

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT



Pursuant To Section 13 Or 15(d) Of The Securities Exchange Act Of 1934

Date of report (Date of earliest event reported)

May 23, 2018

PHOTRONICS, INC.

(Exact name of registrant as specified in its charter)

Connecticut

(State or Other Jurisdiction of Incorporation)

0-15451

(Commission File Number)

06-0854886

(IRS Employer Identification No.)

15 Secor Road Brookfield, CT

(Address of principal executive offices)

06804

(Zip Code)

Registrant's Telephone Number, including area code

(203) 775-9000

(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 7.01 Regulation FD Disclosure

The investor presentation included as Exhibit 99.1 to this report may be presented at meetings with investors, analysts, and others on May 23, 2018. A copy of the presentation will be posted on the Photonics, Inc. website.

A copy of the investor presentation is attached as Exhibit 99.1 to this Current Report on Form 8-K.

EBITDA is a non-GAAP financial measure that the Company defines pursuant to its credit agreement. The Company believes that EBITDA is generally accepted as providing useful information regarding the operational strength and performance of its business, including the ability of the Company to pay interest, service debt and fund capital expenditures. The Company's method for calculating EBITDA may not be comparable to methods used by other companies but is the same method the Company uses for calculating EBITDA under its credit facility. The Company has included in the investor presentation certain reconciliation information for EBITDA to its most directly comparable financial measure of net income calculated and reported in accordance with GAAP.

The information in this Current Report on Form 8-K, including Exhibit 99.1 attached hereto, is being furnished and shall not be deemed "filed" for the purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that Section, nor shall it be deemed subject to the requirements of amended Item 10 of Regulation S-K, nor shall it be deemed incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Exchange Act, whether made before or after the date hereof, regardless of any general incorporation language in such filing. The furnishing of this information hereby shall not be deemed an admission as to the materiality of any such information.

Item 9.01 Financial Statements and Exhibits

(d) Exhibits

[99.1](#) Photonics' Investor Presentation dated May 23, 2018.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

PHOTRONICS, INC.
(Registrant)

By: /s/ Richelle E. Burr
Name: Richelle E. Burr
Title: Vice President, General Counsel and Secretary

Date: May 23, 2018



Photronics, Inc. Global Leader in the Merchant Photomask Industry

Analyst and Investor Day
May 23, 2018



Agenda

Troy Dewar, Director, IR

Peter Kirlin, CEO

Chris Progler, CTO

High-End Growth Drivers

HK Park, GM, China & Taiwan FPD

Frank Lee, GM, Asia IC

Pete Broadbent, VP, US & Europe

John Jordan, CFO

Q&A

Lunch

Welcome

Overview & Strategy

Technology Development

High-End FPD

High-End IC Logic

High-End IC Memory

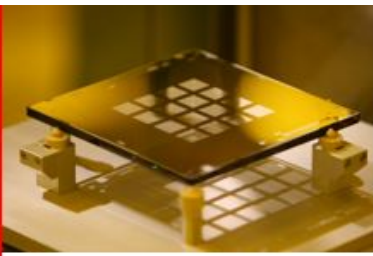
Financial Model & Outlook

Safe Harbor Statement

This presentation and some of our comments may contain projections or other forward-looking statements regarding future events, our future financial performance, and/or the future performance of the industry. These statements are predictions, and contain risks and uncertainties. Actual events or results may differ materially from those presented. These statements include words like “anticipate”, “believe”, “estimate”, “expect”, “forecast”, “may”, “should”, “plan”, “project” or the negative thereto. We cannot guarantee the accuracy of any forecasts or estimates, and we are not obligated to update any forward-looking statements if our expectations change. If you would like more information on the risks involved in forward-looking statements, please see the documents we file from time to time with the Securities and Exchange Commission, specifically our most recent Form 10K and Form 10Q.

Non-GAAP Financial Measures

This presentation and some of our comments may reference non-GAAP financial measures. These non-GAAP financial measures exclude certain income or expense items, and are consistent with another way management internally analyzes our results of operations. Non-GAAP information should be considered to be a supplement to, and not a substitute for, financial statements prepared in accordance with GAAP. Please see the “Reconciliation of GAAP to Non-GAAP Financial Information” in this presentation.



Peter Kirlin, CEO Overview & Strategy

What You Will Hear Today

- ▶ **Q2 Reprise / Repositioning the company**
- ▶ **Sustainable growth strategy**
- ▶ **Conclusion**

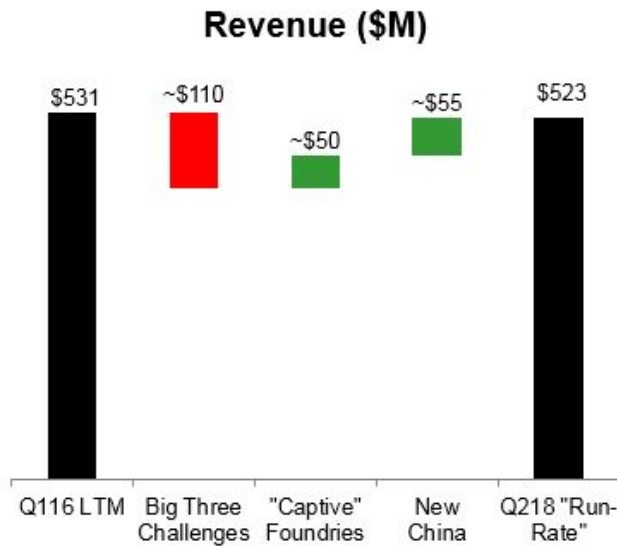
Q2 2018 Summary

- ▶ **Revenue grew to \$131M; up 21% Y/Y and 6% Q/Q**
 - High-end IC biggest growth factor (+83% Y/Y)
 - China revenue doubled Y/Y; up 18% Q/Q
- ▶ **Gross and operating margins expanded on higher revenue and operating leverage**
- ▶ **Net income attributable to Photronics, Inc. shareholders of \$10.7M (\$0.15/share)**
- ▶ **Cash balance of \$321M; capex increased to \$33M as we invest in growth**
- ▶ **China investments on track**
 - Construction to be completed later this year
 - Production to begin first half of 2019

Investing in long-term, profitable growth to increase shareholder value



Repositioning the Company



▶ Three large customer challenges

- Micron produced more memory masks in-house
- Samsung Display shifts from LCD to AMOLED and brings highest-end masks in-house
- Major IC customer loses 28nm logic market share

▶ We've overcome challenges by winning business at other customers

- New business from foundries that are primarily captive
- New IC and FPD business in China

A Compelling Investment Thesis

▶ Global leader in merchant photomask industry

- *Delivering growth by leveraging core competences: Operational Excellence, Low Cost Producer, Technology Leadership, Customer Intimacy*

▶ Investing aggressively to exploit secular growth opportunities

- *China industry expansion – Made in China 2025*
- *Technology inflection from LCD to AMOLED*
- *Explosion of G10.5+ panel capacity*

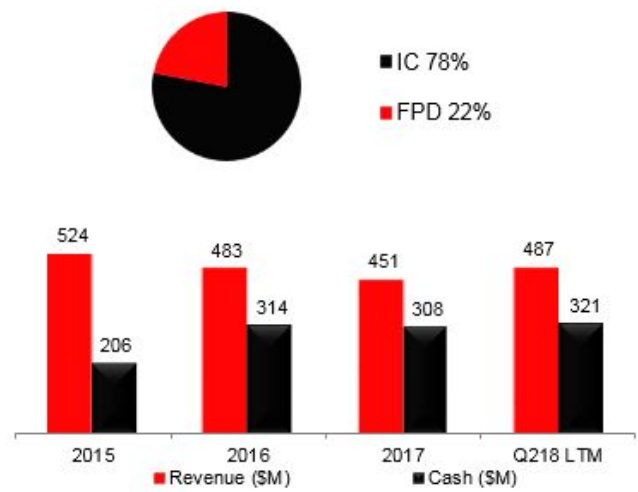
▶ Targeting \$630M / \$0.80 in revenue / EPS by 2020

- *Strategic investments bring top-line growth*
- *Operating leverage creates margin expansion*
- *Additional upside from potential M&A*

Photronics at a Glance

- ▶ Largest merchant photomask manufacturer
- ▶ Unmatched global footprint
- ▶ Investing to exploit market disruptions with reciprocal customer commitments
- ▶ Strong balance sheet to fund growth

Q218 LTM Revenue by Product \$487M



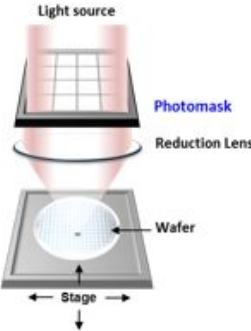
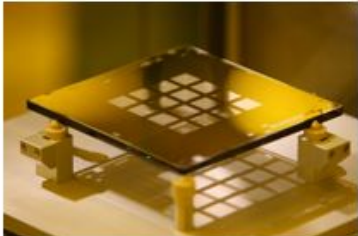
Photomasks are Critical to Electronic Manufacturing

