



# Investor Conference

November, 2019

# Disclaimer

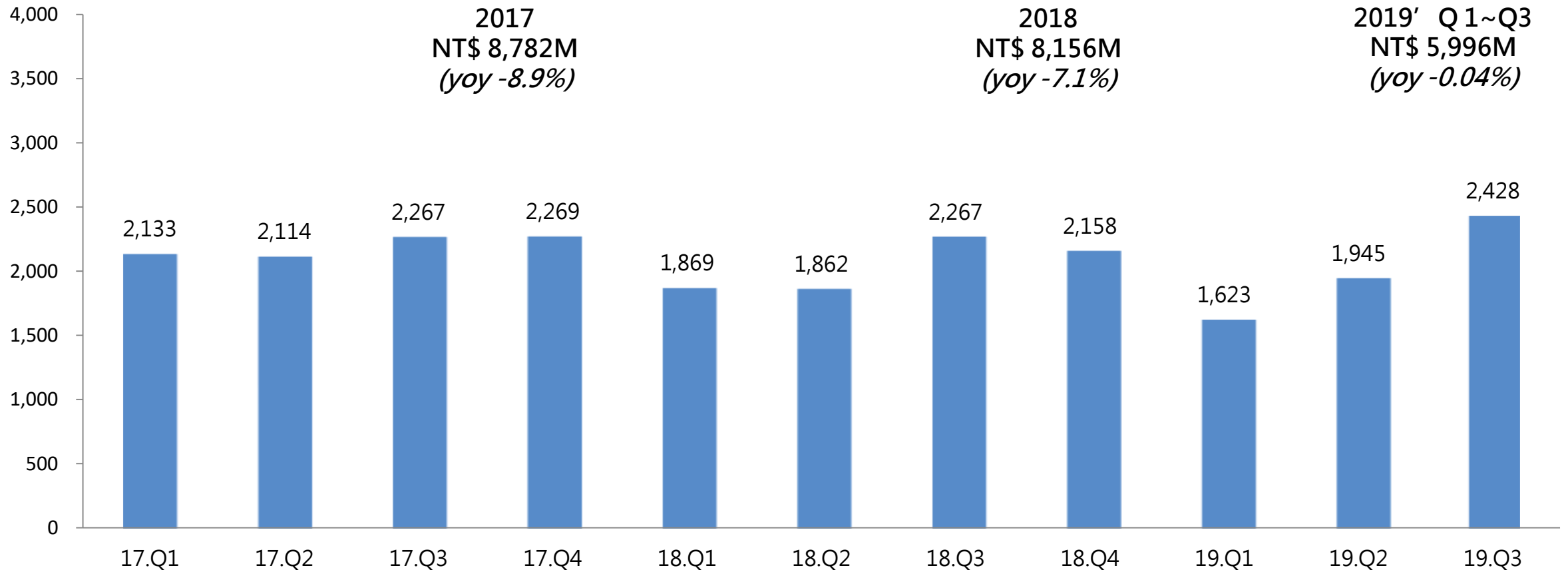
- Except for statements in respect of historical matters, the statements in this release are forward-looking statements. Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual performance, financial condition or results of operations of TXC to be materially different from what may be implied by such forward-looking statements.
- The financial forecasts and forward-looking statements in the release reflect the current belief of TXC as of the date of this release and TXC undertakes no obligation to update these forecasts and forward-looking statements for events or circumstances that occur subsequent to such date.
- The statements in respect of historical matters may contain unaudited information, which may have certain deficiency or weakness so as not to fairly present financial condition or the results of operations of TXC.

