

環宇
芯系天下

**Q2 2018
Quarterly
Online Investor
Conference
(線上法說會)**

Aug 3, 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

FINANCIAL SECTION

Statements of Comprehensive Income - QoQ



(in NT\$ thousands except EPS)

	2Q18	1Q18	2Q17	2Q18 Over 1Q18	2Q18 Over 2Q17
Net Operating Revenue	522,665	479,020	458,228	9.1%	14.1%
Gross Profit	256,217	214,304	248,075	19.6%	3.3%
Gross Margin	49.0%	44.7%	54.1%		
Operating Expenses	(135,480)	(124,401)	(107,349)	8.9%	26.2%
Operating Expenses to Revenue %	25.9%	26.0%	23.4%		
Operating Income	120,737	89,903	140,726	34.3%	-14.2%
Operating Margin	23.1%	18.8%	30.7%		
Non-operating Items	3,054	(1,758)	(55,560)	-273.7%	-105.5%
Income before Income Tax	123,791	88,145	85,166	40.4%	45.4%
Income Tax	(31,309)	(4,490)	(19,171)	597.3%	63.3%
Net Income	92,482	83,655	65,995	10.6%	40.1%
Net Profit Margin	17.7%	17.5%	14.4%		
Basic EPS (NTD)	1.16	1.06	0.91		
Diluted EPS (NTD)	1.15	1.05	0.90		
R&D Expense % to Revenue	9.4%	8.7%	9.0%		

Note 1: 80,010 thousand shares and 80,591 thousand shares were used in basic EPS and diluted EPS calculation for 2Q18 respectively.

Note 2. Revenue supplemental information

	2Q18	1Q18	2Q17	2Q18 Over 1Q18	2Q18 Over 2Q17
Revenue in US\$ thousand	17,561	16,349	15,113	7.41%	16.2%
Exchange Rate	29.54	29.3	30.68		

Non-operating Income and Expenses- QoQ



(in NT\$ thousands)

	2Q18	1Q18	2Q17	2Q18 Over 1Q18	2Q18 Over 2Q17
Other Income	2,060	1,696	1,208	21.5%	70.5%
Other Gains and Losses					
Net Gain or (losses) on financial liabilities at fair value through profit or loss	-	2,322	(51,639)	-100.0%	-100.0%
Net currency exchange gain or (loss)	1,833	(2,581)	503	-171.0%	264.4%
Gain on disposal of Investment	-	-	1,357	-	-
Others	11	(1,009)	-	-	-
Finance Cost					
Interest expense for convertible bonds (Note)	(124)	(746)	(5,485)	-83.4%	-97.7%
Other interest expense	(1,004)	(1,171)	(1,504)	-14.3%	-33.2%
Share of profit (loss) of equity-accounted investees	278	(269)	-		
Total Non-operating Income and Expenses	3,054	(1,758)	(55,560)	-273.7%	-105.5%

Note: Amortization of discount on convertible bonds

Statements of Comprehensive Income - YoY



(in NT\$ thousands except EPS)

	2018	%	2017	%	Change (%)
	Jan to June		Jan to June		
Net Operating Revenue	1,001,685	100.0%	869,920	100.0%	15.1%
Operating Cost	(531,164)	-53.0%	(434,533)	-50.0%	22.2%
Gross Profit	470,521	47.0%	435,387	50.0%	8.1%
Operating Expenses	(259,881)	-25.9%	(219,248)	-25.2%	18.5%
Operating Income	210,640	21.0%	216,139	24.8%	-2.5%
Non-operating items	1,296	0.1%	(26,344)	-3.0%	-104.9%
Income before Income Tax	211,936	21.2%	189,795	21.8%	11.7%
Income Tax	(35,799)	-3.6%	(25,536)	-2.9%	40.2%
Net Income	176,137	17.6%	164,259	18.9%	7.2%
Basic EPS (NTD)	2.22		2.25		
Diluted EPS (NTD)	2.20		2.22		
Average Exchange Rate-USD/NTD	29.54		30.68		
R&D expense % to Revenue	9.08%		9.52%		
ROA (%)	11.49%		12.19%		
ROE (%)	13.17%		15.62%		

Note 1: 79,414 thousand shares and 80,167 thousand shares were used in basic EPS and diluted EPS calculation for 1H18, respectively.

