

環宇  
芯系天下

**Q1 2018  
Quarterly  
Online Investor  
Conference  
(線上法說會)**

**May 4, 2018**



環宇通訊半導體  
Global Communication Semiconductors, LLC



“Enabling Today’s Global  
Communications  
and Beyond”

# Disclaimer Statement



This presentation includes forward-looking statements. All statements, other than statements of historical facts, that address activities, events or developments that GCS Holdings, Inc. expects or anticipates will or may occur in the future (including but not limited to projections, targets, estimates and business plans) are forward-looking statements.

GCS's actual results or developments may differ materially from those indicated by these forward-looking statements as a result of various factors and uncertainties, including but not limited to price fluctuations, actual demand, exchange rate fluctuations, market share, competition, environmental risks, change in legal, financial and regulatory frameworks, government policies, international economic and financial market conditions, political risks, cost estimates and other risks and factors beyond our control.

GCS does not undertake any obligation to publicly update any forward-looking statement to reflect events or circumstances after the date on which any such statement is made or to reflect the occurrence of unanticipated events.

# Agenda



Opening:

Brian Ann, CEO & President

Financial Section:

Grace Li, Director & Special Assistant to CEO

Market Overview:

Simon Yu, Senior VP and General Manager,  
Worldwide Sales & Marketing and Component  
Business

Q&A: All

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# FINANCIAL SECTION

# Statements of Comprehensive Income - QoQ



(in NT\$ thousands except EPS)

	1Q18	4Q17	1Q17	1Q18 Over 4Q17	1Q18 Over 1Q17
Net Operating Revenue	479,020	526,812	411,692	-9.1%	16.4%
Gross Profit	214,304	236,957	187,312	-9.6%	14.4%
Gross Margin	44.7%	45.0%	45.5%		
Operating Expenses	(124,401)	(104,199)	(111,899)	19.4%	11.2%
Operating Expenses to Revenue %	26.0%	19.8%	27.2%		
Operating Income	89,903	132,758	75,413	-32.3%	19.2%
Operating Margin	18.8%	25.2%	18.3%		
Non-operating Items	(1,758)	(22,950)	29,216	-92.3%	-106.0%
Income before Income Tax	88,145	109,808	104,629	-19.7%	-15.8%
Income Tax	(4,490)	(29,622)	(6,365)	-84.8%	-29.5%
Net Income	83,655	80,186	98,264	4.3%	-14.9%
Net Profit Margin	17.5%	15.2%	23.9%		
Basic EPS (NTD)	1.06	1.03	1.35		
Diluted EPS (NTD)	1.05	1.02	0.83		
R&D Expense % to Revenue	8.7%	7.5%	10.1%		
ROA (%)	11.4%	12.8%	14.7%		
ROE (%)	12.9%	15.5%	19.0%		

Note 1: 78,807,638 shares and 79,557,174 shares were used in basic EPS and diluted EPS calculation for 1Q18, respectively.

Note 2. Revenue supplemental information

	1Q18	4Q17	1Q17	1Q18 Over 4Q17	1Q18 Over 1Q17
Revenue in US\$ thousand	16,349	17,469	13,242	-6.41%	23.5%
Exchange Rate	29.3	30.43	31.09		

# Non-operating Income and Expenses- QoQ



(in NT\$ thousands)

	1Q18	4Q17	1Q17	1Q18 Over 4Q17	1Q18 Over 1Q17
Other Income	1,696	1,257	966	34.9%	75.6%
Other Gains and Losses					
Net Gain or (losses) on financial liabilities at fair value through profit or loss	2,322	(19,196)	59,450	-112.1%	-96.1%
Net currency exchange gain or (loss)	(2,581)	(2,129)	(24,279)	21.2%	-89.4%
Gain on disposal of Property, plant and equipment	-	456	-	-	-
Others	(1,009)	(105)	-	-	-
Finance Cost					
Interest expense for convertible bonds (Note)	(746)	(1,496)	(5,443)	-50.1%	-86.3%
Other interest expense	(1,171)	(1,294)	(1,478)	-9.5%	-20.8%
Share of profit of equity-accounted investees	(269)	(443)	-		
<b>Total Non-operating Income and Expenses</b>	<b>(1,758)</b>	<b>(22,950)</b>	<b>29,216</b>	<b>-92.3%</b>	<b>-106.0%</b>