# Financial Performance

P&L, EPS, DPS, CAPEX

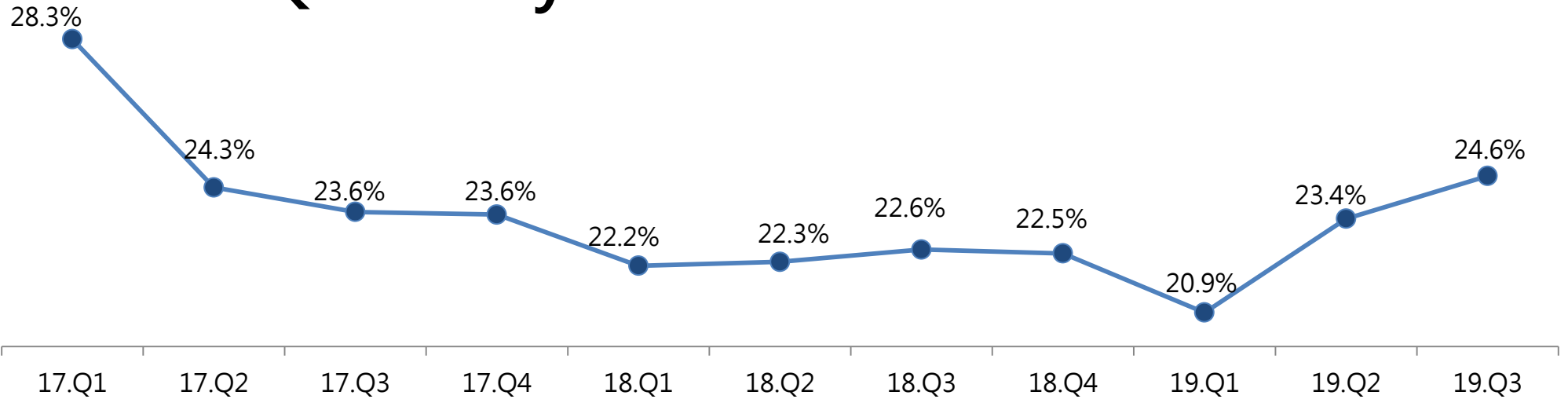
# Quarterly Performance

Unit: \$NT in Million

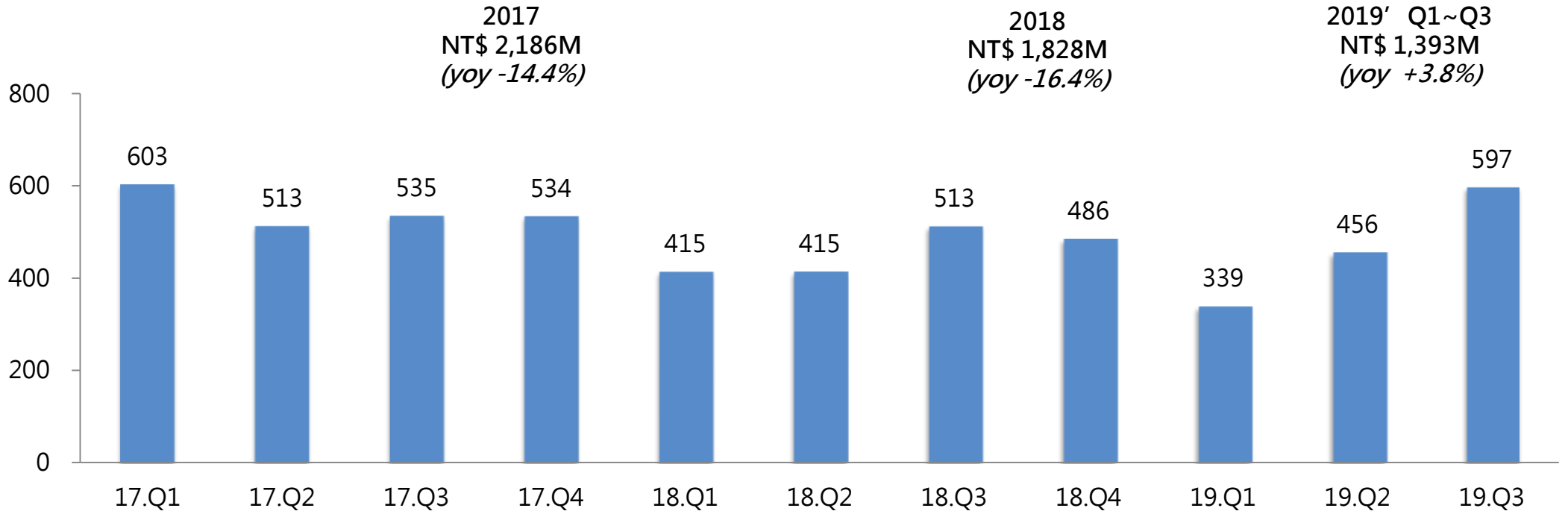


# Quarterly Performance

Gross Margin (%)

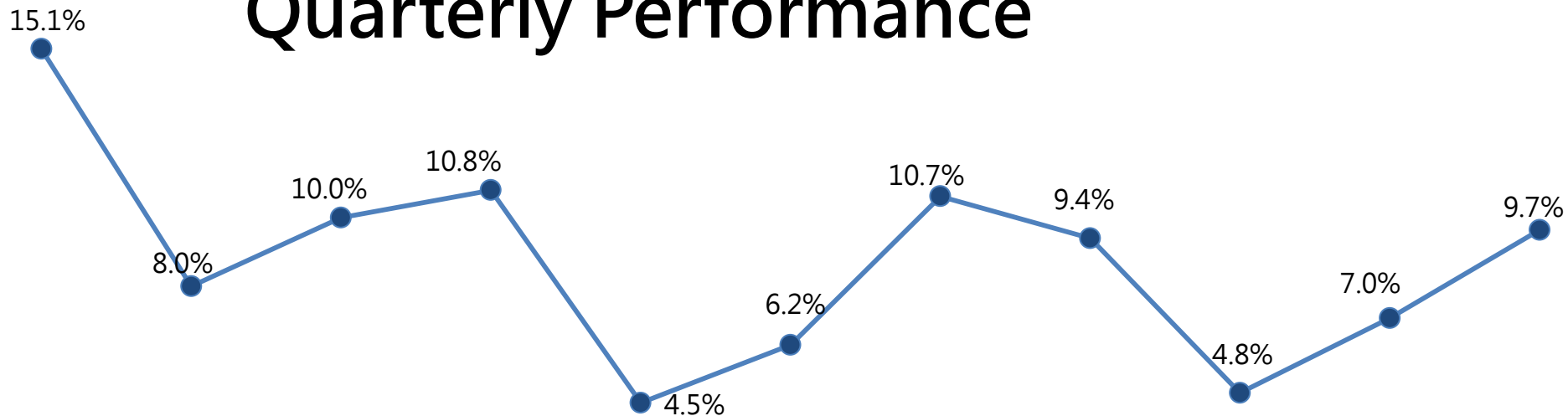


Gross Profit (NT\$ Million)

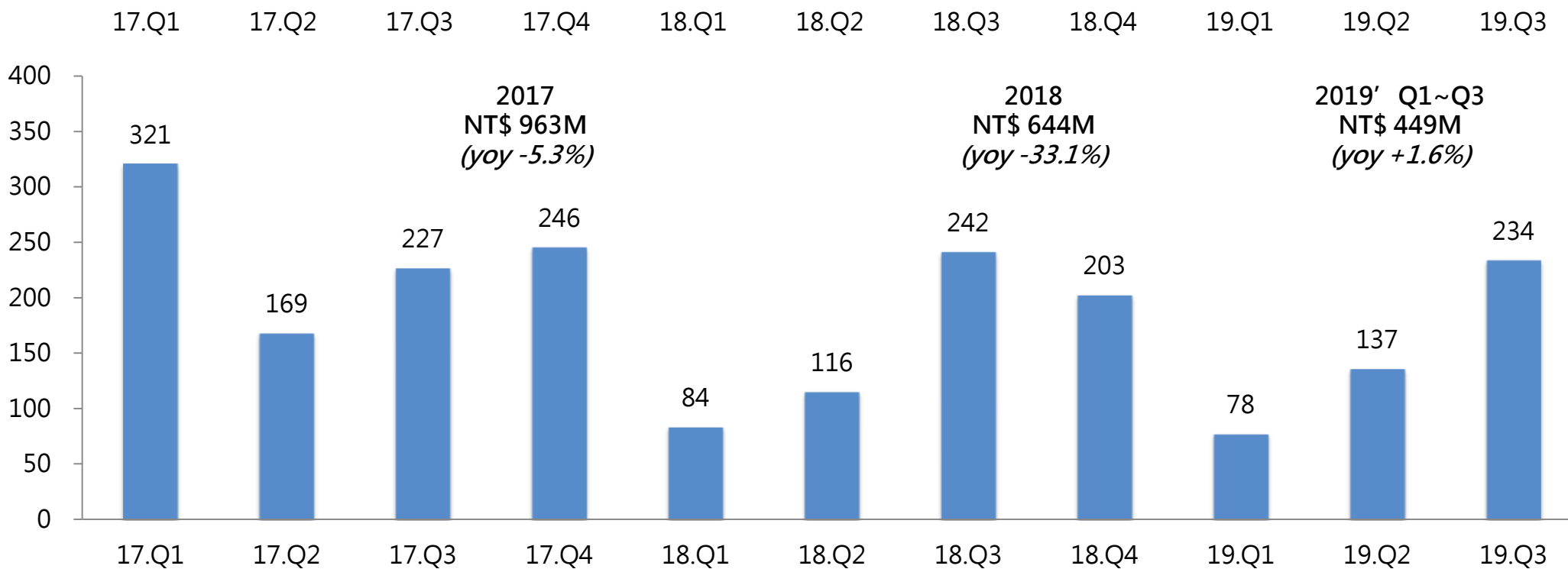


# Quarterly Performance

Net Margin (%)



Net Profit (NT\$ Million)