Note 2. Revenue supplemental information

	Jan to Jun/2018	Jan to Jun/2017	Change (%)
Revenue in US\$ thousand	33,909	28,355	19.6%
Exchange Rate	29.54	30.68	

Non-operating Income and Expenses- YoY



(in NT\$ thousands)

	2018 Jan to June	2017 Jan to June	Change (%)
Other Income	3,756	2,174	72.8%
Other Gains and Losses			
Net Gain or (losses) on financial liabilities at fair value through profit or loss	2,322	7,811	-70.3%
Net currency exchange gain or (loss)	(748)	(23,776)	-96.9%
Gain on disposal of investment	-	1,357	-100.0%
Other loss	(998)	-	-
Finance Cost			
Interest expense for convertible bonds (Note)	(870)	(10,928)	-92.0%
Other interest expense	(2,175)	(2,982)	-27.1%
Share of profit (loss) of equity-accounted investees	9	-	-
Total Non-operating Income and Expenses	1,296	(26,344)	-104.9%

Note: Amortization of discount on convertible bonds

Balance Sheet Highlight & Key Indices



Selected Items from Balance Sheet

(in NT\$ thousands)

	2Q18		1Q18		2Q17	
	Amount	%	Amount	%	Amount	%
Cash and Cash Equivalent	1,365,587	42%	1,215,937	40%	1,288,575	45%
Accounts Receivable and Notes Receivable	256,702	8%	267,580	9%	242,033	8%
Inventory	350,986	11%	331,345	11%	342,131	12%
Available-for-Sale Financial Assets- Current	-	0%	-	0%	42,711	2%
Investments accounted for under the Equity Method	14,620	0%	14,459	0%	14,906	1%
Net Property, Plant and Equipment	688,444	21%	668,747	22%	505,528	17%
Deferred Tax Assets	146,946	5%	161,511	5%	200,743	7%
Intangible Assets	183,026	6%	176,343	6%	10,470	0%
Total Assets	3,240,866	100%	3,020,462	100%	2,896,661	100%
Short Term Loan	20,000	1%	20,000	1%	20,000	1%
Financial Liabilities at Fair Value through Profit and Loss	-	0%	-	0%	58,671	2%
Accounts Payable and Other Payables	250,158	8%	158,624	5%	202,137	7%
Bond Payable - Current Portion	-	0%	2,777	0%	253,655	9%
Long Term Bank Borrowings - Current Portion	20,224	1%	19,134	1%	19,397	1%
Long Term Bank Loans	67,352	2%	69,275	3%	87,461	3%
Total Liabilities	428,416	13%	359,435	12%	758,595	26%
Total Stockholders' Equity	2,812,450	87%	2,661,027	88%	2,138,066	74%

Key Indices

Current Ratio	660%	756%	336%
Debt Ratio	13%	12%	26%
AR Turnover Days	51	54	49
Inventory Turnover Days	144	140	179

Cash Flows



(in NT\$ thousands)

