Forward-Looking Statements

This Presentation contains “forward-looking statements” within the meaning of applicable Canadian securities legislation. These statements generally can be identified by use of forward looking words such as “may”, “will”, “expect”, “estimate”, “anticipate”, “intend”, “consider”, “believe” or “continue” or the negative thereof or similar variations. Such forward-looking statements concern the business and anticipated financial performance of the Company and include, without limitation, the Company’s expectations with respect to the overall order activity for the balance of the year, growth in the dollar value of the wafer fabrication equipment market, revenue from new products, growth in the etch market and the Company’s ability to build on its financial and operational foundation in the future.

These forward-looking statements are based on certain factors and assumptions, including, without limitation: the Company’s ability to successfully complete new purchase orders along the timelines expected; continued and future demand for the Company’s products; continued sales to the Company’s major customers; the continued financial health of the semiconductor industry; and the Company’s ability to continue and further enhance revenue diversification and open new market opportunities.

Forward-looking statements are subject to a variety of known and unknown risks, uncertainties and other factors which could cause actual events or results to differ from those expressed or implied by the forward-looking statements, including, without limitation: additional measures and controls may not be implemented as expected or along the timelines anticipated; uncertainties relating to the market for the Company’s products and maintaining a stable level of orders; fluctuations in revenue as a result of volatility in the markets and product mix; risks relating to the Company’s present reliance on its major customers for the majority of its sales; risks relating to the Company’s reliance on the financial health of the semiconductor industry; risks relating to the development of competing technologies and the possibility of increased competition; the effect of slow growth in the United States, the Company’s principal market, as well as other economies and other economic trends and conditions in the markets that the Company and its customers serve; risks associated with technical difficulties or delays in product introductions, improvements, implementation; uncertainties in product pricing or other initiatives of the Company and its competitors; uncertainties in factors that may result in a reduction in capital expenditures and/or delayed buying decisions affecting demand for the Company’s products; risks relating to currency fluctuations, particularly between the Canadian and United States dollars; and risks in pursuing additional development projects to support existing customers or pursue other business opportunities.

The foregoing assumptions, risks and uncertainties are not exhaustive of the items that may affect our forward-looking statements. Should underlying assumptions prove to be incorrect or one or more of these risks and uncertainties materialize, actual results may vary materially from those described in the forward-looking statements. The Company’s forward-looking statements are based on beliefs, expectations and opinions of management on the date the statements are made.

For the reasons set forth above, readers should not place undue reliance on forward-looking statements. The Company undertakes no obligation to update or revise any forward-looking statements included herein if these beliefs, estimates and opinions or other circumstances should change, except as otherwise required by applicable law.
Photon Control

We provide fiber optic process monitoring systems to increase the value and competitiveness of our customers’ Wafer Fabrication Equipment (“WFE”) by enabling end users (chip makers) to improve yield, uptime, and profitability.

Order Backlog (CAD) $ in millions

Q3 2018 | YTD 2018
---|---
Revenue (C$ millions) | $10.1 | $38.5
YoY Revenue Change | (16%) | 17%
Gross Margin | 52% | 56%
EBITDA Margin | 30% | 33%
Cash on 9/30/2018 | $43 million (No Debt)

Revenue Guidance:
- Q4 2018 $8 to $9 million
- FY 2018 Exceeding overall industry growth
Target Markets

Our target customers are Wafer Fabrication Equipment (WFE) suppliers in the semiconductor and other solid-state industries.

Our products are deployed in the harshest environments where the most precise measurements are required to produce the end customers’ most advanced and valuable products.

Our solutions become “designed in” to our partners’ products, producing stable growing revenue streams with multi-year life cycles.
Market and Technology Drivers
Global Semiconductor Market

Broadening & diversifying into all elements of the economy

Autos: $30B (9%)¹

Phones: $85B (4%)

Artificial Intelligence: Exponential growth

Robotics: $10B (30%)

VR/AR: $10B (15%)

Big Data/Cloud: Bandwidth/Memory

Medical: $5B (11%)

Internet of Things: 200B connected devices by 2020

Servers: $15B (6%)

Consumer: VR / AR Digital displays

Industrial/Medical: Smart Grid/ Mobile Medical

¹ Labeling convention: “Market segment”: IC Revenue in 2020 (CAGR 2016-2020)
Technology Trends Drive Our Growth

- Semi market drivers (Big data, 5G, AI...)
  More computing speed and memory needed

- New semi devices: FinFET, 3D NAND
  Atomic dimensions, 3D features

- Manufacturing / yield challenges of new devices
  Sophisticated process control needed

- Process control requires more sensors:
  Better accuracy, harsh environments

FIBER OPTIC SENSORS
Accurate, stable, optimal for harsh environments
Photon Control in Semiconductor Fabs

Semiconductors are made in fabs, where Photon Control sensors are used in several process steps.
Serving the Largest WFE OEMs in Etch

Global WFE Market by Process (2017)  
(Billions of USD)

Dry Etch Equipment Market share (2017)  
(Billions of USD)

Total WFE Market = $51B

- Deposition $12.3
- Litho & Track $10.3
- Automation $2.5
- Inspection & Met. $5.5
- Thermal & doping $2.7
- Other clean & removal $5.2
- Other $1.9
- Dry Etch $10.8

Total Dry Etch Equipment Market = $10.8B

- Lam Research $5.1 (47.2%)
- Tokyo Electron $2.8 (26.3%)
- Others $0.5 (4.2%)
- Applied Materials $2.0 (18.5%)
- Hitachi $0.4 (3.7%)