# Income Statement

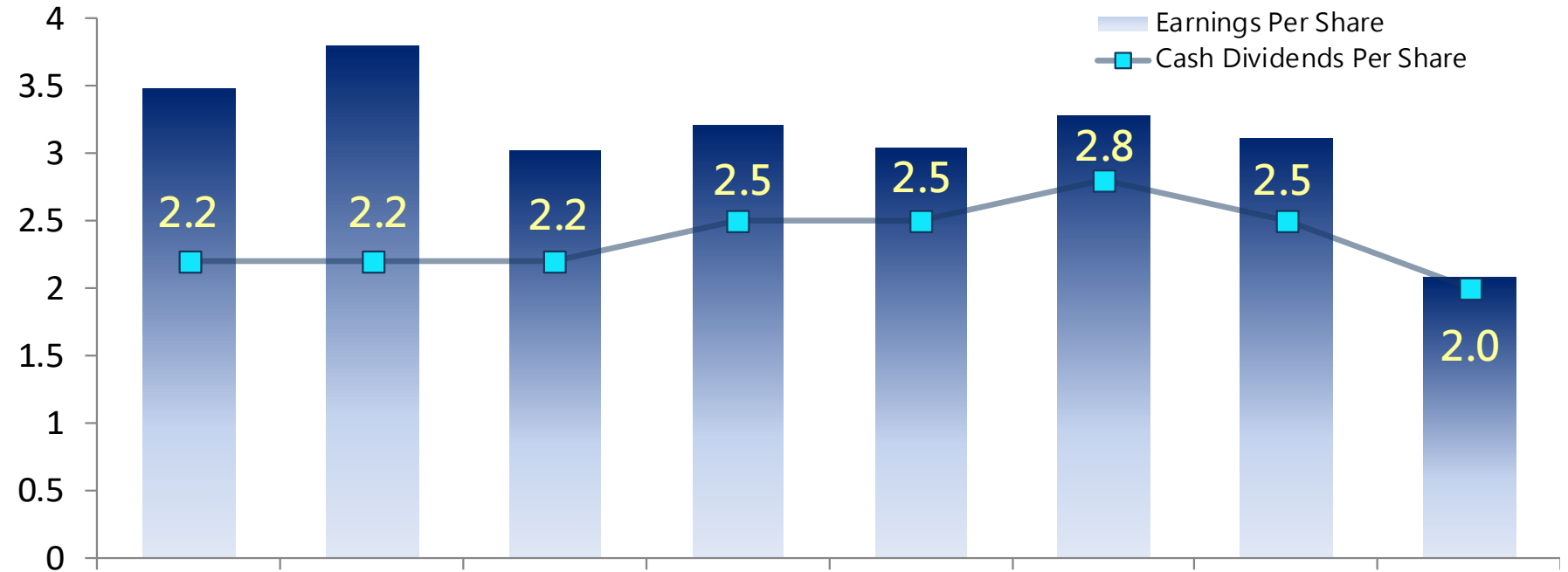
Unit : NT\$ in Million	2016	2017	2018	2019 Q1	2019 Q2	2019 Q3	2019Q1~Q3
Net Revenue	9,637	8,782	8,156	1,623	1,945	2,428	5,996
Gross Profit	2,554	2,186	1,828	339	456	597	1,393
Operating Profit	1,114	802	533	58	133	221	412
Non-Operating Items	78	273	200	29	28	42	99
Income before Tax Profit	1,192	1,075	733	86	161	263	510
Net Income to Shareholders of the Parent Company	1,016	963	644	78	137	234	449
Basic EPS (NT\$)	3.28	3.11	2.08	0.25	0.44	0.76	1.45
Gross Margin(%)	26.5%	24.9%	22.4%	20.9%	23.4%	24.6%	23.2%
Operating Margin(%)	11.6%	9.1%	6.5%	3.6%	6.8%	9.1%	6.9%
OPEX(%)	14.9%	15.8%	15.9%	17.4%	16.6%	15.5%	16.4%
Income before Tax Profit(%)	12.4%	12.2%	9.0%	5.3%	8.3%	10.8%	8.5%
Net Profit Margin(%)	10.5%	11.0%	7.9%	4.8%	7.0%	9.7%	7.5%

# Balance Sheet

Unit : \$NT Million	2016	2017	2018	2019 Mar.	2019 Jun.	2019 Sep.
Cash & Marketable Securities	2,093	2,331	1,426	1,771	1,942	2,020
NR+AR	3,085	2,651	2,726	2,221	2,432	2,775
Inventories	1,520	1,504	1,817	1,853	1,843	1,963
Current Assets	8,818	7,983	7,117	6,956	7,370	7,949
PP&E	4,278	4,370	4,111	4,070	3,953	3,999
<b>Total Assets</b>	<b>14,842</b>	<b>13,403</b>	<b>12,562</b>	<b>12,409</b>	<b>12,731</b>	<b>13,163</b>
Current Liabilities	3,156	2,277	2,089	1,947	2,567	2,585
Non-current Liabilities	1,913	1,961	1,722	1,478	1,722	2,053
<b>Total Liabilities</b>	<b>5,069</b>	<b>4,238</b>	<b>3,811</b>	<b>3,425</b>	<b>4,289</b>	<b>4,638</b>
<b>Total Shareholders' Equity</b>	<b>9,773</b>	<b>9,165</b>	<b>8,751</b>	<b>8,984</b>	<b>8,442</b>	<b>8,525</b>
A/R Turnover Days	114	119	120	139	132	126
Inventory Turnover Days	79	84	96	130	120	112
A/P Turnover Days	65	73	74	79	95	86
Current Ratio(%)	279.4%	350.6%	340.7%	357.4%	287.1%	307.5%
Debt Ratio(%)	34.2%	31.6%	30.3%	27.6%	33.7%	35.2%
Book Value Per Share(\$NT)	31.55	29.59	28.25	29.00	27.25	27.52

# EPS and DPS

Unit: \$NT



	2011	2012	2013	2014	2015	2016	2017	2018
Earnings Per Share	3.48	3.79	3.02	3.21	3.03	3.28	3.11	2.08
Cash Dividends Per Share	2.2	2.2	2.2	2.5	2.5	2.8	2.5	2.0
Stock Price (Apr. end)	43.6	46.0	43.6	39.9	41.1	44.5	39.0	36.0
Payout Ratio(%)	63.2	58.0	72.8	77.9	82.5	85.4	80.4	96.2
Yields(%)	5.1	4.8	5.1	6.3	6.1	6.3	6.4	5.6