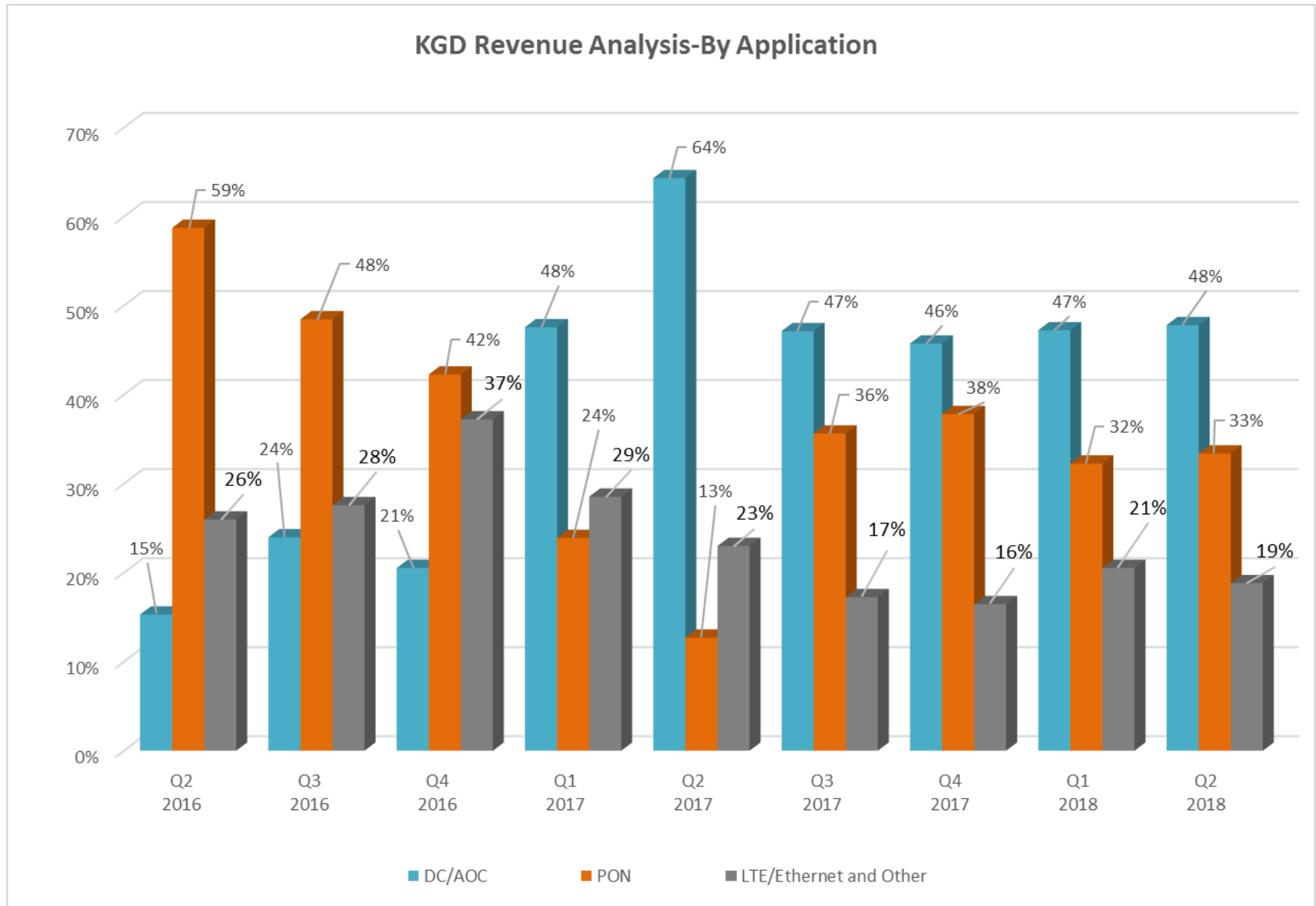
	<u>2Q18</u>	<u>1Q18</u>	<u>2Q17</u>
Beginning Balance	1,215,937	1,119,712	1,259,062
Cash from Operating Activities	141,563	149,134	80,188
Acquisition of property, plant and equipment	(43,185)	(25,452)	(32,301)
Acquisition of investments accounted for under the equity method	-	-	(14,906)
Proceeds from the sale of available-for-sale financial assets	-	-	1,635
Acquisition of intangible assets	(1,004)	(648)	-
Repayments of long-term loans	(4,822)	(4,707)	(4,708)
Repayments of Convertible Bonds	(2,800)	-	-
Employee Option Exercise	5,670	221	-
The effect of exchange rate changes	54,098	(22,323)	(2,476)
Others	130	-	2,081
Ending Balance	1,365,587	1,215,937	1,288,575
Increase (Decrease) in Cash	149,650	96,225	29,513
Free Cash Flow (Note)	98,378	123,682	47,887

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

Revenue Mix % vs Gross Margin - QoQ



KGD Revenue Mix - QoQ



MARKET OVERVIEW



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

Wafer Foundry Business



Value-added Customer Delight Wafer Foundry Services

Power Electronics



**4"/6"
FAB**

RF



**4"/6"
FAB**

Opto- Electronics



**2"/3"/4"
FAB**

Consumer Electronics



**6"
FAB**

We provide Best Outfit for customers' product!

