

IPG PHOTONICS CORP  
Form 10-K  
February 27, 2012  
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**UNITED STATES SECURITIES AND EXCHANGE COMMISSION**

**Washington, DC 20549**

**Form 10-K**

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES  
EXCHANGE ACT OF 1934**

**For the fiscal year ended December 31, 2011**

**OR**

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES  
EXCHANGE ACT OF 1934**

**Commission File Number: 001-33155**

**IPG PHOTONICS CORPORATION**

*(Exact name of registrant as specified in its charter)*

**Delaware**

*(State or other jurisdiction of*

*incorporation or organization)*

**50 Old Webster Road, Oxford, Massachusetts**

*(Address of principal executive offices)*

**04-3444218**

*(IRS Employer*

*Identification No.)*

**01540**

*(Zip Code)*

**Registrant's telephone number, including area code:**

**(508) 373-1100**

**Securities registered pursuant to Section 12(b) of the Act:**

**Title of Class**

**Name of Exchange on Which Registered**

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**Common Stock, Par Value \$0.0001 per share**

**The NASDAQ Stock Market LLC**

**Securities registered pursuant to Section 12(g) of the Act: None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☒ No ☐

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☐ No ☒

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☐ No ☒

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☐ Accelerated filer ☒ Non-accelerated filer ☐ Smaller reporting company ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☐

The aggregate market value of the registrant's common stock held by non-affiliates of the registrant was approximately \$2.0 billion, calculated based upon the closing price as reported by the Nasdaq Global Market on June 30, 2011. For purposes of this disclosure, shares of common stock held by persons who own 5% or more of the outstanding common stock and shares of common stock held by each officer and director have been excluded in that such persons may be deemed to be affiliates as that term is defined under the Rules and Regulations of the Exchange Act. This determination of affiliate status is not necessarily conclusive.

As of February 23, 2012, 47,680,519 shares of the registrant's common stock were outstanding.

### DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for its 2012 Annual Meeting of Stockholders to be filed pursuant to Regulation 14A within 120 days of the end of the registrant's fiscal year ended December 31, 2011 are incorporated by reference into Part III of this Annual Report on Form 10-K to the extent stated herein.

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*This Annual Report on Form 10-K contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, and we intend that such forward-looking statements be subject to the safe harbors created thereby. For this purpose, any statements contained in this Annual Report on Form 10-K except for historical information are forward-looking statements. Without limiting the generality of the foregoing, words such as may, will, expect, believe, anticipate, intend, estimate, or continue or the negative or other variations thereof or comparable terminology are intended to identify forward-looking statements. In addition, any statements that refer to projections of our future financial performance, trends in our businesses, or other characterizations of future events or circumstances are forward-looking statements.*

*The forward-looking statements included herein are based on current expectations of our management based on available information and involve a number of risks and uncertainties, all of which are difficult or impossible to accurately predict and many of which are beyond our control. As such, our actual results may differ significantly from those expressed in any forward-looking statements. Factors that may cause or contribute to such differences include, but are not limited to, those discussed in more detail in Item 1 (Business) and Item 1A (Risk Factors) of Part I and Item 7 (Management's Discussion and Analysis of Financial Condition and Results of Operations) of Part II of this Annual Report on Form 10-K. Readers should carefully review these risks, as well as the additional risks described in other documents we file from time to time with the Securities and Exchange Commission (the SEC). In light of the significant risks and uncertainties inherent in the forward-looking information included herein, the inclusion of such information should not be regarded as a representation by us or any other person that such results will be achieved, and readers are cautioned not to rely on such forward-looking information. We undertake no obligation to revise the forward-looking statements contained herein to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.*

## **PART I**

### **ITEM 1. BUSINESS**

#### **Our Company**

IPG Photonics Corporation ( IPG, the Company, the Registrant, we, us or our ) is the leading developer and manufacturer of a broad line of high-performance fiber lasers, fiber amplifiers and diode lasers that are used in numerous applications in diverse end markets. Fiber lasers are a type of laser that combines the advantages of semiconductor diodes, such as long life and high efficiency, with the high amplification and precise beam qualities of specialty optical fibers to deliver superior performance, reliability and usability at a generally lower cost compared to competing lasers.

Our diverse lines of low, mid and high-power lasers and amplifiers are used in materials processing, advanced, communications and medical applications. We sell our products globally to original equipment manufacturers, or OEMs, system integrators and end users. We market our products internationally primarily through our direct sales force. We have sales offices in the United States, Germany, Italy, the United Kingdom, France, Spain, Japan, China, South Korea, Singapore, India and Russia.

We design and manufacture most of our key components used in our finished products, from semiconductor diodes to optical fibers and other components, finished fiber lasers and amplifiers. We also manufacture certain complementary products used with our lasers, including optical delivery cables, fiber couplers, beam switches, optical heads and chillers. Our vertically integrated operations allow us to reduce manufacturing costs, ensure access to critical components, rapidly develop and integrate advanced products and protect our proprietary technology.

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We are listed on the Nasdaq Global Market (ticker: IPGP). We began our operations in Russia in 1990 and we were incorporated in Delaware in 1998. Our principal executive offices are located at 50 Old Webster Road, Oxford, Massachusetts 01540, and our telephone number is (508) 373-1100.

## **Industry Background**

### ***Conventional Laser Technologies***

Since the laser was invented over 50 years ago, laser technology has revolutionized a broad range of applications and products in various industries, including general manufacturing, automotive, heavy industry, consumer products, electronics, semiconductors, research, medical and communications. Lasers provide flexible, non-contact and high-speed ways to process and treat various materials. They are incorporated into manufacturing and other systems by OEMs, system integrators and end users. For a wide variety of applications, lasers provide superior performance and a more cost-effective solution than non-laser technologies. Also, they are widely used to transmit large volumes of data in optical communications systems, in various medical applications and in test and measurement systems.

Lasers emit an intense light beam that can be focused on a small area, causing metals and other materials to melt, vaporize or change their character. These properties are utilized in applications requiring very high-power densities, such as cutting, welding, marking, engraving, drilling, cladding, annealing and other materials processing procedures. Lasers are well-suited for imaging and inspection applications, and the ability to confine laser light to narrow wavelengths makes them particularly effective in medical and sensing applications. A laser works by converting electrical energy to optical energy. In a laser, an energy source excites or pumps a lasing medium, which converts the energy from the source into an emission consisting of particles of light, called photons, at a particular wavelength.

Historically, CO<sub>2</sub> gas lasers and crystal lasers have been the two principal laser types used in materials processing and many other applications. They are named for the materials used to create the lasing action. A CO<sub>2</sub> laser produces light by electrically stimulating a gas-filled tube. A CO<sub>2</sub> laser delivers the beam through free space using mirrors to provide direction. A crystal laser uses an arc lamp, pulsed flash lamp, or diode stack or array to optically pump a special crystal. The most common crystal lasers use yttrium aluminum garnet, or YAG, crystals infused with neodymium or ytterbium. Some crystal lasers also use mirrors in free space to deliver the beam or direct the beam through fiber optics.

### ***Introduction of Fiber Lasers***

Fiber lasers use semiconductor diodes as the light source to pump specialty optical fibers, which are infused with rare earth ions. These fibers are called active fibers and are comparable in diameter to a human hair. The laser emission is created within optical fibers and delivered through a flexible optical fiber cable. As a result of their different design and components, fiber lasers are more electrically efficient, productive, reliable, robust and portable, and easier to operate than conventional lasers. In addition, fiber lasers free the end users from fine mechanical adjustments and the high maintenance costs that are typical for conventional lasers.

Although low-power fiber lasers have existed for approximately four decades, their increased recent adoption has been driven primarily by the significant scaling of output powers and the reductions in cost that we achieved over the last two decades, as well as their superior performance compared with conventional lasers. We have successfully increased output power levels by developing improved optical components such as active fibers that have increased their power capacities and improved their performance. Fiber lasers now offer output powers that exceed those of conventional lasers in many categories. Also, semiconductor diodes historically have represented the majority of the cost of fiber lasers. The high cost of diodes meant that fiber lasers could not compete with conventional lasers on price and limited their use to high value-added applications. Over the last several years, however, our semiconductor diodes have become more affordable and reliable due, in part, to

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substantial advancements in semiconductor diode technology and increased production volumes. Also, component prices for fiber lasers have decreased as production volumes have risen, making fiber lasers cost-competitive and generally priced lower than competing lasers. As a result, the average cost per watt of output power has decreased dramatically over the last decade.

Because of these improvements, our fiber lasers can now effectively compete with conventional lasers over a wide range of output powers and applications, and we are developing new applications in which lasers have not been widely used before, for example in natural resource extraction. As a pioneer in the development and commercialization of fiber lasers, we have contributed to many advancements in fiber laser technology and products.

### ***Advantages of Fiber Lasers over Conventional Lasers***

We believe that fiber lasers provide a combination of benefits that include:

*Superior Performance.* Fiber lasers provide high beam quality over the entire power range. In most conventional laser solutions, the beam quality is sensitive to output power, while in fiber lasers, the output beam is virtually non-divergent over a wide power range. A non-divergent beam enables higher levels of precision, increased power densities and the ability to deliver the beam over greater distances to where processing can be completed. The superior beam quality and greater intensity of a fiber laser's beam allow tasks to be accomplished more rapidly, with lower-power units and with greater flexibility than comparable conventional lasers.

*Lower Cost.* Fiber lasers offer strong value to customers because of their generally lower required maintenance costs, high reliability and energy efficiency. Many high-power lasers have lower acquisition costs. Fiber lasers are cheaper to operate due to their lower energy usage, lower required maintenance costs and better processing speeds. Fiber lasers convert electrical energy to optical energy approximately 2 to 3 times more efficiently than diode-pumped YAG lasers, approximately 3 times more efficiently than conventional CO<sub>2</sub> lasers and approximately 15 to 30 times more efficiently than lamp-pumped YAG lasers. Because fiber lasers are much more energy-efficient and place lower levels of thermal stress on their internal components, they have substantially lower cooling requirements compared to those of conventional lasers, which also improves overall energy efficiency. Fiber lasers have lower maintenance costs due to the high performance and long life of our single-emitter diodes, fiber optics and other optical components, which can be used for up to 100,000 hours without replacement. The higher power density of the fiber laser beam also allows for higher processing speeds in many applications, which increases the operating efficiencies and reduces customer costs on a per-part basis.

*Ease of Use.* Many features of fiber lasers make them easier to operate, maintain and integrate into laser-based systems as compared to conventional lasers. There are no moving parts in the fiber laser so they do not require adjustments of internal components.

*Compact Size and Portability.* Fiber lasers are typically smaller and lighter in weight than conventional lasers, saving valuable floor space. While conventional lasers are delicate due to the precise alignment of mirrors, fiber lasers are more durable and able to perform reliably in variable environments both inside and outside a factory setting.

*Choice of Wavelengths and Precise Control of Beam.* The design of fiber lasers generally provides a broad range of wavelength choices, allowing users to select the precise wavelength that best matches their application and materials. Because the beam is delivered through fiber optics, it can be directed to the work area over longer distances without loss of beam quality.

Fiber amplifiers are similar in design to fiber lasers, use many of the same components, such as semiconductor diodes and specialty optical fibers, and provide many of the same advantages in the applications that require amplification.

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Notwithstanding the benefits offered by fiber lasers, there remain applications and processes where conventional laser technologies may provide superior performance with respect to particular features. For example, crystal lasers can provide higher peak power pulses and fiber lasers do not generate the deep ultraviolet light that is used for photolithography in many semiconductor applications. In addition, CO<sub>2</sub> lasers operate at wavelengths that are optimal for use on many non-metallic materials, including plastics.

### **Our Competitive Strengths**

We believe that our key competitive strengths position us to take advantage of opportunities to displace traditional lasers and enable use of fiber lasers in new applications. Our key strengths and competitive advantages include:

*World's Leading Producer of Fiber Laser Technology.* We are the world's largest manufacturer of fiber lasers, which is a technologically advanced laser technology that provides superior electrical efficiency, superior beam quality, lower maintenance cost, longer life, more flexibility and higher productivity than other laser technologies. As a pioneer and technology leader in fiber lasers, we have built leading positions in our various end markets with a large and diverse customer base. Based on our leadership position, we are able to leverage our scale to lower costs for our customers and drive the proliferation of fiber lasers in existing and new applications. Our technology platform is modular, scalable and robust. Our fiber lasers offer higher continuous-wave, or CW, output powers than any other commercial laser in the market. We rely on several key proprietary technologies including pumping technology, manufacturing of fiber to withstand the high output power of our lasers, gain blocks and optics. In addition, we have developed a wide range of advanced proprietary optical components that contribute to the superior performance and reliability of our products.

*Vertically Integrated Development and Manufacturing.* We develop and manufacture all of our key high-volume specialty components, including semiconductor diodes, active fibers, passive fibers and specialty optical components. Our proprietary components are capable of handling the stress of the high optical powers from our products and we believe many of them exceed the performance of commercially available components. We believe that our vertical integration and our high-volume production enhances our ability to meet customer requirements, accelerate development, manage costs, improve component yields and protect our intellectual property, while maintaining high performance and quality standards.

*Breadth and Depth of Expertise.* Since the founding of our company in 1990, our core business has been developing, designing, manufacturing and marketing advanced fiber lasers and amplifiers. We have extensive know-how in materials sciences, which enables us to make our specialty optical fibers, semiconductor diodes and other critical components. We also have expertise in optical, electrical, mechanical and semiconductor engineering, which we use to develop and manufacture our proprietary components, products and systems.

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*Diverse Customer Base, End Markets and Applications.* Our diverse customer base, end markets and applications provide us with many growth opportunities. In 2011, we shipped more than 15,000 units to over 1,700 customers worldwide, with no single customer representing more than 8% of our sales. Our products are used in a variety of applications and end markets worldwide. Our principal end markets and representative applications within those markets include:

### **Materials Processing**

#### **General manufacturing**

Welding, hybrid welding and brazing

Cutting

Marking, engraving and printing

Annealing and hardening

Prototyping, cladding and stripping

#### **Automotive**

High-strength steel cutting and welding

Welding tailored metal blanks, frames, seats and transmissions

Brazing and welding of auto frames

#### **Heavy industry**

Hardening and welding pipes in nuclear, wind turbine and pipeline industries

Welding and cutting thick plates for ships and rail cars

Drilling for natural resources

#### **Aerospace**

Welding titanium air frames

Cladding parts

Percussion drilling of parts

#### **Consumer**

Electronics and credit card marking

Cutting and marking parts for electronics and medical devices

Cutting and welding parts for consumer products and appliances

Stent and pacemaker manufacturing

#### **Semiconductor and electronics**

Computer disk manufacturing and texturing

Photovoltaic manufacturing

Wafer processing, memory repair and trim

### **Advanced Applications**

Obstacle warning and light detecting and ranging

Special projects and research





Materials destruction testing and sensing



Broadband fiber to premises

Broadband cable video signal transport

Metro and long-haul wire-line DWDM transport



Skin rejuvenation and wrinkle removal

General surgery and urology

Dental

*Broad Product Portfolio and Ability to Meet Customer Requirements.* We offer a broad range of standard and custom fiber lasers and amplifiers that operate between 0.5 and 2 microns, enabling deployment of our

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products in a wide variety of applications and end markets. Our vertically integrated manufacturing and broad technology expertise enable us to design, prototype and commence high-volume production of our products rapidly, allowing our customers to meet their time-to-market requirements. Our manufacturing scale allows us to deliver large quantities of product with short lead times.

### **Our Strategy**

Our objective is to maintain and extend our leadership position by pursuing the following key elements of our strategy:

*Leverage Our Technology to Increase Sales.* As fiber lasers become more widely accepted, we plan to leverage our position as the leader in fiber lasers and our applications expertise to develop solutions for customers and increase our position in the broader laser market. Over the last decade, our pulsed fiber lasers have become widely accepted in laser metal marking applications and now have a leading position in those applications. More recently, our high-power CW fiber lasers have been accepted by a growing number of laser cutting system OEMs for two- and three-dimension cutting, one of the largest laser materials processing applications. We plan to continue to leverage our fiber laser technology by pursuing large-scale laser applications where our fiber lasers offer improved customer value and performance. Some of the more significant applications we intend to target include: (i) welding of thick steel with our high-power lasers; (ii) micro-processing and ceramic cutting with our quasi-CW, or QCW, fiber lasers; (iii) processing of non-metals, such as plastics, with our new high-power thulium lasers; and (iv) fine-processing, scribing and marking with our high-power green lasers. We believe that our fiber lasers will continue to displace traditional lasers in many existing applications due to their superior performance and value.

*Target New Applications for Lasers and Expand into Broader Markets.* We intend to expand the use of fiber lasers into additional applications where lasers have not traditionally been used. We believe that the advantages of fiber laser technology can overcome many of the limitations that have hindered the adoption of conventional lasers in broader industrial markets and processes. Fiber lasers enable customers to complete tasks at lower cost, faster and more efficiently than non-laser tools. Using our manufacturing scale and technology innovations, we have been successful in reducing the cost of manufacturing with lasers, making fiber lasers a more attractive manufacturing alternative. We target applications where higher power, portability, efficiency, size and flexible fiber cable delivery can lead customers to adopt fiber lasers instead of non-laser solutions. For example, some of our fiber lasers are displacing traditional welding techniques used in shipbuilding, pipelines and spot welding used in automobile manufacturing. In addition, certain industry trends such as the use of high-strength steel in automotive manufacturing are driving the use of fiber lasers over other manufacturing methods such as stamping. We are working on developing new applications for fiber lasers through internal research and in partnership with industrial institutes and other strategic alliances.

*Expand Our Product Portfolio.* We plan to continue to invest in research and development to add additional wavelengths, power levels and other parameters while also improving beam quality, as well as developing new product lines and laser-based systems. Using our core processes, we plan to expand the wavelengths at which our lasers operate. This includes ultraviolet lasers that can be used for fine-processing applications and mid-infrared lasers that can be used for medical applications, non-metal materials processing and other novel applications. We are working to improve the output power of our green lasers for use in the semiconductor market. We will continue to focus on the development of specialized laser-based systems to meet the specific needs of manufacturing end users whose requirements are not met by standard systems or in certain geographic areas where fiber laser systems are not currently available. We are also improving the flexibility of existing products. For example, we have developed a 2 kW air-cooled laser for use in dry environments and an ultra-compact 1 kW fiber laser for use in applications requiring a small footprint.

*Lower Our Costs Through Manufacturing Improvements and Innovation.* We plan to seek further improvements in component manufacturing processes and device assembly as well as innovation in

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components and device designs to improve performance and decrease the overall cost per watt for our products. As we increase our volumes, we are better able to negotiate price reductions with certain of our suppliers. We intend to leverage our technology and operations expertise to manufacture additional components in order to reduce costs, ensure component quality and ensure supply. In 2011, we redesigned the electronics of certain low and mid-power products to simplify manufacturing, improve quality and decrease costs. We also decreased the cost of packaged diodes. In addition, we manufactured additional components that we had previously outsourced. These initiatives are intended to decrease costs and allow us to further penetrate the market while sustaining profit margins. By reducing the cost per watt of our lasers and maintaining the lower operating cost of our products, we believe that we can increase laser use in applications in which conventional lasers could not be used economically.

*Expand Global Reach to Attract Customers Worldwide.* Our customers' manufacturing operations have expanded in emerging markets and are moving to lower-cost international locations. We have increased and will continue to increase our international sales and service locations to respond to our customers' needs. In 2011, we opened new application development centers as well as sales and service offices in Russia, Asia and Spain. We plan to open a sales and service center in Turkey in 2012 and we are considering increasing our presence in additional countries with large manufacturing infrastructures.

## **Products**

We design and manufacture a broad range of high-performance optical fiber-based lasers and amplifiers. We also make packaged diodes, direct diode laser systems, communications systems and materials processing laser systems that utilize our optical fiber-based products. Many of our products are designed to be used as general-purpose energy or light sources, making them useful in diverse applications and markets.

Our products are based on a common proprietary technology platform using many of the same core components, such as semiconductor diodes and specialty fibers, which we configure to our customers' specifications. Our engineers and scientists work closely with OEMs and end users to develop and customize our products for their needs. Because of our flexible and modular product architecture, we offer products in different configurations according to the desired application, including modules, rack-mounted units and tabletop units. Our engineers and other technical experts work directly with the customer in our application and development centers to develop and configure the optimal solution for each customer's manufacturing requirements. We also make complementary products and components that are used with our high-power products, such as fiber couplers, beam switches, optical beam delivery cables and chillers.

## ***Lasers***

Our laser products include low (1 to 99 watts), medium (100 to 999 watts) and high (1,000 watts and above) output power lasers from 0.5 to 2 microns in wavelength. These lasers either may be CW, QCW or pulsed. We offer several different types of lasers, which are defined by the type of gain medium they use. These are ytterbium, erbium, thulium and Raman. We also sell fiber pigtailed packaged diodes and fiber coupled direct diode laser systems that use semiconductor diodes rather than optical fibers as their gain medium. In addition, we offer high-energy pulsed lasers, multi-wavelength lasers, tunable lasers, single-polarization and single-frequency lasers, as well as other versions of our products.

We believe that we produce the highest-power solid-state lasers in the industry. Our ytterbium fiber lasers reach power levels up of to 50,000 watts. We also make single-mode output ytterbium fiber lasers with power levels of up to 10,000 watts and single-mode output erbium and thulium fiber lasers with power levels of up to 400 watts. Our compact, durable design and integrated fiber optic beam delivery allow us to offer versatile laser energy sources and simple laser integration for complex production processes without compromising quality, speed or power.

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We also sell laser diode chips and packaged laser diodes operating at 9XX nanometers. Recently, we started to sell our own family of high-power optical fiber delivery cables, fiber couplers, beam switches, chillers and other accessories for our fiber lasers.

IPG offers a retrofit service to replace CO<sub>2</sub> and YAG laser sources with fiber lasers in many welding, cutting, drilling and other systems, allowing customers to retain their existing laser systems. IPG also makes active and passive laser materials and tunable lasers in the middle-infrared region.

### ***Amplifiers***

Our amplifier products range from milliwatts to up to 1,500 watts of output power from 1 to 2 microns in wavelength. We offer erbium-doped fiber amplifiers, commonly called EDFAs, Raman amplifiers and integrated communications systems that incorporate our amplifiers. These products are predominantly deployed in broadband networks such as fiber to the home, or FTTH, fiber to the curb, or FTTC, and passive optical networks, or PON, and dense wavelength division multiplexing, or DWDM, networks. We also offer ytterbium and thulium specialty fiber amplifiers and broadband light sources that are used in advanced applications. In addition, we sell single-frequency, linearly polarized and polarization-maintaining versions of our amplifier products. As with our fiber lasers, our fiber amplifiers offer some of the highest output power levels and highest number of optical outputs in the industry. We believe our line of fiber amplifiers offers the best commercially available output power and performance.

### ***Systems***

Besides selling laser sources, we also offer integrated laser systems for particular geographic markets or custom-developed for a customer's manufacturing requirements. IPG makes a welding seam stepper and picker, which is an automated welding tool that integrates with our fiber lasers. The seam stepper and picker can be used in automotive assembly, sheet metal production and other materials processing applications. We also make laser marking and welding systems for certain applications and geographic markets. When requested by customers, we develop specialized laser systems for their unique applications.

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The following table lists our principal product lines that generated a substantial majority of our revenues in 2011, and the principal applications markets in which they are used:

<b>Product Line</b>	<b>Principal Markets</b>	<b>Principal Applications</b>
High-Power Ytterbium CW (1,000 – 20,000 Watts)	Automotive	Cutting
	Heavy Industry	Welding
	General Manufacturing	Annealing
	Natural Resources	Drilling
Mid-Power Ytterbium CW (100 – 999 Watts)		Cladding
	General Manufacturing	Cutting
	Consumer	Welding
	Medical Devices	Scribing
	Printing	Engraving
Pulsed Ytterbium (0.1 to 200 Watts)	Microelectronics	Rapid prototyping
	General Manufacturing	Marking
	Semiconductor	Engraving
	Medical Devices	Scribing
	Consumer	Drilling
	Microelectronics	Coating removal
	Panel Displays	Cutting
Quasi-CW Ytterbium (100 – 900 Watts)	Medical Device	Welding and micro-welding
	Computer Components	Drilling
	Micro-Processing	Cutting
Erbium Amplifiers	Broadband Access	Telephony
	Cable TV	Video on demand
	DWDM	High-speed internet
	Instrumentation	Ultra-long-haul transmission

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Scientific Research

Beam combining

Our products are used in a broad range of applications. The major application is materials processing, comprising approximately 88% of our sales in 2011. Our products also address other applications, including advanced applications (approximately 6% of sales), communications (approximately 4% of sales) and medical (approximately 2% of sales).

### **Our Markets**

#### ***Materials Processing***

The most significant materials processing applications for fiber lasers are cutting and welding, and marking and engraving. Other applications include micro-processing, surface treatment, drilling, soldering, annealing, hardening, rapid prototyping and laser-assisted machining.

*Cutting and Welding Applications.* Laser-based cutting technology has several advantages compared to alternative technologies. Laser cutting is fast, flexible and highly precise and can be used to cut complex contours on flat, tubular or three-dimensional materials. The laser source can be programmed to process many different kinds of materials such as steel, aluminum, brass, copper, glass, ceramic and plastic at various thicknesses. Laser cutting technology is a non-contact process that is easy to integrate into an automated production line and is not subject to wear of the cutting medium. We sell low, mid and high-power ytterbium

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fiber lasers for laser cutting. High electrical efficiency, low maintenance, operating wavelength, high beam quality, wide operating power range, power stability and small spot size are some of the qualities offered by fiber lasers for many cutting applications, which enable customers to cut a variety of materials faster.

Laser welding offers several important advantages compared to conventional welding technology as it is non-contact, easy to automate, provides high process speed and results in narrow-seamed, high-quality welds that generally require little or no post-processing machining. The high beam quality of our fiber lasers coupled with high CW power offer deep penetration welding as well as shallow conduction mode welding. In addition, fiber lasers can be focused to a small spot with extremely long focal lengths, enabling remote welding on the fly, a flexible method of three-dimensional welding in which the laser beam is positioned by a robot-guided scanner. Such remote welding stations equipped with fiber lasers are used for welding door panels and seat backs, the multiple welding of spot and lap welds over the entire auto body frame and welding body-in-white, which is welding pieces of metal with different thicknesses for automotive applications. Typically, mid to high-power ytterbium fiber lasers and long-pulse QCW ytterbium fiber lasers are used in welding applications. Our products are used also for laser brazing of visible joints in automobiles such as tailgates, roof joints and columns. Brazing is a method of connecting sheet metal.

*Marking and Engraving.* With the increasing need for source traceability, component identification and product tracking as a means of reducing product liability and preventing falsification, as well as the demand for modern robotic production systems, manufacturers increasingly demand marking systems capable of applying serialized alphanumeric, graphic or bar code identifications directly onto their manufactured components. Laser engraving is similar to marking but forms deeper grooves in the material. In contrast to conventional acid etching and ink-based technologies, lasers can mark a wide variety of metal and non-metal materials, such as ceramic, glass and plastic surfaces, at high speeds and without contact by changing the surface structure of the material or by engraving. Laser marking systems can be easily integrated into a customer's production process and do not subject the item being marked to mechanical stress. Our ytterbium pulsed fiber lasers are used for these applications.