Note: Amortization of discount on convertible bonds

# Balance Sheet Highlight & Key Indices



## *Selected Items from Balance Sheet*

(in NT\$ thousands)

	1Q18		4Q17		1Q17	
	Amount	%	Amount	%	Amount	%
Cash and Cash Equivalent	1,215,937	40%	1,119,712	38%	1,259,062	44%
Accounts Receivable and Notes Receivable	267,580	9%	297,515	10%	228,471	8%
Inventory	331,345	11%	329,834	11%	333,501	12%
Available-for-Sale Financial Assets-Non current	-	0%	-	0%	64,906	2%
Investments accounted for under the Equity Method	14,459	0%	14,520	0%	-	0%
Net Property, Plant and Equipment	668,747	22%	700,655	24%	451,655	16%
Deferred Tax Assets	161,511	5%	164,924	6%	200,149	7%
Intangible Assets	176,343	6%	183,654	6%	11,939	0%
<b>Total Assets</b>	<b>3,020,462</b>	<b>100%</b>	<b>2,981,355</b>	<b>100%</b>	<b>2,829,248</b>	<b>100%</b>
Short Term Loan	20,000	1%	20,000	1%	20,000	1%
Financial Liabilities at Fair Value through Profit and Loss	-	0%	31,204	1%	11,508	0%
Accounts Payable and Other Payables	158,624	5%	157,116	5%	153,759	5%
Bond Payable - Current Portion	2,777	0%	60,006	2%	331,260	12%
Long Term Bank Borrowings - Current Portion	19,134	1%	19,366	1%	19,145	1%
Long Term Bank Loans	69,275	3%	75,797	3%	92,113	3%
<b>Total Liabilities</b>	<b>359,435</b>	<b>12%</b>	<b>443,786</b>	<b>15%</b>	<b>771,738</b>	<b>27%</b>
<b>Total Stockholders' Equity</b>	<b>2,661,027</b>	<b>88%</b>	<b>2,537,569</b>	<b>85%</b>	<b>2,057,510</b>	<b>73%</b>

## *Key Indices*

Current Ratio	756%	557%	313%
Debt Ratio	12%	15%	27%
AR Turnover Days	54	49	50
Inventory Turnover Days	140	149	172