Component Design

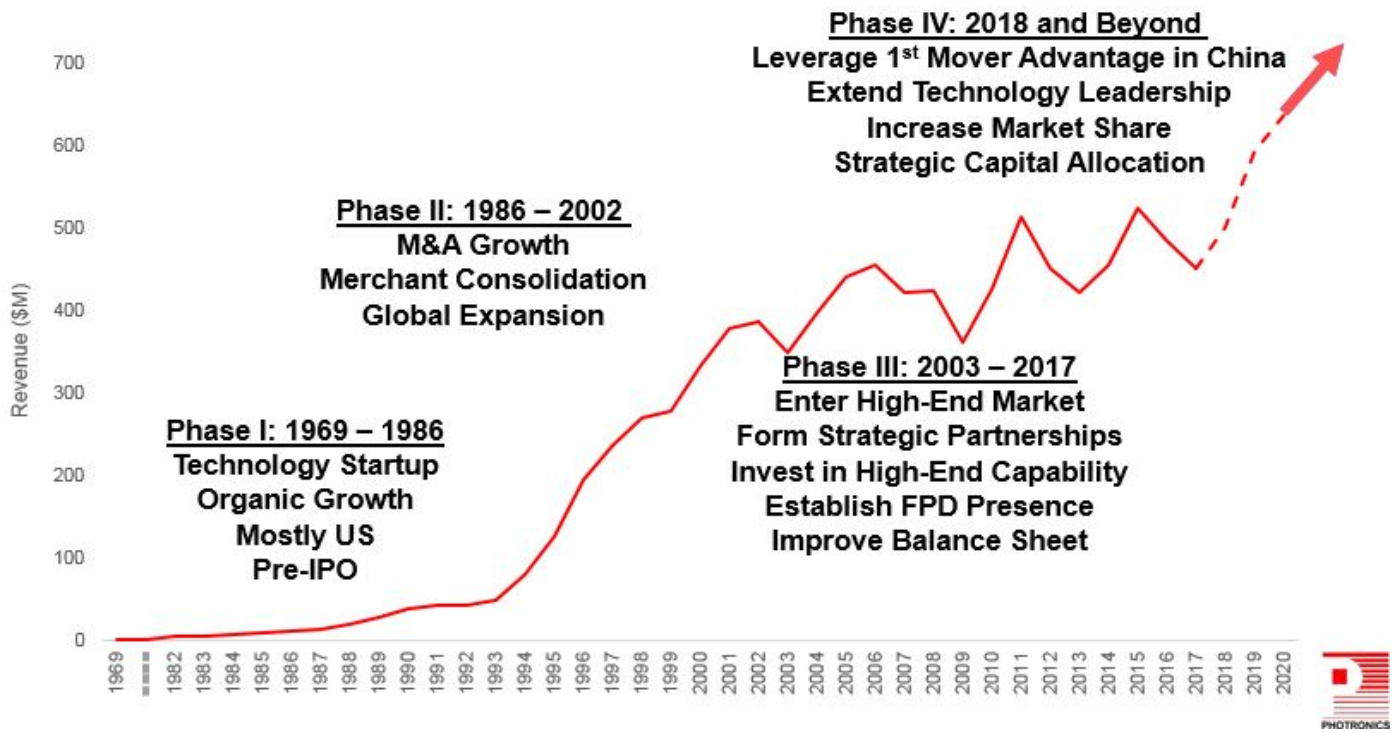
Photomask

Manufacturing Process

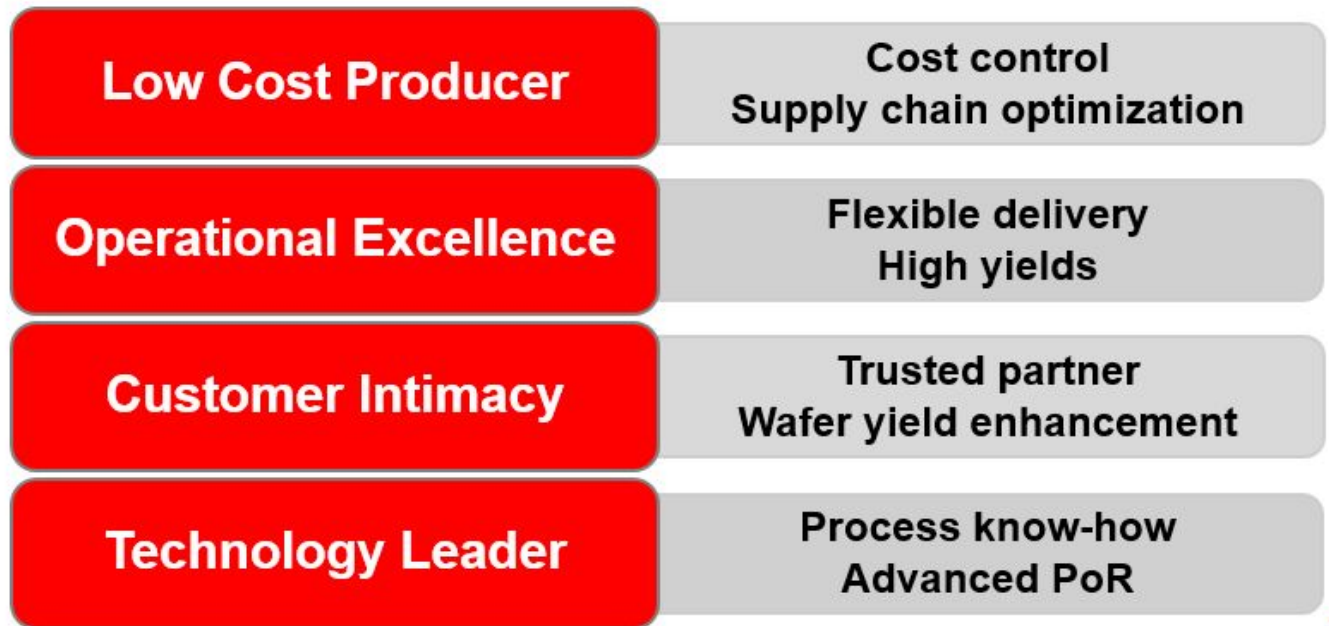
End User



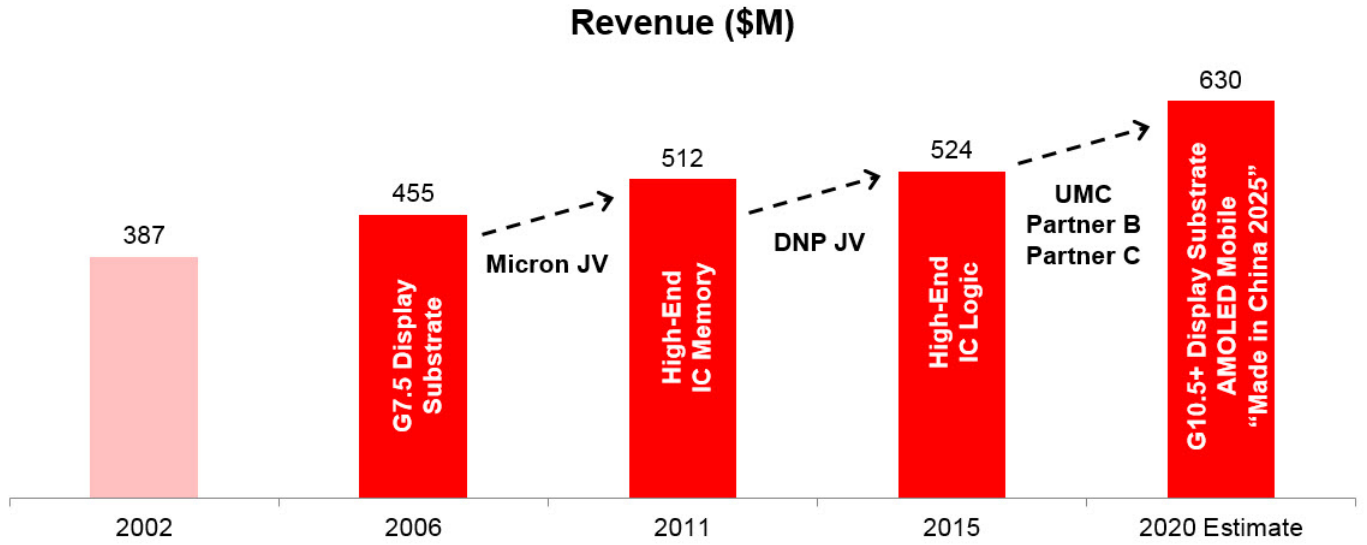
Phases of Photronics Revenue Growth



Core Competencies Underpin Sustainable Growth



Exploiting/Creating Disruptions Drives Revenue Growth



The Right Technology ... in the Right Place ... at the Right Time

Successfully Developing China Business



▶ We already have growing business in China

- \$39M YTD 2018 (15% of total revenue)
- Growing strong since 2015 (IC +31% CAGR; FPD +62% CAGR)
- 13% of Q2 2018 LTM revenue (8% of IC; 33% of FPD)

▶ Manufacturing presence in China should accelerate growth

- Customer contracts will help quickly ramp facilities
- Investment incentives reduce risk and improve returns
- IC JV enables us to compete more effectively

Investing in China Operations

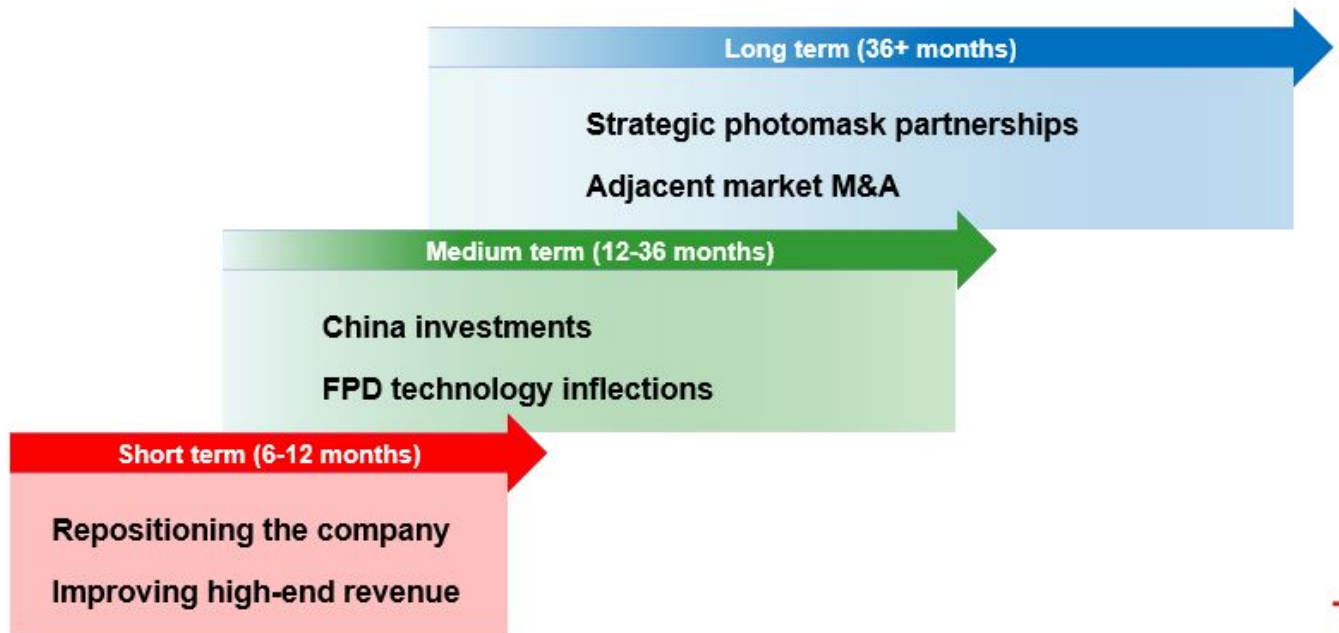
	IC	FPD
Location	Xiamen	Hefei
Investment Amount	\$160M	\$160M
Cleanroom Size	~2,500 m ²	~4,500 m ²
Ownership Structure	Majority-owned (50.01%) JV	Wholly-owned
Technology	High-end, mainstream, logic, memory	Up to G10.5+, AMOLED
Production Start	First half of 2019	First half of 2019
Incremental Revenue	\$150M (total for both operations)	