In the semiconductor industry, lasers typically are used to mark wafers and integrated circuits. In the electronics industry, lasers typically are used to mark electrical components such as contactors, relays and printed circuit boards. Consumer electronic devices such as mobile phones, computers and handheld computers contain many parts that are laser-marked, including keyboards, logos and labels. With the increase in marking speed in the past few years, the cost of laser marking has decreased. In the photovoltaic or solar panel industry, pulsed lasers increasingly are used to remove materials and to scribe, or cut, solar cells. The high beam quality, increased peak output powers, flexible fiber delivery and competitive price of fiber lasers have accelerated the adoption of fiber lasers in these low-power applications.

*Micro-Processing.* The trend toward miniaturization in numerous industries such as consumer electronics, as well as innovations in materials and structures, is driving end users to utilize lasers in processing and fabrication. The ability of lasers to cut, weld, drill, ablate, etch and add materials on a fine scale is enabling new technologies and products across many industries. Our low-power CW and QCW lasers are used to cut medical stents and weld medical batteries. In photovoltaic manufacturing, our lasers etch and perform edge isolation processes. The aerospace industry requires precise manufacturing of engine parts so that cooling is effective and aerospace manufacturers use lasers to conduct percussive drilling. Our mid-power lasers are used in sintering, a laser-based three-dimensional prototyping method.

### ***Advanced Applications***

Our fiber lasers and amplifiers are utilized by commercial firms and by academic and government institutions worldwide for manufacturing of commercial systems and for research in advanced technologies and products. These markets may use specialty products developed by us or commercial versions of our products.

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*Obstacle Warning and Mapping.* Our products are used for obstacle warning and 3-dimensional mapping of earth surfaces.

*Special Projects.* Due to the high power, compactness, performance, portability, ruggedness and electrical efficiency of our fiber lasers and amplifiers, we sell our commercial products for government research and projects. These include materials testing, ordnance destruction, coherent beam combining, directed energy demonstrations, advanced communications and research.

*Research and Development.* Our products are used in a variety of applications for research and development by scientists and industrial researchers, including atom trapping. In addition, our lasers and amplifiers are used to design, test and characterize components and systems in a variety of markets and applications.

*Optical Pumping and Harmonic Generation.* Several types of our lasers are used to optically pump other solid-state lasers and for harmonic generation and parametric converters to support research in sensing, medical and other scientific research in the infrared and visible wavelength domains. Our lasers are used as a power source for these other lasers. Green visible lasers are used to pump titanium sapphire lasers. Visible lasers can be used in optical displays, planetariums and light shows.

*Remote Sensing.* Our products are used in light detection and ranging, also called LIDAR, a laser technique for remote sensing. Optical fiber can be used as a sensor for measuring changes in temperature, pressure and gas concentration in oil wells, atmospheric and pollution measurements and seismic exploration.

### ***Communications***

We design and manufacture a DWDM transport system with varying output power and wavelengths and a full range of fiber amplifiers and Raman pump lasers that enhance data transmission in broadband access and DWDM optical networks. We are leveraging our high-power diode and fiber technology through the qualification and sale of high-value integrated solutions for network suppliers.

*DWDM.* DWDM is a technology that expands the capacity of optical networks, allowing service providers to extend the life of existing fiber networks and reduce operating and capital costs by maximizing bandwidth capacity. We provide a broad range of high-power products for DWDM applications including EDFAs and Raman lasers. We provide a DWDM transport system that offers service providers and private network operators a simple, flexible, optical layer solution scalable from 8 to 40 channels that operates at 10 gigabits per second per channel. We also have introduced a DWDM system capable of wavelengths operating at 40 gigabits per second per channel with optical terminal network, or OTN, multiplexing capabilities.

*Broadband Access.* The delivery to subscribers of television programming and Internet-based information and communication services is converging, driven by advances in IP technology and by changes in the regulatory and competitive environment. Fiber optic lines offer connection speeds of up to 1 gigabit per second, or 100 times faster than digital subscriber lines, or DSL, or cable links. We offer a series of specialty multi-port EDFAs and cable TV nodes and transmitters that support different types of passive optical network architectures, enabling high-speed data, voice, video on demand and high-definition TV. We provide an EDFA that supports up to 64 ports, which allows service providers to support a high number of customers in a small space, reducing overall power consumption and network cost. End users for our products include communications network operators for video wavelength division multiplexing overlay solutions, operators of metro and long-haul networks for DWDM and amplification solutions, as well as cable and multiple system operators for optical amplification solutions.



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### ***Medical***

We sell our commercial fiber and diode lasers to OEMs that incorporate our products into their medical laser systems. CW erbium and thulium fiber lasers from 1 to 100 watts and diode laser systems can be used in various medical and biomedical applications. Aesthetic applications addressed by lasers include skin rejuvenation, skin resurfacing and stretch mark removal. Purchasers use our diode lasers in dental and skin tightening procedures. Surgical applications include prostate surgery. Fiber lasers have the ability to fine-tune optical penetration depth and absorption characteristics and can be used for ear, nose and throat, urology, gynecology and other surgical procedures.

### **Technology**

Our products are based on our proprietary technology platform that we have developed and refined since our formation. The following technologies are key elements in our products.

#### ***Specialty Optical Fibers***

We have extensive expertise in the disciplines and techniques that form the basis for the multi-clad active and passive optical fibers used in our products. Active optical fibers form the laser cavity or gain medium in which lasing or amplification of light occurs in our products. Passive optical fibers deliver the optical energy created in our products. Our active fibers consist of an inner core that is infused with the appropriate rare earth ion, such as ytterbium, erbium or thulium, and outer cores of un-doped glass having different indices of refraction. We believe that our large portfolio of specialty active and passive optical fibers has a number of advantages as compared to other commercially available optical fibers. These advantages include higher concentrations of rare earth ions, fibers that will not degrade at the high power levels over the useful life of the product, high lasing efficiency, ability to achieve single-mode outputs at high powers, ability to withstand high optical energies and temperatures and scalable side-pumping capability.

#### ***Semiconductor Diode Laser Processing and Packaging Technologies***

Another key element of our technology platform is that we use multiple multi-mode, or broad area, single-emitter diodes rather than diode bars or stacks as a pump source. We believe that multi-mode single-emitter diodes are the most efficient and reliable pumping source presently available, surpassing diode bars and stacks in efficiency, brightness and reliability. Single-emitter diodes have substantially reduced cooling requirements and typically have estimated lifetimes of more than 100,000 hours at high operating currents, compared to typical lifetimes of up to 10,000 to 20,000 hours for diode bars.

We developed advanced molecular beam epitaxy techniques to grow alumina indium gallium arsenide wafers for our diodes. This method yields high-quality optoelectronic material for low-defect density and high uniformity of optoelectronic parameters. In addition, we have developed numerous proprietary wafer processes and testing and qualification procedures in order to create a high energy output in a reliable and high-power diode. We package our diodes in hermetically sealed pump modules in which the diodes are combined with an optical fiber output. Characteristics such as the ability of the package to dissipate heat produced by the diode and withstand vibration, shock, high temperature, humidity and other environmental conditions are critical to the reliability and efficiency of the products.

#### ***Specialty Components and Combining Techniques***

We developed a wide range of advanced optical components that are capable of handling high optical power levels and contribute to the superior performance, efficiency and reliability of our products. In addition to fibers and diodes, our optical component portfolio includes fiber gratings, couplers, isolators and combiners. We also developed special methods and expertise in splicing fibers together with low optical energy loss and on-line loss

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testing. We believe that our internal development and manufacturing of key optical components allows us to lower our manufacturing costs and improve product performance.

### *Side Pumping of Fibers and Fiber Block Technologies*

Our technology platform allows us to efficiently combine a large number of multi-mode single-emitter semiconductor diodes with our active optical fibers that are used in all of our products. A key element of this technology is that we pump our fiber lasers through the cladding surrounding the active core. We splice our specialty active optical fibers with other optical components and package them in a sealed box, which we call a fiber block. The fiber blocks are compact and eliminate the risk of contamination or misalignment due to mechanical vibrations and shocks as well as temperature or humidity variations. Our design is scalable and modular, permitting us to make products with high output power by coupling a large number of diodes with fiber blocks, which can be combined in parallel and serially.

### *High-Stress Testing*

We employ high-stress techniques in testing components and final products that help increase reliability and accelerate product development. For example, we test all of our diodes with high current and temperatures to accelerate aging. We also have built a large database of diode test results that allows us to predict the estimated lifetime of our diodes. This testing allows us to eliminate defective diodes prior to further assembly and thus increase reliability.

### **Customers**

We sell our products globally to OEMs, system integrators and end users in a wide range of diverse markets who have the in-house engineering capability to integrate our products into their own systems. We have thousands of customers worldwide. Our primary end market is materials processing, comprised of general manufacturing, automotive, heavy industry, natural resources, aerospace, consumer products and medical device manufacturing, photovoltaic semiconductor and electronics customers. We also sell our products to other end markets, including advanced applications (comprised of commercial companies, universities, research entities and government entities), communications (comprised of system integrators, utilities and municipalities) and medical (comprised of medical laser systems manufacturers and researchers). We believe that our customer and end-market diversification minimizes dependence on any single industry or group of customers.

The following table shows the allocation of our net sales (in thousands) among our principal markets:

	Year Ended December 31,					
	2011		2010		2009	
Materials Processing	\$ 419,443	88.4%	\$ 252,014	84.2%	\$ 140,864	75.8%
Advanced Applications	25,918	5.5%	25,196	8.4%	26,557	14.3%
Communications	20,368	4.3%	14,020	4.7%	10,867	5.8%
Medical	8,753	1.8%	8,026	2.7%	7,606	4.1%
Total	\$ 474,482	100.0%	\$ 299,256	100.0%	\$ 185,894	100.0%

We sell to a broad and diverse customer base. Sales to our largest customer accounted for 8%, 7% and 3% of our net sales in 2011, 2010 and 2009, respectively.

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Our net sales (in thousands) were derived from customers in the following geographic regions:

	Year Ended December 31,					
	2011		2010		2009	
North America(1)	\$ 86,181	18.2%	\$ 61,706	20.6%	\$ 45,668	24.6%
Europe:						
Germany	76,279	16.1%	46,282	15.5%	28,242	15.2%
Other including Eastern Europe/CIS	103,305	21.8%	66,174	22.1%	42,171	22.7%
Asia and Australia:						
Japan	63,261	13.3%	35,878	12.0%	29,937	16.1%
China	104,560	22.0%	57,762	19.3%	20,942	11.3%
Other	36,937	7.8%	30,614	10.2%	15,221	8.2%
Rest of World	3,959	0.8%	840	0.3%	3,713	2.0%
Total	\$ 474,482	100.0%	\$ 299,256	100.0%	\$ 185,894	100.0%

(1) The substantial majority of sales in North America are to customers in the United States.

### Backlog

At December 31, 2011, our backlog of orders, generally scheduled for shipment within one year, was approximately \$207.0 million compared to \$171.6 million at December 31, 2010. At December 31, 2011, our backlog included \$124.1 million of orders with firm shipment dates and \$82.9 million of frame agreements that we expect to ship within one year, compared to \$98.6 million of orders with firm shipment dates and \$73.0 million of frame agreements at December 31, 2010. Frame agreements generally are agreements without committed shipment dates. Orders used to compute backlog are generally cancelable without substantial penalties. Historically, the rate of cancellation experienced by us has not been significant. We manage the risk of cancellation by establishing the right to charge a cancellation fee that generally covers a portion of the purchase price, any materials and development costs incurred prior to the order being cancelled. Our ability to enforce this right depends on many factors including, but not limited to, the customer's requested length of delay, the number of other outstanding orders with the customer and our ability to quickly convert the cancelled order to another sale.

We anticipate shipping a substantial majority of the present backlog during fiscal year 2012. However, our backlog at any given date is not necessarily indicative of actual sales for any future period.

### Sales, Marketing and Support

We market our products internationally primarily through our direct sales force. Our direct sales force sells to end users, OEMs and systems integrators. Once our fiber laser products are designed into an OEM system, the OEM sales force markets the product, allowing us to take advantage of numerous OEM sales forces, each typically having several salespersons in locations other than where our sales offices are located. We have sales offices in the United States, Germany, Russia, Italy, France, Spain, China, Japan, South Korea, India, the United Kingdom, and Singapore. We have materials processing application centers in the United States, Germany, Russia, China, Italy, Japan and South Korea, which we use to demonstrate our products and develop new applications. Our application centers are fundamental to developing new laser applications for customers and assisting them in integrating lasers into their production processes.

To a lesser extent, we market through agreements with independent sales representatives and distributors. Our independent sales representatives and distributors are located in the United States, Russia, Japan, Brazil and Mexico. Sales to foreign customers are generally priced in local currencies and are therefore subject to currency exchange fluctuations.

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We maintain a customer support and field service staff in our major markets. We work closely with customers and independent representatives to service equipment and to train customers to use our products. We may expand our support and field service, particularly in locations where customer concentration or volume requires local service capabilities. We repair products at our facilities or at customer sites.

We typically provide one to three-year parts and service warranties on our lasers and amplifiers. Most of our sales offices provide support to customers in their respective geographic areas. Warranty reserves have generally been sufficient to cover product warranty repair and replacement costs.

## **Manufacturing**

Vertical integration is one of our core business strategies through which we control our proprietary processes and technologies as well as the supply of key components and assemblies. We believe that our vertically integrated business model gives us the following advantages:

maintaining a technological lead over competitors;

reducing component and final product costs compared to market prices available to competitors;

ensuring access to critical components, enabling us to better meet customer demands;

controlling performance, quality and consistency; and

enabling rapid development and deployment of new products and technologies.

Our vertically integrated manufacturing operations include optical preform making, specialty fiber drawing, semiconductor wafer growth, diode processing and packaging, specialty optical component manufacturing, fiber block and fiber module assembly for different power units, software and electronics development, final assembly, as well as testing, tool manufacturing and automated production systems. Over the last several years, we added additional production capabilities, including three multi-wafer growth reactors, diode test stations, fiber pre-form and fiber drawing equipment and low, mid and high-power production and testing, in order to increase our capacity as well as reduce the risks associated with our production process.

We operate our own semiconductor foundry for the production of the multi-mode single-emitter diodes. Diodes are the pumps that are used as the light source in each device we make. We also process, package and extensively test all of our diodes. Because pump diodes represent a significant component cost of the final laser or amplifier, we have chosen to develop internal manufacturing capabilities for diodes. As a result of our high-volume production levels of pump diodes, proprietary processes and use of limited chip designs, we have been able to increase yields, lower component costs and assure high quality. We also design, manufacture and optimize many of our own test instruments, diode test racks, robotic and automated assembly tools and machines.

We developed these proprietary components, manufacturing tools, equipment and techniques over many years in an effort to address the major issues that had been inhibiting the development of fiber laser technology and to provide products that differentiate us from our competitors. We believe that the proprietary components, manufacturing tools, equipment, techniques and software utilized in all of our product lines provide extensive barriers to potential competitors. Generally, we do not sell our proprietary components to third parties. Using our technology platform, we configure standard products based upon each customer's specifications. Through our vertically integrated manufacturing operations, we can develop, test and produce new products and configurations with higher performance and reliability and in less time than by working with external vendors. We have developed proprietary testing methodologies that allow us to develop higher power components and products in short periods of time, enable us to introduce products to the market more quickly, capitalize on new opportunities and provide superior service to our customers.

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Our in-house manufacturing generally includes only those operations and components that are critical to the protection of our intellectual property, the reduction of our costs or the achievement of performance and quality standards. We purchase from vendors common and specialized mechanical, electrical and optical parts and raw materials, such as printed circuit boards, wafer substrates and various optical components.

### **Research and Development**

We have extensive research and development experience in laser materials, fiber and optoelectronic components. We have assembled a team of scientists and engineers with specialized experience and extensive knowledge in fiber lasers and amplifiers, critical components, testing and manufacturing process design.

We focus our research and development efforts on designing and introducing new and improved standard and customized products and the mass production of components for our products. In addition to our cladding-pumped specialty fiber platform, we have core competencies in high-power multi-mode semiconductor laser diodes, diode packaging, specialty active and passive optical fibers, high-performance optical components, fiber gain blocks and fiber modules, as well as coupling and combining techniques and high-stress test methods. Our research and development efforts are aided by our vertical integration and our proprietary high-stress testing techniques that result in accelerated development cycles. The strategy of developing our proprietary components has allowed us to leverage our optical experience and large volume requirements to lower the cost of our products. We concentrate our research and development efforts on advancements in performance as well as capacity to hold and produce higher optical power levels.

Our research and development efforts are also directed at expanding our product line by increasing power levels, improving beam quality and electrical efficiency, decreasing the size of our products and lowering the cost per watt. We also are engaged in research projects to expand the spectral range of products that we offer, including the development of a mid-IR line of lasers from 2 to 5 microns, with a hybrid fiber and crystal laser design. Our team of experienced scientists and engineers works closely with many of our customers to develop and introduce custom products that address specific applications and performance requirements.

We incurred research and development costs of approximately \$25.4 million in 2011, \$19.2 million in 2010 and \$18.5 million in 2009. We plan to continue our commitment to research and development and to introduce new products, systems and complementary products that would allow us to maintain our competitive position. See Item 7, Management's Discussion and Analysis of Financial Condition of Results of Operations. We may seek to acquire additional specialized research and development capabilities to expand our research efforts.

### **Intellectual Property**

We rely on a combination of patent, copyright, trademark and trade secret laws and contractual non-disclosure obligations to protect our intellectual property rights. The principal focus of our patenting activities is laser and amplifier designs and laser systems. As of February 22, 2012, we owned approximately 136 U.S. and international patents with expiration dates from 2012 through 2029 and approximately 145 pending U.S. and international patent applications. We pursue patent protection in our major markets. In February 2008, we purchased a portfolio of photonics patents from British Telecommunications plc in the fields of optical fiber lasers and amplifiers, semiconductor devices, integrated optics, fiber gratings, high-speed systems and optical networking. Intellectual property rights, including those that we own, those that we license and those of others, involve significant risks. See Item 1A, Risk Factors-Our Inability to Protect Our Intellectual Property and Proprietary Technologies Could Result in the Unauthorized Use of Our Technologies by Third Parties, Hurt Our Competitive Position and Adversely Affect Our Operating Results. We also rely on trade secrets, technical know-how and other unpatented proprietary information relating to our product development and manufacturing activities.

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### **Competition**

Our markets are competitive and characterized by rapidly changing technology and continuously evolving customer requirements. We believe that the primary competitive factors in our markets are:

product performance and reliability;

quality and service support;

price and value to the customer;

ability to manufacture and deliver products on a timely basis;

ability to achieve qualification for and integration into OEM systems;

ability to meet customer specifications; and

ability to respond quickly to market demand and technological developments.

We believe we compete favorably with respect to these criteria. In the materials processing market, the competition is fragmented and includes a large number of competitors. We compete with makers of high-power CO<sub>2</sub> and solid-state lasers, including Fanuc, Rofin-Sinar Technologies, Inc. and Trumpf GmbH + Co. KG, and makers of mid and low-power CO<sub>2</sub> and solid-state lasers such as Coherent, Inc., GSI Group Inc., Newport Corporation and Rofin-Sinar Technologies, Inc. We also compete with fiber laser makers, including Rofin-Sinar Technologies, Inc., Trumpf GmbH + Co. KG, GSI Group Inc., Coherent Inc., Hypertherm, Inc., Newport Corporation, The Furukawa Electric Co., Ltd., Keopsys SA, Mitsubishi Cable Industries, Ltd., Miyachi Unitek Corporation, Raycus Fiber Laser Technologies Co. Ltd. and JDS Uniphase Corporation. We believe that we compete favorably with other makers of fiber lasers on price and value to customer, reliability, service and performance. Several competitors recently introduced fiber lasers or announced plans to introduce fiber lasers that compete with our high-power products. We also compete in the materials processing, advanced and medical applications markets with end users that produce their own solid-state and gas lasers as well as with manufacturers of non-laser methods and tools, such as resistance welding and cutting dies in the materials processing market and scalpels in the medical market.

In the communications market, our principal competitors are manufacturers of mid-power fiber amplifiers and DWDM systems, such as Oclaro Inc., the Scientific-Atlanta division of Cisco Systems, Inc. (Scientific-Atlanta), Emcore Corporation, JDS Uniphase Corporation, Huawei Corporation and MPB Communications Inc. We believe that we compete favorably with other fiber amplifier producers with respect to price, product performance and output power.

Many of our competitors are larger than we are and have substantially greater financial, managerial and technical resources, more extensive distribution and service networks, greater sales and marketing capacity, and larger installed customer bases than we do.

### **Employees**

As of December 31, 2011, we had approximately 2,137 full-time employees, including 184 in research and development, 1,646 in manufacturing operations, 122 in sales, service and marketing, and 185 in general and administrative functions. Of our total full-time employees at our principal facilities, approximately 659 were in the United States, 658 were in Germany, 608 were in Russia and 82 were in China. We have never experienced a work stoppage and none of our employees is subject to a collective bargaining agreement. We believe that our current relations with our employees are good.



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### **Government Regulation**

#### ***Regulatory Compliance***

The majority of our laser and amplifier products sold in the United States are classified as Class IV Laser Products under the applicable rules and regulations of the Center for Devices and Radiological Health, or CDRH, of the U.S. Food and Drug Administration. The same classification system is applied in the European markets. Safety rules are formulated with Deutsche Industrie Norm (i.e., German Industrial Standards) or ISO standards, which are internationally harmonized.

CDRH regulations generally require a self-certification procedure pursuant to which a manufacturer must submit a filing to the CDRH with respect to each product incorporating a laser device, make periodic reports of sales and purchases and comply with product labeling standards, product safety and design features and informational requirements. Our product applications can result in injury to human tissue if directed at an individual or otherwise misused. The CDRH is empowered to seek fines and other remedies for violations of their requirements. We believe that our products are in material compliance with applicable laws and regulations relating to the manufacture of laser devices.

#### ***Environmental Regulation***

Our operations are subject to various federal, state, local and international laws governing the environment, including those relating to the storage, use, discharge, disposal, product composition and labeling of, and human exposure to, hazardous and toxic materials. We believe that our operations are in material compliance with applicable environmental protection laws and regulations.

Although we believe that our safety procedures for using, handling, storing and disposing of such materials comply with the standards required by federal and state laws and regulations, we cannot completely eliminate the risk of accidental contamination or injury from these materials. In the event of such an accident involving such materials, we could be liable for damages and such liability could exceed the amount of our liability insurance coverage and the resources of our business.

### **Availability of Reports**

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to such reports are available free of charge on our web site at [www.ipgphotonics.com](http://www.ipgphotonics.com) as soon as reasonably practicable after such reports are electronically filed with, or furnished to, the Securities and Exchange Commission ([www.sec.gov](http://www.sec.gov)). We will also provide electronic or paper copies of such reports free of charge, upon request made to our Corporate Secretary.

### **ITEM 1A. RISK FACTORS**

*The factors described below are the principal risks that could materially adversely affect our operating results and financial condition. Other factors may exist that we do not consider significant based on information that is currently available. In addition, new risks may emerge at any time, and we cannot predict those risks or estimate the extent to which they may affect us.*

***Downturns in the geographic areas and markets we serve, particularly materials processing, could have a material adverse effect on our sales and profitability.***

Our business depends substantially upon capital expenditures by our customers, particularly by manufacturers in the materials processing market, which includes general manufacturing, automotive, heavy industry, aerospace, consumer, semiconductor and electronics. Approximately 88.4% of our revenues in 2011 were from customers in the materials processing market. Although applications in this market are broad, sales for



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these applications are cyclical and have historically experienced sudden and severe downturns and periods of oversupply, resulting in significantly reduced demand for capital equipment, including the products that we manufacture and market. For example, in 2009, our sales decreased by 25% in the materials processing market as a result of the global economic recession. For the foreseeable future, our operations will continue to depend upon capital expenditures by customers in this market, which, in turn, depend upon the demand for their products or services. Our sales have materially benefited in 2010 and 2011 from our increased sales of mid- and high-power lasers to end users in China. A slowing of economic growth, or a recession in China, would slow our growth rates or may result in a decrease in our sales. Decreased demand for products and services from customers for materials processing applications during an economic downturn or a decrease in purchases from end users in China may lead to decreased demand for our products, which would reduce our sales and margins. We may not be able to respond by decreasing our expenses quickly enough, due in part, to our fixed overhead structure related to our vertically integrated operations and our commitments to continuing investment in research and development.

***Our business is impacted by global economic conditions and macroeconomic downturns can disrupt our business and sales and may harm our financial condition.***

We have customers in many geographic areas. If a global economic downturn were to occur, we believe many of our customers would significantly decrease their capital expenditures to cut their costs. Accordingly, we believe our ability to generate sales is particularly sensitive to global and regional macroeconomic conditions. Adverse changes have occurred and may occur in the future as a result of declining or flat global or regional economic conditions, fluctuations in currency and commodity prices, wavering confidence, capital expenditure reductions, unemployment, declines in stock markets, contraction of credit availability, declines in real estate values, or other factors affecting economic conditions generally. These changes may negatively affect the sales of our lasers and amplifiers, increase exposure to losses from bad debts, increase the cost and decrease the availability of financing, increase the risk of loss on investments, or increase costs associated with manufacturing and distributing products. A prolonged economic downturn could have a material adverse effect on our business, financial condition and results of operations.

***Uncertainty in the general economic conditions of markets in which we participate negatively affect our ability to estimate future income and expenditures.***

Current and future conditions in the economy have an inherent degree of uncertainty. As a result, it is difficult to estimate the level of growth or contraction for the economy as a whole. It is even more difficult to estimate growth or contraction in various parts, sectors and regions of the economy, including the materials processing, telecommunications, advanced and medical markets and applications in which we participate. Because all components of our budgeting and forecasting are dependent upon estimates of growth or contraction in the markets and applications we serve and demand for our products, the prevailing economic uncertainties render estimates of future income and expenditures very difficult to make.

***Our sales depend upon our ability to penetrate new applications for fiber lasers and increase our market share in existing applications.***

Our level of sales will depend on our ability to generate sales of fiber lasers in applications where conventional lasers, such as CO<sub>2</sub> and YAG lasers, have been used or in new and developing markets and applications for lasers where they have not been used previously. To date, a significant portion of our revenue growth has been derived from sales of fiber lasers primarily for applications where CO<sub>2</sub> and YAG lasers historically have been used. In order to maintain or increase market demand for our fiber laser products, we will need to devote substantial resources to:

demonstrate the effectiveness of fiber lasers in new applications;

increase our direct and indirect sales efforts;

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effectively service and support our installed product base on a global basis;

extend our product line to address new applications;

develop new applications for our products; and

continue to reduce our manufacturing costs and enhance our competitive position.