# Cash Flows

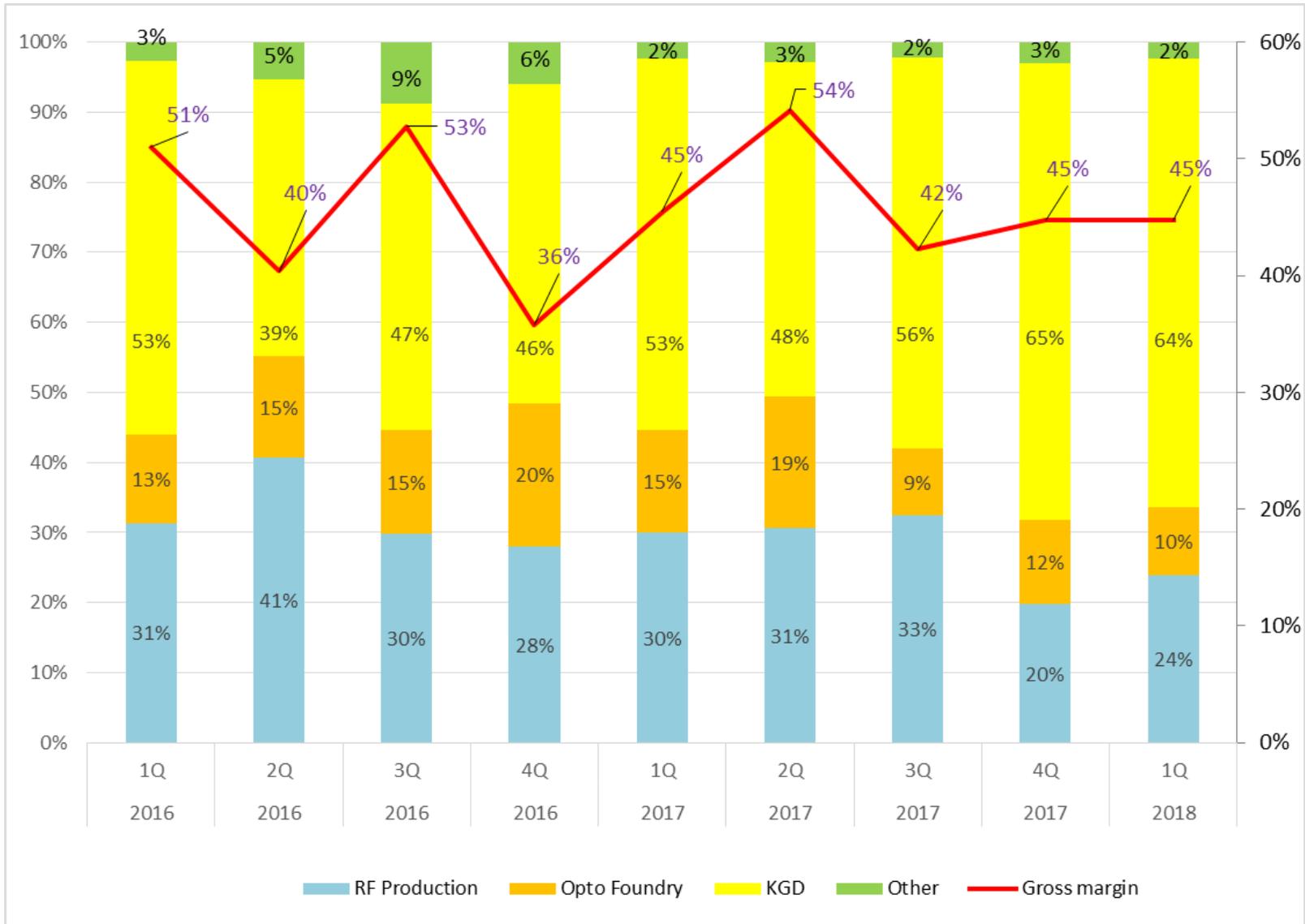


(in NT\$ thousands)