# 2019 Capital Expenditure

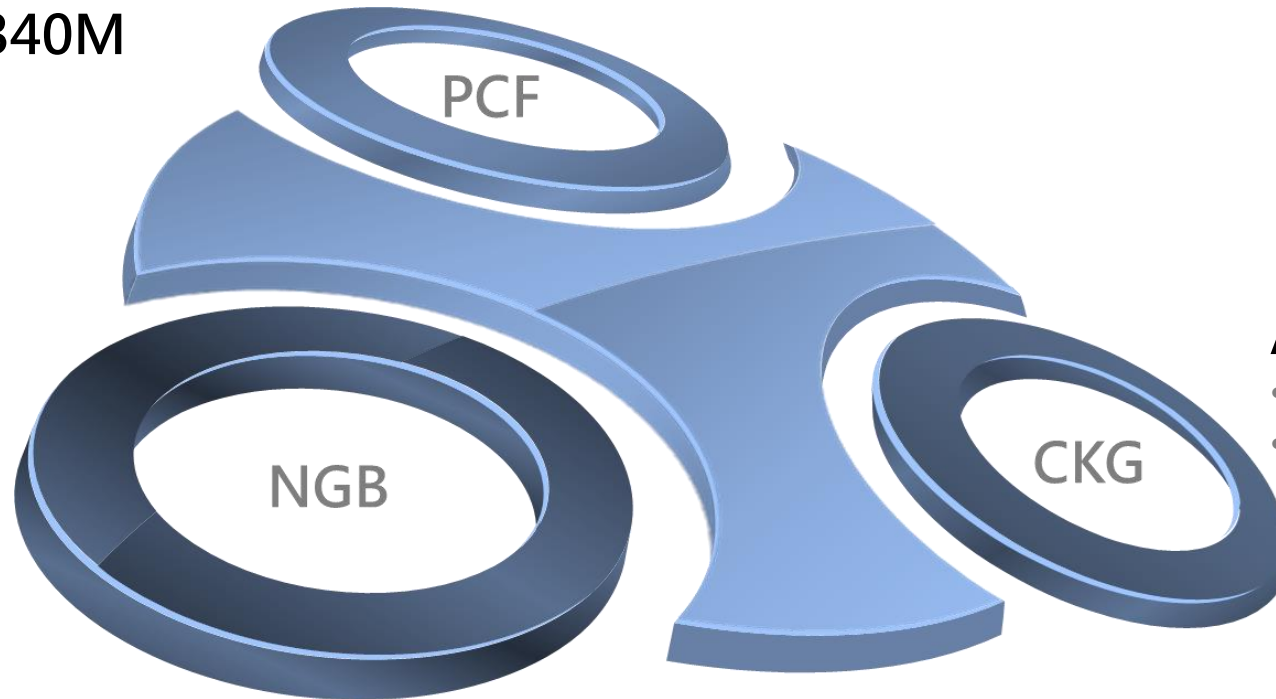
## Expand the Economy of Scale

Capacity expansion for new products, and to satisfy market demands

Unit: \$NT M

**Amount: \$340M**

- MEMS
- Oscillators



**Amount: \$230M**

- SMD Crystal
- ACAP Crystal

**Amount: \$150M**

- SMD Crystal
- Facility

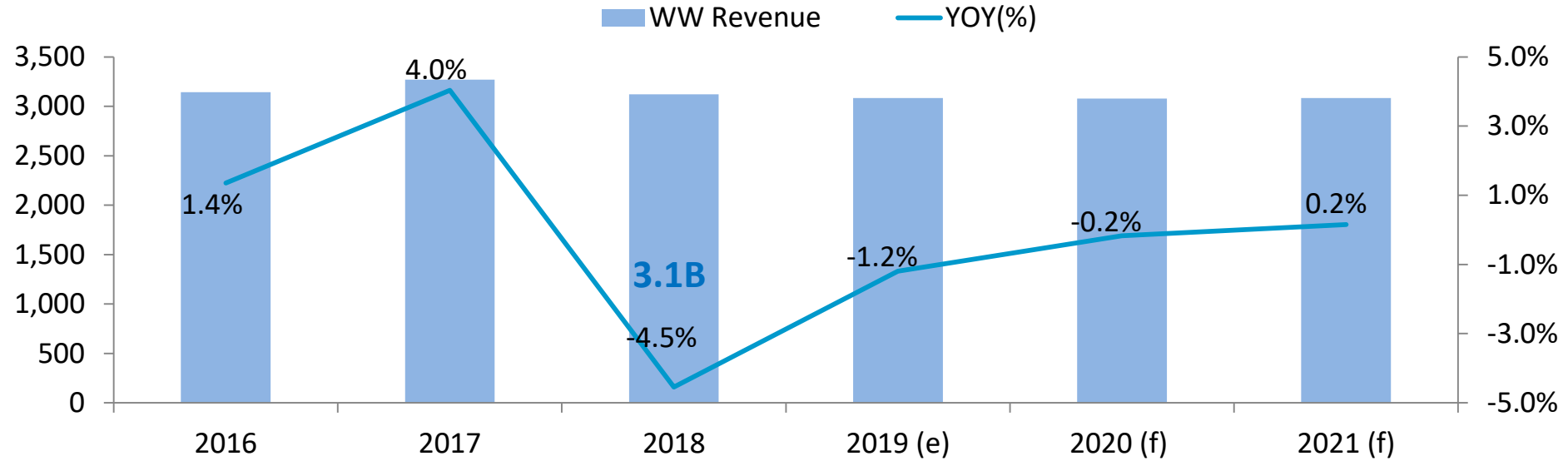
**Total Amount: \$720M**

# Market Outlook

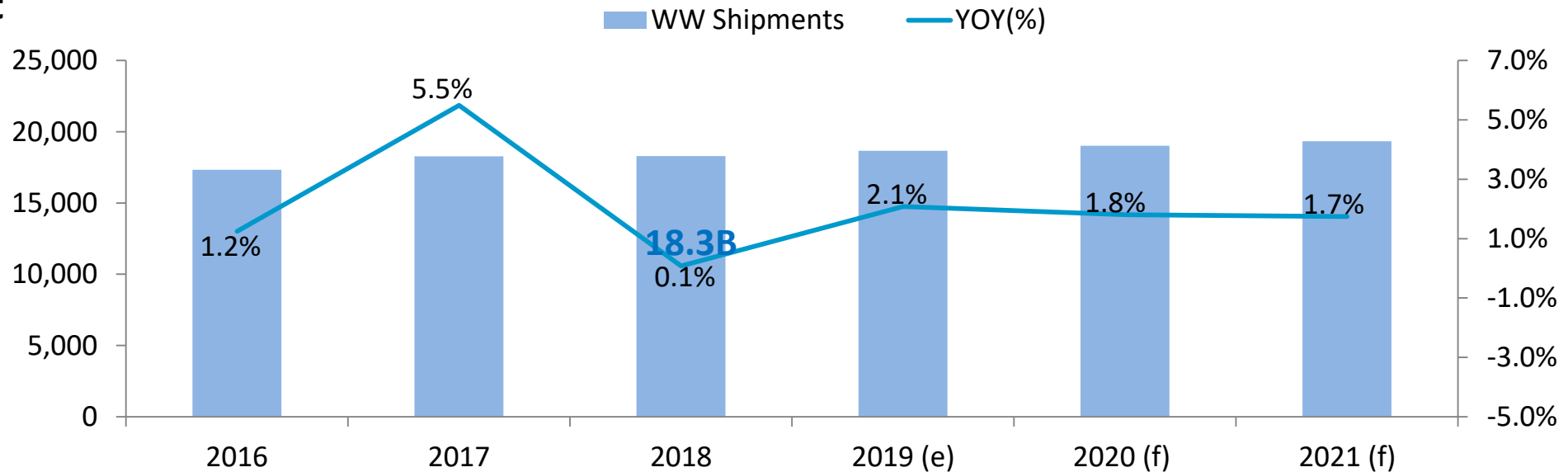
TAM, Ranking, Sales segment breakdown

# Worldwide X'tal & Oscillator Market

## Revenue



## Shipment



Source: CS&A 2019 updated

# Worldwide Timing Market Shares

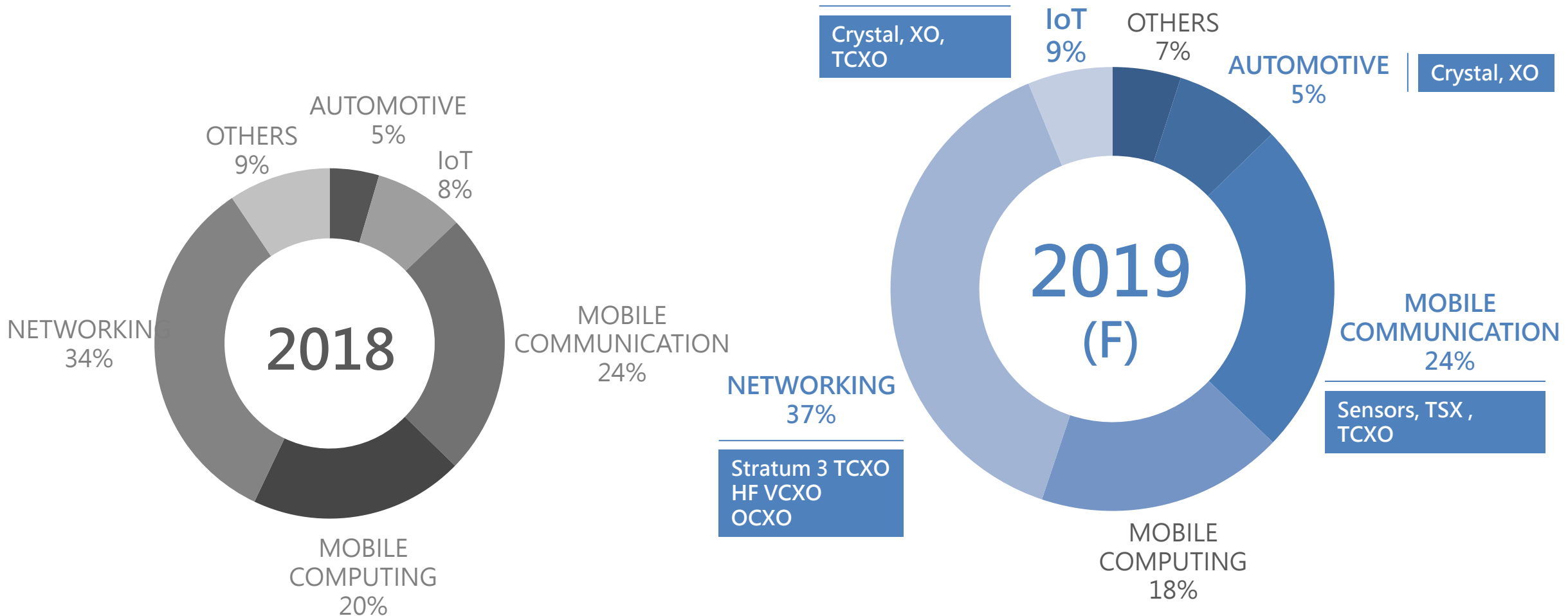
Strong Market Penetration

			Revenue(M)			Market Share(%)	
2017 Rank	2018 Rank	Company Name	2017	2018	Percent Change	2017	2018
1	1	Seiko Epson	382	365	-4.6%	11.7%	11.7%
2	2	NDK	354	358	1.2%	10.8%	11.5%
3	3	KCD	344	285	-17.2%	10.5%	9.1%
4	4	TXC	294	272	-7.5%	9.0%	8.7%
5	5	KDS	205	191	-6.9%	6.3%	6.1%
6	6	Microchip (Vectron)	168	176	5.0%	5.1%	5.7%
9	7	Murata	100	94	-6.0%	2.1%	3.0%
9	8	Hosonic	98	94	-4.1%	3.0%	3.0%
10	9	Harmony	98	92	-6.0%	3.0%	2.9%
7	10	SIWARD	104	89	-14.4%	3.2%	2.9%
Other Companies			1123	1105	-1.6%	35.3%	35.4%
<b>Total Revenue</b>			<b>3271</b>	<b>3122</b>	<b>-4.5%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: CS&A 2019 updated