RF Foundry Products: Applications & Markets



RF Wafer Foundry

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

**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**

Consumer Electronics Foundry: Applications & Markets



**Consumer Electronics Wafer
Foundry**

VCSEL

Consumer

**VCSEL (3D Sensing)
LD**

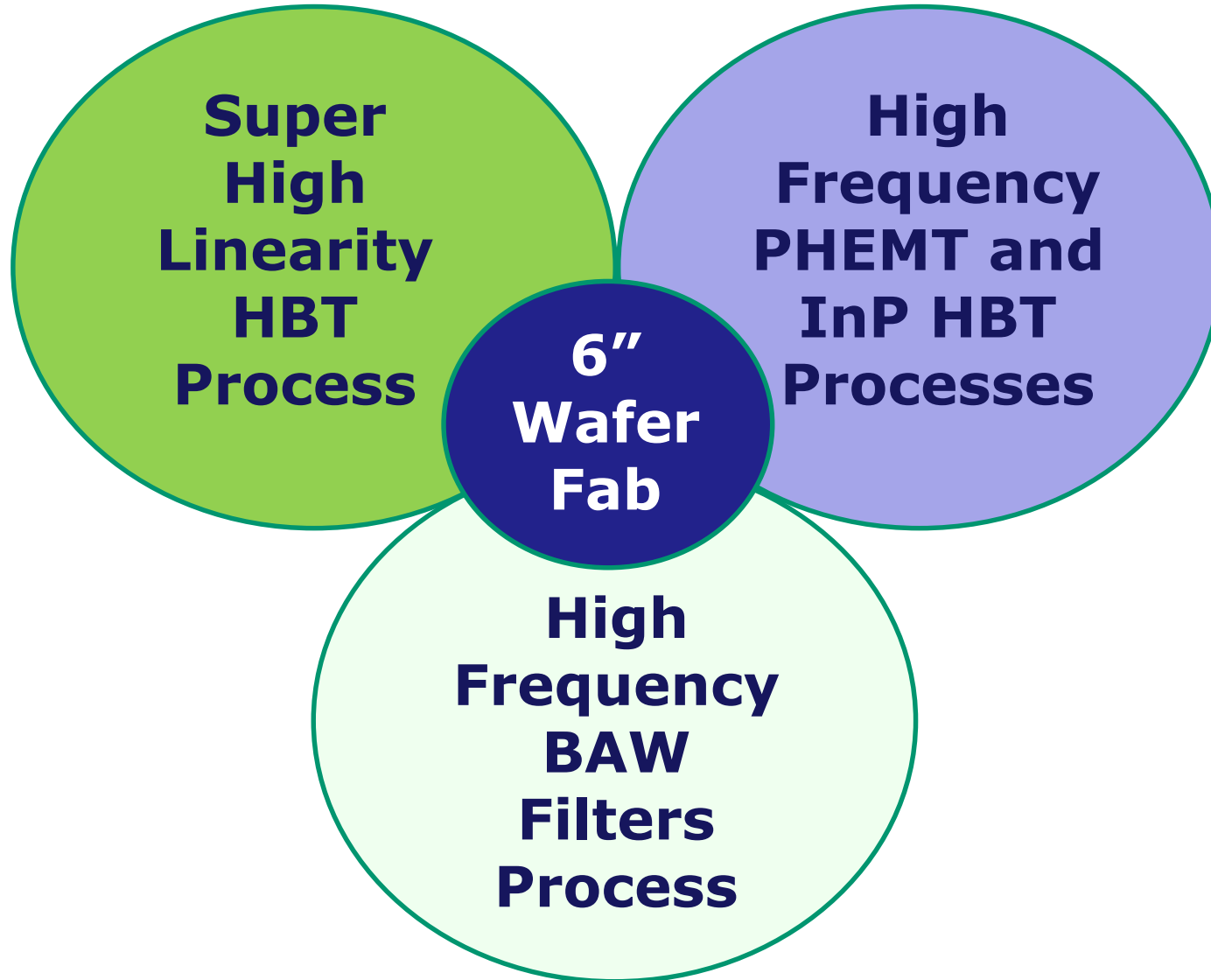
❖ Sub-6 GHz

- 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