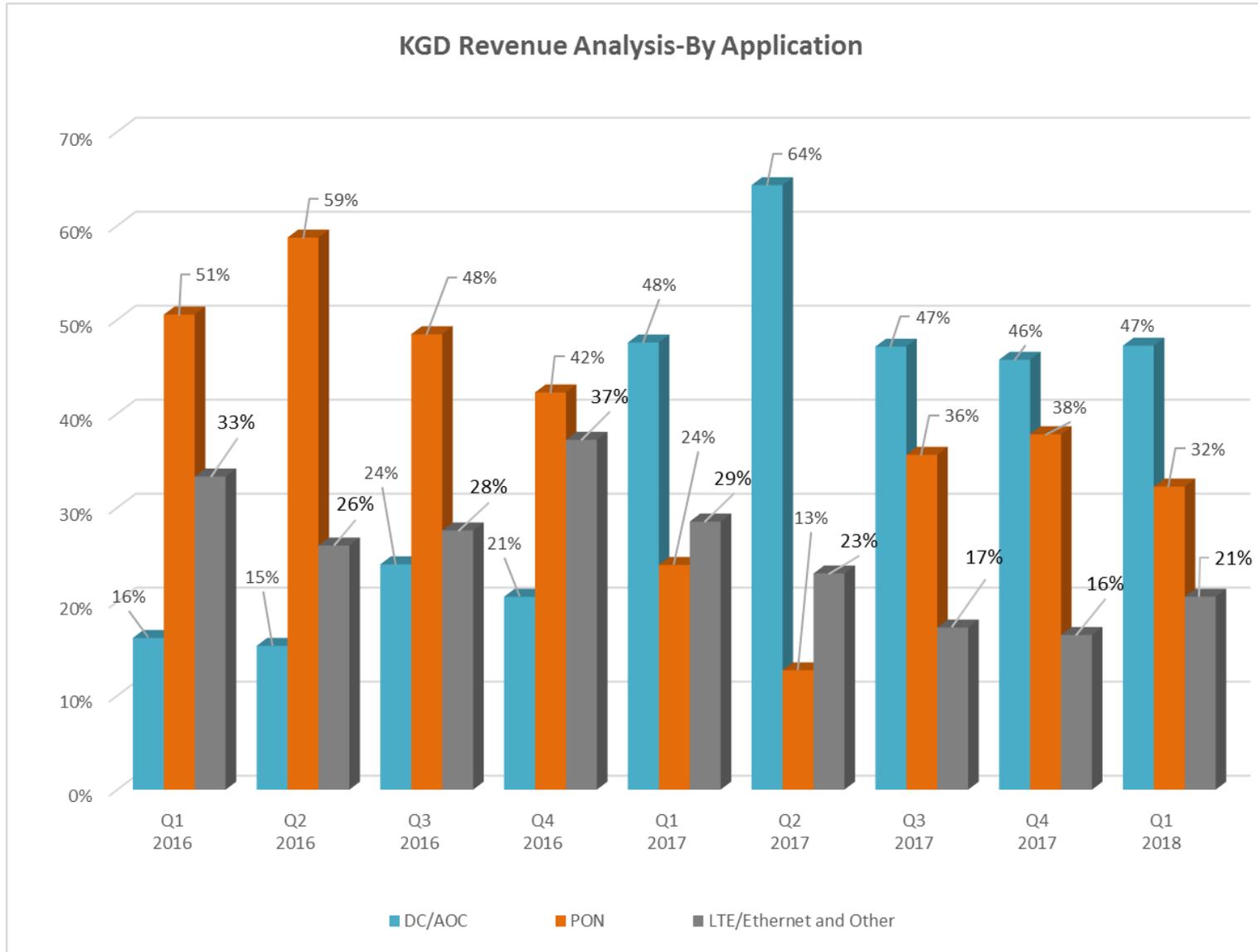
	1Q18	4Q17	1Q17
<b>Beginning Balance</b>	1,119,712	1,102,027	1,381,894
Cash from Operating Activities	149,134	139,933	29,540
Acquisition of property, plant and equipment	(25,452)	(36,105)	(67,921)
Decrease (Increase) in non-current assets	-	-	(31,090)
Acquisition of intangible assets	(648)	-	-
Proceeds from the sale of Property, plant and equipment	-	456	-
Proceeds from Short-term Loan	-	-	20,000
Repayments of long-term loans	(4,707)	(4,767)	(4,800)
Treasury stock buyback	-	-	(12,955)
Employee Option Exercise	221	117	9
Cash Dividend Paid	-	(73,275)	-
The effect of exchange rate changes	(22,323)	(8,674)	(55,615)
Others	-	-	-
<b>Ending Balance</b>	1,215,937	1,119,712	1,259,062
<b>Increase (Decrease) in Cash</b>	96,225	17,685	(122,832)
<b>Free Cash Flow (Note)</b>	123,682	103,828	(38,381)