Customer commitments totaling ~\$300M over next three years
Enables Hefei facility to operate profitably
Enables Xiamen facility to achieve breakeven

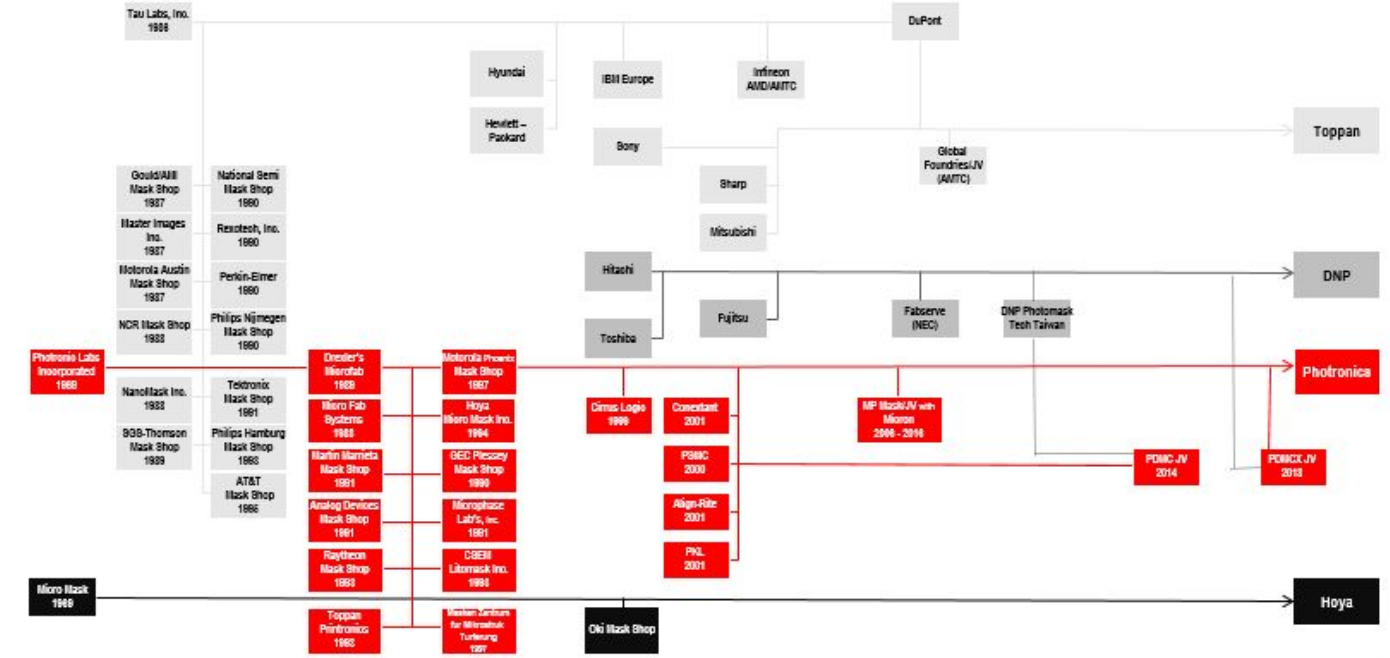
PLAB well positioned for these investments
Global merchant market and technology leader
Strong footprint in Asia
Balance sheet to support investment



Driving Sustainable, Profitable Growth



Global Consolidation of Photomask Industry 2018



1988/ 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

Derived from Semiconductor Equipment and Materials International (SEMI)

M&A Criteria

▶ **Photomask industry**

- Significant market share
- Advanced technology
- Valuable manufacturing assets

▶ **Adjacent markets**

- Revenue diversification
- Synergies to business model

▶ **Financial benchmarks**

- Meets ROIC hurdles
- Accretive to earnings and cash flow

World Class Management Team

Significant Industry Experience

Name	Title	Years with Photonics	Years in Industry	Experience
Peter Kirlin, Ph.D.	CEO	10	33	  
Chris Progler, Ph.D.	VP, CTO, and Strategic Planning	18	30	  
HK Park	GM, China and Taiwan, FPD	13	23	
Frank Lee, Ph.D.	GM, Asia IC	12	38	  
Peter Broadbent	VP, US & Europe	5	5	 
John Jordan	SVP, CFO	1	5	  

A Compelling Investment Thesis

▶ **Global leader** in merchant photomask industry

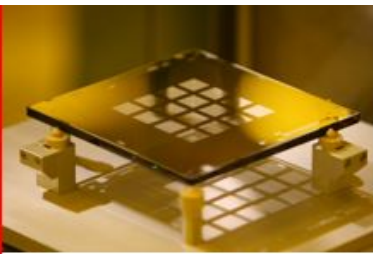
- *Delivering high-end growth by leveraging core competences: Operational Excellence, Low Cost Producer, Technology Leadership, Customer Intimacy*

▶ **Investing aggressively** to exploit secular growth opportunities

- *China industry expansion – Made in China 2025*
- *Technology inflection from LCD to AMOLED*
- *Explosion of G10.5+ panel capacity*

▶ **Targeting \$630M / \$0.80 in revenue / EPS by 2020**

- *Strategic investments bring top-line growth*
- *Operating leverage creates margin expansion*
- *Additional upside from potential M&A*



Chris Progler, CTO Technology Development

Trends Guiding our Technology Portfolio

- ▶ **China's IC and display aspirations and investments**
- ▶ **Diversification in mid to high-end IC applications – the 4th Industrial Revolution**
- ▶ **New lithography intensive display form factors and enhancements**
- ▶ **Increased focus on process of record and integrated solutions**
- ▶ **Complexity, cost and scale drive consolidation and partnerships**
- ▶ **New innovations in manufacturing**

Photronics Patterning Leadership

▶ IC: (Data, IoT, AI)

- Introduce EUV production
- Innovate to extend previous nodes

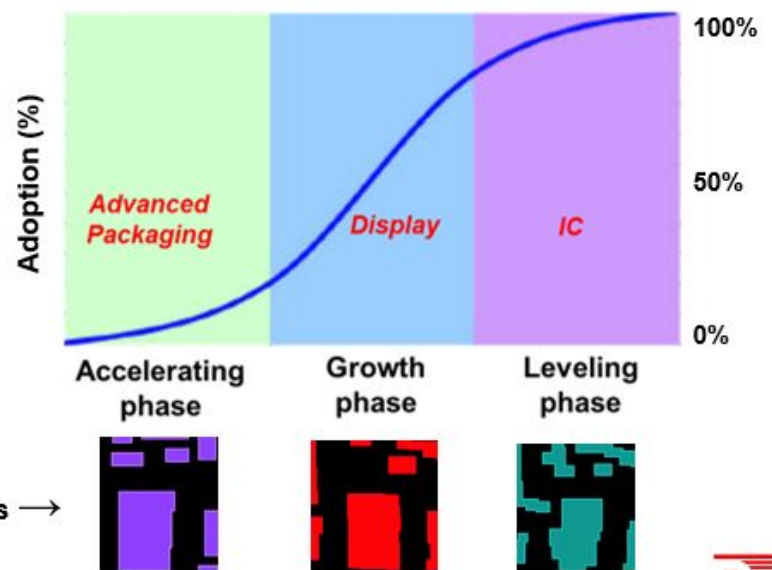
▶ FPD: (AMOLED, G10.5+, VR)

- Accelerate IC type mask tech
- Larger substrate, finer dimension

▶ AP: (Fan Out, Panel)

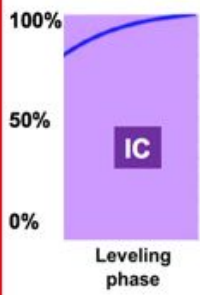
- Introduce FPD type mask tech
- Substrate and resolution roadmap

Tech Adoption in Lithographic Applications



Pattern Correction Phases →

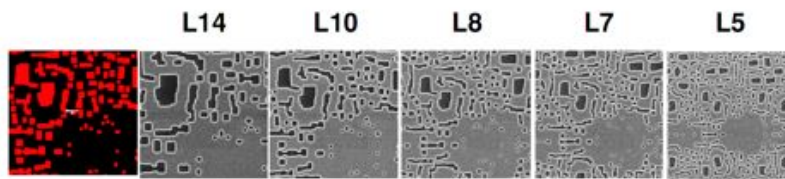
IC: Investing in Technology Opportunities



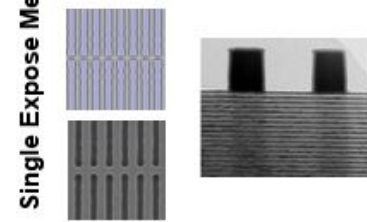
- ▶ Entered 14nm logic, 20nm DRAM, 3D-NAND production (2014)
- ▶ First with advanced EBM 9000 writing tool (2016)
- ▶ First qualified for 1x DRAM (2016) and 1y DRAM (2017)
- ▶ First to deliver yielding 7nm class logic EUV masks (2017)

Type	2017	2018	LVIP to Mass Production	
			2019	2020
Logic	10nm	7nm	5nm (EUV)	
DRAM	1x	1y	1z + new architectures	
3D-NAND	Gen 2	Gen 3	Gen 4 + new architectures	

Optical Mask Scaling on Existing Equipment



EUV Device Masks



FPD: Widening Tech Lead

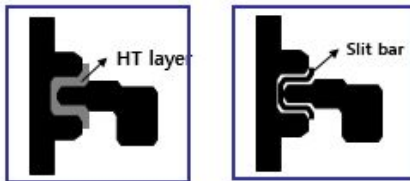


- ▶ Entered FPD phase shift mask technology for AMOLED (2013)
- ▶ Delivered Quad HD masks for OLED (2014)
- ▶ Qualified slit type (2010) and half-tone type (2016) efficiency solutions
- ▶ First to market P-800 (2018) and P-80 (2015) writing systems
- ▶ Plan first to G10.5 in China

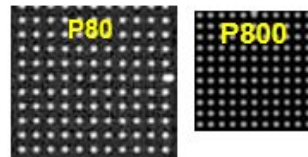
Type	2017	2018	2019	2020
TV	UHD(4K) QD LCD	UHD(8K) QD OLED		
Mobile(OLED)	QHD (6xx ppi)	UHD1 (8xx ppi)	UHD2 (12xx ppi)	
Mask Size	8.5G	10.5G		

