Photronics Inc.
Pitch
November 19, 2020

James Clayton
Chief Investment Officer

Georges Mahama
Portfolio Strategist
Photronics Inc.
Investment Thesis

- Not a solar company, but benefits solar deep in the supply chain
- Integral to rapidly growing semiconductor subsector
- True value play in an overvalued sector
- Proven ability for top-line growth and margin expansion
Photronics Inc.
What they do.

What is a photomask?

- A template for the production of integrated circuits
- Few companies make this product
- Integral in the design and manufacturing of microprocessors
- Currently made out of quartz

What are the applications?

- Semiconductor innovations and manufacturing
- Integrated circuits
- Flat-panel displays
- Solar panels and batteries
- IoT
Photronics Inc.
Deep Supply Chain Value

- Overvalued
  - Solar energy services providers
  - Solar panel and battery manufacturers
  - Fairly-valued
  - Semiconductor manufacturers
  - Undervalued
  - Photronics Inc.
Photronics Inc.
Corporate Strategy

Management Outlook

Recent and Present (2019 – 2022)
- Investing in China
  - Phase I – 2019-2020
  - Phase II – 2021-2022
- Leveraging FPD technology inflections

Past (2017 – 2018)
- Repositioned the company
- Grew high-end revenue

Future (2023 and beyond)
- Entering strategic photomask partnerships
- Exploring adjacent market M&A

Value Drivers
- “Made in China 2025” initiative
  - Targeting 40% national production share by 2020, 70% by 2025
- Maintain high degree of operating leverage
  - Allows margins to expand as revenues grow
Photronics Inc.
Investment in China

Made in China 2025

- China represents fastest growing display region
  - 52 manufacturing facilities in production or under construction
  - Largest LCD display producer
- Photomask opportunities in China are attractive
  - Wide range of display technologies
  - No competitors with high-end product experience
  - PLAB is involved in fastest growing sectors

Chinese Revenue Growth
Photronics Inc.
Financial Highlights

Segmented Revenue Growth

- Integrated Circuit Photomask
  - 4.90% Revenue CAGR
- Flat Display Panel Photomask
  - 17.7% Revenue CAGR

Sustained CapEx Capabilities

- Consistently invested in growing production facilities without over-leveraging
  - Strong operating cash flows decrease need for debt financing
## Trading Comparison

<table>
<thead>
<tr>
<th>Company</th>
<th>Current Price</th>
<th>Equity Value</th>
<th>Enterprise Value</th>
<th>EV/Revenue</th>
<th>EV/EBITDA</th>
<th>EV/EBIT</th>
<th>P/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLAB</td>
<td>$11.5</td>
<td>$755.1</td>
<td>$832.5</td>
<td>4.2x</td>
<td>4.5x</td>
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<td>PI</td>
<td>$34.3</td>
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<td>$40.8</td>
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<td>AOSL</td>
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<td>62.7x</td>
<td>-41.4x</td>
<td>57.1x</td>
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</table>

### High
- Total: $1,081.6
- EV/Revenue: 2690.0x
- EV/EBIT: 5930.0x

### Mean
- Total: $814.4
- EV/Revenue: 36.1x
- EV/EBIT: 1594.2x

### Median
- Total: $792.9
- EV/Revenue: 16.6x
- EV/EBIT: 10.0x

### Low
- Total: $520.8
- EV/Revenue: -22.5x
- EV/EBIT: 19.4x

## Performance Comparison

<table>
<thead>
<tr>
<th>Company</th>
<th>52 Wk High %</th>
<th>EBITDA Margin</th>
<th>EBIT Margin</th>
<th>Sales Growth</th>
<th>EPS Growth</th>
<th>Dividend Yield</th>
<th>ROIC</th>
<th>ROE</th>
<th>Debt/EBITDA</th>
<th>PEG</th>
<th>P/S</th>
<th>P/CF</th>
<th>P/B</th>
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<tbody>
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<td>-32.5%</td>
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<td>1.34</td>
<td>1.87</td>
<td>16.71</td>
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### High
- ROIC: 5.2%
- ROE: 4.8%
- Debt/EBITDA: -21.2%

### Mean
- ROIC: 0.0%
- ROE: -0.6%
- Debt/EBITDA: 1.16%

### Median
- ROIC: 0.0%
- ROE: 0.0%
- Debt/EBITDA: 1.16%

### Low
- ROIC: 0.0%
- ROE: 0.0%
- Debt/EBITDA: 1.16%
# Photronics Inc.

## DCF Analysis

<table>
<thead>
<tr>
<th>Operating Scenario</th>
<th>Mid Year Convention</th>
<th>Historical Period</th>
<th>CAGR</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
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<td>$499.8</td>
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<td>6.9%</td>
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<td>$51.7</td>
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<td>Plus: Depreciation &amp; Amortization</td>
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<td>$84.6</td>
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<td>Discount Period</td>
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<td>Present Value of Free Cash Flow</td>
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### Assumptions