**Note: Free Cash Flow = Cash from Operating Activities - Capital Expenditures**

# Revenue Mix % vs Gross Margin - QoQ



# KGD Revenue Mix - QoQ



# MARKET OVERVIEW

# GCS Products



**Wafer Foundry**

**RF**

**Power  
Electronics**

**Opto  
electronics**

**Brand Name Opto  
Chip Products**

**PD/MPD**

**APD**

**VCSEL**

**LD**

**KGD  
(Known  
Good  
Die)**

# GCS Brand Name Products (KGD): Applications & Markets



**PD, MPD, APD, VCSEL, LD**

**Data  
Centers**



**40G**  
**100G**  
**200G**  
**400G**

**Consumer  
&  
IoT**



**AOC**  
**HDMI**  
**Mobile**  
**Wearable**

**LTE  
BASE  
STATION**



**LTE**  
**4G**  
**4.5G**  
**5G**

**PON**



**FTTx**  
**2.5G**  
**10G**  
**25G**

# RF Foundry Products: Applications & Markets



## RF Wafer Foundry

**GaAs (HBT, PHEMT),  
InP HBT, GaN/Si · GaN/SiC HEMT**

**Wireless  
(Mobile & Infrastructure)**



**Base Station  
Mobile Phones  
4/4.5/5G**



**Wifi  
802.11AC  
802.11AX**