Fiber lasers are relatively new when compared to conventional lasers and our future success depends on the development and broader acceptance of fiber lasers. Potential customers may be reluctant to adopt fiber lasers as an alternative to conventional lasers, such as CO<sub>2</sub> and YAG, and non-laser methods, such as mechanical tools. Such potential customers may have substantial investments and know-how related to their existing laser and non-laser technologies, and may perceive risks relating to the reliability, quality, usefulness and cost-effectiveness of fiber lasers when compared to other laser or non-laser technologies available in the market. If we are unable to implement our strategy to develop new applications for our products, our revenues, operating results and financial condition could be adversely affected. We cannot assure you that we will be able to successfully implement our business strategy. In addition, our newly developed or enhanced products may not achieve market acceptance or may be rendered obsolete or less competitive by the introduction of new products by other companies.

***Our vertically integrated business results in high levels of fixed costs and inventory levels that may adversely impact our gross profits and our operating results in the event that demand for our products declines or we maintain excess inventory levels.***

We have a high fixed cost base due to our vertically integrated business model, including the fact that approximately 77% of our 2,137 employees as of December 31, 2011 were employed in our manufacturing operations. We may not adjust these fixed costs quickly enough to adapt to rapidly changing market conditions. Our gross profit, in absolute dollars and as a percentage of net sales, is impacted by our sales volume, the corresponding absorption of fixed manufacturing overhead expenses and manufacturing yields. In addition, because we are a vertically integrated manufacturer and design and manufacture our key specialty components, insufficient demand for our products may subject us to the risks of high inventory carrying costs and increased inventory obsolescence. If our capacity and production levels are not properly sized in relation to expected demand, we may need to record write-downs for excess or obsolete inventory. Because we are vertically integrated, the rate at which we turn inventory has historically been low when compared to our cost of sales. We do not expect this to change significantly in the future and believe that we will have to maintain a relatively high level of inventory compared to our cost of sales. As a result, we continue to expect to have a significant amount of working capital invested in inventory. Changes in our level of inventory lead to an increase in cash generated from our operations when inventory is sold or a decrease in cash generated from our operations at times when the amount of inventory increases.

***The markets for our products are highly competitive and increased competition could increase our costs, reduce our sales or cause us to lose market share.***

The industries in which we operate are characterized by significant price and technological competition. Our fiber laser and amplifier products compete with conventional laser technologies and amplifier products offered by several well-established companies, some of which are larger and have substantially greater financial, managerial and technical resources, more extensive distribution and service networks, greater sales and marketing capacity, and larger installed customer bases than we do. Also, we compete with widely used non-laser production methods, such as resistance welding. We believe that competition will be particularly intense from makers of CO<sub>2</sub>, YAG, disc and direct diode lasers, as these makers of laser solutions may lower prices to maintain or increase current market share and have committed significant research and development resources to pursue opportunities related to these technologies.

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In addition, we face competition from a growing number of fiber laser makers, including RoFin-Sinar Technologies, Inc., Trumpf GmbH + Co. KG, GSI Group Inc., Coherent Inc., Hypertherm, Inc., Newport Corporation, The Furukawa Electric Co., Ltd., Keopsys SA, Mitsubishi Cable Industries, Ltd., Miyachi Unitek Corporation, Raycus Fiber Laser Technologies Co. Ltd. and JDS Uniphase Corporation. Competition from other fiber laser makers has increased and some have introduced fiber lasers or announced plans to introduce fiber lasers that compete with our products. We may not be able to successfully differentiate our current and proposed products from our competitors' products and current or prospective customers may not consider our products to be superior to competitors' products. To maintain our competitive position, we believe that we will be required to continue a high level of investment in research and development, application development and customer service and support, and to react to market pricing conditions. We may not have sufficient resources to continue to make these investments and we may not be able to make the technological advances or price adjustments necessary to maintain our competitive position. We also compete against our OEM customers' internal production of competitive laser technologies.

***Our manufacturing capacity and operations may not be appropriate for future levels of demand and may adversely affect our gross margins.***

In response to an increase in demand for our fiber lasers, we added substantial manufacturing capacity at our facilities in the United States, Germany and Russia in the period from 2005 to 2008. Beginning in 2010, we entered another phase of expanding capacity at those manufacturing facilities. We continue to expand our capacity further in Russia. A significant portion of our manufacturing facilities and production equipment, such as our semiconductor production and processing equipment, diode packaging equipment and diode burn-in stations, are special-purpose in nature and cannot be adapted easily to make other products. If the demand for fiber lasers or amplifiers does not increase or decreases from current levels, we may have significant excess manufacturing capacity and under-absorption of our fixed costs, which could in turn adversely affect our gross margins and profitability.

To maintain our competitive position as the leading developer and manufacturer of fiber lasers and to meet anticipated demand for our products, we invested significantly in the expansion of our manufacturing and operations throughout the world and will do so in the future. We incurred in the past and will incur significant costs associated with the acquisition, build-out and preparation of our facilities. We had capital expenditures of \$53.0 million and \$28.4 million in 2011 and 2010, respectively, and we expect to incur approximately \$55 million to \$60 million in capital expenditures, excluding acquisitions, in 2012. In connection with these projects, we may incur cost overruns, construction delays, labor difficulties or regulatory issues which could cause our capital expenditures to be higher than what we currently anticipate, possibly by a material amount, which would in turn adversely impact our operating results. Moreover, we may experience higher costs due to yield loss, production inefficiencies and equipment problems until any operational issues associated with the opening of new manufacturing facilities are resolved.

***The laser and amplifier industries are experiencing declining average selling prices, which could cause our gross margins to decline and harm our operating results.***

Products in the laser and amplifier industries generally, and our products specifically, are experiencing and may in the future continue to experience a decline in average selling prices, or ASPs, as a result of new product and technology introductions, increased competition and price pressures from significant customers. If the ASPs of our products decline further and we are unable to increase our unit volumes, introduce new or enhanced products with higher margins or reduce manufacturing costs to offset anticipated decreases in the prices of our existing products, our operating results may be adversely affected. In addition, because of our significant fixed costs, we are limited in our ability to reduce total costs quickly in response to any revenue shortfalls. Because of these factors, we have experienced and we may experience in the future material adverse fluctuations in our operating results on a quarterly or annual basis if the ASPs of our products continue to decline.

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***Because we lack long-term purchase commitments from our customers, our sales can be difficult to predict, which could lead to excess or obsolete inventory and adversely affect our operating results.***

We generally do not enter into long-term agreements with our customers obligating them to purchase our fiber lasers or amplifiers. Our business is characterized by short-term purchase orders and shipment schedules and, in some cases, orders may be cancelled or delayed without significant penalty. As a result, it is difficult to forecast our revenues and to determine the appropriate levels of inventory required to meet future demand. In addition, due to the absence of long-term volume purchase agreements, we forecast our revenues and plan our production and inventory levels based upon the demand forecasts of our OEM customers, end users and distributors, which are highly unpredictable and can fluctuate substantially. This could lead to increased inventory levels and increased carrying costs and risk of excess or obsolete inventory due to unanticipated reductions in purchases by our customers. In this regard, we recorded provisions for inventory totaling \$6.1 million, \$2.7 million and \$5.3 million in 2011, 2010 and 2009, respectively. These provisions were recorded as a result of changes in market prices of certain components, the value of those inventories that was realizable through finished product sales and uncertainties related to the recoverability of the value of inventories due to technological changes and excess quantities. If our OEM customers, end users or distributors fail to accurately forecast the demand for our products, fail to accurately forecast the timing of such demand, or are unable to consistently negotiate acceptable purchase order terms with customers, our results of operations may be adversely affected.

***We may experience lower than expected manufacturing yields, which would adversely affect our gross margins.***

The manufacture of semiconductor diodes and the packaging of them is a highly complex process. Manufacturers often encounter difficulties in achieving acceptable product yields from diode and packaging operations. We have from time to time experienced lower than anticipated manufacturing yields for our diodes and packaged diodes. This occurs during the production of new designs and the installation and start-up of new process technologies. If we do not achieve planned yields, our product costs could increase resulting in lower gross margins, and key component availability would decrease.

***We are subject to litigation alleging that we are infringing third-party intellectual property rights. Intellectual property claims could result in costly litigation and harm our business.***

In recent years, there has been significant litigation involving intellectual property rights in many technology-based industries, including our own. We face risks and uncertainties in connection with such litigation, including the risk that patents issued to others may harm our ability to do business; that there could be existing patents of which we are unaware that could be pertinent to our business; and that it is not possible for us to know whether there are patent applications pending that our products might infringe upon, since patent applications often are not disclosed until a patent is issued or published. Moreover, the frequency with which new patents are granted and the diversity of jurisdictions in which they are granted make it impractical and expensive for us to monitor all patents that may be relevant to our business.

From time to time, we have been notified of allegations and claims that we may be infringing patents or intellectual property rights owned by third parties. In 2007, we settled two patent infringement lawsuits filed against us and in 2010 we settled another patent infringement lawsuit filed against us.

In November 2006, IMRA America, Inc. filed an action against us alleging that certain products we produce infringe one U.S. patent allegedly owned by IMRA America. IMRA America alleged willful infringement and sought damages, including for alleged lost profits, of at least \$26 million through June 2011, treble damages, attorneys' fees and injunctive relief. IMRA America also alleged inducement of infringement and contributory infringement. We filed an answer in which we denied infringement and also filed declaratory judgment counterclaims based on this and other defenses. This lawsuit concerns products made, used, sold or offered for

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sale in or imported into the United States and therefore the lawsuit affects products that account for a substantial portion of our revenues. This lawsuit does not concern products, or revenues that are derived from products, that are not made, used, sold or offered for sale in or imported into the United States. In June 2008, the U.S. Patent and Trademark Office, or USPTO, ordered re-examination of the patent claims asserted by IMRA America against the Company. In July 2009, the USPTO confirmed the patentability of all of the claims in the IMRA America patent over the prior art cited in the re-examination, as well as of new claims added during the re-examination. In August 2009, we submitted an additional re-examination request, which was denied by the USPTO. The USPTO issued a re-examination certificate in October 2009. The U.S. District Court for the Eastern District of Michigan adopted the claim construction of IMRA America on one of the four claim terms, but did not decide the others. In March 2011, the District Court granted our motion for partial summary judgment of no marking or no statutory notice, which had the effect of precluding IMRA America from seeking damages for any alleged infringing products sold prior to November 16, 2006, the date the lawsuit was filed, with the exception of four particular alleged infringing products, as to which IMRA America is precluded from seeking damages for sales prior to August 6, 2006. The U.S. District Court denied our motions for summary judgment on non-infringement, invalidity, no willful infringement and laches, and granted IMRA America's motions for summary judgment on no invalidity for derivation and no equitable misconduct. The trial occurred in September and October 2011, and the jury returned a unanimous verdict that we did not infringe IMRA America's patent. IMRA America has filed post-trial motions seeking to set aside the jury verdict. IMRA America also has the right to appeal the verdict. IMRA America has also informed us that it has patents and applications in the United States and in foreign jurisdictions directed to fiber lasers and fiber amplifiers, but has not asserted them against us. The Company has filed oppositions in Japan and Germany to two patents owned by IMRA America. In Japan, the patent office invalidated two claims and maintained 49 claims of the IMRA America patent, and we are appealing the decision. The German opposition is pending and there has been no decision.

There can be no assurance that we will be able to dispose without a material effect any post-trial motions or appeals made in the litigation with IMRA America, or claims or other allegations made or asserted in the future. The outcome of any litigation is uncertain. Even if we ultimately are successful on the merits of any such litigation or re-examination, legal and administrative proceedings related to intellectual property are typically expensive and time-consuming, generate negative publicity and divert financial and managerial resources. Some litigants may have greater financial resources than we have and may be able to sustain the costs of complex intellectual property litigation more easily than we can.

If we do not prevail in any intellectual property litigation brought against us, including the IMRA America litigation, it could affect our ability to sell our products and materially harm our business, financial condition and results of operations. These developments could adversely affect our ability to compete for customers and increase our revenues. Plaintiffs in intellectual property cases often seek, and sometimes obtain, injunctive relief. Intellectual property litigation commenced against us could force us to take actions that could be harmful to our business, competitive position, results of operations and financial condition, including the following:

- stop selling our products or using the technology that contains the allegedly infringing intellectual property;

- pay actual monetary damages, royalties, lost profits or increased damages and the plaintiff's attorneys' fees, which individually or in the aggregate may be substantial; and

- attempt to obtain a license to use the relevant intellectual property, which may not be available on reasonable terms or at all.

In addition, intellectual property lawsuits can be brought by third parties against OEMs and end users that incorporate our products into their systems or processes. In some cases, we indemnify OEMs against third-party infringement claims relating to our products and we often make representations affirming, among other things, that our products do not infringe the intellectual property rights of others. As a result, we may incur liabilities in connection with lawsuits against our customers. Any such lawsuits, whether or not they have merit, could be time-consuming to defend, damage our reputation or result in substantial and unanticipated costs.

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***Our inability to protect our intellectual property and proprietary technologies could result in the unauthorized use of our technologies by third parties, hurt our competitive position and adversely affect our operating results.***

We rely on patents, trade secret laws, contractual agreements, technical know-how and other unpatented proprietary information to protect our products, product development and manufacturing activities from unauthorized copying by third parties. Although we acquired a patent portfolio in 2008 and started a program in 2007 to increase the number of patent applications we file, our patents do not cover all of our technologies, systems, products and product components and may not prevent third parties from unauthorized copying of our technologies, products and product components. We seek to protect our proprietary technology under laws affording protection for trade secrets. We also seek to protect our trade secrets and proprietary information, in part, by requiring employees to enter into agreements providing for the maintenance of confidentiality and the assignment of rights to inventions made by them while employed by us. We have significant international operations and we are subject to foreign laws which differ in many respects from U.S. laws. Policing unauthorized use of our trade secret technologies throughout the world and proving misappropriation of our technologies are particularly difficult, especially due to the number of our employees and operations in numerous foreign countries. The steps that we take to acquire ownership of our employees' inventions and trade secrets in foreign countries may not have been effective under all such local laws, which could expose us to potential claims or the inability to protect intellectual property developed by our employees. Furthermore, any changes in, or unexpected interpretations of, the trade secret and other intellectual property laws in any country in which we operate may adversely affect our ability to enforce our trade secret and intellectual property positions. Costly and time-consuming litigation could be necessary to determine the scope of our confidential information and trade secret protection. We also enter into confidentiality agreements with our consultants and other suppliers to protect our confidential information that we deliver to them. However, there can be no assurance that our confidentiality agreements will not be breached, that we will be able to effectively enforce them or that we will have adequate remedies for any breach.

Given our reliance on trade secret laws, others may independently develop similar or alternative technologies or duplicate our technologies and commercialize discoveries that we have made. Therefore, our intellectual property efforts may be insufficient to maintain our competitive advantage or to stop other parties from commercializing similar products or technologies. Many countries outside of the United States afford little or no protection to trade secrets and other intellectual property rights. Intellectual property litigation can be time-consuming and expensive, and there is no guarantee that we will have the resources to fully enforce our rights. If we are unable to prevent misappropriation or infringement of our intellectual property rights, or the independent development or design of similar technologies, our competitive position and operating results could suffer.

***We depend upon internal production and on outside single or limited-source suppliers for many of our key components and raw materials. Any interruption in the supply of these key components and raw materials could adversely affect our results of operations.***

We rely exclusively on our own production capabilities to manufacture certain of our key components, such as semiconductor diodes, specialty optical fibers and optical components. We do not have redundant production lines for some of our components, such as our diodes and some other components, which are made at a single manufacturing facility. These may not be readily available from other sources at our current costs. If our manufacturing facilities were damaged significantly or incapacitated, it could take a considerable length of time, or it could increase our costs, for us to resume manufacturing or find alternative sources of supply. Many of the tools and equipment we use are custom-designed, and it could take a significant period of time to repair or replace them. Our three major manufacturing facilities are located in Oxford, Massachusetts; Burbach, Germany; and Fryazino, Russia. If, as a result of a flood, fire, natural disaster, political unrest, act of terrorism, war, outbreak of disease or other similar event, any of our three major manufacturing facilities or equipment should become inoperable, inaccessible, damaged or destroyed, our business could be adversely affected to the extent that we do not have redundant production capabilities.

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Also, we purchase certain raw materials used to manufacture our products and other components, such as semiconductor wafer substrates, modulators, micro-optics and bulk optics, from single or limited-source suppliers. In general, we have no long-term contractual supply arrangements with these suppliers. Some of our suppliers are also our competitors. Some of our suppliers reduced their inventory levels and manufacturing capacity because of the recent recession. As a result, we experienced and may in the future experience longer lead times or delays in fulfillment of our orders. Furthermore, other than our current suppliers, there are a limited number of entities from whom we could obtain these supplies. We do not anticipate that we would be able to purchase these components or raw materials that we require in a short period of time or at the same cost from other sources in commercial quantities or that have our required performance specifications. Any interruption or delay in the supply of any of these components or materials, or the inability to obtain these components and materials from alternate sources at acceptable prices and within a reasonable amount of time, could adversely affect our business. If our suppliers face financial or other difficulties, if our suppliers do not maintain sufficient inventory on hand or if there are significant changes in demand for the components and materials we obtain from them, they could limit the availability of these components and materials to us, which in turn could adversely affect our business.

***We rely on the significant experience and specialized expertise of our senior management and scientific staff and if we are unable to retain these key employees and attract other highly skilled personnel necessary to grow our business successfully, our business and results of operations could suffer.***

Our future success is substantially dependent on the continued service of our executive officers, particularly our founder and chief executive officer, Dr. Valentin P. Gapontsev, age 73, and the managing director of our German subsidiary IPG Laser GmbH, Dr. Eugene Scherbakov, age 64, our highly trained team of scientists, many of whom have numerous years of experience and specialized expertise in optical fibers, semiconductors and optical component technology, and other key engineering, sales, marketing, manufacturing and support personnel, any of whom may leave, which could harm our business. The members of our scientific staff who are expected to make significant individual contributions to our business are also members of our executive management team as disclosed under Item 10, Directors, Executive Officers and Corporate Governance below. Furthermore, our business requires scientists and engineers with experience in several disciplines, including physics, optics, materials sciences, chemistry and electronics. We will need to continue to recruit and retain highly skilled scientists and engineers for certain functions. Our future success also depends on our ability to identify, attract, hire, train, retain and motivate highly skilled research and development, managerial, operations, sales, marketing and customer service personnel. If we fail to attract, integrate and retain the necessary personnel, our ability to extend and maintain our scientific expertise and grow our business could suffer significantly.

***We may pursue acquisitions and investments in new businesses, products, patents or technologies. These may involve risks which could disrupt our business and may harm our financial condition.***

While we currently have no binding commitments or agreements to make any acquisitions or investments, in the future we may make acquisitions of and investments in new businesses, products, patents and technologies that we believe could complement, enhance or expand our current businesses or product lines or that might otherwise offer us growth opportunities.

We have limited experience in making acquisitions and, therefore, we may have difficulty identifying appropriate opportunities. Any acquisition or investment opportunities that we are able to identify may present a number of risks and challenges, including:

inability to negotiate or finance the acquisition on favorable terms;

diversion of management's attention from our existing businesses to integration of the operations and personnel of the acquired or combined business;

possible adverse effects on our operating results during the integration process;

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failure of the acquired business or investment to achieve our long-term objectives, including operational, profitability and investment return objectives; and

the inability to achieve other intended objectives of the transaction.

In addition, we may not be able to successfully or profitably integrate, operate, maintain and manage our newly acquired businesses, products, patents or technologies. We may not be able to maintain uniform standards, controls, procedures and policies, which may lead to operational inefficiencies. To complete future acquisitions, we may issue equity securities, incur debt, assume contingent liabilities or have amortization expenses and write-downs of acquired assets, which could adversely affect our profitability and result in dilution to our existing and future stockholders.

In addition, any future acquisition may involve companies, products or technologies located outside of the United States, which may further complicate the consummation and integration of the acquisition.

### ***Failure to effectively build and expand our direct field service and support organization could have an adverse effect on our business.***

We believe that it will become increasingly important for us to provide rapid, responsive service directly to our customers throughout the world and to build and expand our own personnel resources to provide these services. Any actual or perceived lack of direct field service in the locations where we sell or try to sell our products may negatively impact our sales efforts and, consequently, our revenues. Accordingly, we have an ongoing effort to develop our direct support systems worldwide. This requires us to recruit and train additional qualified field service and support personnel as well as maintain effective and highly trained organizations that can provide service to our customers in various countries. We may not be able to attract and train additional qualified personnel to expand our direct support operations successfully. We may not be able to find and engage additional qualified third-party resources to supplement and enhance our direct support operations. Further, we may incur significant costs in providing these direct field and support services. Failure to implement our direct support operation effectively could adversely affect our relationships with our customers, and our operating results may suffer.

### ***A few customers account for a significant portion of our sales, and if we lose any of these customers or they significantly curtail their purchases of our products, our results of operations could be adversely affected.***

We rely on a few customers for a significant portion of our sales. In the aggregate, our top five customers accounted for 17%, 19% and 12% of our consolidated net sales in 2011, 2010 and 2009, respectively. We generally do not enter into agreements with our customers obligating them to purchase our fiber lasers or amplifiers. Our business is characterized by short-term purchase orders and shipment schedules. If any of our principal customers discontinues its relationship with us, replaces us as a vendor for certain products or suffers downturns in its business, our business and results of operations could be adversely affected.

### ***We have experienced, and expect to experience in the future, fluctuations in our quarterly operating results. These fluctuations may increase the volatility of our stock price.***

We have experienced, and expect to continue to experience, fluctuations in our quarterly operating results. We believe that fluctuations in quarterly results may cause the market price of our common stock to fluctuate, perhaps substantially. Factors which may have an influence on our operating results in a particular quarter include:

the increase, decrease, cancellation or rescheduling of significant customer orders;

the timing of revenue recognition based on the delivery, installation or acceptance of certain products shipped to our customers;



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seasonality attributable to different purchasing patterns and levels of activity throughout the year in the areas where we operate;

the timing of customer qualification of our products and commencement of volume sales of systems that include our products;

our ability to obtain export licenses for our products and components on a timely basis or at all;

the rate at which our present and future customers and end users adopt our technologies;

the gain or loss of a key customer;

product or customer mix;

competitive pricing pressures;

the relative proportions of our U.S. and international sales;

our ability to design, manufacture and introduce new products on a cost-effective and timely basis;

our ability to manage our inventory levels;

any inventory write-downs related to excess quantities and obsolete items;

the incurrence of expenses to develop and improve application and support capabilities, the benefits of which may not be realized until future periods, if at all;

different capital expenditure and budget cycles for our customers, which affect the timing of their spending;

foreign currency fluctuations; and

our ability to control expenses.

These factors make it difficult for us to accurately predict our operating results. In addition, our ability to accurately predict our operating results is complicated by the fact that many of our products have long sales cycles, some lasting as long as twelve months. Once a sale is made, our delivery schedule typically ranges from four weeks to four months, and therefore our sales will often reflect orders shipped in the same quarter that they are received and will not enhance our ability to predict our results for future quarters. In addition, long sales cycles may cause us to incur significant expenses without offsetting revenues since customers typically expend significant effort in evaluating, testing and qualifying our products before making a decision to purchase them. Moreover, customers may cancel or reschedule shipments, and production difficulties could delay shipments. Accordingly, our results of operations are subject to significant fluctuations from quarter to quarter, and we may not be able to accurately predict when these fluctuations will occur.

***Foreign currency transaction and translation risk may negatively affect our net sales, cost of sales and operating margins and could result in exchange losses.***

We conduct our business and incur costs in the local currency of most countries in which we operate. In 2011, our net sales outside the United States represented a significant portion of our total sales. We incur currency transaction risk whenever one of our operating subsidiaries enters into either a purchase or a sales transaction using a different currency from the currency in which it receives revenues because exchange rates between two currencies can change between the transaction date and the time of settlement. Changes in exchange rates can also affect our results of operations by changing the translated U.S. dollar value of sales and expenses denominated in foreign currencies. We cannot accurately predict the impact of future exchange rate fluctuations on our results of operations. Further, given the volatility of exchange rates, we may not be able to effectively manage our currency transaction or translation risks, and any volatility in currency exchange rates may increase the price of our products in local currency to our foreign customers, which may have an adverse effect on our financial condition, cash flows and profitability.

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***We depend on our OEM customers and system integrators and their ability to incorporate our products into their systems.***

Our sales depend in part on our ability to maintain existing and secure new OEM customers. Our revenues also depend in part upon the ability of our current and potential OEM customers and system integrators to develop and sell systems that incorporate our laser and amplifier products. The commercial success of these systems depends to a substantial degree on the efforts of these OEM customers and system integrators to develop and market products that incorporate our technologies. Relationships and experience with traditional laser makers, limited marketing resources, reluctance to invest in research and development and other factors affecting these OEM customers and third-party system integrators could have a substantial impact upon our financial results. If OEM customers or integrators are not able to adapt existing tools or develop new systems to take advantage of the features and benefits of fiber lasers, then the opportunities to increase our revenues and profitability may be severely limited or delayed. Furthermore, if our OEM customers or third-party system integrators experience financial or other difficulties that adversely affect their operations, our financial condition or results of operations may also be adversely affected.

***We may not be able to effectively manage our growth and we may need to incur significant costs to address the operational requirements related to our growth, either of which could harm our business and operating results.***

We have been experiencing a period of significant growth and expansion, both in the United States and internationally, which has required, and will continue to require, increased efforts of our management and other resources. Our recent and anticipated growth has placed, and is expected to continue to place, significant strain on our research and development, sales and marketing, operational and administrative resources. To manage our growth, we will need to continue to monitor our operational and financial systems and expand, train and manage our employees. For example, we must implement new modules of our management information and customer relationship management systems, hire and train new sales representatives, service, application, financial and information technology personnel, and expand our supply chain management and quality control operations. These may require substantial managerial and financial resources, and our efforts in this regard may not be successful. If we fail to adequately manage our expected growth, or to improve our operational, financial and management information systems, or fail to effectively motivate or manage our new and future employees, the quality of our products and the management of our operations could suffer and our operating results could be adversely affected.

***Our inability to manage risks associated with our international customers and operations could adversely affect our business.***

We have significant facilities in and our products are sold in numerous countries. The United States, Germany, Japan, Russia and China are our principal markets. A significant amount of our revenues are derived from customers, and we have substantial tangible assets, outside of the United States. We anticipate that foreign sales will continue to account for a significant portion of our revenues in the foreseeable future. Our operations and sales in these markets are subject to risks inherent in international business activities, including:

longer accounts receivable collection periods and less-developed credit assessment and collection procedures;

fluctuations in the values of foreign currencies;

changes in a specific country's or region's economic conditions, such as recession;

compliance with a wide variety of domestic and foreign laws and regulations and unexpected changes in those laws and regulatory requirements, including uncertainties regarding taxes, tariffs, quotas, export controls, export licenses and other trade barriers;

certification requirements;

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environmental regulations;

less effective protection of intellectual property rights in some countries;

potentially adverse tax consequences;

different capital expenditure and budget cycles for our customers, which affect the timing of their spending;

political, legal and economic instability, foreign conflicts, and the impact of regional and global infectious illnesses in the countries in which we and our customers, suppliers, manufacturers and subcontractors are located;

preference for locally produced products;

difficulties and costs of staffing and managing international operations across different geographic areas and cultures;

seasonal reductions in business activities; and

fluctuations in freight rates and transportation disruptions.