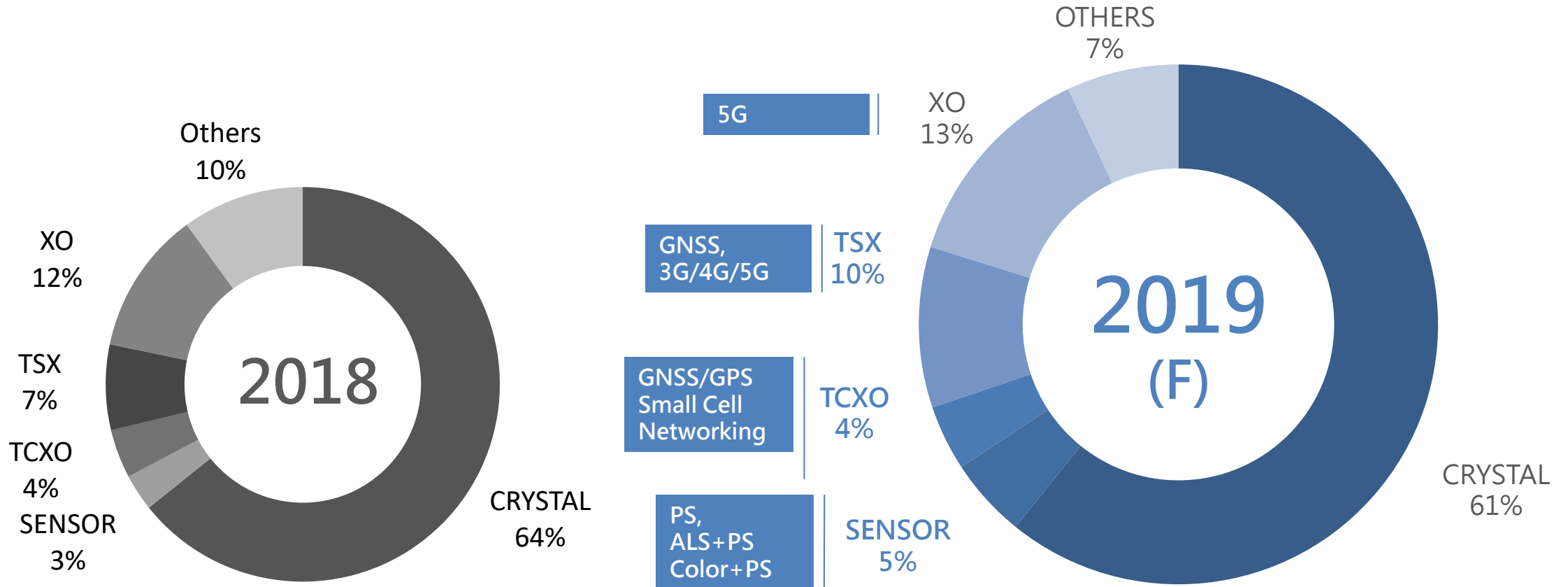
# TXC's Revenue by Market Segments

Actual and Forecast (F)



# TXC's Sales by Products

Actual and Forecast (F)



# Growth Potential

- The development of new product lines

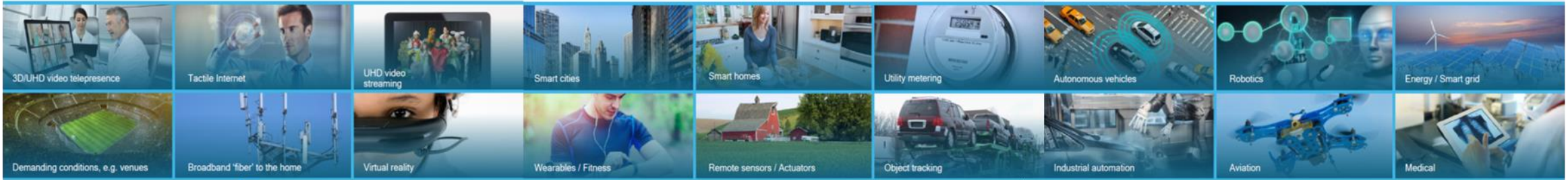
# 5G NR Standards Development

## 3 Main Types of Usage Scenario – eMBB, mMTC & uRRLC

**eMBB, 增強移動寬帶**  
Enhanced Mobile Broadband

**mMTC, 大規模互聯網**  
Massive Machine Type Communications

**uRRLC, 低延遲物聯網**  
Ultra-Reliable & Low Latency Communications



Deployment as the first priority per 3GPP Rel. 15  
**Growth driver of 5G sub-projects**