LVIP to Mass Production

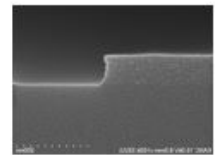
Multi-Dose Mask



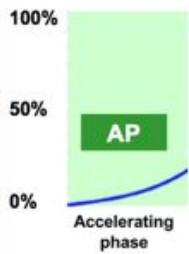
Contact Hole Resolution



Phase Shift Mask



AP: Establishing New Products and PoR

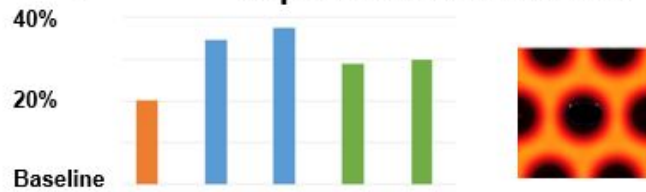


- ▶ Sampling custom mask solutions for AP litho challenges
- ▶ Preparing resolution enhancement infrastructure (mask, software, design)
- ▶ Evolve capability and lead as lithography importance grows

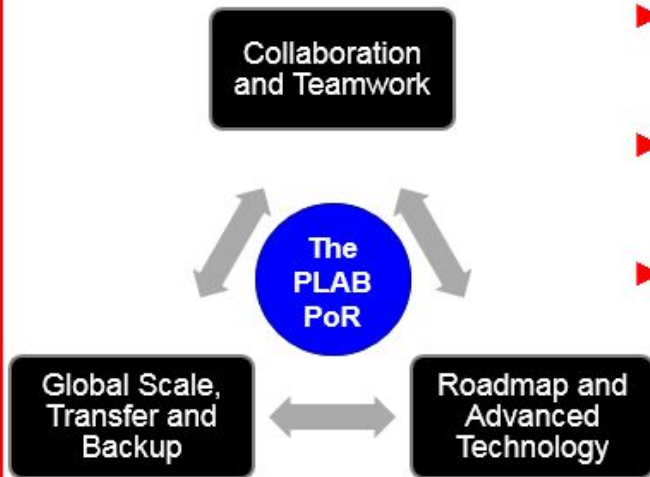
Type	2018	2019	2020
WLP/Panel Fan Out	Mask resolution and registration		
Heterogeneous Integration	Application specific lithography extensions 9" and 14" to panel size		

Co-designing new AP mask technology to increase substrate warp tolerance

Depth of Focus Solutions



Partnering with Our Customers for Success



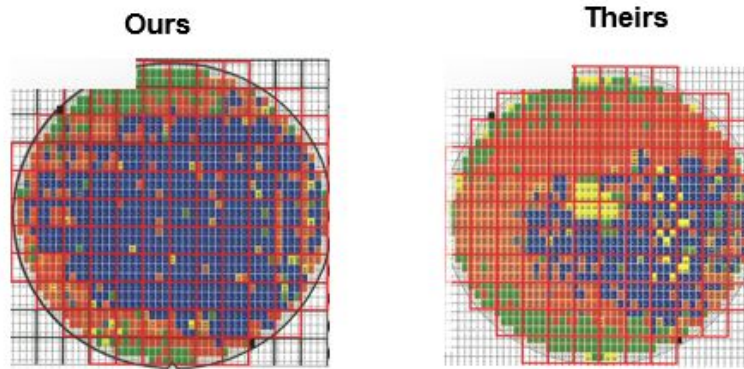
- ▶ **7 high-end PoR* relationships across IC and FPD**
 - Critical for ROI on capability investments
- ▶ **Custom design tools to strengthen connections**
 - Delivering measurable end product yield enhancements
- ▶ **Striving for virtual captive model**
 - Customized, flexible, interlocked, fast

Strong Portfolio of Joint Development Projects →

IBM Nov 2017
Joint program accelerates EUV mask development for advanced nodes
[Learn more](#)

* Process of record

Why PoR Partners Trust a Photonics Built Mask



Successful mask for high yield on complex device has many factors

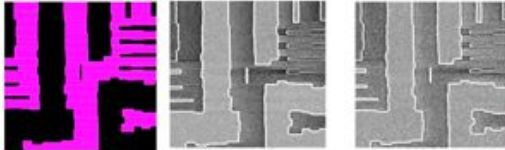
- ▶ Process Capability – right specs, pattern quality, no critical defect
- ▶ Mask to Substrate (wafer, panel) Know-How – simulate, characterize, improve
- ▶ Reproducibility – matching, transfer, ramp and volume experience
- ▶ Protection – IP, systems, mask lifetime management

Technology Matching and Moving: A Competitive Strength

FPD: Korea => Taiwan, China
IC: US => Taiwan, Taiwan => China



nanoFab to PDMC OPC Reproducibility



▶ Powerful know-how for inter-mask matching

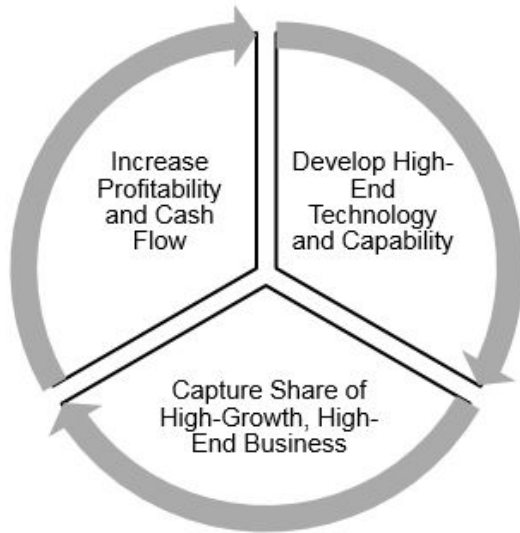
- Site to site transfers for expanding production
- Captive process signatures for backup
- Within site ramp, reproducibility and yield
- Hybrid inter-site process support

▶ Recent success stories

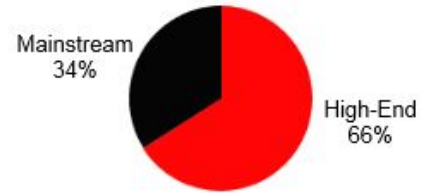
- 25nm DRAM, 3D-NAND, 14nm logic: US to Taiwan
- 22nm to 7nm logic: captive mask and module matching
- FPD enhancement module: Korea to Taiwan

Technology as a Tool to Support Business Growth

Growth Investment Cycle



Q2 2018 LTM FPD Revenue \$107.6M

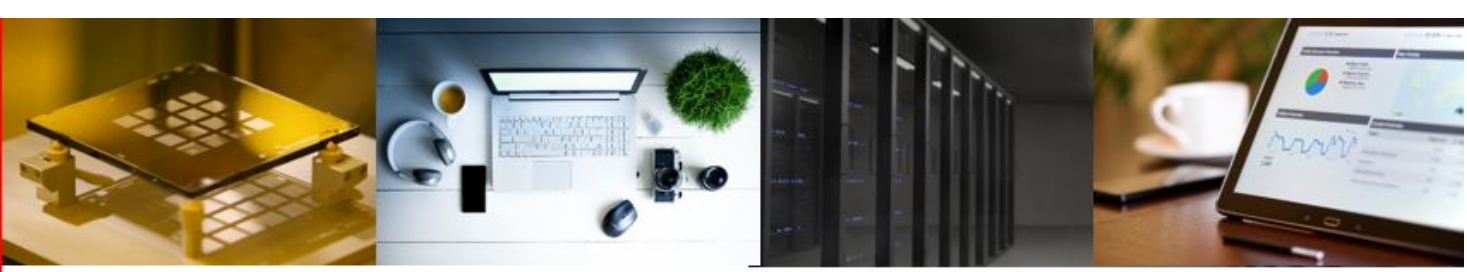


Q2 2018 LTM IC Revenue \$379.1M



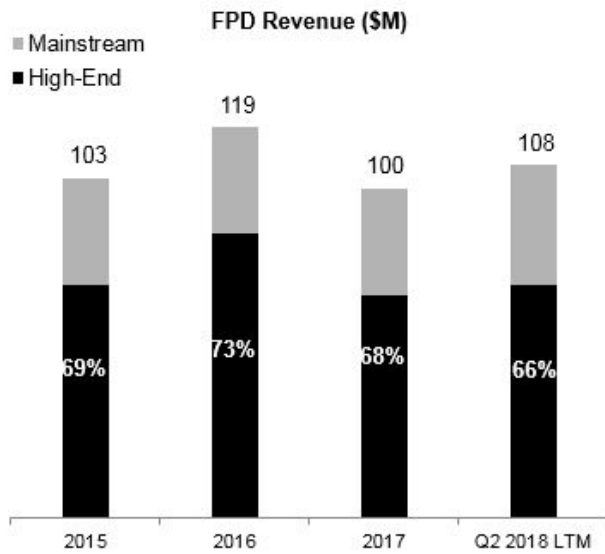
Technology Summary

- ▶ **Tech and innovation keys to ROIC, even as Moore's Law slows**
- ▶ **Proven leadership roadmap across all key lithographic applications**
 - IC extensions, FPD rising complexity, AP stage setting
- ▶ **Partnerships and PoR bring differentiated technology to products**
 - Results, trust, know-how and consistency
 - Delivering integrated solutions and measurable user yield impact
- ▶ **Technology portability as a competitive advantage**
 - Matching in and transferring technology
 - Verified and cost effective multi-site solutions



HK Park, GM, China and Taiwan, FPD High-End FPD

FPD Recent Performance



▶ Aligning with market drivers

- Mobile transition to AMOLED
- Larger TV screens
- Higher resolution

▶ Extending technology leadership

- Leading portfolio of advanced mask writers
- Leveraging IC know-how for FPD process development

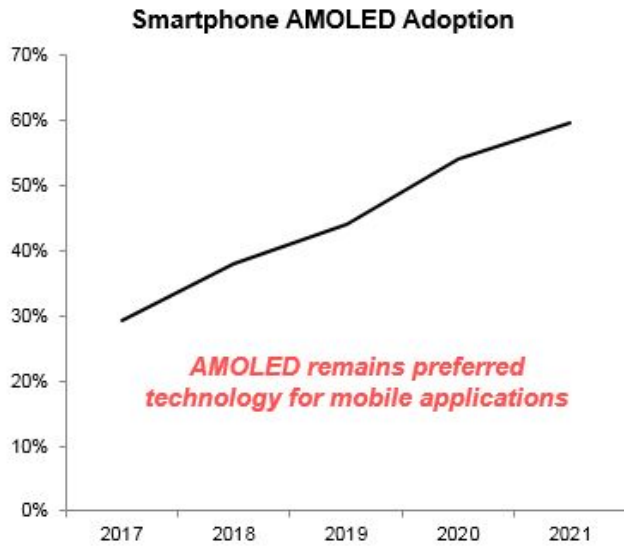
▶ Growing presence in China

- 33% of revenue Q2 2018 LTM
- Should accelerate with Hefei production

Strategic Priorities

- ▶ **Align global footprint with dominant geographic panel technologies**
 - Most advanced AMOLED technology in Korea
 - Large format (G10.5+) LCD TV in China
 - Established mainstream producers in Taiwan
- ▶ **Successfully establish China operating presence**
 - Hefei manufacturing facility
 - G10.5+ masks for large screen TV
 - Integrate into global network to optimize customer service
- ▶ **Extend technology leadership**
 - Higher resolution AMOLED displays
 - Technology transfer from IC to FPD
- ▶ **Grow to be global, merchant market share leader**

