Safe Harbor Statement

Statements in this presentation that relate to future plans, market forecasts, events or performance are forward-looking statements. These statements involve risks and uncertainties, including, risks associated with the strength or weakness of the business conditions in industries and geographic markets that IPG serves, particularly the effect of downturns in the markets IPG serves; uncertainties and adverse changes in the general economic conditions of markets; IPG's ability to penetrate new applications for fiber lasers and increase market share; the rate of acceptance and penetration of IPG's products; inability to manage risks associated with international customers and operations; foreign currency fluctuations; high levels of fixed costs from IPG's vertical integration; the appropriateness of IPG's manufacturing capacity for the level of demand; competitive factors, including declining average selling prices; the effect of acquisitions and investments; inventory write-downs; intellectual property infringement claims and litigation; interruption in supply of key components; manufacturing risks; government regulations and trade sanctions; and other risks identified in the Company's SEC filings.

Readers are encouraged to refer to the risk factors described in the Company's Annual Report on Form 10-K and its periodic reports filed with the SEC, as applicable. Actual results, events and performance may differ materially. Readers are cautioned not to rely on the forward-looking statements, which speak only as of the date hereof. The Company undertakes no obligation to release publicly the result of any revisions to these forward-looking statements that may be made to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.
PRODUCTS ACROSS ALL INDUSTRIES are made better AND at lower cost with IPG FIBER LASERS
Revolutionizing the Laser Industry

Traditional Lasers

- Carbon Dioxide (CO₂)
- Lamp-Pumped Nd: YAG

- Expensive
- Bulky
- Unreliable
- Difficult to Operate
- Inefficient
- Frequent Maintenance
- Costly Consumables
- Not Scalable

IPG Fiber Lasers

- Ultra High Power Continuous Wave (CW) Lasers
- High Peak Power Lasers with Quasi-CW (QCW) Option
- Adjustable Mode Beam and QCW Lasers
- High Power Nanosecond Pulsed Pico and Femtosecond Pulsed

- Higher Productivity
- Compact
- Reliable
- Robust
- Efficient
- Minimal Maintenance
- No Consumables
- Scalable

© 2021 IPG Photonics
Key Takeaways

1. Global market leader in fiber laser technology across multiple end markets and applications

2. Vertical integration, manufacturing scale and technology driving best-in-class margins

3. Expanding multi-billion dollar addressable market opportunity

4. Industry-leading earnings and cash flow
Industrial Lasers for Materials Processing

- Cutting
- Welding
- Brazing
- Drilling
- Cladding
- Additive MFG
- Marking
- Surface Treatment

![Graph showing the evolution of Industrial Lasers for Materials Processing from 2008 to 2022, with Non-Laser Machine Tools and Laser Systems. The graph highlights the growth in the laser systems market. Source: Oxford Economics, Optech Consulting and IPG Photonics Corporation.](source_image)

© 2021 IPG Photonics
Addressable Market for Laser Sources

$10 billion Market Estimate

Source: Optech Consulting, Strategies Unlimited and IPG Photonics Corporation
Emerging Growth Opportunities

Source: Optech Consulting, Strategies Unlimited and IPG Photonics Corporation
Micromachining for Microelectronic and Electronic Parts

Multi-Axis Workstations for Industrial Parts

Precision Workstations for Medical Parts

Robotic Workcells for Larger Parts
Advantages of IPG Fiber Lasers

- Monolithic Design
- Highest Power
- Record Power Efficiency
- Leading-Edge Beam Quality
- Best-In-Class Product Portfolio
- Industry-Leading Reliability
- Modular / Scalable Architecture
- Faster Processing Speed
- Lower Operating Costs
- Easy Systems Integration
- Smallest Footprint
- Efficient Cooling
Broadest Portfolio of Fiber Lasers

**ANY WAVELENGTH, MODE OF OPERATION, POWER, BEAM PARAMETERS OR APPLICATION**

<table>
<thead>
<tr>
<th>Wave Length</th>
<th>Mode of Operation</th>
<th>Power</th>
<th>Beam Parameters</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-Ray UV</td>
<td>Ultraviolet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Near-Infrared</td>
<td>Diode Lasers</td>
<td>1.5 μm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid-Infrared</td>
<td>Holmium Lasers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Far-IR</td>
<td>Fe:ZnSe/S Lasers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Peak Power (Megawatts)**

- **Peak Power:** 120kW
  - **Applications:** cutting, welding, soldering, drilling, brazing

- **Peak Power:** 23kW
  - **Applications:** cutting, welding, soldering, drilling, brazing, annealing