# Power Electronics Foundry Products: Applications & Markets



## Power Electronics Wafer Foundry

**GaN/Si · GaN/SiC, SiC**



# Optoelectronics Foundry: Applications & Markets



## Optoelectronics Wafer Foundry

**APD, VCSEL, FP/DFB LD,  
EML, 2D Image Sensors  
Photonic Integrated  
Circuits.....**

Optical  
Fiber  
Networks

VCSEL/DFB  
EML/PIC

Industrial

VCSEL/APD  
LD

Medical

VCSEL  
Imager

Consumer

**VCSEL  
(3D Sensing)  
LD**

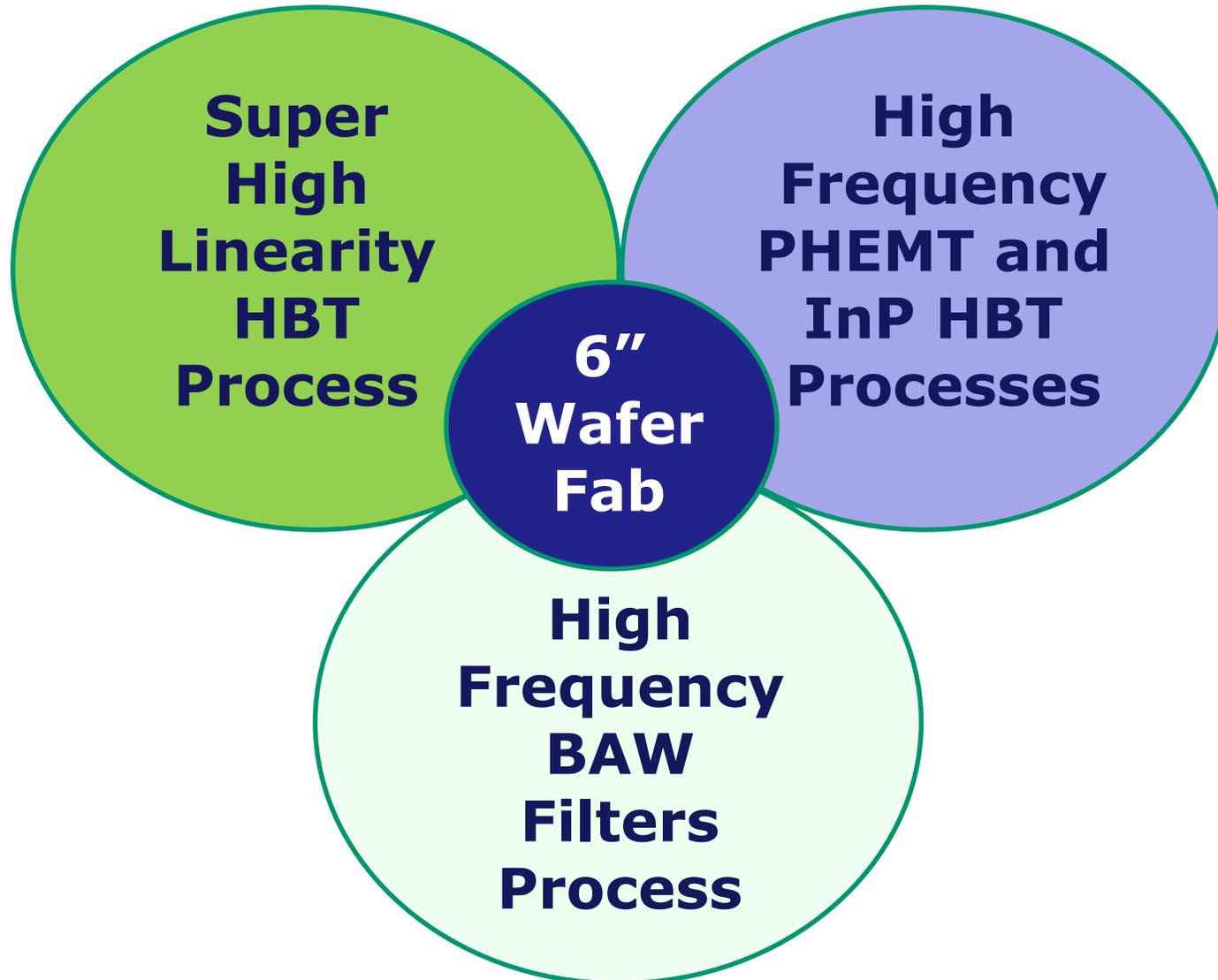
## ❖ Sub-6 GHz

- 0.25um – 0.4um GaN HEMT for BTS PA
- P3 InGaP HBT for handset PA
- If phased array is needed, HBT-PIN switch for single-chip PA-Phase Shifter
- BAW for >2GHz RF filters

## ❖ mmW (28 – 40 GHz)

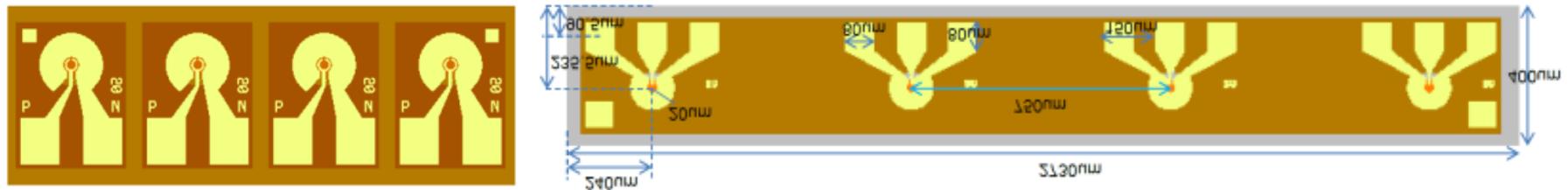
- 0.15um GaN HEMT for BTS wide band PA
- InP HBT for handset PA
- InP HBT-PIN switch for single-chip PA-Phase Shifter
- 0.25um InP HEMT-PIN for single-chip LNA-Phase Shifter
- InP BiHEMT for single-chip PA/LNA/Switch/Phase Shifter

