>	<b>3,282</b>	<b>+2%</b>	<b>-0.3%</b>
Gross profit	1,374	962	1,105	+15%	-20%
<i>Gross margin (%)</i>	41.7%	30.0%	33.7%		
Operating expenses	(367)	(395)	(373)	-6%	+2%
<i>Operating expenses rate (%)</i>	-11%	-12%	-11%		
Other revenue and expenses	-	17	-		
<b>Operating income</b>	<b>1,006</b>	<b>584</b>	<b>732</b>	<b>+25%</b>	<b>-27%</b>
<i>Operating margin (%)</i>	30.6%	18.2%	22.3%		
Non-operating incomes and expenses	(1)	61	(140)		
Income before income tax	1,005	645	592	-8%	-41%
Income tax expense	(165)	(95)	(95)		
<b>Net income</b>	<b>839</b>	<b>550</b>	<b>496</b>	<b>-10%</b>	<b>-41%</b>
<i>Net margin (%)</i>	25.5%	17.2%	15.1%		
<b>EPS (NT\$)</b>	<b>1.41</b>	<b>1.38</b>	<b>1.23</b>	<b>-11%</b>	<b>-13%</b>
Other comprehensive income, net	173	(72)	270		
<b>Comprehensive income</b>	<b>1,012</b>	<b>478</b>	<b>767</b>	<b>+60%</b>	<b>-24%</b>
ROE(%)	19%	12%	11%		
Approx. Utilization (%)	90%	80%	80%		
Depreciation	504	636	574		
CAPEX	879	691	1,013		



# Non-operating Items

Unit: NTD Million	1Q'16	1Q'17 (unaudited)
Foreign exchange gains (losses)	(44)	(142)
Gains (losses) on disposals of property, plant and equipment	(0)	-
Gains (losses) on disposals of investments	1	(2)
Gains on financial assets (liabilities) at fair value through profit or loss, net	8	10
Share of loss of associates and joint ventures accounted for using equity	(4)	(16)
Others	38	10
<b>Total</b>	<b>(1)</b>	<b>(140)</b>

# Consolidated Balance Sheets

(Unit: NTD Million)	Major Item	2016/3/31		2016/12/31		2017/3/31 (unaudited)	
		\$	%	\$	%	\$	%
	Cash and cash equivalents	1,718	7%	2,388	9%	3,278	12%
	Current financial assets at fair value through profit or	774	3%	218	1%	234	1%
	Current available-for-sale financial assets	839	3%	975	4%	1,314	5%
	Notes and accounts receivable, net	911	4%	1,069	4%	1,002	4%
	Inventories	2,534	10%	2,727	10%	2,793	10%
	Long-term investments	2,281	9%	2,034	8%	2,170	8%
	Net property, plant and equipment	15,057	61%	16,081	61%	16,322	58%
	<b>Total Assets</b>	<b>24,533</b>	<b>100%</b>	<b>26,411</b>	<b>100%</b>	<b>28,071</b>	<b>100%</b>
	Current liabilities	4,127		4,194		3,973	
	Long-term borrowings	1,978		3,674		4,811	
	<b>Total Liabilities</b>	<b>6,303</b>	<b>26%</b>	<b>8,093</b>	<b>31%</b>	<b>9,010</b>	<b>32%</b>
	Common stock	5,967		4,077		4,027	
	<b>Total Equity</b>	<b>18,230</b>	<b>74%</b>	<b>18,318</b>	<b>69%</b>	<b>19,061</b>	<b>68%</b>
	Book value per share (NT\$)	30.55		44.93		47.34	
	<b>Key Indices</b>						
	Current ratio ( <i>Current assets / Current liabilities</i> )	169%		186%		228%	
	Debt ratio ( <i>Total liabilities / Total assets</i> )	26%		31%		32%	

# Q & A

For more information regarding WIN  
[www.winfoudry.com](http://www.winfoudry.com)

For all inquiries, suggestions, and comments  
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