Political and economic instability and changes in governmental regulations could adversely affect both our ability to effectively operate our foreign sales offices and the ability of our foreign suppliers to supply us with required materials or services. Any interruption or delay in the supply of our required components, products, materials or services, or our inability to obtain these components, materials, products or services from alternate sources at acceptable prices and within a reasonable amount of time, could impair our ability to meet scheduled product deliveries to our customers and could cause customers to cancel orders.

We are also subject to risks of doing business in Russia through our subsidiary, NTO IRE-Polus, which provides components and test equipment to us and sells finished fiber devices to customers in Russia and neighboring countries. The results of operations, business prospects and facilities of NTO IRE-Polus are subject to the economic and political environment in Russia. In 2010, a Russian investor purchased a minority interest in NTO IRE-Polus. As a minority investor, it has rights under Russian law, as well as under our negotiated agreements with it. Even though we control a supermajority of the shares and a majority of the board, certain actions require unanimous shareholder approval, including changes to capital, additional investments, use of proceeds other than initially agreed to uses and amounts, distributions, transactions in excess of agreed upon amounts and related party transactions. In recent years Russia has undergone substantial political, economic and social change. As is typical of an emerging market, Russia does not possess a well-developed business, legal and regulatory infrastructure that would generally exist in a more mature free market economy. In addition, the tax, currency and customs legislation within Russia is subject to varying interpretations and changes, which can occur frequently. The future economic direction of Russia remains largely dependent upon the effectiveness of economic, financial and monetary measures undertaken by the government, together with tax, legal, regulatory and political developments. Our failure to manage the risks associated with NTO IRE-Polus and our other existing and potential future international business operations could have a material adverse effect upon our results of operations.

***Our products could contain defects, which may reduce sales of those products, harm market acceptance of our fiber laser products or result in claims against us.***

The manufacture of our fiber lasers and amplifiers involves highly complex and precise processes. Despite testing by us and our customers, errors have been found, and may be found in the future, in our products. These defects may cause us to incur significant warranty, support and repair costs, incur additional costs related to a recall, divert the attention of our engineering personnel from our product development efforts and harm our relationships with our customers. These problems could result in, among other things, loss of revenues or a delay in revenue recognition, loss of market share, harm to our reputation or a delay or loss of market acceptance of our



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fiber laser products. Defects, integration issues or other performance problems in our fiber laser and amplifier products could also result in personal injury or financial or other damages to our customers, which in turn could damage market acceptance of our products. Our customers could also seek damages from us for their losses. A product liability claim brought against us, even if unsuccessful, could be time-consuming and costly to defend.

***We are subject to export control regulations that could restrict our ability to increase our international sales and may adversely affect our business.***

A significant part of our business involves the export of our products to other countries. The U.S. government has in place a number of laws and regulations that control the export, re-export or transfer of U.S.-origin products, software and technology. The governments of other countries in which we do business have similar regulations regarding products, software and technology originating in those countries. These laws and regulations may require that we obtain a license before we can export, re-export or transfer certain products, components, software or technology. The requirement to obtain a license could put us at a competitive disadvantage by restricting our ability to sell products to, or service products for, customers in certain countries or by giving rise to delays or expenses related to obtaining a license. In applying for a license and responding to questions from licensing authorities, we have experienced and, in the future, may experience delays in obtaining export licenses based on issues solely within the control of the applicable government agency. Under the discretion of the issuing government agency, an export license may permit the export of one unit to a single customer or multiple units to one or more customers. Licenses may also include conditions that limit the use, resale, transfer, re-export, modification, disassembly, or transfer of a product, software or technology after it is exported without first obtaining permission from the relevant government agency. Failure to comply with these laws and regulations could result in government sanctions, including substantial monetary penalties, denial of export privileges, debarment from government contracts and a loss of revenues. Delays in obtaining or failure to obtain required export licenses may require us to defer shipments for substantial periods or cancel orders. Any of these circumstances could adversely affect our operations and, as a result, our financial results could suffer.

***Our ability to access financial markets to finance a portion of our working capital requirements and support our liquidity needs may be adversely affected by factors beyond our control and could negatively impact our ability to finance our operations, meet certain obligations or implement our operating strategy.***

We occasionally borrow under our existing credit facilities to fund operations, including working capital investments. Our major credit lines in the U.S. and Germany expire in June 2015 and June 2012, respectively. In the past, market disruptions experienced in the United States and abroad have materially impacted liquidity in the credit and debt markets, making financing terms for borrowers less attractive, and, in certain cases, have resulted in the unavailability of certain types of financing. Uncertainty in the financial markets may negatively impact our ability to access additional financing or to refinance our existing credit facilities or existing debt arrangements on favorable terms or at all, which could negatively affect our ability to fund current and future expansion as well as future acquisitions and development. These disruptions may include turmoil in the financial services industry, unprecedented volatility in the markets where our outstanding securities trade, and general economic downturns in the areas where we do business. If we are unable to access funds at competitive rates, or if our short-term or long-term borrowing costs increase, our ability to finance our operations, meet our short-term obligations and implement our operating strategy could be adversely affected.

***Our ability to raise capital in the future may be limited, and our failure to raise capital when needed could prevent us from growing.***

We may in the future be required to raise capital through public or private financing or other arrangements. Such financing may not be available on acceptable terms, or at all, and our failure to raise capital when needed could harm our business. Additional equity financing may be dilutive to the holders of our common stock, and debt financing, if available, may involve restrictive covenants and could reduce our profitability. If we cannot raise funds on acceptable terms, we may not be able to grow our business or respond to competitive pressures.

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***We are subject to various environmental laws and regulations that could impose substantial costs upon us and may adversely affect our business, operating results and financial condition.***

Some of our operations use substances regulated under various federal, state, local and international laws governing the environment, including those relating to the storage, use, discharge, disposal, product composition and labeling of, and human exposure to, hazardous and toxic materials. We could incur costs, fines and civil or criminal sanctions, third-party property damage or personal injury claims, or could be required to incur substantial investigation or remediation costs, if we were to violate or become liable under environmental laws. Liability under environmental laws can be joint and several and without regard to comparative fault. Compliance with current or future environmental laws and regulations could restrict our ability to expand our facilities or require us to acquire additional expensive equipment, modify our manufacturing processes, or incur other significant expenses in order to remain in compliance with such laws and regulations. At this time, we do not believe the costs to maintain compliance with current environmental laws to be material. Although we do not currently anticipate that such costs will become material, if such costs were to become material in the future, whether due to unanticipated changes in environmental laws, unanticipated changes in our operations or other unanticipated changes, we may be required to dedicate additional staff or financial resources in order to maintain compliance. There can be no assurance that violations of environmental laws or regulations will not occur in the future as a result of the lack of, or failure to obtain, permits, human error, accident, equipment failure or other causes.

***Dr. Valentin P. Gapontsev, our Chairman and Chief Executive Officer, and two trusts he created collectively control approximately 38% of our voting power and have a significant influence on the outcome of director elections and other matters requiring stockholder approval, including a change in corporate control.***

Dr. Valentin P. Gapontsev, our Chairman and Chief Executive Officer, and IP Fibre Devices (UK) Ltd. (IPFD), of which Dr. Gapontsev is the managing director, together with two trusts he created beneficially own approximately 38% of our common stock. Trustees of the trusts are officers or employees of the Company. Dr. Gapontsev and the trusts have a significant influence on the outcome of matters requiring stockholder approval, including:

election of our directors;

amendment of our certificate of incorporation or by-laws; and

approval of mergers, consolidations or the sale of all or substantially all of our assets.

Dr. Gapontsev and the trusts may vote their shares of our common stock in ways that are adverse to the interests of other holders of our common stock. These significant ownership interests could delay, prevent or cause a change in control of our company, any of which could adversely affect the market price of our common stock.

***Anti-takeover provisions in our charter documents and Delaware law could prevent or delay a change in control of our company, even if a change in control would be beneficial to our stockholders.***

Provisions of our certificate of incorporation and by-laws, including certain provisions that will take effect when Dr. Valentin P. Gapontsev, together with his affiliates and associates, ceases to beneficially own an aggregate of 25% or more of our outstanding voting securities, may discourage, delay or prevent a merger, acquisition or change of control, even if it would be beneficial to our stockholders. The existence of these provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock. These provisions include:

authorizing the issuance of blank check preferred stock;

establishing a classified board;





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providing that directors may only be removed for cause;

prohibiting stockholder action by written consent;

limiting the persons who may call a special meeting of stockholders;

establishing advance notice requirements for nominations for election to the board of directors and for proposing matters to be submitted to a stockholder vote; and

supermajority stockholder approval to change these provisions.

Provisions of Delaware law may also discourage, delay or prevent someone from acquiring or merging with our company or obtaining control of our company. Specifically, Section 203 of the Delaware General Corporation Law, which will apply to our company following such time as Dr. Gapontsev, together with his affiliates and associates, ceases to beneficially own 25% or more of the total voting power of our outstanding shares, may prohibit business combinations with stockholders owning 15% or more of our outstanding voting stock.

***Substantial sales of our common stock, including shares issued upon the exercise of currently outstanding options or pursuant to our universal shelf registration statement, could cause our stock price to decline.***

Sales of a substantial number of shares of common stock, or the perception that sales could occur, could adversely affect the market price of our common stock. As of December 31, 2011, we had 47,616,115 shares of common stock outstanding and approximately 2,724,572 shares subject to outstanding options. We have registered all shares of common stock that we may issue under our stock option plans and our employee stock ownership plan. In addition, all of the unregistered shares of our common stock are now eligible for sale under Rule 144 or Rule 701 under the Securities Act. As these shares are issued, they may be freely sold in the public market subject, in the case of any awards under our stock-based compensation plans, to applicable vesting requirements.

We currently have the ability to offer and sell common stock, preferred stock, warrants, debt and convertible securities under a currently effective universal shelf registration statement. In the future, we may issue additional options, warrants or other securities convertible into our common stock. Sales of substantial amounts of shares of our common stock or other securities under our universal shelf registration statement could lower the market price of our common stock and impair our ability to raise capital through the sale of equity securities.

***If securities analysts stop publishing research or reports about our business, or if they downgrade our stock, the price of our stock could decline.***

The trading market for our common stock relies in part on the research and reports that industry or financial analysts publish about us. If one or more of these analysts who cover us downgrade our stock, our stock price would likely decline. Further, if one or more of these analysts cease coverage of our company, we could lose visibility in the market, which in turn could cause our stock price to decline.

### **ITEM 1B. UNRESOLVED STAFF COMMENTS**

None.

**Table of Contents****ITEM 2. PROPERTIES**

Our main facilities at December 31, 2011 include the following:

	Owned or	Lease	Approximate	
Location	Leased	Expiration	Size (sq. ft.)	Primary Activity
Oxford, Massachusetts	Owned		261,000	Diodes, components, complete device manufacturing, administration
Burbach, Germany	Owned		208,000	Optical fiber, components, final assembly, complete device manufacturing, administration
Fryazino, Russia	Leased	July 2016	69,000	Components, complete device manufacturing, administration
	Owned		35,000	
Beijing, China	Owned		35,000	Administration, service
Novi, Michigan	Owned		16,000	Administration, service
Cerro Maggiore, Italy	Owned		33,000	Complete device manufacturing, administration
Yokohama, Japan	Owned		11,000	Administration, service
Chubu, Japan	Owned		10,000	Administration, service

We maintain our corporate headquarters in Oxford, Massachusetts, and conduct research and development in Oxford, Massachusetts, Burbach, Germany and Fryazino, Russia. We operate four manufacturing facilities for lasers, amplifiers and components, which are located in the United States, Germany, Russia and Italy. We also manufacture certain optical components and systems in India and China. We are committed to meeting internationally recognized manufacturing standards. Our facilities in the United States and Germany are ISO 9001 certified and we have ISO certification in Russia for specific products. We have sales personnel at each of our manufacturing facilities, and at offices in Novi, Michigan; Santa Clara, California; London, England; Illkirch, France; Yokohama and Chubu, Japan; Daejeon, South Korea; Bangalore, India; Beijing, China; Singapore; and Barcelona, Spain.

We are implementing plans to expand and upgrade our operations in Russia, Germany and the United States to meet the demand for our products and our sales and support needs. We believe that we will be able to obtain additional land or commercial space as needed.

**ITEM 3. LEGAL PROCEEDINGS**

From time to time, we are party to various legal proceedings and other disputes incidental to our business, including those described below. For a discussion of the risks associated with these legal proceedings and other disputes, see Item 1A. Risk Factors. We are subject to litigation alleging that we are infringing third-party intellectual property rights. Intellectual property claims could result in costly litigation and harm our business.

In November 2006, IMRA America, Inc. filed an action against us alleging that certain products we produce infringe one U.S. patent allegedly owned by IMRA America. IMRA America alleged willful infringement and sought damages, including for alleged lost profits, of at least \$26 million through June 2011, treble damages, attorneys' fees and injunctive relief. IMRA America also alleged inducement of infringement and contributory infringement. We filed an answer in which we denied infringement and also filed declaratory judgment counterclaims based on this and other defenses. This lawsuit concerns products made, used, sold or offered for sale in or imported into the United States and therefore the lawsuit affects products that account for a substantial

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portion of our revenues. This lawsuit does not concern products, or revenues that are derived from products, that are not made, used, sold or offered for sale in or imported into the United States. In June 2008, the USPTO ordered re-examination of the patent claims asserted by IMRA America against the Company. In July 2009, the USPTO confirmed the patentability of all of the claims in the IMRA America patent over the prior art cited in the re-examination, as well as of new claims added during the re-examination. In August 2009, we submitted an additional re-examination request, which was denied by the USPTO. The USPTO issued a re-examination certificate in October 2009. The U.S. District Court adopted the claim construction of IMRA America on one of the four claim terms, but did not decide the others. In March 2011, the District Court granted our motion for partial summary judgment of no marking or no statutory notice, which had the effect of precluding IMRA America from seeking damages for any alleged infringing products sold prior to November 16, 2006, the date the lawsuit was filed, with the exception of four particular alleged infringing products, as to which IMRA America is precluded from seeking damages for sales prior to August 6, 2006. The U.S. District Court for the Eastern District of Michigan denied our motions for summary judgment on non-infringement, invalidity, no willful infringement and laches, and granted IMRA America's motions for summary judgment on no invalidity for derivation and no equitable misconduct. The trial occurred in September and October 2011, and the jury returned a unanimous verdict that we did not infringe IMRA America's patent. IMRA America has filed post-trial motions seeking to set aside the jury verdict. IMRA America also has the right to appeal the verdict.

**ITEM 4. MINE SAFETY DISCLOSURES**

Not applicable.

**PART II****ITEM 5. MARKET FOR THE REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES****Price Range of Common Stock**

Our common stock is quoted on the Nasdaq Global Market under the symbol **IPGP**. The following table sets forth the quarterly high and low sale prices of our common stock as reported on the Nasdaq Global Market.

	Common Stock Price Range	
	High	Low
First Quarter ended March 31, 2010	\$ 17.42	\$ 13.32
Second Quarter ended June 30, 2010	\$ 19.20	\$ 14.57
Third Quarter ended September 30, 2010	\$ 25.29	\$ 13.93
Fourth Quarter ended December 31, 2010	\$ 33.43	\$ 19.87
First Quarter ended March 31, 2011	\$ 61.63	\$ 29.37
Second Quarter ended June 30, 2011	\$ 78.59	\$ 53.08
Third Quarter ended September 30, 2011	\$ 76.07	\$ 42.66
Fourth Quarter ended December 31, 2011	\$ 58.16	\$ 33.33

As of February 23, 2012, there were 47,680,519 shares of our common stock outstanding held by approximately 60 holders of record, which does not include beneficial owners of common stock whose shares are held in the names of various securities brokers, dealers and registered clearing agencies.

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### **Stock Price Performance Graph**

The following Stock Price Performance Graph and related information includes comparisons required by the SEC. The graph does not constitute soliciting material and should not be deemed filed or incorporated by reference into any other filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that we specifically incorporate this information by reference into such filing.

The following graph presents the cumulative shareholder returns for our Common Stock compared with the NASDAQ Composite Index and the S&P Technology Sector Index. We selected these comparative groups due to industry similarities and the fact that they contain several direct competitors.

#### **COMPARISON OF CUMULATIVE TOTAL RETURN**

#### **AMONG THE COMPANY, THE NASDAQ COMPOSITE INDEX AND S&P 500**

#### **TECHNOLOGY SECTOR INDEX**

	<b>5-Year Cumulative Total Return</b>					
	<b>12/31/2006</b>	<b>12/31/2007</b>	<b>12/31/2008</b>	<b>12/31/2009</b>	<b>12/31/2010</b>	<b>12/31/2011</b>
IPG Photonics Corporation	\$ 100.00	\$ 83.29	\$ 54.92	\$ 69.71	\$ 131.75	\$ 141.13
Nasdaq Composite (U.S. & Foreign)	\$ 100.00	\$ 109.81	\$ 65.29	\$ 93.95	\$ 109.84	\$ 107.86
S&P 500 Technology Sector Index	\$ 100.00	\$ 114.20	\$ 66.31	\$ 98.39	\$ 107.81	\$ 109.17

The above graph represents and compares the value, through December 31, 2011, of a hypothetical investment of \$100 made at the closing price on December 31, 2006 in each of (i) our common stock, (ii) the NASDAQ Composite Stock Index and (iii) the S&P 500 Technology Sector Index, in each case assuming the reinvestment of dividends. The stock price performance shown in this graph is not necessarily indicative of, and not is intended to suggest, future stock price performance.

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### **Dividends**

We have never declared or paid any cash dividends on our capital stock. We anticipate that we will retain any future earnings to support operations and to finance the growth and development of our business. Therefore, we do not expect to pay cash dividends in the foreseeable future. Our payment of any future dividends will be at the discretion of our Board of Directors after taking into account any business conditions, any contractual and legal restrictions on our payment of dividends, and our financial condition, operating results, cash needs and growth plans. In addition, current agreements with certain of our lenders contain, and future loan agreements may contain, restrictive covenants that generally prohibit us from paying cash dividends, making any distribution on any class of stock or making stock repurchases.

### **Recent Sales of Unregistered Securities; Use of Proceeds from Registered Securities**

During the past three years, we have sold and issued the following unregistered securities:

1. In March 2009, we issued 293,146 unregistered shares of common stock as payment of the purchase price for a 31.6% noncontrolling interest in NTO IRE-Polus. The aggregate sale price for the shares was \$6,117,973.
2. In May 2009, we issued 75,000 unregistered shares of common stock as partial payment of the purchase price for the 20% noncontrolling interest in IPG Photonics (Japan), Ltd. IPG Photonics (Japan), Ltd. is now 100% owned by us. The aggregate sale price for the shares was \$848,000.

The sales of securities described above were deemed to be exempt from registration pursuant to Section 4(2) of the Securities Act and Regulation D promulgated thereunder as transactions by an issuer not involving a public offering. Each of these sales was to accredited investors, as such term is defined in Rule 501 of Regulation D. Each of the recipients of securities in the transactions deemed to be exempt from registration pursuant to Section 4(2) of the Securities Act received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration or an available exemption from such registration. None of the sales of the securities described above involved the use of an underwriter, and no commissions were paid in connection with the sale of any of the securities that we issued. The sales of these securities were made without general solicitation or advertising.

### **Issuer Purchases of Equity Securities**

During the quarter ended December 31, 2011, there were no repurchases made by us or on our behalf, or by any affiliated purchasers, of shares of our common stock.

**Table of Contents****Information Regarding Equity Compensation Plans**

The following table sets forth information with respect to securities authorized for issuance under our equity compensation plans as of December 31, 2011:

**Equity Compensation Plan Information**

<b>Plan Category</b>	<b>Number of Securities to be Issued upon Exercise of Outstanding Options, Warrants and Rights (a)</b>	<b>Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights (b)</b>	<b>Number of Securities Remaining Available for Future Issuance under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (c)</b>
Equity Compensation Plans Approved by Security Holders	2,724,572	\$ 20.78	7,009,548
Equity Compensation Plans Not Approved by Security Holders			
<b>Total</b>	<b>2,724,572</b>		<b>7,009,548</b>

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### ITEM 6. SELECTED FINANCIAL DATA

The following selected consolidated financial data should be read in conjunction with, and is qualified by reference to, our consolidated financial statements and related notes and Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations included elsewhere in this Annual Report on Form 10-K. The data as of December 31, 2011 and 2010, and for the years ended December 31, 2011, 2010 and 2009, is derived from our audited consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. The data as of December 31, 2009, 2008 and 2007, and for the years ended December 31, 2008 and 2007, is derived from our audited consolidated financial statements and related notes not included in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of the results for any future period.

	2011	Year Ended December 31, 2010      2009      2008      2007 (In thousands, except per share data)			
<b>Consolidated Statement of Income Data:</b>					
Net sales	\$ 474,482	\$ 299,256	\$ 185,894	\$ 229,076	\$ 188,677
Cost of sales	217,227	152,798	121,626	121,776	103,695
Gross profit	257,255	146,458	64,268	107,300	84,982
Operating expenses:					
Sales and marketing	21,731	19,100	15,157	13,900	10,103
Research and development	25,422	19,160	18,543	15,804	9,527
General and administrative	37,442	28,645	20,489	23,198	20,203
(Gain) loss on foreign exchange	(2,862)	(848)	1,022	(2,798)	(1,175)
Total operating expenses	81,733	66,057	55,211	50,104	38,658
Operating income	175,522	80,401	9,057	57,196	46,324
Interest (expense) income, net	(681)	(1,188)	(1,252)	(777)	674
Other (expense) income, net	(257)	39	(36)	145	612
Income before provision for income taxes	174,584	79,252	7,769	56,564	47,610
Provision for income taxes	(53,575)	(24,900)	(2,485)	(18,111)	(15,522)
Net income	121,009	54,352	5,284	38,453	32,088
Less: Net income (loss) attributable to noncontrolling interests	3,250	361	(135)	1,799	2,193
Net income attributable to IPG Photonics Corporation	117,759	53,991	5,419	36,654	29,895
Net income attributable to common shareholders	\$ 117,759	\$ 53,991	\$ 5,419	\$ 36,654	\$ 29,895
Net income per share:					
Basic	\$ 2.48	\$ 1.16	\$ 0.12	\$ 0.82	\$ 0.69
Diluted	\$ 2.41	\$ 1.13	\$ 0.12	\$ 0.79	\$ 0.65
Weighted-average shares outstanding:					
Basic	47,365	46,424	45,489	44,507	43,269
Diluted	48,685	47,594	46,595	46,223	45,749

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	2011	2010	As of December 31, 2009 (In thousands)	2008	2007
<b>Consolidated Balance Sheet Data:</b>					
Cash and cash equivalents	\$ 180,234	\$ 147,860	\$ 82,920	\$ 51,283	\$ 37,972
Short-term investments	25,451				
Working capital, excluding cash and cash equivalents and short-term investments	135,060	70,171	61,163	80,714	83,237
Total assets	608,132	441,855	312,636	313,218	263,321
Revolving line-of-credit facilities	7,057	6,841	6,007	19,769	11,218
Long-term debt, including current portion	17,339	16,977	18,000	19,330	20,000
Redeemable noncontrolling interests	46,123	24,903			
Stockholders' equity - IPG Photonics	443,323	316,600	256,430	238,172	200,180

**ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with Item 6, *Selected Financial Data*, and our consolidated financial statements and related notes included in this Annual Report of Form 10-K. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors including, but not limited to, those discussed under Item 1A, *Risk Factors*.

**Overview**

We develop and manufacture a broad line of high-performance fiber lasers, fiber amplifiers and diode lasers that are used in numerous applications in diverse end markets. We sell our products globally to original equipment manufacturers, or OEMs, system integrators and end users. We market our products internationally primarily through our direct sales force.

We design and manufacture most of our key components used in our finished products, from semiconductor diodes to optical fibers and other components, finished fiber lasers and amplifiers. We also manufacture certain complementary products used with our lasers, including optical delivery cables, fiber couplers, beam switches, optical heads and chillers. Since our formation in 1990, we have been focused on developing and manufacturing high-power fiber lasers and amplifiers.

**Description of Our Net Sales, Costs and Expenses**

*Net sales.* We derive net sales primarily from the sale of fiber lasers and amplifiers. We also sell diode lasers, communications systems, laser systems and complementary products. We sell our products through our direct sales organization and our network of distributors and sales representatives, as well as system integrators. We sell our products to OEMs that supply materials processing laser systems, communications systems and medical laser systems to end users. We also sell our products to end users that build their own systems which incorporate our products or use our products as an energy or light source. Our scientists and engineers work closely with OEMs and end users to analyze their system requirements and match appropriate fiber laser or amplifier specifications. Our sales cycle varies substantially, ranging from a period of a few weeks to as long as one year or more, but is typically several months.

Sales of our products generally are recognized upon shipment, provided that no obligations remain and collection of the receivable is reasonably assured. Our sales typically are made on a purchase order basis rather than through long-term purchase commitments.



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We develop our products to standard specifications and use a common set of components within our product architectures. Our major products are based upon a common technology platform. We continually enhance these and other products by improving their components and developing new components and new product designs.

The average selling prices of our products generally decrease as the products mature. These decreases result from factors such as decreased manufacturing costs and increases in unit volumes, increased competition, the introduction of new products and market share considerations. In the past, we have lowered our selling prices in order to penetrate new markets and applications. Furthermore, we offer volume discounts to customers that buy multiple units. We cannot predict the timing and degree of these price declines.

*Cost of sales.* Our cost of sales consists primarily of the cost of raw materials and components, direct labor expenses and manufacturing overhead. We are vertically integrated and currently manufacture all critical components for our products as well as assemble finished products. We believe our vertical integration allows us to increase efficiencies, leverage our scale and lower our cost of sales. Cost of sales also includes personnel costs and overhead related to our manufacturing and engineering operations, related occupancy and equipment costs, shipping costs and reserves for inventory obsolescence and for warranty obligations. Inventories are written off and charged to cost of sales when identified as excess or obsolete.

Due to our vertical integration strategy, we maintain a relatively high fixed manufacturing overhead. We may not adjust these fixed costs quickly enough to adapt to rapidly changing market conditions. Our gross margin is therefore significantly affected by our sales volume and the corresponding absorption of fixed manufacturing overhead expenses.

*Sales and marketing.* Our sales and marketing expense consists primarily of costs related to compensation, trade shows, professional and technical conferences, travel, facilities, depreciation of equipment used for demonstration purposes and other marketing costs.

*Research and development.* Our research and development expense consists primarily of compensation, development expenses related to the design of our products and certain components, and facilities costs. Costs related to product development are recorded as research and development expenses in the period in which they are incurred.

*General and administrative.* Our general and administrative expense consists primarily of compensation and associated costs for executive management, finance, legal and other administrative personnel, outside legal and professional fees, allocated facilities costs and other corporate expenses.

## **Factors and Trends That Affect Our Operations and Financial Results**

Management believes that the following factors and trends are important in understanding our financial statements and overall financial performance.