Source: Gartner, Market Share: Semiconductor Wafer Fab Equipment, Worldwide, 2017
Wafer Fabrication Equipment Segments

Etch Equipment Share Surges in Era of 3D NAND and sub-20nm Logic

<table>
<thead>
<tr>
<th>Device</th>
<th>Total Etch Steps</th>
</tr>
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<tbody>
<tr>
<td>Logic 40nm</td>
<td>35</td>
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<tr>
<td>Logic 28nm</td>
<td>50</td>
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<tr>
<td>Logic 10nm</td>
<td>&gt;110</td>
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<tr>
<td>Logic 7nm</td>
<td>&gt;140</td>
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</tbody>
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Source: SEMI ISS, G Yin AMEC, Jan 2017

Etch spend 3D NAND > 3x
Etch spend 2D NAND

Sources:
- Tokyo Electron (Corp IR, May 2017)
- Lam Research (Investor Meeting, Mar 2018)
Products and Differentiators
Photon’s Temperature Sensor System

Improving Yield by Improving Wafer Temperature Uniformity

The performance of an individual chip is very sensitive to the local wafer temperature. More sensors enable better temperature control & uniformity which produce higher yield.
Competitive Positioning

Compared to competitors, Photon Control offers:
• Most accurate and stable products in the market.
• 20+ years of expertise in materials, optics, & signal processing.
• Custom in-house development & rapid prototyping.
• Integrated engineering, manufacture, & service (“under one roof”).

Compared to other technologies, our approach offers:
• Best accuracy and long-term stability.
• Immunity to harsh environments (e.g., RF, microwave).
• Longest life and lowest maintenance costs.

Photon Control has the highest accuracy and stability in the harshest environments

Photon Control is the leader in fiber optic temperature sensors in Wafer Fabrication Equipment (WFE)
Market Size and Growth Strategy
## Our Semiconductor Opportunity Landscape

<table>
<thead>
<tr>
<th></th>
<th>Dry Etch</th>
<th>Wet Etch</th>
<th>Deposition</th>
<th>Thermal</th>
<th>Doping</th>
<th>CMP</th>
<th>Lithography, Photoresist</th>
<th>Other Solid-State</th>
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<tbody>
<tr>
<td>Temperature</td>
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<td><strong>Surface Characteristics</strong></td>
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</table>

- **Potential future PHO market**
- ✔ Current PHO market
- ✔ New market 2018
Total Addressable Market
Fiber Optic Sensors in Semi

• Total semi fiber optic sensor market outpaces WFE markets (5 year CAGR 37% vs 2.3%)\(^1\).

• More sensors enable the tighter process control required for more advanced devices.

• New techniques of measurement are under development.

• New points of measurement being requested by customers.

\(^1\) Gartner (2018)
Strategy for Revenue Growth

• Target:
  • Reach a doubling of run rate revenue by 2021.

• Strategy:
  • Expand product portfolio with innovative, yield-enhancing new products which allow us to increase our technical differentiation and market share.

• Dual path to product portfolio expansion: organic and inorganic
Growth and Investment Strategy

**Target Markets**
- Stay focused on semiconductor equipment.
- Dry Etch: Maintain or increase share as dry etch fiber optic sensor market continues to grow.
- Deposition: Dominate the fiber optic sensor market for “harsh environment” deposition as its growth accelerates.
- Other: Expand into other semi verticals.

**Product Portfolio**
- Extend current technology:
  - Improve performance of current products and reduce cost per point.
- Disruptive technologies:
  - Add disruptive sensor products to our portfolio through a combination of internal development, strategic partnerships, and acquisition.
  - M&A can accelerate our time to market for new products, and/or add incremental near-term revenue.
Financial Profile
Revenue – 5 Year CAGR = 33%
Revenue Growing Faster Than Market

**Etch WFE > Semi WFE**
- Multi-patterning
- 3D NAND
- Atomic scale manufacturing
- Extremely harsh environment
- Growth in Etch WFE is highest for the most advanced products

**Photon Control > Etch WFE**
- Our Sensors provide greatest advantages for the most advanced products.
- Photon Control’s advantages have made it the market and technology leader in this space.

![Market vs Revenue Growth (CAGR 2012-2017)](image)
Strong Revenue & EBITDA Growth

5-year CAGR = 33%

Revenue
EBITDA
EBITDA Margin

2013 2014 2015 2016 2017 TTM
Revenue
EBITDA
EBITDA Margin

5-year CAGR = 33%
Strong Free Cash Flow

Cash from Operations

Cash

2013 2014 2015 2016 2017 TTM

Cash from Operations

CAD$ M

$1.8 $6.1 $8.2 $14.1 $12.3 $26.2 $32.5 $34.3 $42.7

Cash

$7.6 $8.4 $15.3 $42.7
Price History/Share Data

**TSX Exchange: PHO**

- Closing Price (@ 11/7/18): $1.71
- # Shares (Basic): 111m
- # Shares (Fully Diluted): 114m
- 52-Week High: $2.60
- 52-Week Low: $1.38
- Market Capitalization (@11/7/18): $189m
- Cash (@ 9/30/18): $43m
- Debt (@ 9/30/18): Nil

**Analyst Coverage:**

- Echelon Wealth Partners
- GMP Securities
- Paradigm Capital
Key Takeaways

• Critical systems supplier to the largest customers in our space
• Multiple competitive advantages
• Leader in a large, growing market with a rich new product funnel
• Enviable financial metrics and strong balance sheet
• Generating significant cash to invest in the business, opportunistically pursue acquisitions and buy back shares