Leveraging Technology Leadership for Mobile Display AMOLED Adoption



Source: Internal Estimates

▶ Mobile devices moving from LCD to AMOLED

- Superior visual characteristics
- Lower power consumption
- Enables flexible format
- Preferred for VR/AR devices

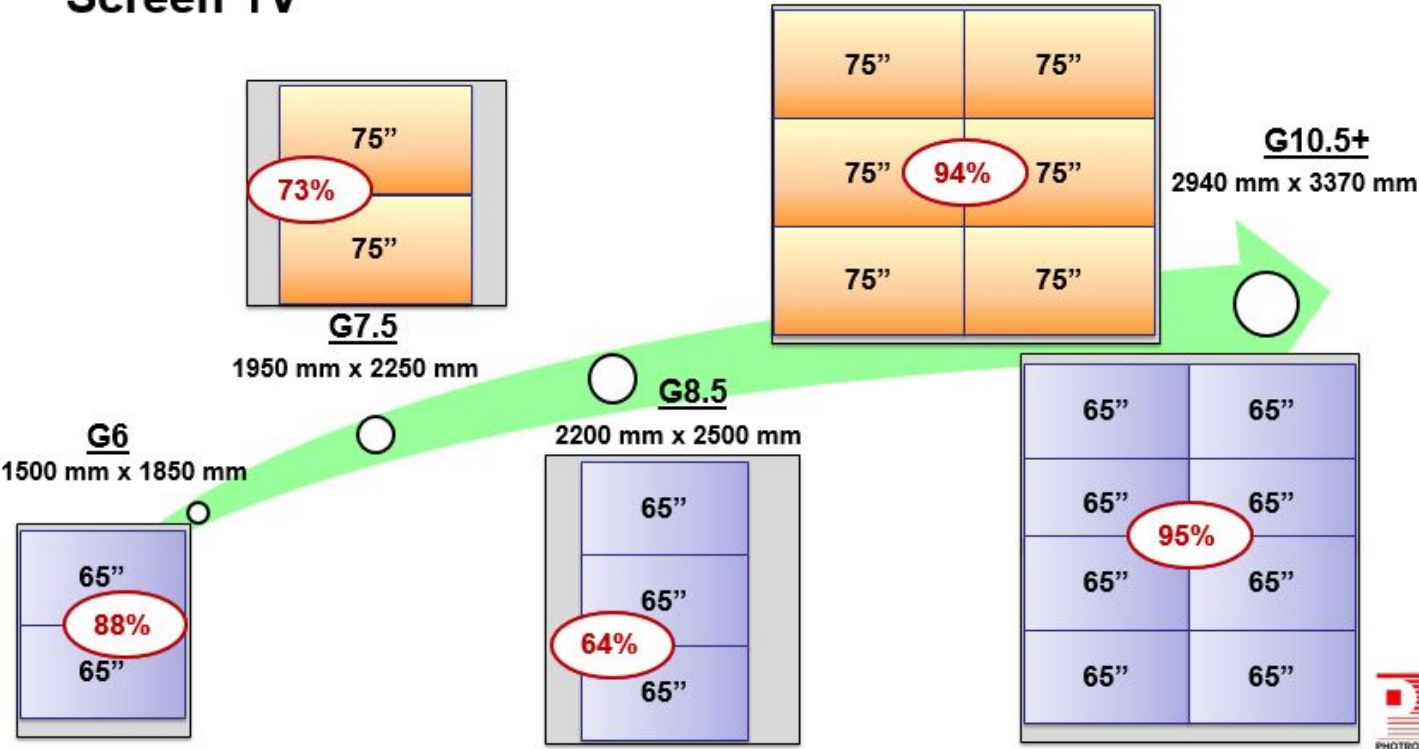
▶ Increases mask complexity

- More mask layers per set
- Tighter specs on each layer

▶ Qualifying P-800 in Korea

- 1st to qualify this advanced mask writer
- Produces highest resolution AMOLED masks
- Competitive advantage vs. all merchants and captives

G10.5+ → Improved Glass Efficiency for Ultra-Large Screen TV



“Made in China 2025” Driving Growth in FPD Market



Source: Internal Estimates

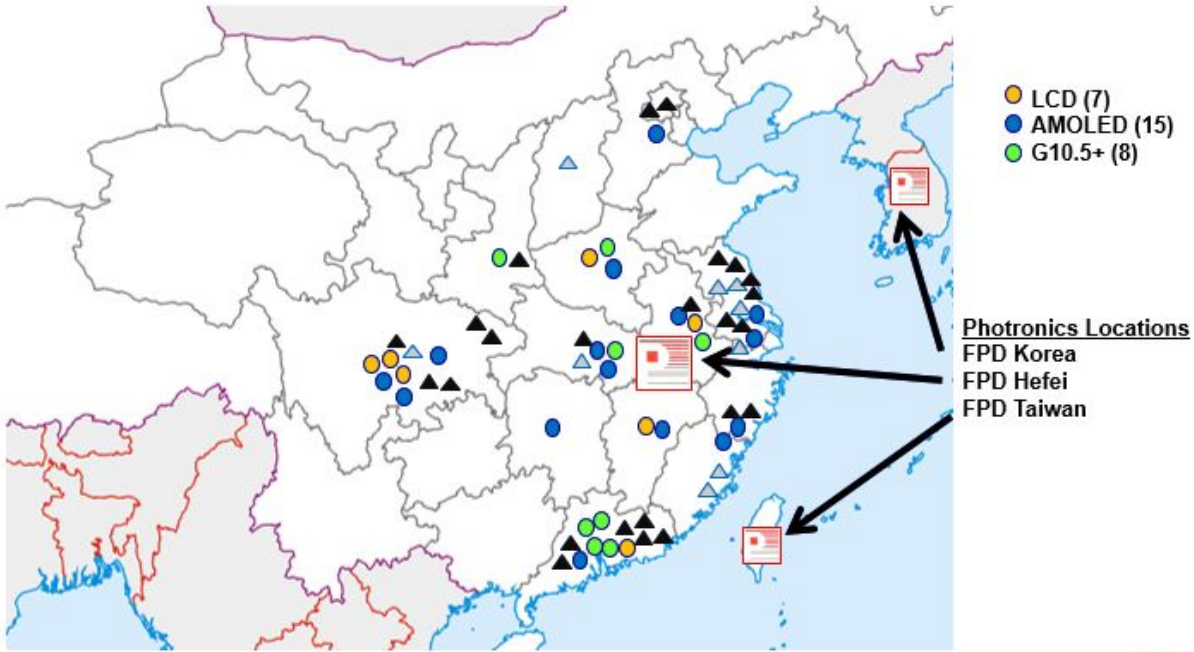
- ▶ **China represents fastest growing display region**
 - 64 fabs in production, under construction or being planned
 - Largest display producer (Korea 2nd)
- ▶ **Photomask opportunities in China are attractive**
 - Wide range of display technology, including AMOLED & G10.5+
 - No merchant photomask producer with high-end experience
 - No G10.5+ photomask producer

34 Existing China Display Fabs



We are qualified at all existing fabs.

30 New China Display Fabs in Production by 2022



New Hefei Facility



Construction complete by end of fiscal year 2018.
Tool move in during fiscal Q119.



New Hefei Facility

Facility Building

FAB

Office Building

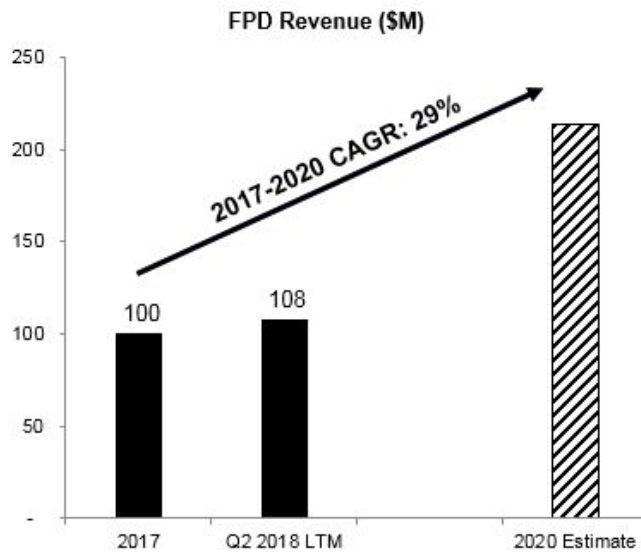
Front Door



How We Win

- ▶ **Become G10.5+ market share leader**
- ▶ **Extend AMOLED technology leadership**
- ▶ **Establish China market share leadership**
- ▶ **Integrated global manufacturing facilities with outstanding customer service**

FPD Outlook



Key Success Factors

- ▶ **Hefei ramp**
 - G10.5+ launch
 - Will be our largest FPD facility
- ▶ **AMOLED mobile display technology inflection**
- ▶ **Diversify customer concentration**
- ▶ **FPD revenue expected to double over next 3 years**

FPD Summary

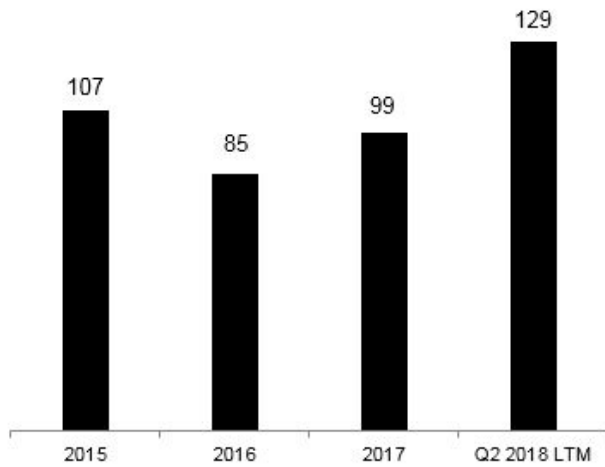
- ▶ **Repositioned the business**
- ▶ **China investment on track**
- ▶ **Investing to exploit industry trends**
- ▶ **Business expected to double over next 3 years**



Frank Lee, GM, Asia IC High-End IC Logic

High-End IC Logic Recent Performance

High-End IC Revenue (\$M)



- ▶ **Repositioning the business**
- ▶ **Strong demand from Asia logic foundries**
 - Korea IC revenue up 24% YTD
 - Revenue to Taiwan foundries up 58% YTD
- ▶ **Expanding penetration at captive manufacturers**
- ▶ **Increasingly seen as trusted technology partner**
 - High-end capacity and capability
 - Close proximity to customer

Successful Partnership with DNP

- ▶ **Two JV's serving Asia**
 - Taiwan JV, PDMC, formed in 2014
 - China JV, PDMCX, formed in 2018
- ▶ **Combines technology, know-how and customer relationships of two leading merchant mask producers**
- ▶ **Reduces risk of Xiamen investment**
 - Facility should ramp more quickly due to complimentary sales organizations
 - Allows us to compete more effectively
- ▶ **Photronics owns 50.01% of both JVs**
 - Photronics management team
 - Consolidate financial results

Photronics DNP Mask Corp.