- **Peak Power:** 1 MW
  - **Applications:** scribing, via drilling and flex cutting, surface preparation, texturing, annealing, marking, drilling and scribing

- **Peak Power:** >150 kW
  - **Applications:** thin-film ablation, low-k and silicon dicing, glass scribing

- **Peak Power:** >10 MW
  - **Applications:** black marking, sapphire and glass scribing, solar thin films, OLED film cutting, scientific

- **Peak Power:** >20 MW
  - **Applications:** thin metal cutting and drilling, ophthalmic surgery, high precision, scientific

**Other Applications**

- **Drilling using a quasi-continuous wave laser**
- **Surface Cleaning using a pulsed laser**
- **Micromachining using an ultrafast laser**
Adjustable Mode Beam (AMB)

- **Broadest range of beam profile tune-ability:**
independent and dynamic control of the size and intensity of the core and ring beams enabling high-quality, high-speed, uniform welding

- **Virtually eliminates welding spatter:**
molten material is deflected towards the bottom of the weld pool which is stabilized with large keyhole openings allowing molten vapor to escape

- **Increases welding quality:**
consistent high weld seam quality, pore and crack free

- **High-speed welding for e-Mobility and automotive applications:**
300 mm/s or higher speeds welding Al battery enclosures and drivetrains

- **Maximizes uptime:**
less rework of parts, drastically reduces sensor contamination

Any combination of a small-spot high intensity bright core and a larger ring-shaped beam
High Peak Power (HPP)

2X Peak Power: Pierce CLEANER – Cut FASTER

- Low Peak Power piercing is SLOW
- SPATTER becomes welded to the surface
- Cutting is DELAYED
- Parts require significant REWORK

HIGH PEAK POWER (HPP) piercing is FAST
- Minimal spatter
- Cutting begins much FASTER
- Drilling holes are CLEAN and CONSISTENT

SHORTER Lead-ins for DENSER Part Nesting
Saves up to 25% on material
Using real-time inline coherent imaging (ICI) the LDD-700 weld monitoring system consolidates weld results into concise and actionable quality data from a single system.

Unmatched Weld Quality Assurance

**Transverse Profile**
Measures the finished weld bead transverse profile

**Finished Weld Surface**
Measured behind melt pool captures bead height

**Keyhole Depth**
Measured inside hole to determine depth in real time

**Workpiece Height**
Measures distance between material and optics

**Seam Profile**
Looks for joint position on the workpiece
IPG Vertical Integration

INTEGRATED SYSTEMS
WELDING | ABLATION
DRILLING | CLADDING
CUTTING | CLEANING

Fab Operations
Semiconductor wafer growth
Diode processing, chip mounting & burn-in

Laser Diode Packaging
Up to 120-watts of power

Optical Preform
Silica based glass
MCVD method
Dope with rare earth ions

DEEP IN TECHNOLOGY
DEEP IN EXPERIENCE

Laser Sources
Coupling | Final burn in | Shipment

Process Heads, Monitoring and Switches
All fiber beam delivery

Modules
Up to 2000 Watts
Diodes: the Power Behind the Fiber Laser

• IPG diodes are the lowest cost in the industry, empowering our Customers with the HIGHEST power fiber lasers for the LOWEST cost per watt
• In 2019 IPG transitioned to a new higher power chip reducing cost per watt and the level of required production to support a given level of revenue
## Financial Performance and Target Model

<table>
<thead>
<tr>
<th>GAAP Metrics</th>
<th>2012-17</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>Long-Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Growth</td>
<td>20% CAGR</td>
<td>4%</td>
<td>(10%)</td>
<td>(9%)</td>
<td>Double Digit Growth</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>55%</td>
<td>55%</td>
<td>46%</td>
<td>45%</td>
<td>45%-50%</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>37%</td>
<td>36%</td>
<td>18%</td>
<td>17%</td>
<td>25%-30%</td>
</tr>
</tbody>
</table>

* Revenue growth and margins can be below long-term targets during periods of macroeconomic weakness that give rise to lower demand for our products.
Strong Cash Returns

Operating Cash Flow

$257 $285

Capital Expenditures

$70 $88

2020 Return on Equity 1
8%

2020 Return on Invested Capital 1 2
15%

1 excludes losses and gains on foreign currency and charges related to Impairment of goodwill and other long-lived assets and an additional inventory charge
2 excludes cash
The IPG Difference

FUTURE GROWTH OPPORTUNITIES

HIGH QUALITY SOLUTIONS

BROADEST PORTFOLIO FIBER LASERS

WORLD LEADER FIBER LASERS

INDUSTRY LEADING MARGINS

STRONG BALANCE SHEET
THANK YOU