# GCS IS READY FOR 5G

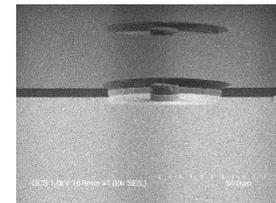


**100G/200G in production**

**400G: PAM4 8x50Gbps, 4x100Gbps**



**25G/100G VCSEL coming soon**



# Other Technologies For High Volume Products

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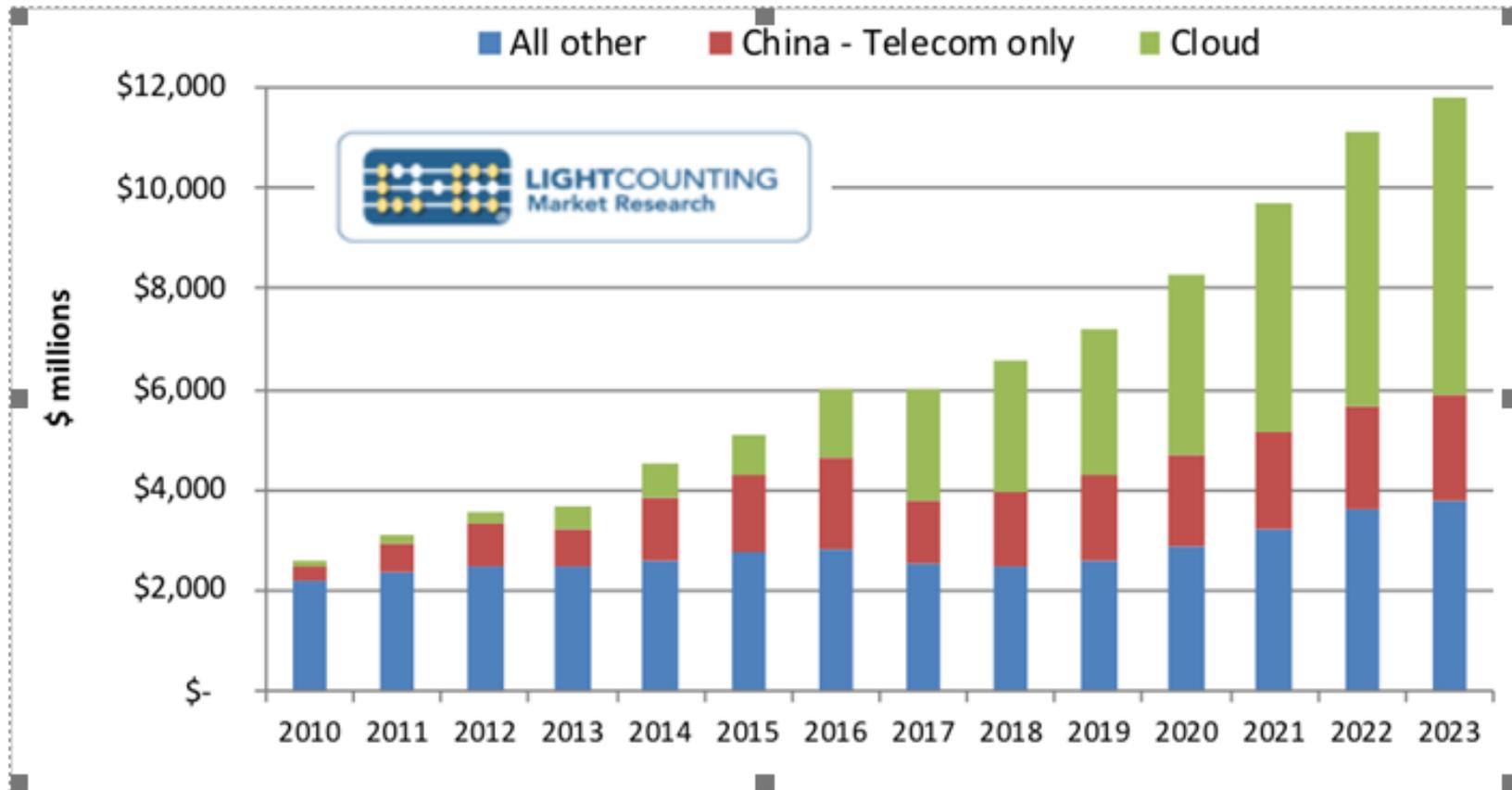


- **High PCE VCSEL for 3D Sensing (on 6" wafer)**
- **Advanced APD array for LiDAR**
- **Advanced Micro-LED process**
- **VCSEL with integrated micro-lens for ADAS and LiDAR**
- **GaAs high power laser for commercial cooking**

# Global Sales of Optical Transceivers



Global sales of optical transceivers by application



Source: LightCounting

光網絡市場: 電信運營商，互聯網公司以及獨立第三方運營商。

2012年以後電信運營商市場的投資已經趨於飽和，  
大型互聯網公司，尤其是谷歌，亞馬遜，蘋果，微軟等的投資持續增長。  
2017年 的水平已經是幾年前的幾倍以上。從2009到2017，年均增長22.3%。  
未來幾年，互聯網公司的投資總額有望達到1000億美元，  
占到同期電信投資的三分之一以上。