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<td>18.8%</td>
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<td>11.5%</td>
<td>6.0%</td>
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<td>75.0%</td>
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<td>74.5%</td>
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<tr>
<td>SG&amp;A (% sales)</td>
<td>9.2%</td>
<td>9.7%</td>
<td>9.6%</td>
<td>9.6%</td>
<td>9.0%</td>
<td>9.0%</td>
<td>9.0%</td>
<td>8.0%</td>
<td>8.0%</td>
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<tr>
<td>Depreciation &amp; Amortization (% sales)</td>
<td>16.0%</td>
<td>19.2%</td>
<td>15.7%</td>
<td>15.2%</td>
<td>14.0%</td>
<td>14.0%</td>
<td>14.0%</td>
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<td>Capital Expenditures (% sales)</td>
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<td>6.4%</td>
<td>6.8%</td>
<td>11.0%</td>
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<td>80.3%</td>
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<td>5.7%</td>
<td>5.7%</td>
<td>5.7%</td>
<td>5.0%</td>
<td>4.6%</td>
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</table>

**SCHOOL OF BUSINESS INVESTMENT PROGRAM**
Photronics Inc.
DCF Analysis

**Base Case**
- 9.0x exit multiple (under industry average of 11.0x)
- Increase in CapEx, DPO
- Decrease in COGS, SG&A, DSO
- IPGR: 6.3%

**Downside Case**
- 7.5x exit multiple
- Increase in COGS, SG&A, DIH, Liabilities
- Decrease in Sales
- No change in CapEx (assumed no M&A with decreased sales)
- IPGR: 5.8%
Photronics Inc.
Technical Analysis

Current Price: $11.04

5% quantile = 9.11
95% quantile = 16.33
mean_price= 12.42
median_price= 12.23
Photronics Inc.
Recommendation

Buy PLAB at ~$11.10

Questions?
Photronics Inc.

Appendix 1
## Photronics Inc.

### Appendix 2

#### Current vs 2Yr Average Historical Premium

<table>
<thead>
<tr>
<th>Metric</th>
<th>Current</th>
<th>Hist Avg</th>
<th>Diff</th>
<th># SD</th>
<th>3M Trend</th>
<th>Low</th>
<th>Range</th>
<th>High</th>
<th>Implied @ Hist Avg</th>
<th>Multiple</th>
<th>Price (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Price</td>
<td>-59%</td>
<td>-41%</td>
<td>-18%</td>
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<td>-60%</td>
<td>-60%</td>
<td>30%</td>
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<td>BF P/E</td>
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<td>-3.0</td>
<td>-69%</td>
<td>-69%</td>
<td>-34%</td>
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<tr>
<td>BF EV/EBITDA</td>
<td>-76%</td>
<td>-61%</td>
<td>-15%</td>
<td>-2.2</td>
<td>-76%</td>
<td>-76%</td>
<td>-43%</td>
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<td>1.5x</td>
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<tr>
<td>BF EV/EBIT</td>
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<td>BF EV/Rev</td>
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<td>-61%</td>
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<td>-2.2</td>
<td>-76%</td>
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<td>-43%</td>
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<td>LF P/BV</td>
<td>-71%</td>
<td>-61%</td>
<td>-7%</td>
<td>-1.2</td>
<td>-71%</td>
<td>-71%</td>
<td>-44%</td>
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#### Summary of Current Multiples

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<tr>
<th>Name</th>
<th>2Y Corr</th>
<th>Mkt Cap (USD)</th>
<th>BF P/E</th>
<th>BF EV/EBITDA</th>
<th>BF EV/EBIT</th>
<th>BF EV/Rev</th>
<th>LF P/BV</th>
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<td>753.05M</td>
<td>11.9x</td>
<td>3.3x</td>
<td>0.9x</td>
<td>0.9x</td>
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</table>

Current Premium to Comps Me...

Mean (Including PLAB US)
Photronics Inc.
Appendix 3

22 New China 12” IC Fabs 2018-2022

52 China Display Fabs in Production by 2022

SCHOOL OF BUSINESS INVESTMENT PROGRAM
Photronics Inc.

China IC Market vs. China IC Production Trends

IC Production Share of China IC Market:
2014: 15.1%
2019: 15.7%
2024F: 20.7%

China FPD Mask TAM ($M)

+16% CAGR