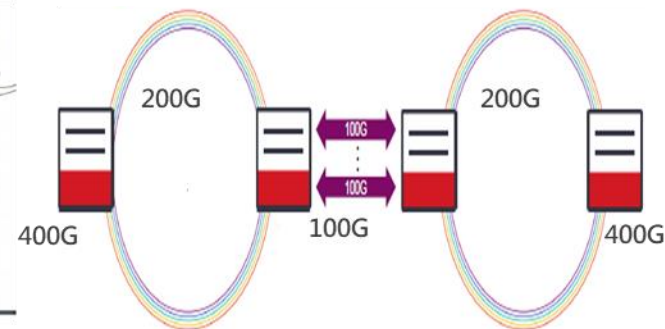
**Base Station**



**Small Cell**



**Optical Communication**

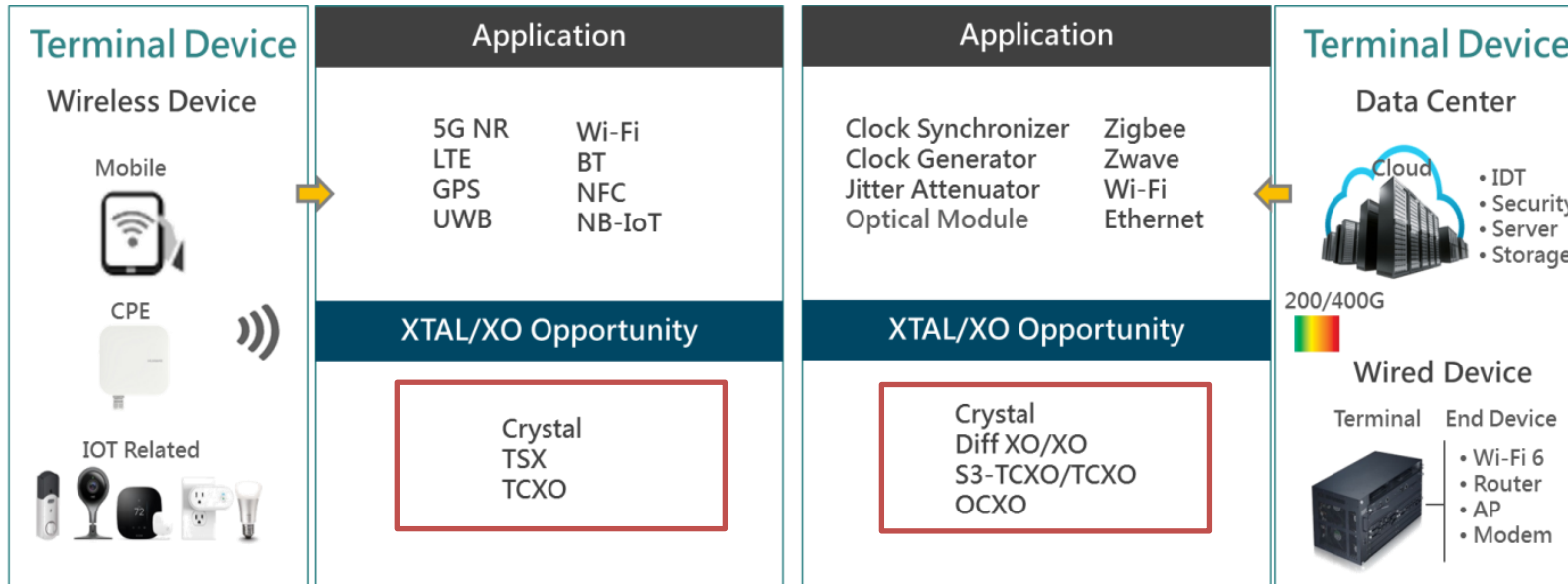


**Wi-Fi 6**



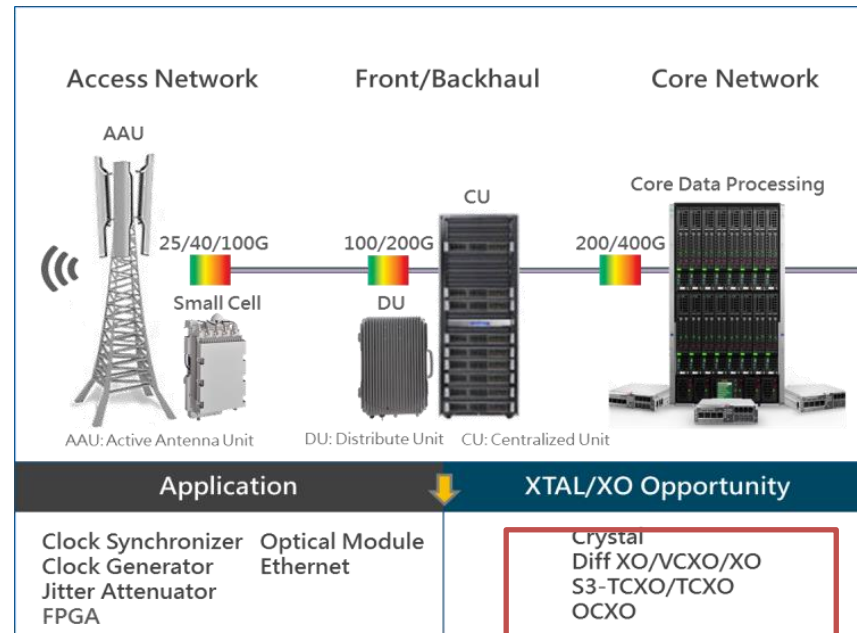
# 5G Related Frequency Components Requirements

- 手機
- CPE
- IOT/AIOT

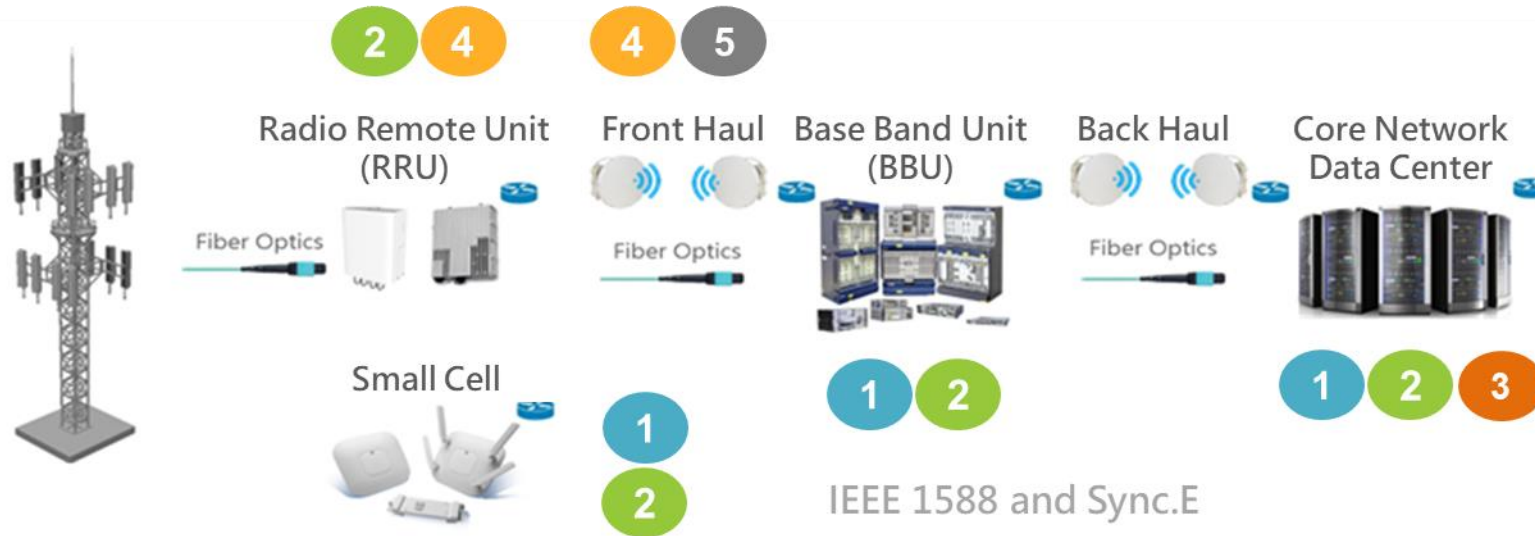


- Data Center
- AP/Router
- Modem

- Infrastructure



# Telecom and Networking Solutions



**1** Ultra Stability SMD SC-Cut OCXO (9.7x7.5mm) +/-10ppb

- 2** Ultra Stability S3 TCXO (7.0x5.0mm, 5.0x3.2mm); +/-100ppb
- 3** High Frequency, XO/VCXO (7.0x5.0mm); Up to 2.1GHz, ultra low jitter 0.15pS
- 4** Ultra Low Phase Noise VCXO (3.2x2.5mm); Close-in phase noise -80dBc/Hz
- 5** High Frequency Crystal (MESA 3.2x2.5mm); 200MHz

# Internet of Things Solutions



Source: IDC, Cisco

**MHz Crystal**  
Miniature & Low Profile  
1.0x0.8x0.30 (mm)

WiFi, BT, BLE, NFC

**TSX (TH+Xtal)**  
Miniature & Low Profile  
1.6x1.2x0.55 (mm)

LTE, 5G Modem

**OSC (Differential/CMOS/HCSL)**  
Low Phase Noise  $\leq -100\text{dBc/Hz}$  @ 10Hz;  
Miniature 2.5x2.0x0.75 (mm)

High Speed, Low Noise Transmission

**Active Low EMI CMOS OSC**  
Reduced Electromagnetic Interference  
Miniature 2.0x1.6x0.75 (mm)

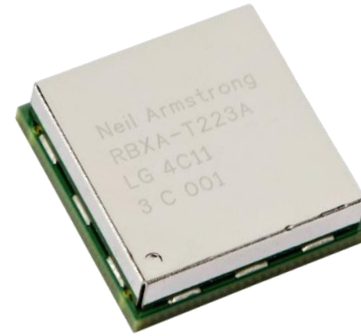
\* ADAS, Camera Module

# Miniature & Low Profile Crystal & Oscillator

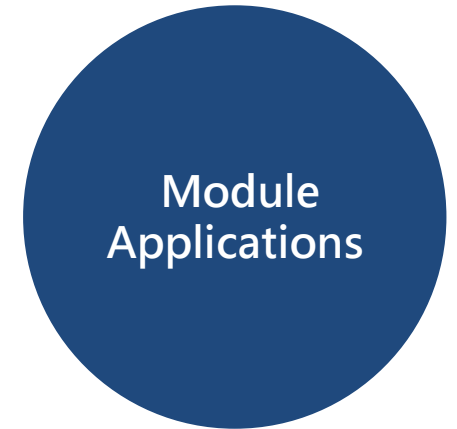
Miniature and low profile 1.0x0.8x0.3mm Crystals for Compact size module applications