## 互聯網公司自身 - 進入了一個大投資的雄心勃勃的新階段

- 傳統的數據中心內部開始到城域，長途甚至海纜系統。比如穀歌就已經在建設自己的海纜。而且有意思的是谷歌的跨大西洋海纜著陸點選擇了丹麥和愛爾蘭兩個數據中心集中的地方，而不是人口更加集中的倫敦。
- 隨著數據流量持續提升，互聯網公司的網絡建設還剛剛開始。
- 即便出現短期的波動，長遠看這個趨勢不變，更不用提很快進入部署週期的5G移動通信了。

## 第四次工業革命 - 數據中心:中心和驅動所在

- 數據中心的大規模建設成了推動當前通信市場的中心
- 而數據中心對光通信提出的要求是：  
高帶寬，  
更低功耗，  
更低成本。
- 光子集成是滿足這些挑戰的最好頒發。包括 矽光集成在內，光子集成的市場已經逐步成形，但是，市場規模，封裝，光源的問題等等依然限制著光子集成產業的發展

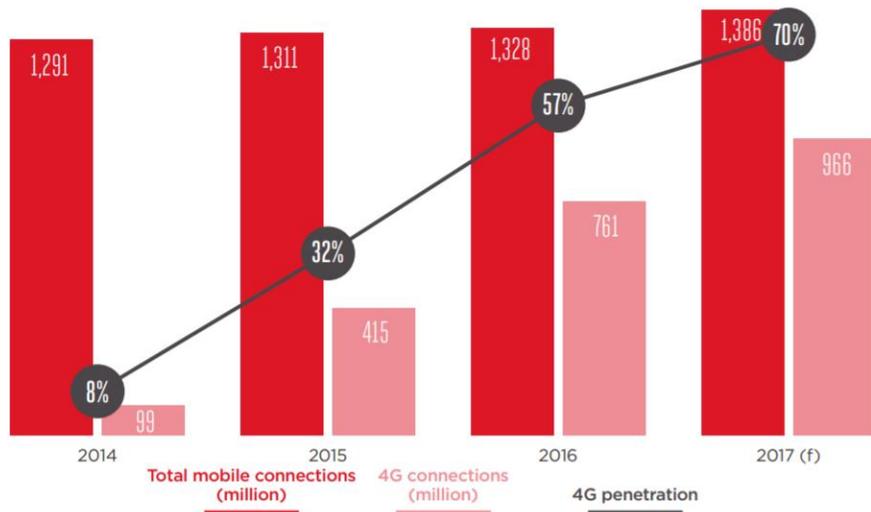
# 5G in China



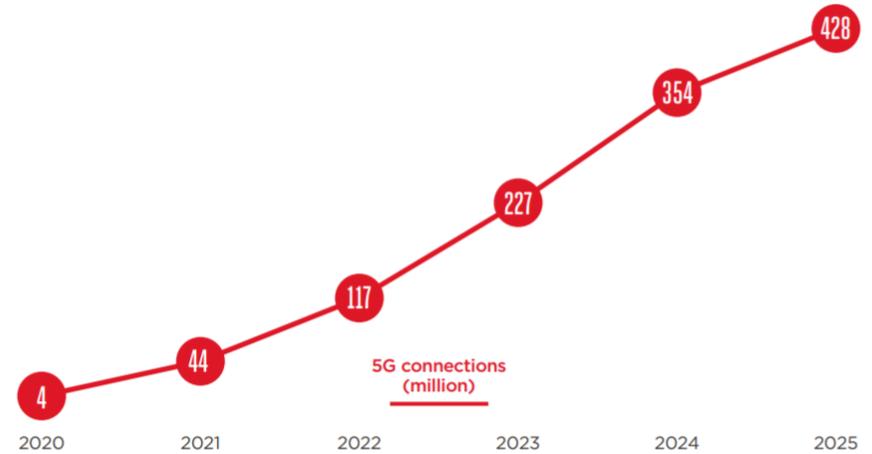
Source: GSMA Intelligence

Source: GSMA Intelligence

## 2 4G evolution in China



## 5 China - forecast for 5G connections



# Q & A



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**For further inquiry**  
**[investors@gcsincorp.com](mailto:investors@gcsincorp.com)**