Joint Venture of 2 World Leading Mask Companies

Shanghai Technology Forum



- ▶ Large group of customers, suppliers, partners, and local officials in attendance
- ▶ JV seen as technology partner for advanced IC manufacturing
- ▶ China producers eager to have local source of high-end photomasks



Strategic Priorities

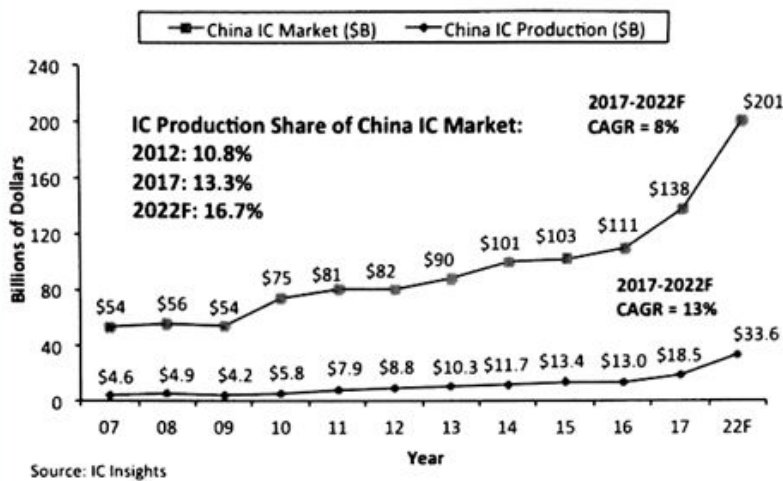
- ▶ **Leverage JV's in Taiwan and China to win market share**
 - Maintain and extend market leadership in Taiwan
 - Build China market share into leadership position
 - Draw on combined technology, experience, and customer relationships

- ▶ **Increase business globally with large foundries and IDMs**

- ▶ **Prevent formation of additional captive manufacturing in China**

- ▶ **Successfully ramp China manufacturing facility**

“Made in China 2025” Driving Growth in IC Market



- ▶ **China represents fastest growing semiconductor region**
 - Growing domestic producers
 - Investments by multi-nationals
- ▶ **More investment needed to meet national targets**
 - 2022 forecast is 17%
 - China government target is 40% by 2020, 70% by 2025
- ▶ **Photomask opportunities in China are attractive**
 - Wide range of nodes in logic and memory
 - No strong domestic merchant mask producer

New Xiamen IC Facility



**Construction complete by end of fiscal year 2018.
Tool move in during fiscal Q119.**



New Xiamen IC Facility

Facility Building

FAB



Supporting Building

Office Building

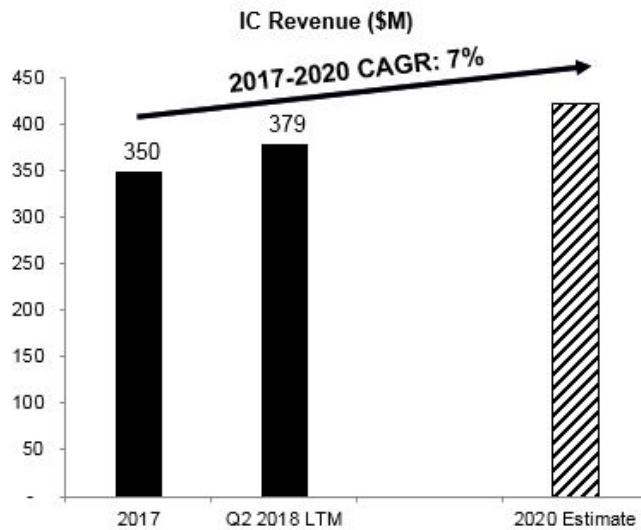
How We Win

- ▶ **Technology leadership in both logic & memory**
 - Develop high-end capacity and capability
 - Obtain PoR for new nodes (28nm, 14nm)

- ▶ **Customer relationships that lead to business partnerships**
 - Proximity to large customers (fast delivery, comprehensive customer support)
 - Act as virtual captive, providing joint development programs and technology support
 - Cross-site collaboration and integration

- ▶ **Grow market share**
 - Win majority of merchant opportunities
 - Grow by serving captive customers

High-End IC Logic Outlook

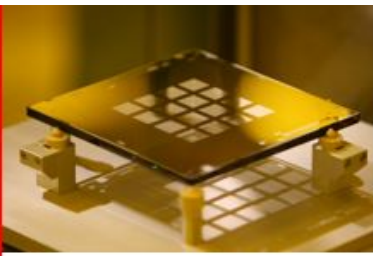


Key Success Factors

- ▶ “Made in China 2025” expansion
- ▶ Node migration (14nm, 10nm, 7nm)
- ▶ Captive business penetration
- ▶ Leverage JV & partnership to compete more effectively
- ▶ Win majority market share of growing foundry demand
- ▶ Cross-site collaboration to serve global customers

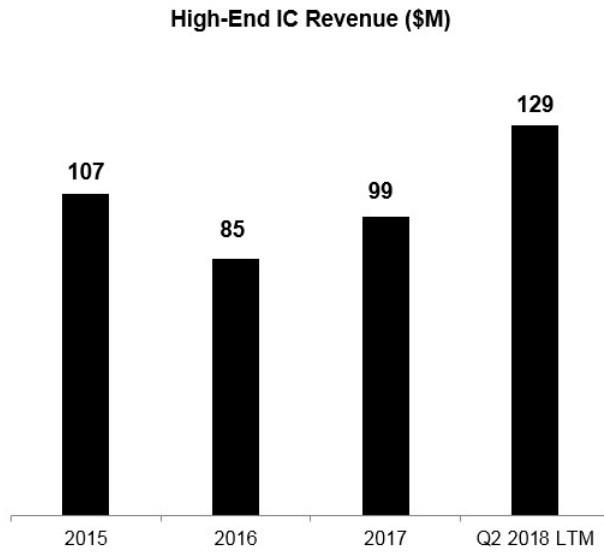
High-End IC Logic Summary

- ▶ Repositioned the business to grow high-end market share
- ▶ China investment on track
- ▶ Growing business globally with logic foundries and IDMs
- ▶ JV's in China and Taiwan allow us to compete more effectively
- ▶ Increasingly seen as business and technology partner



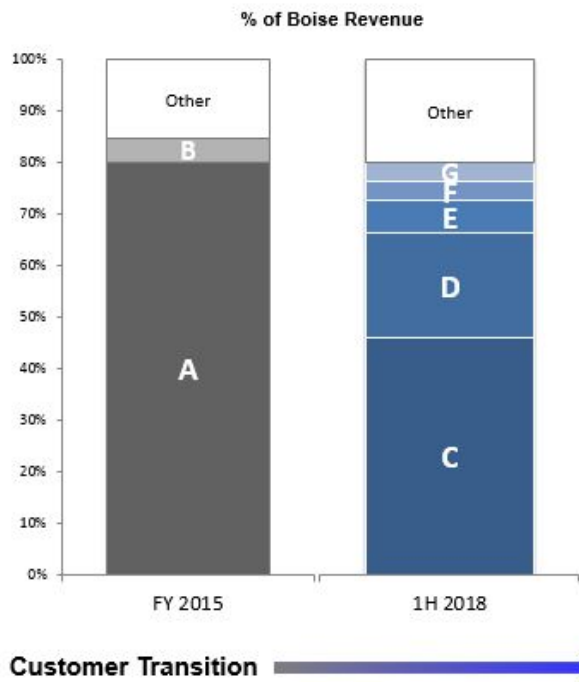
Pete Broadbent, VP US & Europe High-End IC Memory

High-End IC Memory Recent Performance



- ▶ Repositioning the customer base
- ▶ Extremely strong memory demand – revenue to top memory customers up 78% YTD vs. 2017
- ▶ High market share with specialty and emerging memory foundries
- ▶ Benefitting from Micron technology foundation
- ▶ Trusted technology partner
 - High-end capacity and capability
 - Technology, global engineering support

Repositioning Boise



- ▶ We have replaced nearly all of the revenue lost from Micron insourcing
- ▶ Strong diversity of high-end customers
- ▶ Cost structure improved during downturn – more profitable at same revenue level
- ▶ Robust qualification pipeline – PoR development with key memory customers

Strategic Priorities

- ▶ **Maintain and grow market leadership in Asia memory (DRAM & 3D-NAND)**
- ▶ **Provide virtual captive technology, capability and customer service**
- ▶ **Increase high-end business with foundries (China, U.S.)**
- ▶ **Integrate global high-end manufacturing locations to better serve customers**

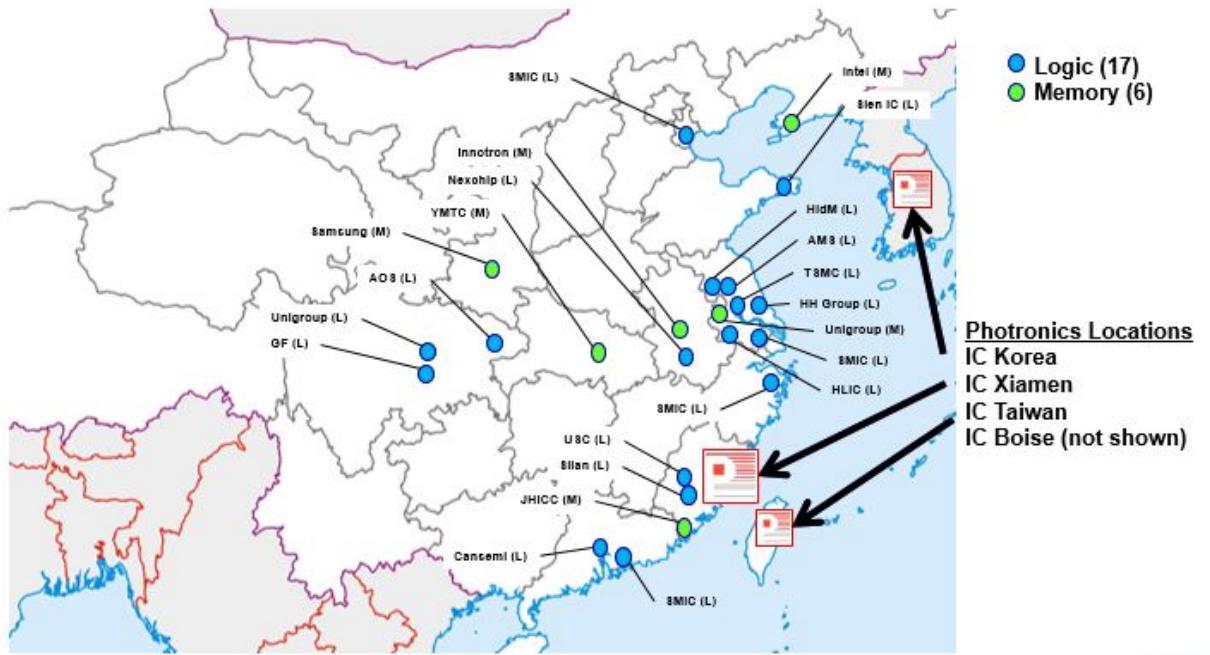
Memory Market Dynamics

- ▶ Strong memory growth trend
- ▶ Diversity of technology, applications
- ▶ Currently dominated by large, captive producers
- ▶ Merchant opportunity with emerging memory producers, foundries
- ▶ Most emerging memory production in Asia (Taiwan and China)