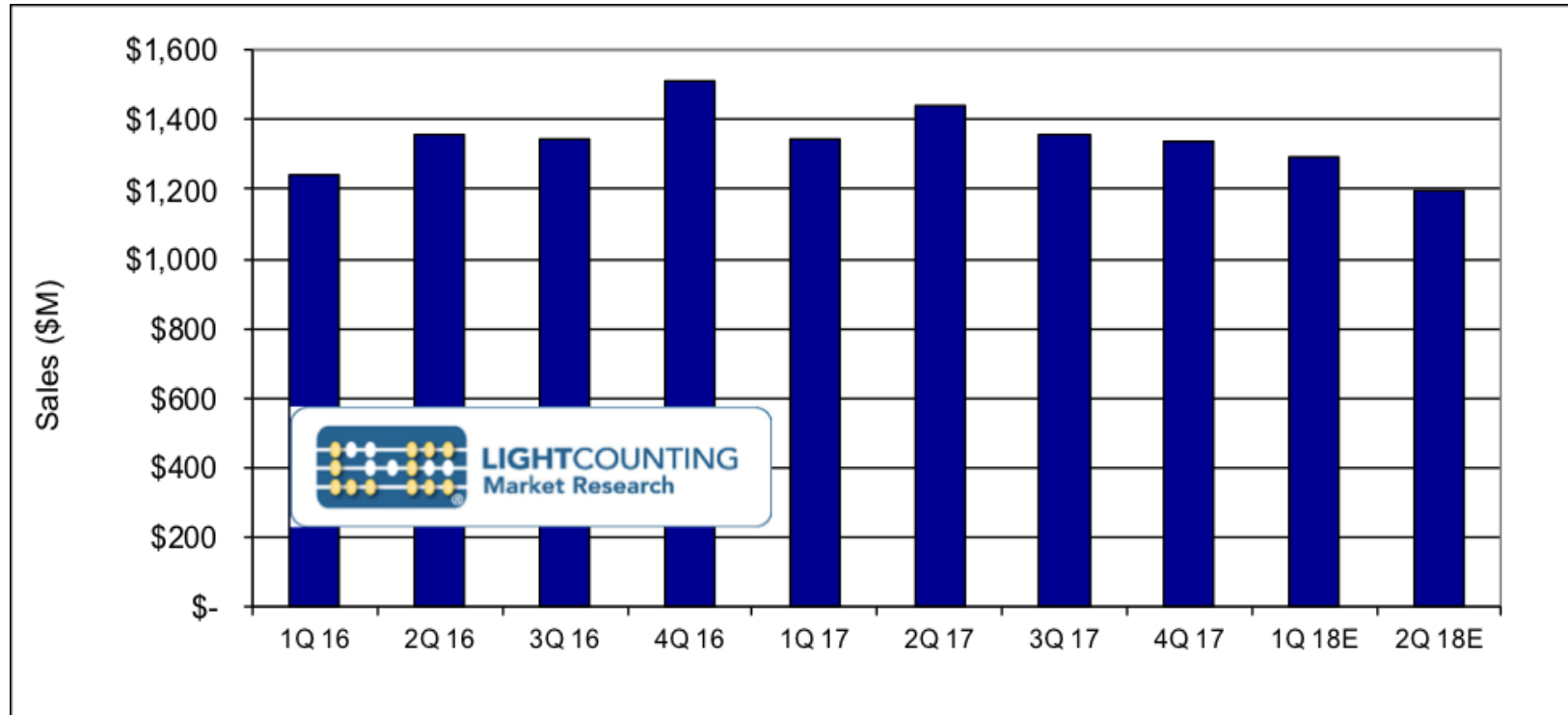
光網絡市場: 電信運營商，互聯網公司以及獨立第三方運營商。

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。

Overall Market



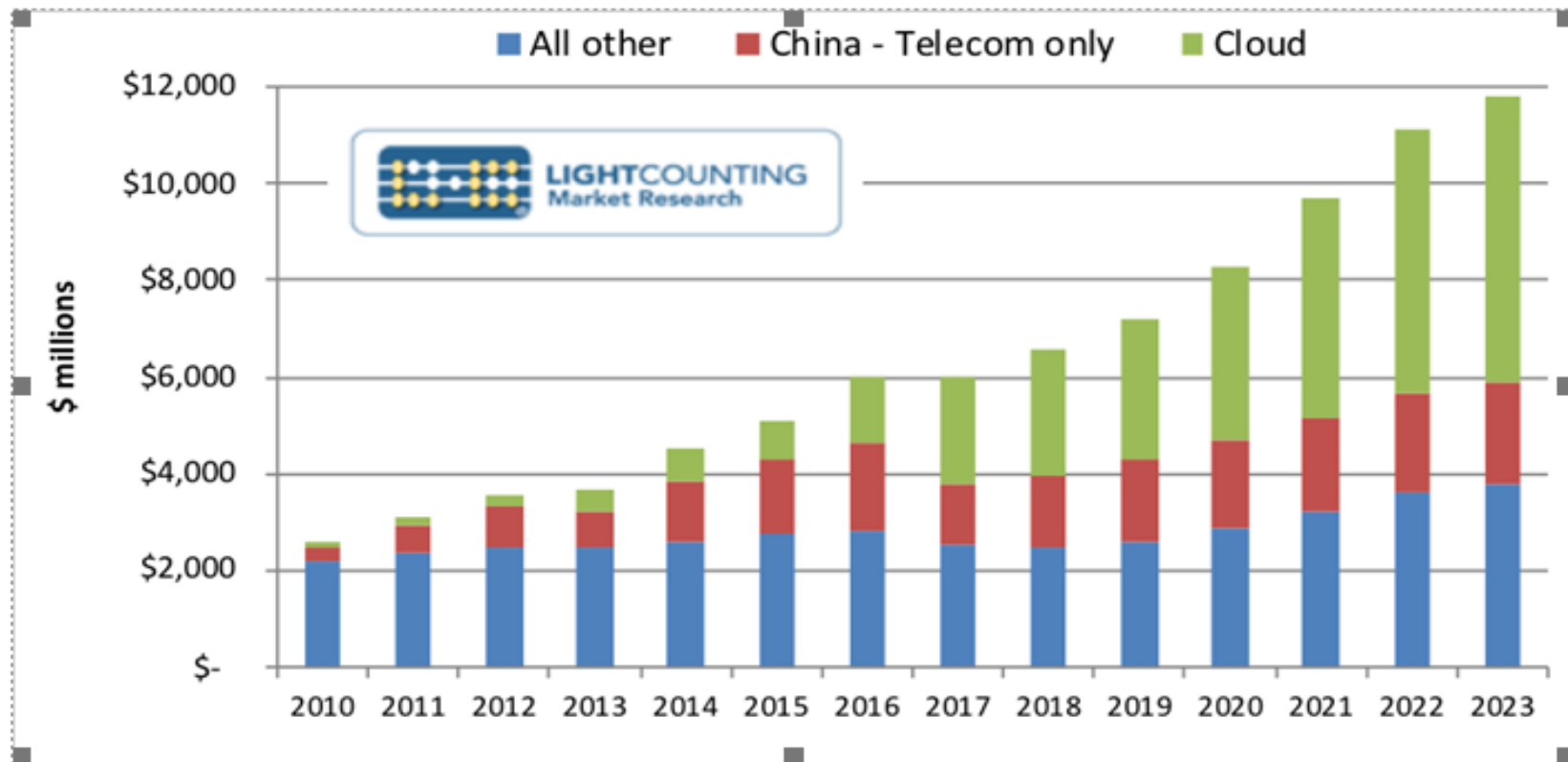
Lightcounting Forecast:

- DWDM、FTTx和无线前传的Q2 2018光收发器市场销售收入将下滑20%-30%。
- 整体光收发器市场将下滑8%，但100GbE光器件会维持增长。
- Q2 2018市场销售收入将下降至12亿美元，创下是2015年以来的市场新低。

Global Sales of Optical Transceivers

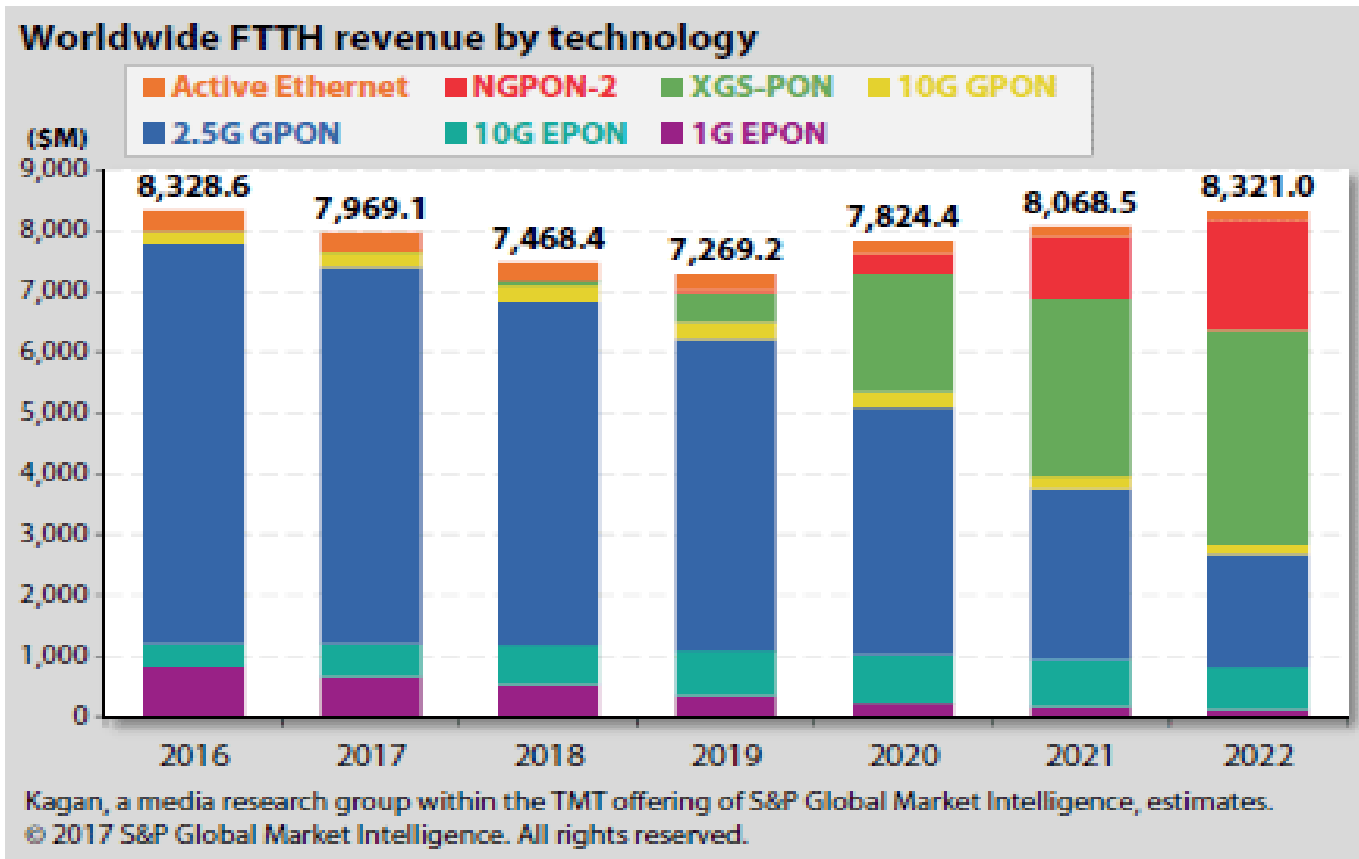


Global sales of optical transceivers by application



Source: LightCounting

PON Market



2017年全球GPON设备市场萎缩5%至98亿美元

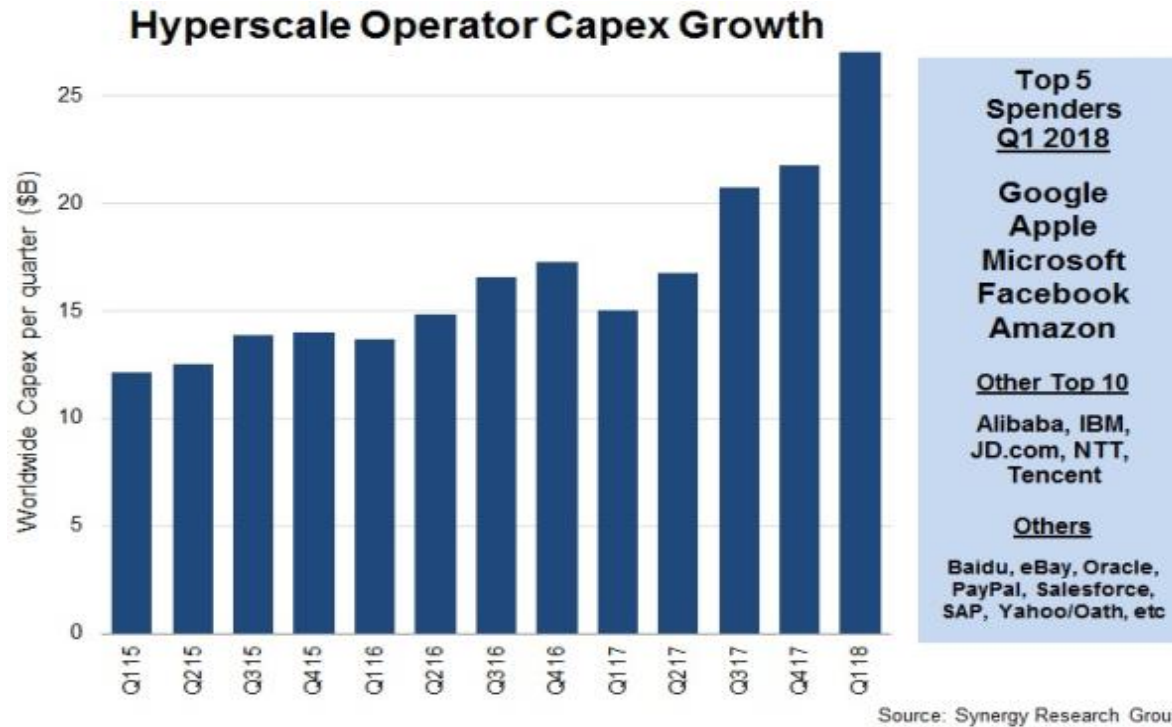
- Asia Pacific: -9% (especially China OLT and ONU down)