*Net sales.* Our net sales grew from \$188.7 million in 2007 to \$474.5 million in 2011, representing a compound annual growth rate of approximately 25.9%. Net sales growth was driven by (i) increasing demand for our products, fueled by the decreasing average cost per watt of output power and resulting increased cost competitiveness compared to traditional lasers, (ii) the introduction of new products, including our high-power lasers with higher output power levels, (iii) the growing market acceptance of fiber lasers and (iv) the development of new applications for our products and new OEM customer relationships. Our annual revenue growth rates have varied. Net sales increased by 59% in 2011. In 2010, our net sales increased by 61%. In 2009 our net sales decreased by 19% primarily due to the global economic downturn. Prior to 2009, our growth rates were 21% in 2008 and 32% in 2007.

Our business depends substantially upon capital expenditures by our customers, particularly by manufacturers in the materials processing market, which include general manufacturing, automotive, aerospace, consumer, semiconductor and electronics. Approximately 88% of our revenues in 2011 were from customers in

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the materials processing market. Although applications in this market are broad, the capital equipment market in general is cyclical and historically has experienced sudden and severe downturns. For the foreseeable future, our operations will continue to depend upon capital expenditures by customers in the materials processing market and will be subject to the broader fluctuations of capital equipment spending.

Our net sales have historically fluctuated from quarter to quarter. The increase or decrease in sales from a prior quarter can be affected by the timing of orders received from customers, the shipment, installation and acceptance of products at our customers' facilities, the mix of OEM orders and one-time orders for products with large purchase prices, and seasonal factors such as the purchasing patterns and levels of activity throughout the year in the regions where we operate. Historically, our net sales have been higher in the second half of the year than in the first half of the year. Furthermore, net sales can be affected by the time taken to qualify our products for use in new applications in the end markets that we serve. The adoption of our products by a new customer or qualification in a new application can lead to an increase in net sales for a period, which may then slow until we penetrate new markets or obtain new customers.

*Gross margin.* Our total gross margin in any period can be significantly affected by total net sales in any period, by product mix, that is, the percentage of our revenue in the period that is attributable to higher or lower-power products, and by other factors, some of which are not under our control.

Our product mix affects our margins because the selling price per watt is generally higher for low and mid-power devices than for high-power devices. The overall cost of high-power lasers may be partially offset by improved absorption of fixed overhead costs associated with sales of larger volumes of higher-power products because they use a greater number of optical components and drive economies of scale in manufacturing.

A high proportion of our costs is fixed so they are generally difficult or slow to adjust in response to changes in demand. In addition, our fixed costs increase as we expand our capacity. Gross margins generally decline if production volumes are lower as a result of a decrease in sales or a reduction in inventory because the absorption of fixed manufacturing costs will be reduced. Gross margins generally improve when the opposite occurs. In addition, absorption of fixed costs can benefit gross margins due to an increase in production that is not sold and placed into inventory. If both sales and inventory decrease in the same period, the decline in gross margin may be greater if we cannot reduce fixed costs or choose not to reduce fixed costs to match the decrease in the level of production. If we experience a decline in sales that reduces absorption of our fixed costs, or if we have production issues or inventory write-downs, our gross margins will be negatively affected.

We also regularly review our inventory for items that are slow-moving, have been rendered obsolete or determined to be excess. Any write-off of such slow-moving, obsolete or excess inventory affects our gross margins. For example, we recorded provisions for inventory totaling \$6.1 million, \$2.7 million and \$5.3 million in 2011, 2010 and 2009, respectively.

*Sales and marketing expense.* We expect to continue to expand our worldwide direct sales organization, build and expand applications centers, hire additional personnel involved in marketing in our existing and new geographic locations, increase the number of units for demonstration purposes and otherwise increase expenditures on sales and marketing activities in order to support the growth in our net sales. As such, we expect that our sales and marketing expenses will increase in the aggregate.

*Research and development expense.* We plan to continue to invest in research and development to improve our existing components and products and develop new components, products and systems. The amount of research and development expense we incur may vary from period to period. In general, if net sales continue to increase we expect research and development expense to increase in the aggregate.

*General and administrative expense.* We expect our general and administrative expenses to increase as we continue to invest in systems and resources to support our worldwide operations. Legal expenses vary from

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quarter to quarter based upon the stage of litigation and associated level of litigation activity. Having won a jury verdict in a patent litigation in 2011, we expect legal expenses to decrease in 2012.

*Major customers.* While we have a broad and diverse customer base, we have historically depended on a few customers for a significant percentage of our annual net sales. The composition of this group can change from year to year. Sales derived from our five largest customers as a percentage of our annual net sales were 17% in 2011, 19% in 2010 and 12% in 2009. Sales to our largest customer accounted for 8%, 7% and 3% of our net sales in 2011, 2010 and 2009, respectively. We seek to add new customers and to expand our relationships with existing customers. We anticipate that the composition of our net sales to our significant customers will continue to change. If any of our significant customers were to substantially reduce their purchases from us, our results would be adversely affected.

## **Critical Accounting Policies and Estimates**

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of net sales and expenses. By their nature, these estimates and judgments are subject to an inherent degree of uncertainty. On an ongoing basis we re-evaluate our judgments and estimates including those related to inventories, income taxes and the fair value of certain debt and equity instruments including stock-based compensation. We base our estimates and judgments on our historical experience and on other assumptions that we believe are reasonable under the circumstances, the results of which form the basis for making the judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results could differ from those estimates, which may materially affect our operating results and financial position. The accounting policies described below are those which, in our opinion, involve the most significant application of judgment, or involve complex estimation, and which could, if different judgments or estimates were made, materially affect our reported results of operations and financial position.

*Revenue recognition.* Our net sales are generated from sales of fiber lasers, fiber amplifiers, diode lasers and complementary products. Our products are used in a wide range of applications by different types of end users or used as components integrated into systems by OEMs or system integrators. We also sell communications systems that include our fiber lasers and amplifiers as components.

We recognize revenue when four basic criteria are met: (i) persuasive evidence of an arrangement exists; (ii) delivery has occurred or services have been rendered; (iii) the fee is fixed or determinable; and (iv) collectability is reasonably assured. Revenue from the sale of our products is generally recognized upon shipment, provided that the other revenue recognition criteria have been met. We have no obligation to provide upgrades, enhancements or customer support subsequent to the sale, other than warranty.

Revenue from orders with multiple deliverables is divided into separate units of accounting when certain criteria are met. The consideration for the arrangement is then allocated to the separate units of accounting based on their relative fair values. Our primary deliverables are equipment and installation services, for which we are able to identify the fair value. Installation services are based on a standard rate per day and are not a significant portion of our total revenue.

Returns and customer credits are infrequent and are recorded as a reduction to revenue. Rights of return generally are not included in sales arrangements. We receive a customer purchase order or contract as evidence of an arrangement and product shipment terms are typically free on board, or F.O.B., shipping point.

Periodically, our revenue arrangements include customer acceptance clauses. If an acceptance clause defines a performance requirement in a process or application that we cannot effectively test prior to delivery or that has not been accepted previously, we defer recognition of revenue until satisfaction of the performance requirement has been proved.

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**Inventory.** Inventory is stated at the lower of cost (first-in, first-out method) or market value. Inventory includes parts and components that may be specialized in nature and subject to rapid obsolescence. We maintain a reserve for inventory items to provide for an estimated amount of excess or obsolete inventory. The reserve is based upon a review of inventory materials on hand, which we compare with estimated future usage and age. In addition, we review the inventory and compare recorded costs with estimates of current market value. Write-downs are recorded to reduce the carrying value to the net realizable value with respect to any part with costs in excess of current market value. Estimating demand and current market values is inherently difficult, particularly given that we make highly specialized components and products. We determine the valuation of excess and obsolete inventory by making our best estimate considering the current quantities of inventory on hand and our forecast of the need for this inventory to support future sales of our products. We often have limited information on which to base our forecasts. If future sales differ from these forecasts, the valuation of excess and obsolete inventory may change and additional inventory provisions may be required. Because of our vertical integration, a significant or sudden decrease in sales could result in a significant change in the estimates of excess or obsolete inventory valuation. We recorded inventory charges of \$6.1 million, \$2.7 million and \$5.3 million in 2011, 2010 and 2009, respectively.

**Stock-based compensation.** Stock-based compensation is included in the following financial statement captions as follows:

	Year Ended December 31,		
	2011	2010	2009
	(In thousands)		
Cost of sales	\$ 1,731	\$ 727	\$ 578
Sales and marketing	1,503	801	727
Research and development	1,036	446	344
General and administrative	3,778	1,222	1,118
<b>Total stock-based compensation</b>	<b>8,048</b>	<b>3,196</b>	<b>2,767</b>
Tax benefit recognized	(2,551)	(973)	(792)
<b>Net stock-based compensation</b>	<b>\$ 5,497</b>	<b>\$ 2,223</b>	<b>\$ 1,975</b>

We allocate and record stock-based compensation expense on a straight-line basis over the requisite service period.

We calculate the fair value of stock option grants using the Black-Scholes option pricing model. Determining the appropriate fair value model and calculating the fair value of stock-based payment awards require the use of highly subjective assumptions, including the expected life of the stock-based payment awards and stock price volatility. The assumptions used to calculate the fair value of stock-based payment awards represent management's best estimates, but the estimates involve inherent uncertainties and the application of management judgment. As a result, if factors change and we use different assumptions, our stock-based compensation expense could be materially different in the future. The weighted average assumptions used in the Black-Scholes model or the calculation of compensation were as follows:

	Year Ended December 31,		
	2011	2010	2009
Expected term	3.4-6.9 years	2.9-5.9 years	1.74-7.10 years
Volatility	46%-56%	42%-48%	46%-65%
Risk free rate of return	0.48%-2.82%	0.34%-2.68%	0.56%-2.78%
Dividend yield	0%	0%	0%
Forfeiture rate	0%-6.26%	0%-5.0%	2%-6.6%

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As stock-based compensation expense recorded in our statements of operations is based on options ultimately expected to vest, it has been reduced for estimated forfeitures. We estimate forfeitures at the time of grant and revise these estimates, if necessary, in subsequent periods if actual forfeitures differ from the estimates.

We have offered an employee stock purchase plan covering our U.S. and German employees. The plan allows employees who participate to purchase shares of common stock through payroll deductions at a 15% discount to the lower of the stock price on the first day or last day of the six-month purchase period. Payroll deductions may not exceed 10% of the employee's compensation. Compensation expense related to the employee stock purchase plan for the years ended December 31, 2011, 2010 and 2009, was approximately \$359,000, \$206,000 and \$205,000, respectively.

*Income taxes and deferred taxes.* Our annual tax rate is based on our income, statutory tax rates and tax planning opportunities available to us in the various jurisdictions in which we operate.

We file federal and state income tax returns in the United States and tax returns in nine international jurisdictions. We must estimate our income tax expense after considering, among other factors, intercompany transactions on an arm's length basis, differing tax rates between jurisdictions, allocation factors, tax credits, nondeductible items and changes in enacted tax rates. Significant judgment is required in determining our annual tax expense and in evaluating our tax positions. As we continue to expand globally, there is a risk that, due to complexity within and diversity among the various jurisdictions in which we do business, a governmental agency may disagree with the manner in which we have computed our taxes. Additionally, due to the lack of uniformity among all of the foreign and domestic taxing authorities, there may be situations where the tax treatment of an item in one jurisdiction is different from the tax treatment in another jurisdiction or that the transaction causes a tax liability to arise in another jurisdiction.

Deferred taxes arise because of the different treatment between financial statement accounting and tax accounting, known as temporary differences. The tax effects of these temporary differences are recorded as deferred tax assets and deferred tax liabilities on the consolidated balance sheet. At December 31, 2011, we recorded a net deferred tax asset of \$10.3 million. If insufficient evidence of our ability to generate future taxable income arises, we may be required to record a valuation allowance against these assets, which will result in additional income tax expense. On a quarterly basis, we evaluate whether the deferred tax assets may be realized in the future and assess the need for a valuation allowance.

We provide reserves for potential payments of tax to various tax authorities related to uncertain tax positions and other issues. Reserves recorded are based on a determination of whether and how much of a tax benefit taken by us in our tax filings or positions is more likely than not to be realized following resolution of any potential contingencies present related to the tax benefit, assuming that the matter in question will be raised by the tax authorities. Potential interest and penalties associated with such uncertain tax positions is recorded as a component of income tax expense. At December 31, 2011, we had unrecognized tax benefits of approximately \$4.5 million that, if recognized, would be recorded as a reduction in income tax expense.

Deferred tax liabilities are not recorded for undistributed earnings of a foreign subsidiary that are deemed to be indefinitely reinvested in the foreign jurisdiction. Historically, we have reinvested the undistributed earnings of our foreign subsidiaries. We intend to continue to do this and keep such earnings indefinitely reinvested in the applicable tax jurisdictions.

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### Results of Operations

The following table sets forth selected statement of operations data for the periods indicated in dollar amounts and expressed as a percentage of net sales.

	Year Ended December 31,					
	2011		2010		2009	
	(In thousands, except percentages and per share data)					
Net sales	\$ 474,482	100.0%	\$ 299,256	100.0%	\$ 185,894	100.0%
Cost of sales	217,227	45.8	152,798	51.1	121,626	65.4
Gross profit	257,255	54.2	146,458	48.9	64,268	34.6
Operating expenses:						
Sales and marketing	21,731	4.6	19,100	6.4	15,157	8.2
Research and development	25,422	5.4	19,160	6.4	18,543	10.0
General and administrative	37,442	7.9	28,645	9.6	20,489	11.0
(Gain) loss on foreign exchange	(2,862)	(0.6)	(848)	(0.3)	1,022	0.5
Total operating expenses	81,733	17.2	66,057	22.1	55,211	29.7
Operating income	175,522	37.0	80,401	26.9	9,057	4.9
Interest expense, net	(681)	(0.1)	(1,188)	(0.4)	(1,252)	(0.7)
Other (expense) income, net	(257)	(0.1)	39	0.0	(36)	(0.0)
Income before provision for income taxes	174,584	36.8	79,252	26.5	7,769	4.2
Provision for income taxes	(53,575)	(11.3)	(24,900)	(8.3)	(2,485)	(1.3)
Net income	121,009	25.5	54,352	18.2	5,284	2.8
Less: Net income (loss) attributable to noncontrolling interests	3,250	0.7	361	0.1	(135)	(0.1)
Net income attributable to IPG Photonics Corporation	\$ 117,759	24.8%	\$ 53,991	18.0%	\$ 5,419	2.9%
Net income attributable to IPG Photonics Corporation per share:						
Basic	\$ 2.48		\$ 1.16		\$ 0.12	
Diluted	\$ 2.41		\$ 1.13		\$ 0.12	
Weighted-average shares outstanding:						
Basic	47,365		46,424		45,489	
Diluted	48,685		47,594		46,595	

### Comparison of Year Ended December 31, 2011 to Year Ended December 31, 2010

*Net sales.* Net sales increased by \$175.2 million, or 58.6%, to \$474.5 million in 2011 from \$299.3 million in 2010. The table below sets forth sales by application (in thousands, except for percentages):

	Year Ended December 31,				Change	
	2011		2010			
		% of Total		% of Total		
Materials Processing	\$ 419,443	88.4%	\$ 252,014	84.2%	\$ 167,429	66.4%
Advanced Applications	25,918	5.5%	25,196	8.4%	722	2.9%

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Communications	20,368	4.3%	14,020	4.7%	6,348	45.3%
Medical	8,753	1.8%	8,026	2.7%	727	9.1%
Total	\$ 474,482	100.0%	\$ 299,256	100.0%	\$ 175,226	58.6%

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Sales for materials processing applications increased due to substantially increased sales of high-power lasers used in cutting and welding applications and pulsed lasers used in marking and engraving applications. Sales for communications applications increased due to increased sales of amplifiers in both the United States and Russia. Sales for medical applications increased due to increased demand from our primary medical applications customer in the United States and sales to new customers in Europe and Asia. The increase in sales of advanced applications was due to higher sales of high-power lasers used in university applications partially offset by decreased sales for optical pumping and research and development applications.

*Cost of sales and gross margin.* Cost of sales increased by \$64.4 million, or 42.2%, to \$217.2 million in 2011 from \$152.8 million in 2010. Our gross margin increased to 54.2% in 2011 from 48.9% in 2010. The increase in gross margin was the result of an increase in net sales and more favorable absorption of our fixed manufacturing costs due to an increase in production volume. In addition, cost of sales benefited from a reduction in the cost per watt of our diodes and lower costs associated with greater use of internally manufactured components and accessories. Expenses related to inventory reserves and other valuation adjustments increased by \$3.4 million to \$6.1 million, or 1.3% of sales, for the year ended December 31, 2011, as compared to \$2.7 million, or 0.9% of sales, for the year ended December 31, 2010.

*Sales and marketing expense.* Sales and marketing expense increased by \$2.6 million, or 13.7%, to \$21.7 million in 2011 from \$19.1 million in 2010, primarily as a result of an increase in personnel costs due to an increase in headcount and bonus accruals. As a percentage of sales, sales and marketing expense decreased to 4.6% in 2011 from 6.4% in 2010. As we continue to expand our worldwide sales organization, we expect expenditures on sales and marketing to continue to increase in the aggregate.

*Research and development expense.* Research and development expense increased by \$6.2 million, or 32.7%, to \$25.4 million in 2011 from \$19.2 million in 2010. This increase was primarily the result of an increase in personnel, consultant costs, and an increase in materials used in research and development activities. The increase in personnel costs was driven primarily by increases in headcount and bonus accruals. Research and development activity continues to focus on enhancing the performance of our internally manufactured components, refining production processes to improve manufacturing yields, developing new products operating at different wavelengths and higher output powers and new complementary accessories used with our products. As a percentage of sales, research and development expense decreased to 5.4% in 2011 from 6.4% in 2010. We expect that research and development expenses will increase in 2012.

*General and administrative expense.* General and administrative expense increased by \$8.8 million, or 30.7%, to \$37.4 million in 2011 from \$28.6 million in 2010, primarily due to a \$5.7 million increase in personnel attributable to higher bonuses and stock compensation and \$2.3 million increase in accounting and legal fees primarily related to higher legal costs incurred in defending a patent infringement action brought against us. As a percentage of sales, general and administrative expense decreased to 7.9% in 2011 from 9.6% in 2010. In the future, we expect general and administrative expenses to increase as we invest to support the expected growth in net sales.

*Effect of exchange rates on sales, gross margin and operating expenses.* We estimate that if exchange rates had been the same as one year ago, sales in 2011 would have been \$17.2 million lower, gross margin would have been \$7.1 million lower and total operating expenses would have been \$2.0 million lower. The measures that assume constant exchange rates between fiscal year 2011 and fiscal year 2010 are calculated using the average exchange rates for the twelve-month period ended December 31, 2010 for the respective currencies, which were Euro 1=US\$1.33, Japanese Yen 1= US\$0.01 and Russian Ruble 1=US\$0.03.

*Gain (loss) on foreign exchange.* We incurred a foreign exchange gain of \$2.9 million in 2011 as compared to a gain of \$0.8 million in 2010. The change was primarily attributable to the depreciation of the Euro against the U.S. Dollar and Japanese Yen.



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**Interest expense, net.** Interest expense, net was \$0.7 million in 2011 compared to \$1.2 million in 2010.

**Provision for income taxes.** Provision for income taxes was \$53.6 million in 2011 compared to \$24.9 million in 2010, representing an effective tax rate of 30.7% in 2011 and 31.4% in 2010. The increase in the provision for income taxes was due to an increase in income before the provision for income taxes, while the decrease in the effective rate was due to the proportion of income earned in countries with lower enacted tax rates.

**Net income.** Net income attributable to IPG Photonics Corporation increased by \$63.8 million to \$117.8 million in 2011 from \$54.0 million in 2010. Net income attributable to IPG Photonics Corporation as a percentage of our net sales increased by 6.8 percentage points to 24.8% in 2011 from 18.0% in 2010 due to the factors described above.

## Comparison of Year Ended December 31, 2010 to Year Ended December 31, 2009

**Net sales.** Net sales increased by \$113.4 million, or 61.0%, to \$299.3 million in 2010 from \$185.9 million in 2009. The table below sets forth sales by application (in thousands, except for percentages):

	Year Ended December 31,		2009		Change	
	2010	% of Total	2009	% of Total		%
Materials Processing	\$ 252,014	84.2%	\$ 140,864	75.8%	\$ 111,150	78.9%
Advanced Applications	25,196	8.4%	26,557	14.3%	(1,361)	(5.1)%
Communications	14,020	4.7%	10,867	5.8%	3,153	29.0%
Medical	8,026	2.7%	7,606	4.1%	420	5.5%
Total	\$ 299,256	100.0%	\$ 185,894	100.0%	\$ 113,362	61.0%

Sales for materials processing applications increased due to substantially increased sales of pulsed lasers used in marking and engraving applications and high-power lasers used in cutting and welding applications. Sales for communications applications increased due to increased sales of amplifiers in Russia. Sales for medical applications increased due to increased demand from our primary medical applications customer in the United States and sales to new customers in Europe and Asia. The decrease in sales of advanced applications was due to lower sales of high-power lasers used in government applications partially offset by increased sales for optical pumping and research and development applications.

**Cost of sales and gross margin.** Cost of sales increased by \$31.2 million, or 25.6%, to \$152.8 million in 2010 from \$121.6 million in 2009. Our gross margin increased to 48.9% in 2010 from 34.6% in 2009. The increase in gross margin was the result of an increase in net sales and more favorable absorption of our fixed manufacturing costs due to an increase in production volume. In addition, cost of sales benefited from a reduction in the cost per watt of our diodes and lower costs associated with greater use of internally manufactured components and accessories. Expenses related to inventory reserves and other valuation adjustments decreased by \$2.6 million to \$2.7 million, or 0.9% of sales, for the year ended December 31, 2010, as compared to \$5.3 million, or 2.9% of sales, for the year ended December 31, 2009.

**Sales and marketing expense.** Sales and marketing expense increased by \$3.9 million, or 26.0%, to \$19.1 million in 2010 from \$15.2 million in 2009, primarily as a result of an increase in personnel costs due to an increase in headcount and bonus accruals. As a percentage of sales, sales and marketing expense decreased to 6.4% in 2010 from 8.2% in 2009.

**Research and development expense.** Research and development expense increased by \$0.7 million, or 3.3%, to \$19.2 million in 2010 from \$18.5 million in 2009. This increase was primarily the result of an increase

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in personnel and consultant costs, partially offset by a decrease in materials used in research and development activities. The increase in personnel costs was driven primarily by bonus accruals. Research and development activity continues to focus on enhancing the performance of our internally manufactured components, refining production processes to improve manufacturing yields, developing new products operating at different wavelengths and higher output powers and new complementary accessories used with our products. As a percentage of sales, research and development expense decreased to 6.4% in 2010 from 10.0% in 2009.

*General and administrative expense.* General and administrative expense increased by \$8.1 million, or 39.8%, to \$28.6 million in 2010 from \$20.5 million in 2009, primarily due to a \$3.6 million increase in personnel and contractor expenses attributable to higher bonuses and a \$2.5 million increase in accounting and legal fees related to defending a patent infringement action brought against us. As a percentage of sales, general and administrative expense decreased to 9.6% in 2010 from 11.0% in 2009.

*Effect of exchange rates on sales, gross margin and operating expenses.* We estimate that if exchange rates had been the same in 2010 as they were in 2009, sales in 2010 would have been \$4.5 million higher, gross margin would have been \$1.6 million higher and operating expenses in total would have been \$0.3 million higher. The measures that assume constant exchange rates between fiscal year 2010 and fiscal year 2009 are calculated using the average exchange rates for the twelve-month period ended December 31, 2009 for the respective currencies, which were Euro 1=US\$1.39, Japanese Yen 1= US\$0.01 and Russian Ruble 1=US\$0.03.

*Gain (loss) on foreign exchange.* We incurred a foreign exchange gain of \$0.8 million in 2010 as compared to a loss of \$1.0 million in 2009. The change was primarily attributable to the depreciation of the Euro against the U.S. Dollar and Japanese Yen.

*Interest expense, net.* Interest expense, net was \$1.2 million in 2010 compared to \$1.3 million in 2009.

*Provision for income taxes.* Provision for income taxes was \$24.9 million in 2010 compared to \$2.5 million in 2009, representing an effective tax rate of 31.4% in 2010 and 32.0% in 2009. The increase in the provision for income taxes was due to an increase in income before the provision for income taxes, while the decrease in the effective rate was due to the proportion of income earned in countries with lower enacted tax rates.

*Net income.* Net income attributable to IPG Photonics Corporation increased by \$48.6 million to \$54.0 million in 2010 from \$5.4 million in 2009. Net income attributable to IPG Photonics Corporation as a percentage of our net sales increased by 15.1 percentage points to 18.0% in 2010 from 2.9% in 2009 due to the factors described above.

## **Liquidity and Capital Resources**

Our principal sources of liquidity as of December 31, 2011 consisted of cash and cash equivalents of \$180.2 million, short-term investments of \$25.5 million, unused credit lines and overdraft facilities of \$49.8 million and working capital (excluding cash and short-term investments) of \$135.1 million. This compares to cash and cash equivalents of \$147.9 million, unused credit lines and overdraft facilities of \$51.5 million and working capital (excluding cash) of \$70.2 million as of December 31, 2010. The increase in cash and cash equivalents of \$32.3 million from December 31, 2010 relates primarily to cash provided by operating activities in 2011 of \$87.4 million and a non-controlling equity investment of \$20.0 million in our Russian subsidiary by The Russian Corporation of Nanotechnologies, or Rusnano, offset by capital expenditures of \$53.0 million and purchases of short-term investments of \$25.5 million. At December 31, 2011, \$106.0 million of cash and \$18.5 million of short-term investments were held outside of the United States. Cash provided by the Rusnano investment is being used to fund the expansion of our business in Russia, including operating expenses, investments in working capital and capital expenditures. This funding is not available for use outside of Russia. Terms of this investment are more fully described below.

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Our long-term debt consists primarily of a \$15.3 million secured variable-rate note, of which the current portion is \$1.3 million as of December 31, 2011. The note matures in June 2015, at which time the outstanding debt balance will be \$10.7 million. The variable interest rate was fixed by means of interest rate swap instruments. The note is secured by a mortgage on real estate and buildings that we own in Massachusetts. In January 2011, we entered into a 10-year Euro 1.4 million (\$2.0 million) mortgage obligation to fund the purchase of a new building in Italy, of which the current portion is \$0.3 million as of December 31, 2011. The interest on this mortgage obligation is fixed at 4.96% and it amortizes in full over the term of the obligation. The remaining long-term debt consists of Euro 0.2 million (\$0.3 million) of seller-provided financing relating to our purchase of Cosytroic KG in 2010.

We expect that our existing cash and marketable securities, our cash flows from operations and our existing lines of credit will be sufficient to meet our liquidity and capital needs for the foreseeable future. Our future long-term capital requirements depend on many factors including our level of sales, the impact of economic recessions on our sales levels, the timing and extent of spending to support development efforts, the expansion of our sales and marketing activities, the timing and introductions of new products, the need to ensure access to adequate manufacturing capacity and the continuing market acceptance of our products. We have made no arrangements to obtain additional financing, and there is no assurance that such additional financing, if required or desired, will be available in amounts or on terms acceptable to us, if at all.