China New Fabs - \$70B+ Investments			
Company	\$B	Memory	Site
Tsinghua Unigroup	30	DRAM	Nanjing
Yangtze Memory Technologies (YMTC)	24	3D-NAND	Wuhan
Innotron	8	DRAM	Hefei
Fujian Jin Hua IC (JHICC)	8	DRAM	Fujian

China Existing Fabs		
Company	Memory	Site
Intel	3D-NAND	Dalian
Samsung	3D-NAND	Xi-An
SK Hynix	DRAM	Wu-Xi
JHICC/UMC	DRAM	Xiamen
Nexchip	DRAM	Hefei
YMTC	DRAM	Wuhan

23 New China 12" IC Fabs



How We Win

- ▶ **Technology leadership in both logic & memory**
 - Develop high-end capacity and capability
 - Establish PoR for new nodes (DRAM, 3D-NAND)
 - Joint development for next generation nodes

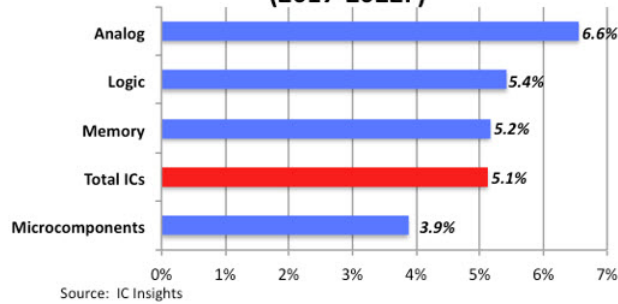
- ▶ **Customer relationships that lead to business partnerships**
 - Act as virtual captive provider
 - Cross-site collaboration and integration

- ▶ **Grow market share**
 - Win majority of merchant opportunities
 - Grow merchant market by serving captive customers

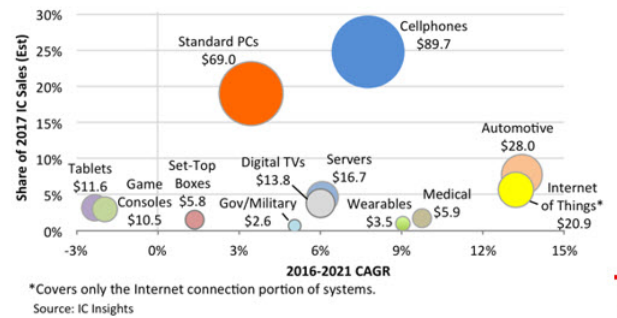
Mainstream – Steady IC Contributor

- ▶ Stable demand – less cyclical
- ▶ Good margins and cash flow
- ▶ Low consumer of capital
- ▶ Very competitive – more like a commodity market
- ▶ Auto and IoT driving analog growth

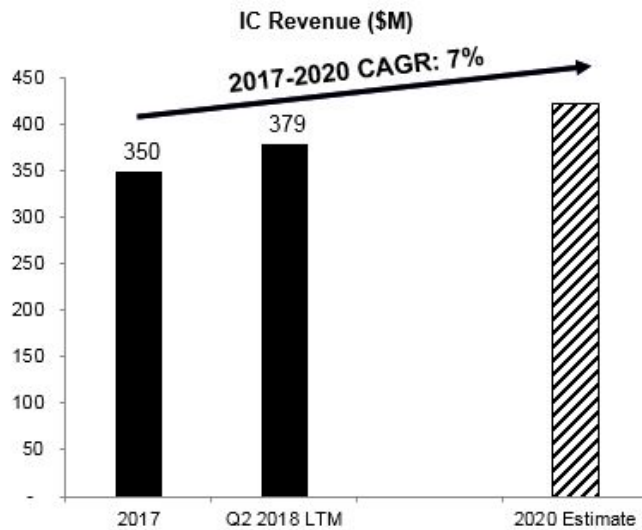
Market CAGRs of Major Product Categories (2017-2022F)



IC End-Use Markets (\$B) and Growth Rates



High-End IC Memory Outlook

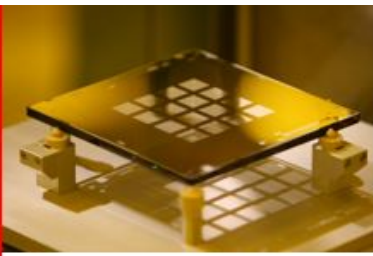


Key Success Factors

- ▶ “Made in China 2025” expansion
- ▶ Node migration (DRAM, 3D-NAND)
- ▶ Strong market drivers
- ▶ Maintain leading market share with specialty foundry producers
- ▶ Cross-site collaboration to serve global customers
- ▶ Mainstream stability, growth of auto, IoT

High-End IC Memory Summary

- ▶ **Repositioned the business**
- ▶ **Boise performance back to JV levels**
- ▶ **Growing business with Asia specialty memory foundries**
- ▶ **Extending technology leadership, developing partnerships**



John Jordan, CFO **Financial Model & Outlook**

Early Observations

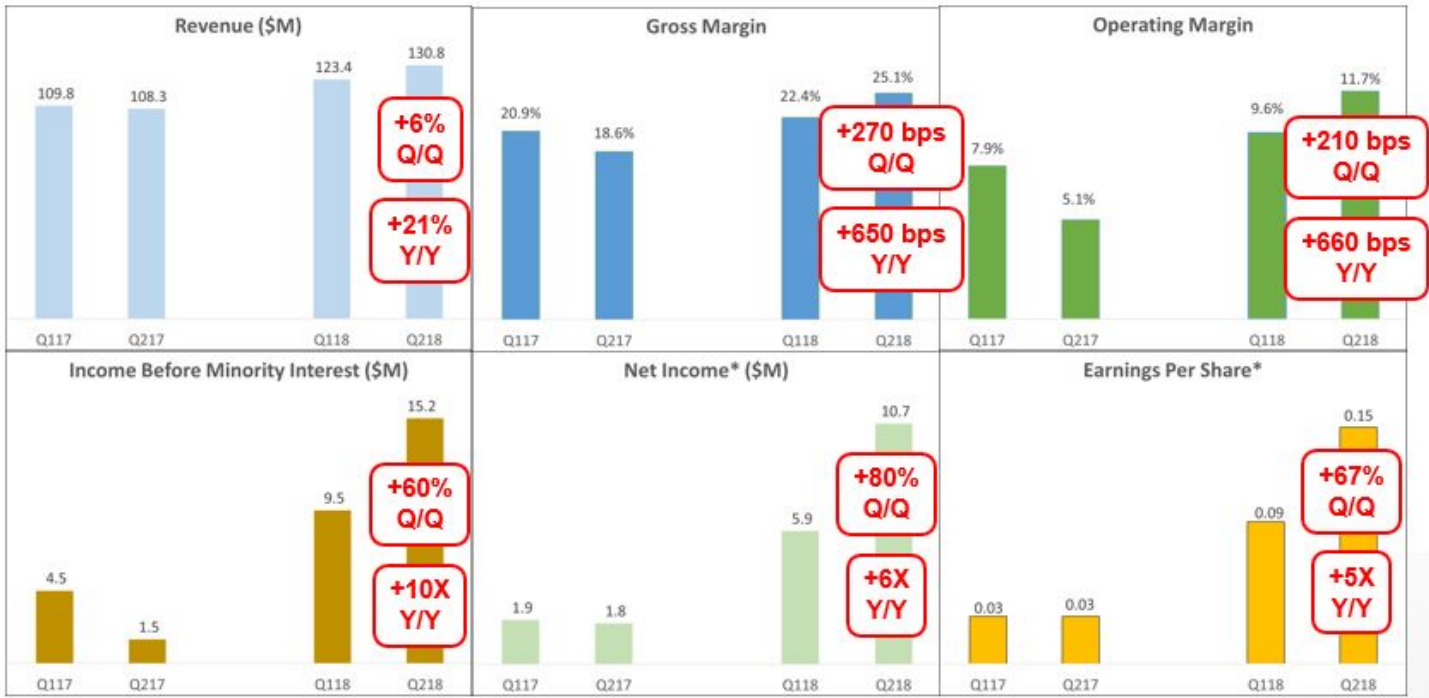
▶ My observations coming from outside

- Lean, no-frills well-organized business
 - Transparent across boundaries
 - Devoid of unnecessary redundancies
- All key players are respected industry experts with years in the industry
- Insistence on operational excellence and maintaining a death grip on cost
- Passionate respect for customers and relationships
- A passion to win and a passion to improve the value equation for shareholders

▶ Finance observations:

- Excellent controls environment
 - Appropriate competence levels in all positions
 - Tone at the top to do the right thing
- Opportunity to automate and improve processes to achieve best practice
- Desire to support the drive to improve ROIC

Performance Improved During 2nd Quarter



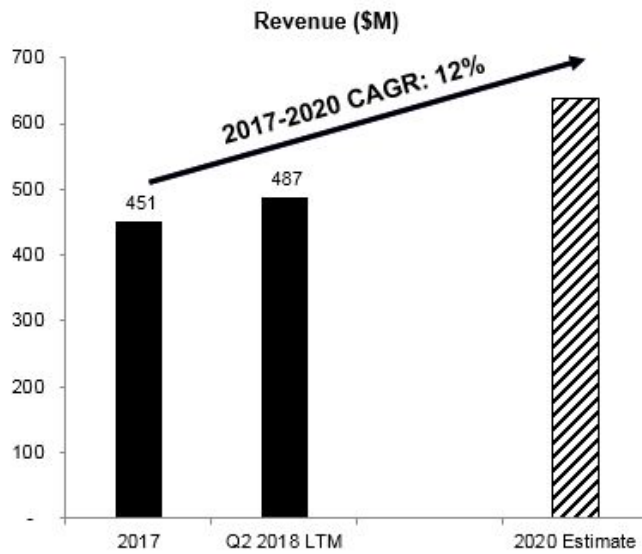
*Net Income attributable to Photronics, Inc. shareholders