GNSS/GPS Module

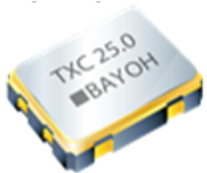


WiFi, BT/BLE, ZigBee Module



Source: ublox, OriginGPS

Miniature and low profile 1.6x1.2mmx0.6mm Oscillators



# Light Sensors

**Single Aperture  
Combo Light Sensor  
(ALS/RGB+PS)  
2.5x2.0mm**



**Slim Bezel  
Combo Light Sensor  
(ALS/RGB+PS)  
3.4x1.2mm**



**Miniature  
Proximity Sensor  
2.0x1.6mm**



# TXC Automotive Application Focus & Solutions

## Infotainment & Telematics System

Crystal/XO: 5-10 units



## Security Electronic System

Crystal/XO: 7-12 units



## Safety Electronic System

Crystal/XO: 8-14 units



## Tire Pressure Monitoring System

Crystal: 5 units (4T & 1R)



## Advanced Driver Assistance System

Crystal/XO: 10-16 units



### Crystal (AEC-Q200 Compliant)

#### Glass (G0)

AX(8.0x4.5mm, 2pad)  
AA(5.0x3.2mm, 2pad)  
AV(3.2x2.5mm, 2/4 pad)  
AR(2.0x1.6mm, 2pad)

#### Seam (G1)

AB(5.0x3.2mm, 4pad)  
AM(3.2x2.5mm, 4pad)  
AZ(2.5x2.0mm, 4pad)  
AY(2.0x1.6mm, 4 pad)  
AJ(1.6x1.2mm, 4 pad)

#### TSX (G2)

AE(2.5x2.0mm, 4pad)  
AF(2.0x1.6mm, 4pad)  
AG(1.6x1.2mm, 4pad)

### Oscillator (AEC-Q100 Compliant)

#### XO (G1)

AU(3.2x2.5mm, CMOS)  
AW(2.5x2.0mm, CMOS)  
AN(2.0x1.6mm, CMOS)  
A5(1.6x1.2mm, CMOS)

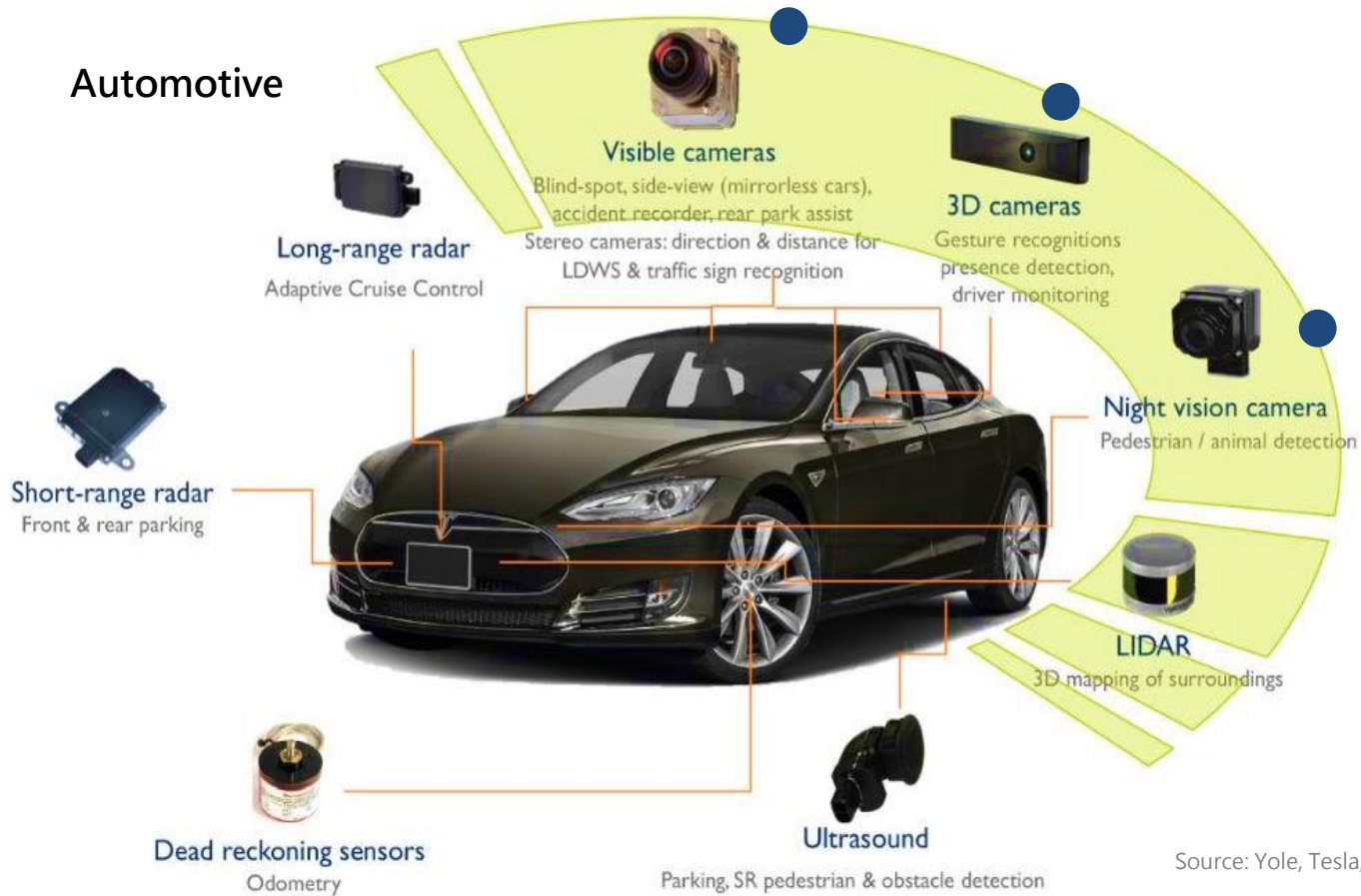
#### TCXO (G2)

AQ(3.2x2.5mm, CS)  
AL(2.5x2.0mm, CS)  
AK(2.0x1.6mm, CS)

G0: -40 to 150 °C  
G1: -40 to 125 °C  
G2: -40 to 105 °C  
G3: -40 to 85 °C

# Automotive Imaging Solutions

## Automotive



Source: Yole, Tesla, Sony



- Active Low EMI OSC Module
- Automotive G1
- 2.5x2.0mm
- 2.0x1.6mm



# Q & A

## Investor Conference