The following table details our line-of-credit facilities as of December 31, 2011:

<b>Description</b>	<b>Available Principal</b>	<b>Interest Rate</b>	<b>Maturity</b>	<b>Security</b>
U.S. Revolving Line of Credit(1)	Up to \$35 million	LIBOR plus 1.125% to 1.625%, depending on our performance	June 2015	Unsecured
Euro Credit Facility (Germany)(2)	Euro 15.0 million (\$19.4 million)	Euribor plus 0.85% or EONIA plus 1.2%	June 2012	Unsecured, guaranteed by parent company
Euro Overdraft Facilities	Euro 1.9 million (\$2.4 million)	2.4%-6.5%	Between September 2012 and October 2012	Common pool of assets of German and Italian subsidiaries

(1) \$15.0 million of this credit facility is available to our foreign subsidiaries including those in India, China, Japan and South Korea. Total drawings at December 31, 2011 were \$4.2 million with a weighted average interest rate of 1.3%.

(2) \$4.0 million of this credit facility is available to our Russian subsidiary and \$4.0 million is available to our Italian subsidiary. Our largest committed credit lines are with Bank of America and Deutsche Bank in the amounts of \$35.0 million and \$19.4 million, respectively, neither of which has been syndicated.

We are required to meet certain financial covenants associated with our U.S. revolving line of credit and long-term debt facilities. These covenants, tested quarterly, include a debt service coverage ratio and a funded debt to earnings before interest, taxes, depreciation and amortization, or EBITDA, ratio. The debt service coverage covenant requires that we maintain a trailing twelve month ratio of cash flow to debt service that is greater than 1.5:1. Debt service is defined as required principal and interest payments during the period. Cash flow is defined as EBITDA less unfunded capital expenditures. The funded debt to EBITDA covenant requires that the sum of all indebtedness for borrowed money on a consolidated basis be less than two times our trailing twelve-month EBITDA. We were in compliance with all such financial covenants as of and for the year ended December 31, 2011.

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The financial covenants in our loan documents may cause us to not take or to delay investments and actions that we might otherwise undertake because of limits on capital expenditures and amounts that we can borrow or lease. In the event that we do not comply with any of these covenants, we would be in default under the loan agreement or loan agreements, which may result in acceleration of the debt, cross-defaults on other debt or a reduction in available liquidity, any of which could harm our results of operations and financial condition.

In December 2010, we sold a 12.5% minority interest in our Russian subsidiary, NTO IRE-Polus, to Rusnano for \$25.0 million. Terms of the investment allow Rusnano to put the investment to the Company for redemption in either cash or our stock, at the option of Rusnano, from December, 2015 to December, 2017. The Company also has certain rights to call the investment from December, 2013 to December, 2017. In addition, the Company has rights to call the investment at any time if the Company is no longer permitted to consolidate the financial results of NTO IRE-Polus under accounting principles generally accepted in the United States of America. Furthermore, if Rusnano owns less than 10.01% of NTO IRE-Polus, the Company has a call option and Rusnano has a put option for Rusnano's entire interest in NTO IRE-Polus. We are required to account for the put rights on our balance sheet as a liability or other than permanent equity. Rusnano exercised certain of its warrants to purchase an additional 10% of our Russian subsidiary in June 2011 for \$20.0 million as NTO IRE-Polus attained certain minimum revenue thresholds. This additional investment is also subject to the put and call provisions described above. As of December 31, 2011, Rusnano holds a warrant to purchase an additional 2.5% interest of NTO IRE-Polus for \$5.0 million. See Note 7 to the Consolidated Financial Statements.

*Operating activities.* Net cash provided by operating activities increased by \$24.0 million to \$87.4 million in 2011 from \$63.4 million in 2010, primarily resulting from:

An increase in cash provided by net income after adding back non-cash charges of \$76.4 million in 2011 as compared to 2010 primarily related to an increase in net income and an increase in stock-based compensation expense; partially offset by

A decrease in accrued expenses and other liabilities of \$6.8 million in 2011 compared to an increase of \$22.1 million in 2010 primarily related to customer deposits and deferred revenue, accrued compensation and accrued warranty;

An increase in inventory of \$56.1 million in 2011 compared to an increase of inventory of \$27.0 million in 2010; and

An increase in accounts receivable of \$23.7 million in 2011 compared to an increase of \$27.3 million in 2010.

Given our vertical integration, rigorous and time-consuming testing procedures for both internally manufactured and externally purchased components and the lead time required to manufacture components used in our finished products, the rate at which we turn inventory historically has been low when compared to our cost of sales. Also, our historical growth rates require investment in inventories to support future sales and enable us to quote short delivery times to our customers, which we believe provides us with a competitive advantage. Furthermore, if there is a disruption to the manufacturing capacity of any of our key technologies, our inventories of components should enable us to continue to build finished products for some period of time. We believe that we will continue to maintain a relatively high level of inventory compared to our cost of sales. As a result, we expect to have a significant amount of working capital invested in inventory. A reduction in our level of net sales or the rate of growth of our net sales from their current levels would mean that the rate at which we are able to convert our inventory into cash would decrease.

*Investing activities.* Net cash used in investing activities was \$79.1 million and \$32.6 million in 2011 and 2010, respectively. The cash used in investing activities in 2011 included \$53.0 million of capital expenditures and \$25.5 million of purchases of short-term investments as compared to \$28.3 million of capital expenditures in 2010. Capital expenditures in 2011 were related to the purchase of new buildings in Germany and Japan, the start of construction on new buildings in Russia and the purchases of manufacturing-related equipment in the United

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States, Germany and Russia that allowed us to expand our manufacturing capacity. The cash used in investing activities in 2010 related to the purchase of a new building in South Korea to house a new laser application center, the acquisitions of Photonics Innovations, Inc. and Cosytronic KG and purchases of equipment primarily in the United States and Germany.

We expect to incur between \$55 million to \$60 million in capital expenditures, excluding acquisitions, in 2012. The timing and extent of any capital expenditures in and between periods can have a significant effect on our cash flows. Many of the capital expenditure projects that we undertake have long lead times and are difficult to cancel or defer to a later period.

*Financing activities.* Net cash provided by financing activities was \$31.9 million and \$37.8 million in 2011 and 2010, respectively. The cash provided by financing activities in 2011 was primarily related to cash received from Rusnano for an additional 10% interest in our Russian subsidiary and cash provided by the exercise of stock options. The cash provided by financing activities in 2010 was primarily related to cash received from Rusnano for a 12.5% interest in our Russian subsidiary and cash provided by the exercise of stock options.

## Contractual Obligations

The following table describes our contractual obligations as of December 31, 2011 (in thousands).

	Total	Payments Due in			
		Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
Operating lease obligations	\$ 12,229	\$ 3,723	\$ 6,099	\$ 2,382	\$ 25
Purchase obligations(1)	14,377	14,377			
Long-term debt obligations (including interest)(2)	17,052	1,482	3,159	11,705	706
Other notes payable	322			322	
Contingent consideration	999	331	149	519	
Total(3)	\$ 44,979	\$ 19,913	\$ 9,407	\$ 14,928	\$ 731

- (1) Represents minimum purchase commitments for property, plant and equipment and excludes short-term purchase commitments entered into in the normal course of business.
- (2) Interest for long-term debt obligations was calculated including the effect of our interest rate swap. The effect of the interest rate swap, which is accounted for as a cash flow hedge, is to fix the LIBOR component of the interest rate of the underlying floating rate loan at 4.9% for the term of the debt.
- (3) Excludes obligations related to ASC 740 because we are unable to provide a reasonable estimate of the timing of future payments relating to the remainder of these obligations. See Note 14 to our consolidated financial statements.

## Recent Accounting Pronouncements

In October 2009, the Financial Accounting Standards Board, or the FASB, issued new accounting guidance for revenue recognition related to multiple element arrangements. This guidance established a selling price hierarchy, which allows the use of estimated selling prices to allocate arrangement consideration to deliverables in cases where neither vendor-specific objective evidence nor third-party evidence is available. The new guidance was effective for the Company prospectively for revenue arrangements entered into or materially modified beginning in the first quarter of fiscal 2011. The adoption of this accounting guidance did not have a material impact on the Company's consolidated financial statements and is not expected to have a material effect on the Company's consolidated financial statements in subsequent periods.

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In May 2011, the FASB issued ASU No. 2011-04, Fair Value Measurement: Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs. This newly issued accounting standard clarifies the application of certain existing fair value measurement guidance and expands the disclosures for fair value measurements that are estimated using significant unobservable (Level 3) inputs. This ASU is effective on a prospective basis for annual and interim reporting periods beginning on or after December 15, 2011. Early application is not permitted. We will adopt this amended guidance for the fiscal year beginning January 1, 2012. We are evaluating the disclosure requirements related to providing quantitative information about unobservable inputs used to measure the fair value of our auction rate securities, contingent consideration liability and certain derivative instruments.

Other accounting standards that have been issued or proposed by the FASB or other standards-setting bodies that do not require adoption until a future date are not expected to have a material impact on our financial statements upon adoption.

### **ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

We are exposed to market risk in the ordinary course of business, which consists primarily of interest rate risk associated with our cash and cash equivalents and our debt and foreign exchange rate risk.

*Interest rate risk.* Our investments have limited exposure to market risk. To minimize this risk, we maintain a portfolio of cash, cash equivalents and short-term investments, consisting primarily of bank deposits, money market funds and short-term government funds. The interest rates are variable and fluctuate with current market conditions. Because of the short-term nature of these instruments, a sudden change in market interest rates would not be expected to have a material impact on our financial condition or results of operations.

Our exposure to market risk also relates to the increase or decrease in the amount of interest expense we must pay on our bank debt and borrowings on our bank credit facilities. The interest rate on our existing bank debt is effectively fixed except for our U.S. revolving line of credit. The rates on our Euro overdraft facilities in Germany and Italy and our Japanese Yen overdraft facility are fixed for twelve-month periods. Approximately 63% of our outstanding debt had a fixed rate of interest as of December 31, 2011. We do not believe that a 10% change in market interest rates would have a material impact on our financial position or results of operations.

*Exchange rates.* Due to our international operations, a significant portion of our net sales, cost of sales and operating expenses are denominated in currencies other than the U.S. dollar, principally the Euro, the Japanese Yen, the Chinese Yuan and the Russian Ruble. As a result, our international operations give rise to transactional market risk associated with exchange rate movements of the U.S. dollar, the Euro, the Japanese Yen and the Russian Ruble. Gains and losses on foreign exchange transactions totaled a \$2.9 million gain in 2011 and a \$0.8 million gain in 2010. We estimate that if exchange rates had been the same as one year ago, sales in 2011 would have been \$17.2 million lower, gross margin would have been \$7.1 million lower and total operating expenses would have been \$2.0 million lower. The measures that assume constant exchange rates between fiscal year 2011 and fiscal year 2010 are calculated using the average exchange rates for the twelve-month period ended December 31, 2010 for the respective currencies, which were Euro 1=US\$1.33, Japanese Yen 1= US\$0.01 and Russian Ruble 1=US\$0.03. Management believes that the use of foreign currency financial instruments reduces the risks of certain foreign currency transactions; however, these instruments provide only limited protection. We will continue to analyze our exposure to currency exchange rate fluctuations and may engage in additional financial hedging techniques in the future to attempt to minimize the effect of these potential fluctuations. Exchange rate fluctuations may adversely affect our financial results in the future. No foreign currency derivative instruments were outstanding at December 31, 2011.

### **ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

This information is incorporated by reference from pages F-1 through F-26 of this report.

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**ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE**  
None.

### **ITEM 9A. CONTROLS AND PROCEDURES** **Evaluation of Disclosure Controls and Procedures**

Under the supervision of our Chief Executive Officer and our Chief Financial Officer, our management has evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) promulgated under the Securities Exchange Act of 1934, as amended (the Exchange Act)), as of the end of the period covered by this Annual Report on Form 10-K (the Evaluation Date). Based upon that evaluation, our chief executive officer and our chief financial officer have concluded that, as of the Evaluation Date, our disclosure controls and procedures are effective to ensure that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms.

### **Management's Annual Report on Internal Control Over Financial Reporting**

Our management, including our Chief Executive Officer and Chief Financial Officer, is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Company and its subsidiaries. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our management conducted an assessment of the effectiveness of our internal control over financial reporting as of the Evaluation Date based on criteria established in Internal Control Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, our management concluded that, as of the Evaluation Date, our internal control over financial reporting was effective.

Our independent registered public accounting firm, Deloitte & Touche LLP, has audited our internal control over financial reporting, as stated in their report below.

### **Changes in Internal Controls**

There was no change in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) that occurred during the last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

### **Limitations on Effectiveness of Controls**

Our management (including our Chief Executive Officer and Chief Financial Officer) does not expect that the disclosure controls and procedures or internal control over financial reporting will prevent or detect all error and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Due to the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues, errors and instances of fraud, if any, within the company have been or will be detected.

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**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To the Board of Directors and Stockholders of

IPG Photonics Corporation

Oxford, MA

We have audited the internal control over financial reporting of IPG Photonics Corporation and subsidiaries (the Company) as of December 31, 2011, based on criteria established in *Internal Control – Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed by, or under the supervision of, the company's principal executive and principal financial officers, or persons performing similar functions, and effected by the company's board of directors, management, and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2011, based on the criteria established in *Internal Control – Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements as of and for the year ended December 31, 2011 of the Company and our report dated February 27, 2012 expressed an unqualified opinion on those financial statements.

/s/ Deloitte & Touche LLP

Boston, MA

February 27, 2012



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**ITEM 9B. *OTHER INFORMATION***

None.

**PART III**

**ITEM 10. *DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE***

The information required hereunder is incorporated herein by reference to our definitive Proxy Statement to be filed pursuant to Regulation 14A, which Proxy Statement is anticipated to be filed with the Securities and Exchange Commission within 120 days after December 31, 2011.

**ITEM 11. *EXECUTIVE COMPENSATION***

The information required hereunder is incorporated herein by reference to our definitive Proxy Statement to be filed pursuant to Regulation 14A, which Proxy Statement is anticipated to be filed with the Securities and Exchange Commission within 120 days after December 31, 2011.

**ITEM 12. *SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS***

The information required hereunder is incorporated herein by reference to our definitive Proxy Statement to be filed pursuant to Regulation 14A, which Proxy Statement is anticipated to be filed with the Securities and Exchange Commission within 120 days after December 31, 2011, with the exception of the information regarding securities authorized for issuance under our equity compensation plans, which is set forth in Item 5, Market for the Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities, Information Regarding Equity Compensation Plans and is incorporated herein by reference.

**ITEM 13. *CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE***

The information required hereunder is incorporated herein by reference to our definitive Proxy Statement to be filed pursuant to Regulation 14A, which Proxy Statement is anticipated to be filed with the Securities and Exchange Commission within 120 days after December 31, 2011.

**ITEM 14. *PRINCIPAL ACCOUNTING FEES AND SERVICES***

The information required hereunder is incorporated herein by reference to our definitive Proxy Statement to be filed pursuant to Regulation 14A, which Proxy Statement is anticipated to be filed with the Securities and Exchange Commission within 120 days after December 31, 2011.

**PART IV**

**ITEM 15. *EXHIBITS AND FINANCIAL STATEMENT SCHEDULES***

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements.

See Index to Financial Statements on page F-1.



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(2) Financial Statement Schedules.

All schedules are omitted because they are not applicable or the required information is shown on the financial statements or notes thereto.

(3) The exhibits listed in the Index to Exhibits preceding the Exhibits attached hereto are filed with this Form 10-K or incorporated by reference as set forth therein.

(b) Exhibits.

See (a)(3) above.

(c) Additional Financial Statement Schedules.

All schedules are omitted because they are not applicable or the required information is shown on the financial statements or notes thereto.

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**SIGNATURES**

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on February 27, 2012.

IPG PHOTONICS CORPORATION

By: /s/ Valentin P. Gapontsev  
Valentin P. Gapontsev

*Chief Executive Officer and*

*Chairman of the Board*

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

<b>Signature</b>	<b>Title</b>	
/s/ Valentin P. Gapontsev	Chief Executive Officer, Chairman of the Board and Director	February 27, 2012
Valentin P. Gapontsev	(Principal Executive Officer)	
/s/ Timothy P.V. Mammen	Chief Financial Officer (Principal Financial Officer and	February 27, 2012
Timothy P.V. Mammen	Principal Accounting Officer)	
/s/ Robert A. Blair	Director	February 27, 2012
Robert A. Blair		
/s/ Michael C. Child	Director	February 27, 2012
Michael C. Child		
/s/ Henry E. Gauthier	Director	February 27, 2012
Henry E. Gauthier		
/s/ William S. Hurley	Director	February 27, 2012
William S. Hurley		
/s/ Michael R. Kampfe	Director	February 27, 2012
Michael R. Kampfe		
/s/ William F. Krupke	Director	February 27, 2012

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William F. Krupke

/s/ Igor Samartsev

Director

February 27, 2012

Igor Samartsev

/s/ Eugene Scherbakov

Director

February 27, 2012

Eugene Scherbakov

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**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To the Board of Directors and Stockholders of

IPG Photonics Corporation

Oxford, Massachusetts

We have audited the accompanying consolidated balance sheets of IPG Photonics Corporation and subsidiaries (the Company) as of December 31, 2011 and 2010, and the related consolidated statements of income, equity and comprehensive income and cash flows for each of the three years in the period ended December 31, 2011. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the financial statements based on our audits.

We conducted our audits in accordance with standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2011 and 2010, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2011, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company's internal control over financial reporting as of December 31, 2011, based on the criteria established in *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 27, 2012 expressed an unqualified opinion on the Company's internal control over financial reporting.

/s/ Deloitte & Touche LLP

Boston, Massachusetts

February 27, 2012

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**IPG PHOTONICS CORPORATION**  
**CONSOLIDATED BALANCE SHEETS**

	December 31, 2011      2010 (In thousands, except share and per share data)	
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	\$ 180,234	\$ 147,860
Short-term investments	25,451	
Accounts receivable, net	75,755	55,399
Inventories, net	116,978	72,470
Prepaid income taxes and income taxes receivable	13,285	2,663
Prepaid expenses and other current assets	11,855	13,816
Deferred income taxes, net	10,899	8,593
Total current assets	434,457	300,801
DEFERRED INCOME TAXES, NET	4,830	4,489
INTANGIBLE ASSETS, NET	6,157	7,131
PROPERTY, PLANT AND EQUIPMENT, NET	155,202	120,683
OTHER ASSETS	7,486	8,751
TOTAL	\$ 608,132	\$ 441,855
LIABILITIES AND EQUITY		
CURRENT LIABILITIES:		
Revolving line-of-credit facilities	\$ 7,057	\$ 6,841
Current portion of long-term debt	1,613	1,333
Accounts payable	11,122	9,510
Accrued expenses and other liabilities	47,285	50,105
Deferred income taxes, net	5,405	3,387
Income taxes payable	21,230	11,594
Total current liabilities	93,712	82,770
OTHER LONG-TERM LIABILITIES	8,961	1,735
LONG-TERM DEBT, NET OF CURRENT PORTION	15,726	15,644
Total liabilities	118,399	100,149
REDEEMABLE NONCONTROLLING INTERESTS	46,123	24,903
COMMITMENTS AND CONTINGENCIES		
IPG PHOTONICS CORPORATION STOCKHOLDERS' EQUITY:		
Common stock, \$0.0001 par value, 175,000,000 shares authorized; 47,616,115 and 46,988,566 shares issued and outstanding at December 31, 2011 and 2010, respectively	5	5
Additional paid-in capital	332,585	310,218
Retained earnings	122,833	5,567
Accumulated other comprehensive (loss) income	(12,100)	810
Total IPG Photonics Corporation stockholders' equity	443,323	316,600
NONCONTROLLING INTERESTS	287	203
Total equity	443,610	316,803



TOTAL

\$ 608,132

\$ 441,855

See notes to consolidated financial statements.

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**IPG PHOTONICS CORPORATION**  
**CONSOLIDATED STATEMENTS OF INCOME**

	Year Ended December 31,		
	2011	2010	2009
	(In thousands, except per share data)		
NET SALES	\$ 474,482	\$ 299,256	\$ 185,894
COST OF SALES	217,227	152,798	121,626
GROSS PROFIT	257,255	146,458	64,268
OPERATING EXPENSES:			
Sales and marketing	21,731	19,100	15,157
Research and development	25,422	19,160	18,543
General and administrative	37,442	28,645	20,489
(Gain) loss on foreign exchange	(2,862)	(848)	1,022
Total operating expenses	81,733	66,057	55,211
OPERATING INCOME	175,522	80,401	9,057
OTHER EXPENSE, Net:			
Interest expense, net	(681)	(1,188)	(1,252)
Other (expense) income, net	(257)	39	(36)
Total other expense	(938)	(1,149)	(1,288)
INCOME BEFORE PROVISION FOR INCOME TAXES	174,584	79,252	7,769
PROVISION FOR INCOME TAXES	(53,575)	(24,900)	(2,485)
NET INCOME	121,009	54,352	5,284
LESS: NET INCOME (LOSS) ATTRIBUTABLE TO NONCONTROLLING INTERESTS	3,250	361	(135)
NET INCOME ATTRIBUTABLE TO IPG PHOTONICS CORPORATION	\$ 117,759	\$ 53,991	\$ 5,419
NET INCOME ATTRIBUTABLE TO IPG PHOTONICS CORPORATION PER SHARE:			
Basic	\$ 2.48	\$ 1.16	\$ 0.12
Diluted	\$ 2.41	\$ 1.13	\$ 0.12
WEIGHTED AVERAGE SHARES OUTSTANDING:			
Basic	47,365	46,424	45,489
Diluted	48,685	47,594	46,595

See notes to consolidated financial statements.

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## IPG PHOTONICS CORPORATION

### CONSOLIDATED STATEMENTS OF EQUITY AND COMPREHENSIVE INCOME

	Year Ended December 31,					
	2011		2010		2009	
	Shares	Amount	Shares	Amount	Shares	Amount
	(In thousands, except share and per share data)					
COMMON STOCK						
Balance, beginning of year	46,988,566	\$ 5	46,076,472	\$ 5	44,965,960	\$ 4
Exercise of stock options	595,448		865,123		684,838	1
Common stock issued under employee stock purchase plan	32,101		46,971		57,528	
Common stock issued in purchase of noncontrolling interests ( NCI )					368,146	
Balance, end of period	47,616,115	5	46,988,566	5	46,076,472	5
ADDITIONAL PAID-IN CAPITAL						
Balance, beginning of year		310,218		293,743		283,217
Stock-based compensation		8,048		3,196		2,767
Exercise of stock options and related tax benefit from exercise		12,423		13,138		2,871
Common stock issued under employee stock purchase plan		879		603		545
Common stock issued in purchase of NCI						3,027
Sale of redeemable NCI		10,138		15,892		
Increase redeemable NCI to initial redemption value		(9,795)		(16,285)		
Fair value of warrant transferred to additional paid-in capital upon exercise		674				
Discount on purchase of NCI						2,028
Premium on purchase of NCI				(69)		(712)
Balance, end of period		332,585		310,218		293,743
RETAINED EARNINGS (ACCUMULATED DEFICIT)						
Balance, beginning of year		5,567		(48,424)		(53,843)
Net income attributable to IPG Photonics Corporation		117,759		53,991		5,419
Adjustments to redemption value of redeemable NCI		(493)				
Balance, end of period		122,833		5,567		(48,424)
ACCUMULATED OTHER COMPREHENSIVE INCOME						
Balance, beginning of year		810		11,106		8,794
Translation adjustments		(15,167)		(10,662)		1,962
Unrealized loss on derivatives, net of tax		(42)		(27)		350
Change in carrying value of auction rate securities		232				
Attribution to NCI and redeemable NCI		2,067		393		
Balance, end of period		(12,100)		810		11,106
TOTAL IPG PHOTONICS CORPORATION STOCKHOLDERS EQUITY						
		443,323		316,600		256,430
NONCONTROLLING INTERESTS						
Balance, beginning of year		203		141		5,127
Net income (loss) attributable to NCI		94		361		(135)
Other comprehensive (loss) income attributable to NCI		(10)				
Purchase of NCI				(92)		(3,535)
Net income attributable to redeemable NCI				(276)		
Premium on purchase of NCI				69		712
Discount on purchase of NCI						(2,028)

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Balance, end of period	287	203	141
<b>TOTAL EQUITY</b>	<b>\$ 443,610</b>	<b>\$ 316,803</b>	<b>\$ 256,571</b>
<b>COMPREHENSIVE INCOME</b>			
Net income	\$ 121,009	\$ 54,352	\$ 5,284
Other comprehensive income (loss):			
Translation adjustments	(15,167)	(10,662)	1,962
Unrealized loss on derivatives, net of tax	(42)	(27)	350
Change in carrying value of auction rate securities, net of tax	232		
Change in cumulative translation adjustment attributable to NCI and redeemable NCI	2,067	393	
<b>Total comprehensive income</b>	<b>\$ 108,099</b>	<b>\$ 44,056</b>	<b>\$ 7,596</b>

See notes to consolidated financial statements.

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**Table of Contents****IPG PHOTONICS CORPORATION****CONSOLIDATED STATEMENTS OF CASH FLOWS**

	Year Ended December 31,		
	2011	2010	2009
	(In thousands)		
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>			
Net income	\$ 121,009	\$ 54,352	\$ 5,284
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	23,962	21,845	19,172
Deferred income taxes	(288)	401	(4,087)
Stock-based compensation	8,048	3,196	2,767
Unrealized (gains) losses on foreign currency transactions	(764)	(888)	1,023
Other	565	1,184	(36)
Provisions for inventory, warranty and bad debt	15,346	11,377	11,353
Changes in assets and liabilities that provided (used) cash:			
Accounts receivable	(23,688)	(27,308)	9,269
Inventories	(56,139)	(27,018)	5,600
Prepaid expenses and other current assets	(770)	(4,707)	679
Accounts payable	1,985	3,411	(498)
Accrued expenses and other liabilities	(6,811)	22,119	(72)
Income and other taxes payable	12,929	12,911	5,167
Tax benefit from exercise of employee stock options	(8,033)	(7,443)	(1,216)
Net cash provided by operating activities	87,351	63,432	54,405
<b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>			
Purchases of property, plant and equipment and intangible assets	(53,007)	(28,374)	(10,498)
Purchases of short-term investments	(25,451)		
Acquisition of businesses, net of cash acquired	(750)	(4,108)	
Other	109	(77)	(141)
Net cash used in investing activities	(79,099)	(32,559)	(10,639)
<b>CASH FLOWS FROM FINANCING ACTIVITIES:</b>			
Proceeds from line-of-credit facilities	10,673	13,828	19,056
Payments on line-of-credit facilities	(10,630)	(13,086)	(32,851)
Purchases of NCI		(92)	(508)
Principal payments on long-term borrowings	(1,432)	(1,333)	(1,344)
Sale of redeemable NCI	19,972	24,806	
Exercise of employee stock options, issuances under employee stock purchase plan and related tax benefit from exercise	5,268	6,298	2,201
Tax benefit from exercise of employee stock options	8,033	7,443	1,216
Other		(100)	(50)
Net cash provided by (used in) financing activities	31,885	37,764	(12,280)
<b>EFFECT OF CHANGES IN EXCHANGE RATES ON CASH AND CASH EQUIVALENTS</b>	<b>(7,763)</b>	<b>(3,697)</b>	<b>151</b>
<b>NET INCREASE IN CASH AND CASH EQUIVALENTS</b>	<b>32,374</b>	<b>64,940</b>	<b>31,637</b>
<b>CASH AND CASH EQUIVALENTS Beginning of period</b>	<b>147,860</b>	<b>82,920</b>	<b>51,283</b>
<b>CASH AND CASH EQUIVALENTS End of period</b>	<b>\$ 180,234</b>	<b>\$ 147,860</b>	<b>\$ 82,920</b>

**SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION:**

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Cash paid for interest	\$ 1,089	\$ 998	\$ 1,461
Income taxes paid	\$ 39,199	\$ 7,417	\$ 4,929
Non-cash transactions:			
Demonstration units transferred from inventory to other assets	\$ 3,784	\$ 1,620	\$ 8,806
Property purchase financed with debt	\$ 1,833	\$	\$
Additions to property, plant and equipment included in accounts payable	\$ 484	\$ 407	\$ 100
Amounts related to acquisition of businesses included in accounts payable	\$	\$ 1,120	\$
Purchase of NCI in exchange for common stock	\$	\$	\$ 3,027
Inventory contributed to unconsolidated affiliate	\$	\$	\$ 247

See notes to consolidated financial statements.