Performance Improved During 1st Half



*Net Income attributable to Photonics, Inc. shareholders

Positive Growth Outlook



Key Success Factors

- ▶ “Made in China 2025” – new facilities
- ▶ FPD technology inflections
- ▶ Repositioning the company
- ▶ Node migration (logic & memory)
- ▶ Growing business with captive producers
- ▶ IC JV’s in China and Taiwan
- ▶ Stable mainstream business
- ▶ Cross-site collaboration to serve global customers

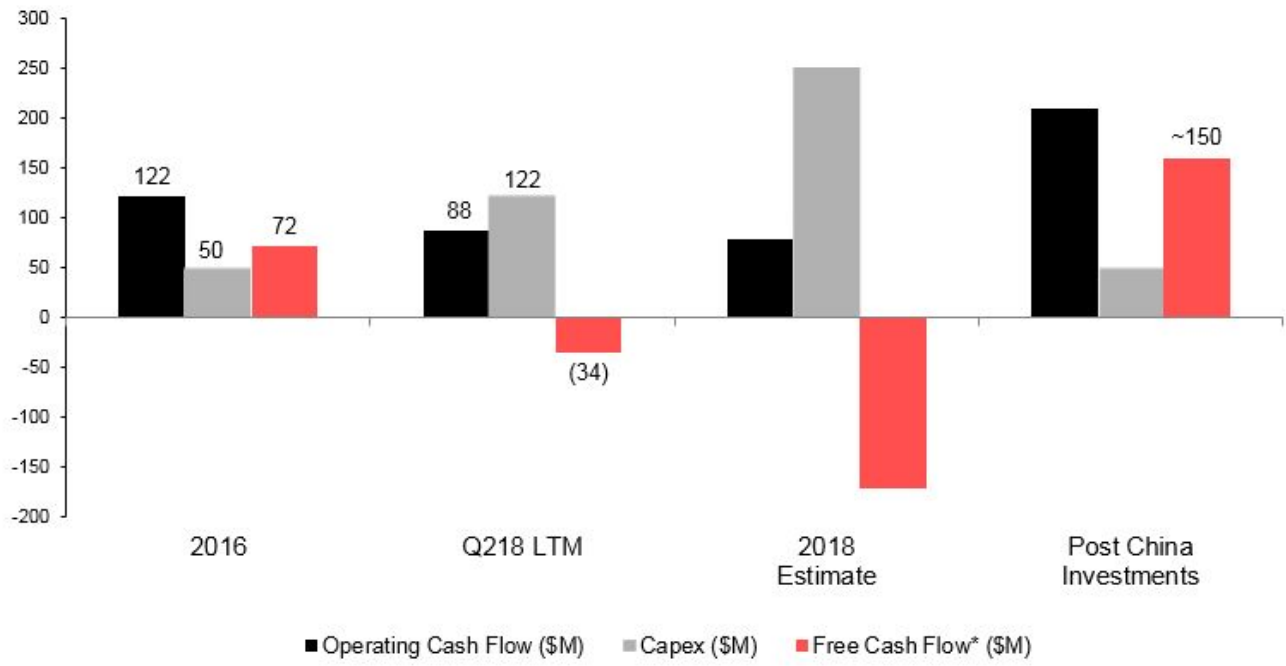
Strategic Priorities to Improve Shareholder Value

- ▶ **Disciplined focus on investments to improve ROIC**
- ▶ **Maintain strong balance sheet through China investment period**
 - Financial stability through economic downturn
 - Flexibility to invest in other growth opportunities (organic or M&A)
- ▶ **Continue to drive cost out to improve customer value proposition and improve shareholder return**

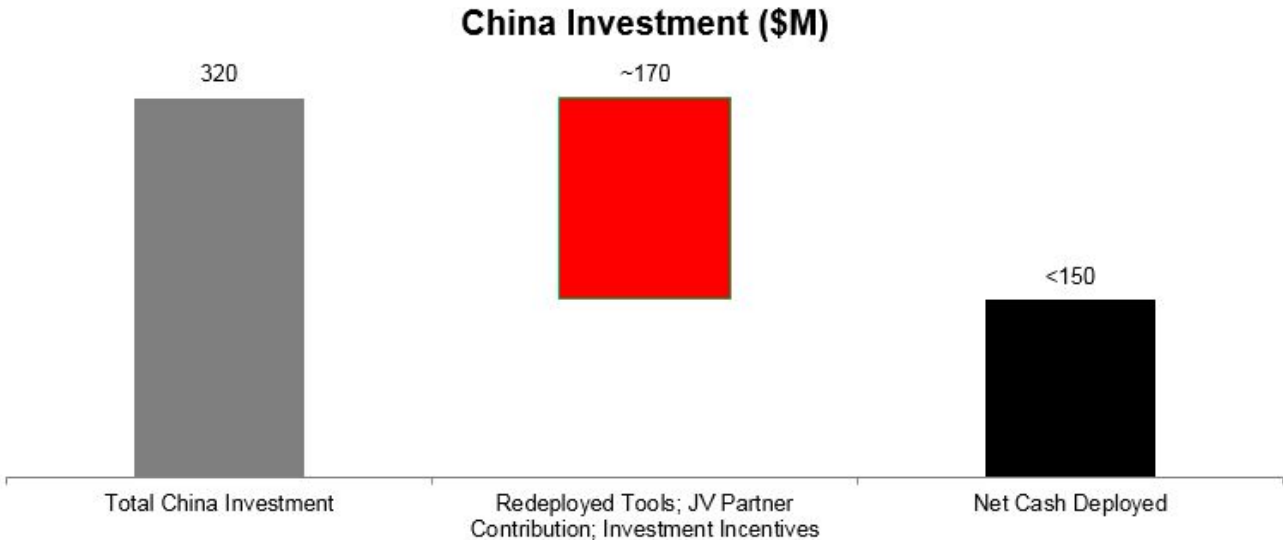
Solid Financial Fundamentals

- ▶ **Strong operating cash flow generator**
- ▶ **Powerful operating leverage: target 50%**
- ▶ **Positive free cash flow every fiscal year since 2009**
- ▶ **Solid balance sheet**

Free Cash Flow Much Stronger Post China Investments



Reducing Risk of China Investment



Clear Capital Deployment Priorities

► Fund organic growth

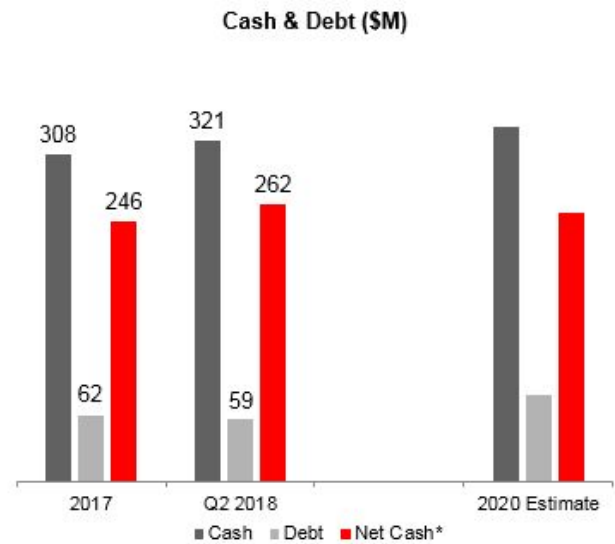
- Geographic expansion into China
- Technical investments to maintain leadership position

► Explore strategic M&A

- Photomask industry – IC & FPD
- Adjacencies to increase revenue diversification

► Debt repayment

- Converts mature in 2019
- Incurring local debt in China



Financial Summary

- ▶ **Clear path to profitable growth**
- ▶ **Prudent stewardship of balance sheet**
- ▶ **Financial model to grow income faster than revenue**
- ▶ **Financial targets**
 - Revenue \$630M & EPS \$0.80 by 2020
 - Operating margin > 15%
 - Minimum \$100M net cash
 - Improve ROIC – no projects accepted below hurdle rate

A Compelling Investment Thesis

▶ Global leader in merchant photomask industry

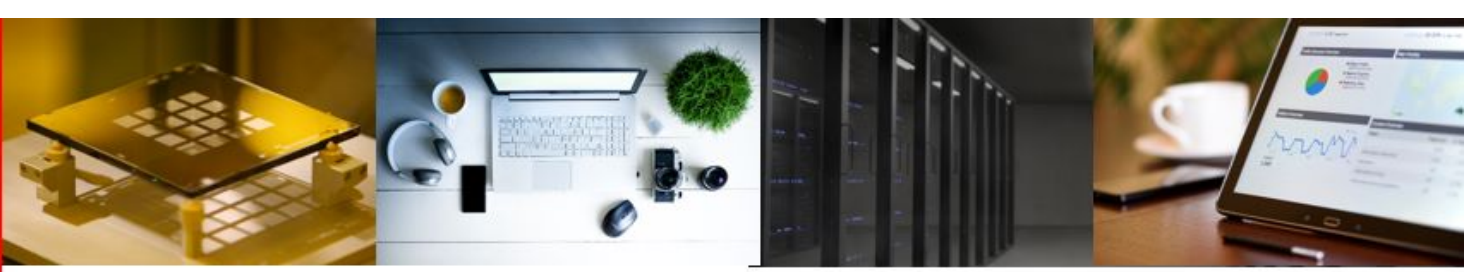
- *Delivering high-end growth by leveraging core competences: Operational Excellence, Low Cost Producer, Technology Leadership, Customer Intimacy*

▶ Investing aggressively to exploit secular growth opportunities

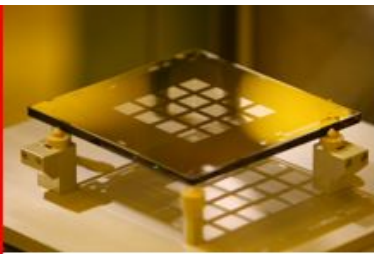
- *China industry expansion – Made in China 2025*
- *Technology inflection from LCD to AMOLED*
- *Explosion of G10.5+ panel capacity*

▶ Targeting \$630M / \$0.80 in revenue / EPS by 2020

- *Strategic investments bring top-line growth*
- *Operating leverage creates margin expansion*
- *Additional upside from potential M&A*



Questions?



Thank you for your interest!

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