- EMEA and NA: 10-15%

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形成，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

MDC Capex



尽管贸易战逐步升级，但前15大云服务公司在Q1 2018基础设施投资增长了102%，大部分投资用在服务器、网络设备和光学连接。

数据通信硬件销售收入在Q1 2018总体增长14%，有些提供商像Arista、Cisco(思科)、Extreme、Lenovo(联想)、Mellanox(迈络思)和NetApp先后公布其营收新记录。

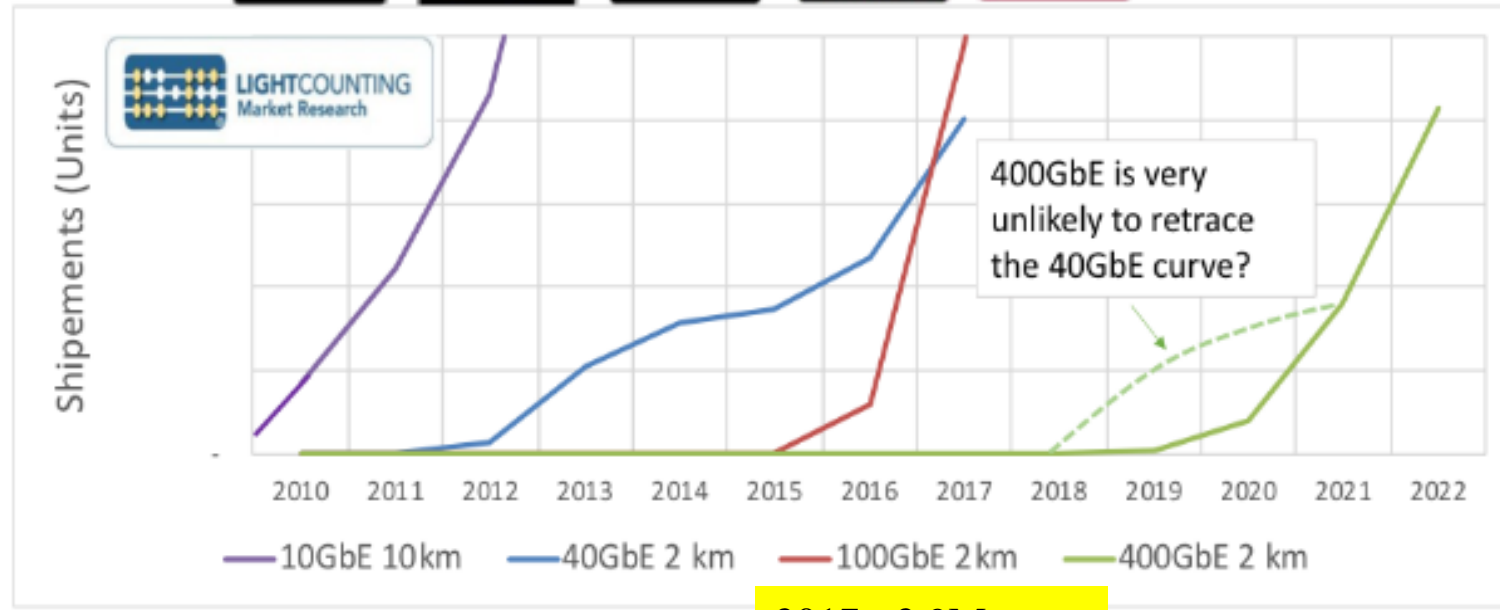
Innolight获益于100GbE光器件持续的需求，LC预计2018前三个月100GbE QSFP28光收发器出货量超过100万只。

Finisar和Lumentum报告了其WSS模块在中国印度ROADMs系统部署的强劲需求，Oclaro的100/200G DWDM CFP2 ACO 转换器(收发器)在Q1 2018创下新的出货记录。Nokia公布其2018年前三季度光网络设备销售收入，相比去年同时期增长了34%。ZTE公布其同一时期，在遭受拒绝令前的增长率为23%。

400G



"First Silicon" 64x10G, 32x40G, 32x100G, 64x100G 32x400G, add 2+ years for production



2017 - 2.9M pcs
2018 - 5.0+M pcs

LightCounting认为，应用于数据中心的400GbE出货走势将重复100GbE的走势（100GbE在博通首款32*100G Tomahawk交换芯片出样后的两年即2016年开始攀升）2017年12月，32*400G Tomahawk ASIC开始出样，因此LightCounting预计400GbE的批量出货将始于2019年12月，并在2020年需求大增。

Q & A



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**For further inquiry
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