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**IPG PHOTONICS CORPORATION**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

**(In thousands, except share and per share data)**

**1. NATURE OF BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

*Nature of Business* IPG Photonics Corporation (the Company) is the leading developer and manufacturer of a broad line of high-performance fiber lasers, fiber amplifiers and diode lasers that are used in numerous applications in diverse end markets. Our world headquarters are located in Oxford, Massachusetts. We also have facilities and sales offices elsewhere in the United States, Europe and Asia.

*Principles of Consolidation* We were incorporated as a Delaware corporation in December 1998. The accompanying financial statements include the accounts of the Company and our majority-owned subsidiaries. All intercompany accounts and transactions have been eliminated.

*Use of Estimates* The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances. Actual results could differ from those estimates.

*Foreign Currency* The financial information for entities outside the United States is measured using local currencies as the functional currency. Assets and liabilities are translated into U.S. dollars at the exchange rate in effect on the respective balance sheet dates. Income and expenses are translated into U.S. dollars based on the average rate of exchange for the corresponding period. Exchange rate differences resulting from translation adjustments are accounted for directly as a component of accumulated other comprehensive (loss) income.

*Cash and Cash Equivalents and Short-Term Investments* Cash and cash equivalents consist primarily of highly liquid investments, such as bank deposits, and marketable securities with original maturities of three months or less with insignificant interest rate risk and remaining maturities of three months or less at the date of acquisition. Short-term investments consist primarily of similar highly liquid investments, such as bank deposits and marketable securities with original maturities greater than three months with insignificant interest rate risk, however, the remaining maturities at the date of acquisition are greater than three months, but less than one year. As explained in Note 7, during 2011 and 2010, the Company completed the sale of a 10.0% and a 12.5% interest, respectively, in its Russian subsidiary, NTO IRE Polus (NTO), to an unrelated third party for \$20,000 and \$25,000, respectively. Proceeds from the sale of these interests, which included cash and cash equivalents, are designated for the expansion of NTO's business and can be used for investments in fixed assets, working capital and operating expenses of NTO, but are not available for use for other purposes. As of December 31, 2011, the remaining unused proceeds of \$28,212 consisted of \$10,719 in cash and cash equivalents and \$17,493 in short-term investments.

*Inventories* Inventories are stated at the lower of cost or market on a first-in, first-out basis. Inventories include parts and components that may be specialized in nature and subject to rapid obsolescence. We periodically review the quantities and carrying values of inventories to assess whether the inventories are recoverable. Because of our vertical integration, a significant or sudden decrease in sales activity could result in a significant change in the estimates of excess or obsolete inventory valuation. The costs associated with provisions for excess quantities, technological obsolescence, or component rejection are charged to cost of sales as incurred.



**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)**

**Property, Plant and Equipment** Property, plant and equipment are stated at cost, less accumulated depreciation. Depreciation is determined using the straight-line method based on the estimated useful lives of the related assets. In the case of leasehold improvements, the estimated useful lives of the related assets do not exceed the remaining terms of the corresponding leases. The following table presents the assigned economic useful lives of property, plant and equipment:

Category	Economic Useful Life
Buildings	30 years
Machinery and equipment	3-5 years
Office furniture and fixtures	3-5 years

Expenditures for maintenance and repairs are charged to operations. Interest expense associated with significant capital projects is capitalized as a cost of the project. We capitalized \$46, \$18 and \$75 of interest expense in 2011, 2010 and 2009, respectively.

**Long-Lived Assets** Long-lived assets, which consist primarily of property, plant, and equipment, are reviewed by management for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. In cases in which undiscounted expected future cash flows are less than the carrying value, an impairment loss is recorded equal to the amount by which the carrying value exceeds the fair value of assets. No impairment losses have been recorded during the periods presented.

Included in other long-term assets is certain demonstration equipment. The demonstration equipment and intangible assets are amortized over the respective estimated economic lives, generally 3 years for demonstration equipment and 5-10 years for intangible assets. The carrying value of the demonstration equipment totaled \$3,799 and \$4,619 at December 31, 2011 and 2010, respectively. Amortization expense of demonstration equipment for the years ended December 31, 2011, 2010 and 2009, was \$2,920, \$3,690 and \$3,617, respectively.

**Intangible Assets** Intangible assets consist of the following:

	December 31, 2011				December 31, 2010			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Lives	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Lives
Amortizable intangible assets								
Patents	\$ 4,664	\$ (3,278)	\$ 1,386	6 Years	\$ 4,664	\$ (2,361)	\$ 2,303	6 Years
Customer relationships	3,567	(1,619)	1,948	5 Years	3,633	(998)	2,635	5 Years
Production know-how	2,477	(547)	1,930	9 Years	2,518	(335)	2,183	9 Years
Technology license	1,155	(262)	893	4 Years	10		10	
	\$ 11,863	\$ (5,706)	\$ 6,157		\$ 10,825	\$ (3,694)	\$ 7,131	

The Company completed an acquisition through its Italian subsidiary in the first quarter of 2011. Consideration included cash payments aggregating \$900 and contingent consideration with an aggregate fair value of \$282. Net assets acquired primarily consisted of intangible assets related to software aggregating \$1,182.

The Company completed two acquisitions in 2010, one in the U.S. in the first quarter and one in Germany in the second quarter. Amounts paid include cash payments aggregating \$4,508 and contingent consideration and seller provided financing with an aggregate fair value of \$969. Net assets acquired primarily consisted of intangible assets (patents, customer relationships, and production know-how with weighted-average

estimated useful lives of 10 years, 5 years and 9 years, respectively) aggregating \$5,218.

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**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)**

Amortization expense of intangible assets for the years ended December 31, 2011, 2010 and 2009, was \$2,246, \$1,772 and \$1,185, respectively.

The estimated future amortization expense for intangibles as of December 31, 2011 is as follows:

2012	2013	2014	2015	2016	Thereafter	Total
\$1,958	\$ 1,342	\$ 1,168	\$ 487	\$ 278	\$ 924	\$ 6,157

**Revenue Recognition** We recognize revenue when four basic criteria are met: (1) persuasive evidence of an arrangement exists; (2) delivery has occurred or services have been rendered; (3) the fee is fixed and determinable; and (4) collectability is reasonably assured. Revenue from the sale of our products is generally recognized upon shipment, provided that the other revenue recognition criteria have been met. We have no obligation to provide upgrades, enhancements or customer support subsequent to the sale, other than warranty.

Revenue from orders with multiple deliverables is divided into separate units of accounting when certain criteria are met. The consideration for the arrangement is then allocated to the separate units of accounting based on their relative fair values. We defer revenue on multiple element arrangements if the fair values of the undelivered elements are not known or if customer acceptance is contingent on delivery of specified items or performance conditions that cannot be satisfactorily tested prior to shipment or if we have not met such conditions in the past. Applicable revenue recognition criteria are then applied separately for each separate unit of accounting.

Returns and customer credits are infrequent and are recorded as a reduction to revenue. Rights of return are generally not included in sales arrangements. Generally, we receive a customer purchase order as evidence of an arrangement and product shipment terms are free on board (F.O.B.) shipping point. Periodically, our revenue arrangements include customer acceptance clauses. If an acceptance clause defines a performance requirement in a process or application that we cannot effectively test prior to delivery or that has not been accepted previously, we defer recognition of revenue until satisfaction of the performance requirement has been proven.

**Allowance for Doubtful Accounts** We maintain an allowance for doubtful accounts to provide for the estimated amount of accounts receivable that will not be collected. The allowance is based upon an assessment of customer creditworthiness, historical payment experience and the age of outstanding receivables.

Activity related to the allowance for doubtful accounts was as follows:

	2011	2010	2009
Balance at January 1	\$ 2,143	\$ 1,256	\$ 1,241
Provision for bad debts	2,505	1,951	1,777
Uncollectable accounts recovered or written off	(3,033)	(999)	(1,795)
Foreign currency translation	(10)	(65)	33
Balance at December 31	\$ 1,605	\$ 2,143	\$ 1,256

**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)**

**Warranties** In general, our products carry a warranty against defect for a period of one to three years, depending upon the product type and customer negotiations. The expected cost associated with these warranty obligations is recorded when the revenue is recognized. The warranty accrual is reflected in accrued expenses and other liabilities in the consolidated balance sheets. Activity related to the warranty accrual was as follows:

	<b>2011</b>	<b>2010</b>	<b>2009</b>
Balance at January 1	\$ 6,917	\$ 3,886	\$ 3,223
Provision for warranty accrual	6,701	6,681	2,962
Warranty claims and other reductions	(4,692)	(3,476)	(2,322)
Foreign currency translation	(295)	(174)	23
Balance at December 31	\$ 8,631	\$ 6,917	\$ 3,886

Accrued warranty reported in the accompanying consolidated financial statements as of December 31, 2011 consists of \$6,186 in accrued expenses and other liabilities and \$2,445 in other long-term liabilities.

**Advertising Expense** The cost of advertising is expensed as incurred. We conduct substantially all of our sales and marketing efforts through trade shows, professional and technical conferences, direct sales and our website. Our advertising costs were not material for the periods presented.

**Research and Development** Research and development costs are expensed as incurred.

**Income Taxes** Deferred tax assets and liabilities are recognized for the future tax consequences of temporary differences between the financial statement carrying amounts and tax bases of assets and liabilities and net operating loss carryforwards and credits using enacted rates in effect when those differences are expected to reverse. Valuation allowances are provided against deferred tax assets that are not deemed to be recoverable. We recognize tax positions that are more likely than not to be sustained upon examination by relevant tax authorities. The tax positions are measured at the greatest amount of tax benefit that is more than 50 percent likely to be realized upon ultimate settlement.

We provide reserves for potential payments of tax to various tax authorities related to uncertain tax positions and other issues. The reserves are based on a determination of whether and how much of a tax benefit taken by us in our tax filings or positions is more likely than not to be realized following resolution of uncertainties related to the tax benefit, assuming that the matter in question will be raised by the tax authorities.

**Concentration of Credit Risk** Financial instruments that potentially subject us to credit risk consist primarily of cash and cash equivalents, short-term investments, marketable securities and accounts receivable. We maintain substantially all of our cash, short-term investments and marketable securities in six financial institutions, which are believed to be high-credit quality financial institutions. We grant credit to customers in the ordinary course of business and provide a reserve for potential credit losses. Such losses historically have been within management's expectations (see discussion related to significant customers in Note 15).

**Fair Value of Financial Instruments** Our financial instruments consist of accounts receivable, cash equivalents, short-term investments, auction rate securities, accounts payable, drawings on revolving lines of credit, long-term debt and certain derivative instruments.

The valuation techniques used to measure fair value are based upon observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect internal market assumptions. These two types of inputs create the following fair value hierarchy: Level 1, defined



**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)**

as observable inputs such as quoted prices for identical instruments in active markets; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs for which little or no market data exists, therefore requiring an entity to develop its own assumptions.

The carrying amounts of accounts receivable, accounts payable and drawings on revolving lines of credit are considered reasonable estimates of their fair market value, due to the short maturity of these instruments or as a result of the competitive market interest rates, which have been negotiated.

The following table presents information about our assets and liabilities measured at fair value:

	Fair Value Measurements at December 31, 2011			
	Total	Level 1	Level 2	Level 3
Assets				
Money market funds	\$ 18,466	\$ 18,466	\$	\$
Treasury bills	58,994	58,994		
Time deposits	33,513	33,513		
Auction rate securities	1,104			1,104
Total assets	\$ 112,077	\$ 110,973	\$	\$ 1,104
Liabilities				
Contingent purchase consideration	\$ 999	\$	\$	\$ 999
Warrant	77			77
Interest rate swaps	1,223		1,223	
Total liabilities	\$ 2,299	\$	\$ 1,223	\$ 1,076

		Fair Value Measurements at December 31, 2010		
	Total	Level 1	Level 2	Level 3
Assets				
Money market funds	\$ 4,223	\$ 4,223	\$	\$
Treasury bills	55,679	55,679		
Auction rate securities	921			921
Total assets	\$ 60,823	\$ 59,902	\$	\$ 921
Liabilities				
Contingent purchase consideration	\$ 685	\$	\$	\$ 685
Warrant	180			180
Interest rate swaps	1,156		1,156	

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<b>Total liabilities</b>	\$ 2,021	\$	\$ 1,156	\$ 865
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Money market funds, treasury bills and time deposits are included in cash and cash equivalents and short-term investments and auction rate securities are included in other long-term assets.

The interest rate swaps are designated as cash flow hedges and were based on quoted market prices or pricing models using current market rates. Fair value at December 31, 2011 for the auction rate securities considered prices observed in inactive secondary markets for the securities held by the Company.

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**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)**

We completed the acquisition of certain assets of Multilane Technology during 2011, and the acquisitions of Photonics Innovations, Inc., and Cosytronic, KG during 2010. The fair value of the accrued contingent consideration incurred during these acquisitions was determined using an income approach at the acquisition date and reporting date. That approach is based on significant inputs that are not observable in the market. Key assumptions include assessing the probability of meeting certain milestones required to earn the contingent consideration. As of December 31, 2011, the Company has accrued a liability of \$999 for the estimated fair value of contingent consideration expected to be payable upon the acquired companies reaching specific performance metrics over the next four years of operation. As of December 31, 2011, the ranges of outcomes and key assumptions have not changed materially.

In December 2010 we issued warrants in conjunction with the sale of a redeemable noncontrolling interest more fully described in Note 7. We valued these warrants and the embedded put and call options attached to them by first determining the underlying equity value of our Russian subsidiary using a discounted cash flow model and then, using appropriate inputs for expected volatility, revenue multiple and credit spread, utilized a binomial tree model followed by a Monte Carlo simulation to estimate the value of the embedded derivatives.

The assets measured at fair value on a recurring basis using significant unobservable inputs (Level 3) are auction rate securities, contingent consideration and warrants:

	2011	2010
<b>Auction Rate Securities</b>		
Balance, January 1	\$ 921	\$ 1,284
Period transactions		
Change in fair value	183	(338)
Redeemed by issuers at par		(25)
Balance, December 31	\$ 1,104	\$ 921
<b>Contingent Purchase Consideration</b>		
Balance, January 1	\$ 685	\$
Period transactions	282	675
Change in fair value	32	10
Balance, December 31	\$ 999	\$ 685
<b>Warrant</b>		
Balance, January 1	\$ 180	\$
Period transactions	(674)	180
Change in fair value	571	
Balance, December 31	\$ 77	\$ 180

The auction rate securities are considered available-for-sale securities. They had a cost basis of \$1,450 at December 31, 2011 and 2010. Other-than-temporary impairments recorded in other (expense) income, net were \$49 and \$338 in 2011 and 2010, respectively. No other-than-temporary impairments were recorded in 2009.

**Comprehensive Income** Comprehensive income includes charges and credits to equity that are not the result of transactions with stockholders. Included within other comprehensive income is the cumulative translation adjustment and unrealized gains or losses on derivatives. These



adjustments are accumulated within the consolidated statements of equity.

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**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)**

Total components of accumulated other comprehensive income (loss) were as follows:

	<b>December 31,</b>	
	<b>2011</b>	<b>2010</b>
Foreign currency translation adjustment	\$ (14,027)	\$ 1,533
Unrealized loss on derivatives, net of tax of \$458 and \$433	(765)	(723)
Change in carrying value of auction rate securities	232	
Attribution to NCI and redeemable NCI	2,460	
<b>Accumulated other comprehensive income (loss)</b>	<b>\$ (12,100)</b>	<b>\$ 810</b>

*Derivative Instruments* Our primary market exposures are to interest rates and foreign exchange rates. We may use certain derivative financial instruments to help manage these exposures. We execute these instruments with financial institutions we judge to be credit-worthy. We do not hold or issue derivative financial instruments for trading or speculative purposes.

We recognize all derivative financial instruments as either assets or liabilities at fair value in the consolidated balance sheet. We have used foreign currency forward contracts as cash flow hedges of forecasted intercompany settlements denominated in foreign currencies of major industrial countries. We have no outstanding foreign currency forward contracts. We have two interest rate swaps that are classified as cash flow hedges of our variable rate debt.

*Cash Flow Hedges* Our cash flow hedges consist of interest rate swaps under which we agree to pay fixed rates of interest. All of our derivatives are accounted for as hedging instruments. The fair value amounts in the consolidated balance sheets at December 31, 2011 and 2010 were:

	<b>Notional Amounts<sup>1</sup></b>		<b>Other Assets</b>		<b>Other Long-Term Liabilities</b>	
	<b>December 31,</b>		<b>December 31,</b>		<b>December 31,</b>	
	<b>2011</b>	<b>2010</b>	<b>2011</b>	<b>2010</b>	<b>2011</b>	<b>2010</b>
Interest rate swap(s)	\$ 15,333	\$ 16,666	\$	\$	\$ 1,223	\$ 1,156
<b>Total</b>	<b>\$ 15,333</b>	<b>\$ 16,666</b>	<b>\$</b>	<b>\$</b>	<b>\$ 1,223</b>	<b>\$ 1,156</b>

(1) Notional amounts represent the gross contract/notional amount of the derivatives outstanding.

The derivative gains and losses in the consolidated statements of income for the years ended December 31, 2011 and 2010, related to our interest rate swap contracts were as follows:

**Year Ended December 31,**

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	2011	2010	2009
Effective portion recognized in other comprehensive income (loss), pretax:			
Interest rate swap	\$ 562	\$ 649	\$ 1,236
Effective portion reclassified from other comprehensive income (loss) to interest expense, pretax:			
Interest rate swap	\$ (629)	\$ (679)	\$ (684)
Ineffective portion recognized in income:			
Interest rate swap	\$	\$	\$

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**IPG PHOTONICS CORPORATION**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except share and per share data)**

We made no adjustments to the fair value of this derivative as a result of evaluating counterparty risk.

*Business Segment Information* We operate in one segment which involves the design, development, production and distribution of fiber lasers, fiber amplifiers and related optical components. We have a single, company-wide management team that administers all properties as a whole rather than as discrete operating segments. The chief decision maker, who is our Chief Executive Officer, measures financial performance as a single enterprise and not on legal entity or end-market basis. Throughout the year, the chief decision maker allocates capital resources on a project-by-project basis across our entire asset base to maximize profitability without regard to legal entity or end-market basis. We operate in a number of countries throughout the world in a variety of product lines. Information regarding geographic financial information and product lines is provided in Note 15.

*Recent Accounting Pronouncements* In May 2011, the Financial Accounting Standards Board (the FASB) issued ASU No. 2011-04, Fair Value Measurement: Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs. This newly issued accounting standard clarifies the application of certain existing fair value measurement guidance and expands the disclosures for fair value measurements that are estimated using significant unobservable (Level 3) inputs. This ASU is effective on a prospective basis for annual and interim reporting periods beginning on or after December 15, 2011. Early application is not permitted. We will adopt this amended guidance for the fiscal year beginning January 1, 2012. We are evaluating the disclosure requirements related to providing quantitative information about unobservable inputs used to measure the fair value of our auction rate securities, contingent consideration liability and certain derivative instruments.

In October 2009, the FASB issued new accounting guidance for revenue recognition related to multiple element arrangements. This guidance established a selling price hierarchy, which allows the use of estimated selling prices to allocate arrangement consideration to deliverables in cases where neither vendor-specific objective evidence nor third-party evidence is available. The new guidance was effective for the Company prospectively for revenue arrangements entered into or materially modified beginning in the first quarter of fiscal 2011. The adoption of this accounting guidance did not have a material impact on the Company's consolidated financial statements and is not expected to have a material effect on the Company's consolidated financial statements in subsequent periods.

Other accounting standards that have been issued or proposed by the FASB or other standards-setting bodies that do not require adoption until a future date are not expected to have a material impact on our financial statements upon adoption.

*Subsequent Events* We have considered the impact of subsequent events through the filing date of these financial statements as part of Form 10-K.

**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)****2. STOCK-BASED COMPENSATION**

Stock-based compensation is included in the following financial statement captions:

	<b>Year Ended December 31,</b>		
	<b>2011</b>	<b>2010</b>	<b>2009</b>
Cost of sales	\$ 1,731	\$ 727	\$ 578
Sales and marketing	1,503	801	727
Research and development	1,036	446	344
General and administrative	3,778	1,222	1,118
<b>Total stock-based compensation</b>	<b>8,048</b>	<b>3,196</b>	<b>2,767</b>
Tax benefit recognized	(2,551)	(973)	(792)
<b>Net stock-based compensation</b>	<b>\$ 5,497</b>	<b>\$ 2,223</b>	<b>\$ 1,975</b>

Compensation cost for all share-based payment awards is based on the estimated grant-date fair value. We allocate and record stock-based compensation expense on a straight-line basis over the requisite service period.

We calculate the fair value of stock option grants using the Black-Scholes option pricing model. Determining the appropriate fair value model and calculating the fair value of stock-based payment awards require the use of highly subjective assumptions, including the expected life of the stock-based payment awards and stock price volatility. The assumptions used in calculating the fair value of stock-based payment awards represent management's best estimates, but the estimates involve inherent uncertainties and the application of management judgment. As a result, if factors change and we use different assumptions, our stock-based compensation expense could be materially different in the future. The weighted average assumptions used in the Black-Scholes model or the calculation of compensation were as follows for the years ended December 31.

	<b>2011</b>	<b>2010</b>	<b>2009</b>
Expected term	3.4-6.9 years	2.9-5.9 years	1.74-7.10 years
Volatility	46%-56%	42%-48%	46%-65%
Risk free rate of return	0.48%-2.82%	0.34%-2.68%	0.56%-2.78%
Dividend yield	0%	0%	0%
Forfeiture rate	0%-6.26%	0%-5.0%	2%-6.6%

**Incentive Plans** In April 2000, our board of directors adopted the 2000 Incentive Compensation Plan, or 2000 plan, and in February 2006, our board of directors adopted the 2006 Incentive Compensation Plan, or 2006 plan, which provide for the issuance of stock options and other stock and non-stock based awards to our directors, employees, consultants and advisors. We reserved 5,833,333 shares under the 2000 plan and 4,000,000 shares under the 2006 plan for the issuance of awards under the plans. During 2011, we reserved an additional 6,084,273 shares under the 2006 plan. In June 2006, our board of directors adopted the Non-Employee Directors Stock Plan (the Directors Plan). Only non-employee directors are eligible to receive awards under the Directors Plan. We reserved 486,660 shares for issuance under the Directors Plan. Under the three plans, we may grant nonstatutory stock options at an exercise price at least equal to the fair value of our common stock on the date of grant, unless the board of directors or compensation committee determines otherwise on the date of grant. Incentive stock options may be granted under the 2000 plan and the 2006 plan at exercise prices equal to or exceeding the fair value of the common stock on the date of grant.

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We may also grant restricted stock, restricted stock units and other equity-based awards. Incentive awards generally become exercisable over periods of one to five years and expire seven to ten years from the date of the grant. The awards under the 2000 plan and the

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**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)**

2006 plan may become exercisable earlier upon the occurrence of certain change of control events at the election of the board of directors or compensation committee, and all awards under the Directors Plan automatically become exercisable upon a change of control. All shares issued under the stock option plans are registered shares newly issued by us. At December 31, 2011, 7,009,548 shares were available for future grant under the three option plans.

A summary of option activity is presented below:

		<b>Number of Options</b>	<b>Weighted- Average Exercise Price</b>	<b>Weighted- Average Remaining Contractual Life (In years)</b>	<b>Aggregate Intrinsic Value (In thousands)</b>
Outstanding	January 1, 2011	2,736,443	\$ 10.33		
Granted		601,214	56.82		
Exercised		(595,448)	7.58		
Forfeited		(17,637)	23.90		
Outstanding	December 31, 2011	2,724,572	\$ 20.78	6.92	\$ 50,106
Vested or expected to vest	December 31, 2011	2,502,812	\$ 18.24	6.76	\$ 48,255
Exercisable	December 31, 2011	1,051,503	\$ 7.51	4.91	\$ 27,722

The intrinsic value of the options exercised during the years ended December 31, 2011, 2010 and 2009, was \$29,265, \$13,431 and \$7,656, respectively.

The weighted-average grant fair value for options granted during the years ended December 31, 2011, 2010 and 2009, was \$27.60, \$7.66 and \$3.94, respectively.

The total compensation cost related to nonvested awards not yet recorded at December 31, 2011 was \$15,793, which is expected to be recognized over a weighted average of 3.31 years.

The fair value of awards vested during the year ended December 31, 2011 was \$2,505.

**3. INVENTORIES**

Inventories consist of the following:

**December 31,**  
**2011                      2010**

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Components and raw materials	\$ 41,107	\$ 25,126
Work-in-process	40,380	24,392
Finished goods	35,491	22,952
 Total	 \$ 116,978	 \$ 72,470

We recorded inventory provisions totaling \$6,139, \$2,745 and \$5,259 in 2011, 2010 and 2009, respectively. These provisions were recorded as a result of uncertainties related to the recoverability of the value of inventories due to technological changes and excess quantities. These provisions are reported as a reduction to components and raw materials and finished goods.

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**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)****4. PROPERTY, PLANT AND EQUIPMENT**

Property, plant, and equipment consist of the following:

	<b>December 31,</b>	
	<b>2011</b>	<b>2010</b>
Land	\$ 16,168	\$ 12,380
Buildings	96,556	87,492
Machinery and equipment	110,331	92,363
Office furniture and fixtures	18,268	16,607
Construction-in-progress	20,953	5,392
 Total property, plant and equipment	 262,276	 214,234
Accumulated depreciation	(107,074)	(93,551)
 Total property, plant and equipment net	 \$ 155,202	 \$ 120,683

We recorded depreciation expense of \$18,796, \$16,212 and \$14,296 in 2011, 2010 and 2009, respectively.

**5. ACCRUED EXPENSES AND OTHER LIABILITIES**

Accrued expenses and other liabilities consist of the following:

	<b>December 31,</b>	
	<b>2011</b>	<b>2010</b>
Accrued compensation	\$ 21,453	\$ 16,065
Customer deposits and deferred revenue	15,317	20,685
Current portion of accrued warranty	6,186	6,917
Other	4,329	6,438
 Total	 \$ 47,285	 \$ 50,105

**6. FINANCING ARRANGEMENTS**

Our existing borrowings under financing arrangements consist of the following:

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	December 31,	
	2011	2010
Revolving Line of Credit Facilities:		
Other European Facilities	\$ 393	\$ 1,418
Euro Line of Credit	2,421	464
Foreign subsidiary drawings on U.S. Line of Credit	4,243	4,959
Total	\$ 7,057	\$ 6,841
Term Debt:		
U.S. Long-Term Note	\$ 15,333	\$ 16,666
Other notes payable	2,006	311
Less: current portion	(1,613)	(1,333)
Total long-term debt	\$ 15,726	\$ 15,644

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**IPG PHOTONICS CORPORATION**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except share and per share data)**

***Revolving Line of Credit Facilities:***

*U.S. Line of Credit* We maintain an unsecured revolving line of credit with available principal of up to \$35,000 expiring in June 2015. The line of credit bears interest at a variable rate of LIBOR plus 1.125% to 1.625% depending on our financial performance (1.41% at December 31, 2011). \$15,000 of this credit facility is available to our foreign subsidiaries including those in India, China, Japan and South Korea. Total drawings at December 31, 2011 were \$4,243 with a weighted average interest rate of 1.3%. At December 31, 2011, the remaining availability under the U.S. Line of Credit totaled \$30,757.

*Euro Line of Credit* We maintain an unsecured revolving line of credit with a principal amount of Euro 15,000 (approximately \$19,423 at December 31, 2011) that expires in June 2012. The credit facility bears interest at various rates based upon the type of loan. \$4,000 of this credit facility is available to our Russian subsidiary and \$4,000 is available to our Italian subsidiary. Total drawings at December 31, 2011 were \$2,421 with an interest rate of 2.2%.

*Euro Overdraft Facilities* We maintain a syndicated overdraft facility with available principal of Euro 850 (approximately \$1,101 at December 31, 2011) that does not have an expiration date. This facility bears interest at market rates that vary depending upon the bank within the syndicate that advances the principal outstanding (6.5% at December 31, 2011). This facility is collateralized by a common pool of the assets of our German subsidiary, IPG Laser GmbH.

*Other European Facilities* We maintain two Euro credit lines in Italy with aggregate available principal of Euro 1,000 (approximately \$1,295 as of December 31, 2011) which bear interest at 2.4% and expire in September and October 2012. Total drawings at December 31, 2011 were \$393. At December 31, 2011, the aggregate remaining availability under these lines was \$902. These facilities are collateralized by a common pool of the assets of our Italian subsidiary, IPG Photonics (Italy) S.r.l. ( IPG Italy ).

***Term Debt:***

*U.S. Long-Term Note* In 2010, we extended the maturity of the U.S Long-Term Note from August 2013 to June 2015. Outstanding principal under the U.S. Long-Term Note bears interest at LIBOR plus 0.9% to 1.3%, depending on certain financial ratios and requires monthly principal payments of \$111 and interest through June 2015, at which time the remaining principal is payable. This note is collateralized by a mortgage on the real estate and building in Massachusetts, housing our U.S. operations. We entered into an interest rate swap instrument which converts the variable LIBOR rate on the original term note to a fixed rate of 5.0%. For the extended term from August 2013 to June 2015, we entered into a separate interest rate swap instrument which converts the variable LIBOR rate to a fixed rate of 3.47%. Changes in fair value of the swaps are included in Accumulated Other Comprehensive (loss) Income . The unrealized loss on the swap will be recognized into income over the term of the swap as a charge to interest expense.

We are required to meet certain financial covenants associated with our U.S. Line of Credit and U.S. Long-Term Note. These covenants, tested quarterly, include a debt service coverage ratio and a funded debt to earnings before interest, taxes, depreciation and amortization ( EBITDA ) ratio. The debt service coverage covenant requires us to maintain a trailing twelve month ratio of cash flow to debt service that is greater than 1.5:1. Debt service is defined as required principal and interest payments during the period. Cash flow is defined as EBITDA less unfunded capital expenditures. For trailing twelve month periods until June 2010, up to \$15,000 of our capital expenditures are treated as being funded from the proceeds of our initial public offering. The funded debt to EBITDA covenant requires that the sum of all indebtedness for borrowed money on a consolidated basis shall be less than two times our trailing twelve months EBITDA.

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## IPG PHOTONICS CORPORATION

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except share and per share data)

**7. REDEEMABLE NONCONTROLLING INTERESTS, STOCKHOLDERS' EQUITY AND NONCONTROLLING INTERESTS**

*Redeemable Noncontrolling Interests* Redeemable noncontrolling interests reported in the accompanying consolidated financial statements consisted of 22.5% and 12.5% of the Company's Russian subsidiary, NTO IRE-Polus (NTO), as of December 31, 2011 and 2010, respectively.

	<b>Redeemable Noncontrolling Interest</b>	
	<b>2011</b>	<b>2010</b>
Balance at January 1	\$ 24,903	\$
Initial interest in book value of subsidiary	10,177	8,342
Increase to the initial redemption value	9,795	16,285
Net income attributable to redeemable NCI	3,156	276
Adjustments to redemption value	493	
Other comprehensive (loss) attributable to redeemable NCI	(2,401)	
Balance at December 31	\$ 46,123	\$ 24,903

In December 2010, the Company entered into an investment agreement with an unrelated third party, The Russian Corporation for Nanotechnology (Rusnano) (the Investment Agreement). Under the Investment Agreement, Rusnano acquired a 12.5% noncontrolling interest (NCI) in NTO and warrants to purchase up to an additional 12.5% of NTO in three tranches (two additional 5% interests for a purchase price of \$10,000 each, and a 2.5% interest for \$5,000) if certain sales targets are achieved before December 2015. In June 2011, Rusnano exercised their warrants to purchase an additional 10% of NTO, as sales targets had been achieved related to the first two tranches. Rusnano invested \$25,000 and \$20,000 in NTO in December 2010 and June 2011, respectively.

In connection with the Investment Agreement, the Company and Rusnano entered into an option agreement (the Option Agreement) granting the Company the right to buy back, after the third and before the seventh anniversary of the Option Agreement, Rusnano's ownership stake in NTO at the original purchase price under the Investment Agreement plus interest at 8-10% per annum. Rusnano obtained the right to sell to the Company, after the fifth and before the seventh anniversary of the Option Agreement, Rusnano's ownership stake in NTO at the original purchase price plus interest at 4% per annum (the Put). Any shares purchased under the warrants in the Investment Agreement are also subject to the Option Agreement.

Due to the Put, the NCI in NTO held by Rusnano (the Rusnano NCI) has been classified as temporary equity and reported as a Redeemable Noncontrolling Interest on our consolidated balance sheet. The initial net proceeds, \$25,000 less transaction expenses of \$194, were allocated first to the fair value of the warrants (\$180) and then to the initial carrying value of the Rusnano NCI. The subsequent carrying value of the Rusnano NCI is the higher of (1) the initial carrying amount (plus any subsequent investments in NTO under the warrants), increased or decreased by the NCI's share of NTO's net income or loss, the NCI's share of NTO's other comprehensive income (loss), and dividends or (2) the redemption value. The redemption value is the initial carrying value of the Rusnano NCI plus the accretion of the discount created by warrant and transaction expenses using the interest method to the fifth anniversary of the agreement (the earliest redemption date) plus any subsequent investments in NTO under the warrants plus interest on the initial and any subsequent investments under the warrants at an annual rate of 4%.

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**IPG PHOTONICS CORPORATION**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except share and per share data)**

After allocating net income and other comprehensive income to the Rusnano NCI, the carrying amount of the redeemable NCI was less than the accreted redemption value at December 31, 2011. Therefore, the Company recorded an adjustment of \$493 to increase the carrying value of the redeemable NCI and charged retained earnings. The charge is a non-fair value adjustment and is therefore also reflected in the calculation of earnings per share.

*Authorized Capital* We have authorized capital stock consisting of 175,000,000 shares of common stock, par value \$0.0001 per share, and 5,000,000 shares of preferred stock, par value \$0.0001 per share. There are no shares of preferred stock outstanding.

*Noncontrolling Interests* Noncontrolling interests reported in the accompanying consolidated financial statements as of December 31, 2011 consist of the 10% of IPG Photonics (Korea) Ltd. ( IPG Korea ) held by the management of IPG Korea. In January 2012, we purchased the entire noncontrolling interest from the other stockholder of IPG Korea.

For the years ended December 31, 2011 and 2010, the net income attributable to NCI of \$3,250 and \$361 includes amounts related to the Rusnano NCI of \$3,156 and \$276, respectively. The net income attributable to NCI classified as permanent equity totaled \$94 and \$85 in 2011 and 2010, respectively.

Prior to the Rusnano investment, we purchased the interests of certain noncontrolling stockholders of NTO. In 2009, we purchased a 34% interest held by our Chief Executive Officer and certain other Company employees for \$2,644; and in 2010, we purchased the remaining 0.1% interest for \$92.

**8. RELATED-PARTY TRANSACTIONS**

Until July 2010, we subleased office space in the United Kingdom from an entity controlled by our Chief Executive Officer and reimbursed the entity for general and administrative expenses. The costs related to the lease and services totaled \$46 and \$107 for 2010 and 2009, respectively.

We paid \$103, \$182 and \$187 to the father of our chief financial officer in 2011, 2010 and 2009, respectively. The amounts included payments for consulting services, commissions and reimbursement of expenses.

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## IPG PHOTONICS CORPORATION

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except share and per share data)

**9. NET INCOME ATTRIBUTABLE TO IPG PHOTONICS CORPORATION PER SHARE**

The following table sets forth the computation of basic and diluted net income attributable to IPG Photonics Corporation per share:

	Year Ended December 31,		
	2011	2010	2009
Net income attributable to IPG Photonics Corporation	\$ 117,759	\$ 53,991	\$ 5,419
Adjustments to redemption value of redeemable noncontrolling interests	(493)		
Net income attributable to common stockholders	117,266	53,991	5,419
Weighted average shares	47,365,451	46,423,543	45,488,914
Dilutive effect of common stock equivalents	1,319,260	1,169,991	1,106,133
Diluted weighted average common shares	48,684,711	47,593,534	46,595,047
Basic net income attributable to IPG Photonics Corporation per share	\$ 2.49	\$ 1.16	\$ 0.12
Adjustments to redemption value of redeemable noncontrolling interests	(0.01)		
Basic net income attributable to common stockholders	\$ 2.48	\$ 1.16	\$ 0.12
Diluted net income attributable to IPG Photonics Corporation per share	\$ 2.42	\$ 1.13	\$ 0.12
Adjustments to redemption value of redeemable noncontrolling interests	(0.01)		
Diluted net income attributable to common stockholders	\$ 2.41	\$ 1.13	\$ 0.12

The computation of diluted weighted average common shares excludes 338,679, 35,185 and 343,174 shares for the years ended December 31, 2011, 2010 and 2009, respectively, because the effect on net income attributable to IPG Photonics Corporation per share would have been anti-dilutive.

**10. COMMITMENTS AND CONTINGENCIES**

*Operating Leases* We lease certain facilities under cancelable and noncancelable operating lease agreements which expire through January 2014. In addition, we lease capital equipment under operating leases. Rent expense for the years ended December 31, 2011, 2010 and 2009, totaled \$921, \$713, and \$794, respectively.

Commitments under the noncancelable lease agreements as of December 31, 2011 are as follows:

Years Ending December 31	Facilities	Equipment	Total
2012	\$ 2,121	\$ 1,602	\$ 3,723
2013	2,177	1,209	3,386

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2014	2,174	539	2,713
2015	2,279	62	2,341
2016	24	17	41
Thereafter	2	23	25
Total	\$ 8,777	\$ 3,452	\$ 12,229

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**IPG PHOTONICS CORPORATION**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except share and per share data)**

*Employment Agreements* We have entered into employment agreements with certain members of senior management. The terms of these agreements are up to two years and include noncompete and nondisclosure provisions, as well as provisions for defined severance for terminations of employment under certain conditions and change of control of the Company.

*Contractual Obligations* We have entered into various purchase obligations that include agreements to purchase raw materials and equipment. Obligations under these agreements were \$14,377 as of December 31, 2011.

**11. LEGAL PROCEEDINGS**

In November 2006, IMRA America, Inc. filed an action against us alleging that certain products we produce infringe one U.S. patent allegedly owned by IMRA America. IMRA America alleged willful infringement and sought damages, including for alleged lost profits, of at least \$26,000 through June 2011, treble damages, attorneys' fees and injunctive relief. The trial occurred in September and October 2011, and the jury returned a unanimous verdict that the Company did not infringe. IMRA America has filed post-trial motions seeking to set aside the jury verdict. IMRA also has the right to appeal the verdict. The Company believes it has meritorious defenses and will vigorously contest the filed motions and any appeal. No loss was deemed probable at December 31, 2011 and no amounts have been accrued with respect to this contingency.

**12. EMPLOYEE BENEFIT PLANS**

We maintain a 401(k) retirement savings plan covering all of our U.S. employees. We make matching contributions equal to 50% of the employee's contributions, subject to a maximum of 6% of eligible compensation. Compensation expense related to our contribution to the plan for the years ended December 31, 2011, 2010 and 2009, approximated \$701, \$607 and \$463, respectively.

We have offered an employee stock purchase plan covering our U.S. and German employees. The plan allows employees who participate to purchase shares of common stock through payroll deductions at a 15% discount to the lower of the stock price on the first day or the last day of the six-month purchase period. Payroll deductions may not exceed 10% of the employee's compensation and are subject to other limitations. Compensation expense related to the employee stock purchase plan approximated \$359, \$206 and \$205 for the years ended December 31, 2011, 2010 and 2009, respectively. As of December 31, 2011, there were 245,747 shares available for issuance under the employee stock purchase plan.

**13. BUSINESS COMBINATIONS**

In January 2010, we completed the acquisition of the outstanding shares of privately-held, Birmingham, Alabama-based Photonics Innovations, Inc., a maker of active and passive laser materials and tunable lasers for scientific, biomedical, technological, and eyesafe range-finding applications. The acquisition allows us to expand our product offerings to the middle infrared (approximately 2 to 5 micron). In April 2010, we completed the acquisition of privately-held, Germany-based Cosytronic KG, a specialist in joining technology with an emphasis on engineering know-how in automated welding turnkey solutions. The acquisition allows us to extend our product offerings to include a welding tool that integrates seamlessly with IPG's fiber laser.

The total cash paid for these acquisitions in 2010 was \$4,508. The acquisitions also included seller provided financing and contingent consideration which is more fully discussed in the fair value disclosures in Note 1. The assets acquired were primarily intangible and included patents, production know-how and customer relationships which are more fully described in the intangible asset disclosures in Note 1. The acquisitions did not have a material effect on the financial results in 2010.





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**IPG PHOTONICS CORPORATION**
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

(In thousands, except share and per share data)

**14. INCOME TAXES**

Income (loss) before the impact of income taxes for the years ended December 31 consisted of the following:

	2011	2010	2009
U.S.	\$ 42,637	\$ 17,879	\$ (2,844)
Foreign	131,947	61,373	10,613
Total	\$ 174,584	\$ 79,252	\$ 7,769

Our provision for income taxes for the years ended December 31 consisted of the following:

	2011	2010	2009
Current:			
Federal	\$ (15,355)	\$ (8,859)	\$ (842)
State	(447)	25	(56)
Foreign	(38,061)	(16,467)	(5,674)
Total current	\$ (53,863)	\$ (25,301)	\$ (6,572)
Deferred:			
Federal	\$ 630	\$ 395	\$ 2,192
State	106	26	185
Foreign	(448)	(20)	1,918
Change in valuation allowance			(208)
Total deferred	\$ 288	\$ 401	\$ 4,087
Provision for income taxes	\$ (53,575)	\$ (24,900)	\$ (2,485)

*Correction to 2010 and 2009 amounts* We corrected the current federal and state provision and made offsetting correcting changes to the deferred federal and state provision to reflect the presentation of certain items. The current tax provision and the deferred tax benefit in 2010 decreased by \$638, and the current tax provision and the deferred tax benefit in 2009 increased by \$800. The overall provision was unchanged.

A reconciliation of income tax expense at the U.S. federal statutory income tax rate to the recorded tax provision for the years ended December 31, is as follows:

	2011	2010	2009
Tax at statutory rate	\$ (61,104)	\$ (27,738)	\$ (2,719)

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Non-U.S. rate differential net	9,295	5,867	598
State income taxes net	(1,200)	(625)	(59)
Effect of changes in enacted tax rates on deferred tax assets and liabilities	(192)	(186)	196
Nondeductible stock compensation expense	(448)	(312)	(321)
Other nondeductible expenses	(339)	(603)	(141)
Tax credits	2,002	1,104	737
Change in reserves, including interest and penalties	(1,688)	(1,501)	(666)
Settlements, interest and penalties	1	(987)	
Change in valuation allowance		(106)	(208)
Other net	98	187	98
	\$ (53,575)	\$ (24,900)	\$ (2,485)

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The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities at December 31, are as follows:

	2011	2010
Property, plant and equipment	\$ 901	\$ 1,075
Inventory provisions	7,281	7,294
Allowances and accrued liabilities	(1,494)	(1,830)
Other tax credits	1,260	1,994
Deferred compensation	2,669	1,417
Net operating loss carryforwards	21	56
Valuation allowance	(314)	(314)
Net deferred tax assets	\$ 10,324	\$ 9,692

In general, it is our practice and intention to reinvest the earnings of non-U.S. subsidiaries in those operations. Accordingly, we have not made any provision for additional U.S. or foreign withholding taxes with respect to repatriation of earnings of non-U.S. subsidiaries. At December 31, 2011, the cumulative unremitted earnings that are reinvested in non-U.S. subsidiaries are approximately \$122,000.

Deferred tax assets and liabilities shown above do not include certain deferred tax assets from tax deductions related to tax-deductible equity compensation in excess of equity compensation recognized for financial reporting. As of December 31, 2011, we have U.S. federal and state credit carry forwards of \$1,070 and \$918, respectively, that are not included in deferred tax assets. The federal and state credit carry forwards begin expiring in 2022 and 2012, respectively.

The following is a tabular reconciliation of the total amounts of unrecognized tax benefits:

	2011	2010	2009
Unrecognized tax benefit January 1	\$ 2,951	\$ 2,131	\$ 1,672
Settlements of prior period positions	(335)	(1,336)	
Gross increases tax positions in prior period			459
Gross increases tax positions in current period	1,893	2,156	
Unrecognized tax benefit December 31	\$ 4,509	\$ 2,951	\$ 2,131

Estimated penalties and interest related to the underpayment of income taxes are \$133, \$4 and \$206 for the years ended December 31, 2011, 2010 and 2009, respectively, and are included within the provision for income taxes. Total accrued penalties and interest related to the underpayment of income taxes are \$275 and \$142 at December 31, 2011 and 2010, respectively.

Our uncertain tax positions are related to tax years that remain subject to examination by the relevant taxing authorities. If realized, all of our uncertain tax positions would affect our effective tax rate. None of the uncertain tax positions are expected to settle within one year. Open tax years by major jurisdictions are:

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United States	2002	2011
Germany	2009	2011
Russia	2009	2011

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**Table of Contents****IPG PHOTONICS CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except share and per share data)****15. GEOGRAPHIC AND PRODUCT INFORMATION**

We market and sell our products throughout the world through both direct sales and distribution channels. The geographic sources of our net sales based on billing addresses of our customers are as follows:

	<b>Year Ended December 31,</b>		
	<b>2011</b>	<b>2010</b>	<b>2009</b>
United States and other North America	\$ 86,181	\$ 61,706	\$ 45,668
Europe:			
Germany	76,279	46,282	28,242
Other including Eastern Europe/CIS	103,305	66,174	42,171
Asia and Australia:			
Japan	63,261	35,878	29,937
China	104,560	57,762	20,942
Other	36,937	30,614	15,221
Rest of World	3,959	840	3,713
Total	\$ 474,482	\$ 299,256	\$ 185,894

Sales are derived from products for different applications: fiber lasers, diode lasers and diodes for materials processing, fiber lasers and amplifiers for advanced applications, fiber amplifiers for communications applications, and fiber lasers for medical applications. Net sales for these product lines are as follows:

	<b>Year Ended December 31,</b>		
	<b>2011</b>	<b>2010</b>	<b>2009</b>
Materials processing	\$ 419,443	\$ 252,014	\$ 140,864
Advanced applications	25,918	25,196	26,557
Communications	20,368	14,020	10,867
Medical	8,753	8,026	7,606
Total	\$ 474,482	\$ 299,256	\$ 185,894

No single customer comprised more than 10% of net sales during the years ended December 31, 2011, 2010 or 2009. We have historically depended on a few customers for a significant percentage of our annual net sales. The composition of this group can change from year to year. Net sales derived from our five largest customers as a percentage of our annual net sales were 17% in 2011, 19% in 2010 and 12% in 2009. Sales to our largest customer accounted for 8%, 7% and 3% of our net sales in 2011, 2010 and 2009, respectively.

The geographic locations of our long-lived assets, based on physical location of the assets, as of December 31, 2011 and 2010, are as follows:

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	<b>2011</b>	<b>December 31, 2010</b>	<b>2009</b>
United States	\$ 67,550	\$ 59,072	\$ 57,898
Germany	40,983	41,065	46,567
Russia	32,197	16,578	10,154
China	5,550	3,865	4,205
Other	12,721	4,723	1,512
	\$ 159,001	\$ 125,303	\$ 120,336

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Long-lived assets include property, plant and equipment and demonstration equipment.

**16. SELECTED QUARTERLY FINANCIAL DATA (UNAUDITED)**

<b>2011</b>	<b>First Quarter</b>	<b>Second Quarter</b>	<b>Third Quarter</b>	<b>Fourth Quarter</b>
	<b>(In thousands, except per share data)</b>			
Net sales	\$ 99,958	\$ 121,936	\$ 129,064	\$ 123,524
Gross profit	53,666	66,706	70,459	66,424
Net income	23,378	31,507	34,269	31,855
Net income attributable to IPG Photonics Corporation	23,068	30,736	32,869	31,086
Basic earnings per share	0.49	0.65	0.68	0.65
Diluted earnings per share	0.47	0.63	0.66	0.64

<b>2010</b>	<b>First Quarter</b>	<b>Second Quarter</b>	<b>Third Quarter</b>	<b>Fourth Quarter</b>
	<b>(In thousands, except per share data)</b>			
Net sales	\$ 51,204	\$ 67,258	\$ 79,809	\$ 100,985
Gross profit	20,547	30,461	39,931	55,519
Net income	3,424	10,345	13,315	27,268
Net income attributable to IPG Photonics Corporation	3,397	10,306	13,226	27,062
Basic earnings per share	0.07	0.22	0.28	0.58
Diluted earnings per share	0.07	0.22	0.28	0.56



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**INDEX TO EXHIBITS**

<b>Exhibit</b>	
<b>Number</b>	<b>Description</b>
3.1	Form of Second Amended and Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.2 to Registration Statement No. 333-136521 filed with the Securities and Exchange Commission (the Commission) on August 11, 2006)
3.2	Form of Certificate of Amendment of Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.4 to Registration Statement No. 333-136521 filed with the Commission on November 24, 2006)
3.3	Amended and Restated By-laws of the Registrant (incorporated by reference to Exhibit 3.4 to Registration Statement No. 333-136521 filed with the Commission on August 11, 2006)
4.1	Specimen Stock Certificate (incorporated by reference to Exhibit 4.1 to Registration Statement No. 333-136521 filed with the Commission on November 14, 2006)
4.2	Form of Indenture, to be entered into between the Company and the trustee designated therein (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the Commission on December 2, 2009)
10.1	2000 Incentive Compensation Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on May 15, 2007)
10.2	Amendment to Section 4.2 of 2000 Incentive Compensation Plan (incorporated by reference to Exhibit 10.5 to the Registrant's Current Report on Form 8-K filed with the Commission on May 13, 2008)
10.3	2006 Incentive Compensation Plan (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on May 15, 2007)
10.4	Amendment to Section 4.2 of 2006 Incentive Compensation Plan (incorporated by reference to Exhibit 10.6 to the Registrant's Current Report on Form 8-K filed with the Commission on May 13, 2008)
10.5	2006 Stock Incentive Plan, as amended, as amended July 28, 2011 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on August 2, 2011)
10.6	Non-Employee Directors Stock Plan, as amended April 2, 2010 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on June 8, 2010)
10.7	IPG Photonics Non-Employee Director Compensation Plan, amended February 23, 2011 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on March 3, 2011)
10.8	Non-Employee Director Compensation Plan, as amended February 3, 2011 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on March 2, 2011)
10.9	Senior Executive Short-Term Incentive Plan (incorporated by reference to Exhibit 10.5 to Registration Statement No. 333-136521 filed with the Commission on August 11, 2006)
10.10	2008 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.8 to the Registrant's Current Report on Form 8-K filed with the Commission on May 13, 2008)
10.11	Amendment to 2008 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on June 15, 2009)
10.12	Employment Agreement by and between the Registrant and Valentin P. Gapontsev, dated May 9, 2008 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on May 13, 2008)

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<b>Exhibit</b>	
<b>Number</b>	<b>Description</b>
10.13	First Amendment to Employment Agreement dated September 16, 2010, between the Registrant and Valentin Gapontsev (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the Commission on August 5, 2010)
10.14	Service Agreement by and between the Registrant and Eugene Scherbakov, dated May 9, 2008 (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the Commission on May 13, 2008)
10.15	Form of Employment Agreement dated May 9, 2008, between the Registrant and each of Timothy P.V. Mammen, Angelo P. Lopresti, George H. BuAbbud, William S. Shiner and Alexander Ovtchinnikov (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed with the Commission on May 13, 2008)
10.16	Form of Amendment to Employment Agreement dated December 21, 2009, between the Registrant and each of Eugene Scherbakov, Timothy P.V. Mammen, Angelo P. Lopresti, George H. BuAbbud, William S. Shiner and Alexander Ovtchinnikov (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on December 21, 2009)
10.17	Form of Second Amendment to Employment Agreement dated September 16, 2010, between the Registrant and each of Eugene Scherbakov, Timothy P.V. Mammen, Angelo P. Lopresti, George H. BuAbbud, William S. Shiner and Alexander Ovtchinnikov dated as of August 5, 2010 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on September 16, 2010)
10.18	Form of Third Amendment to Employment Agreement dated September 16, 2011, between the Registrant and each of Eugene Scherbakov, Timothy P.V. Mammen, Angelo P. Lopresti, George H. BuAbbud, William S. Shiner and Alexander Ovtchinnikov (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on September 19, 2011).
10.19	Form of Confidentiality, Non-Competition and Confirmatory Assignment Agreement between the Registrant and each of the named executive officers and certain other executive officers. (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed with the Commission on May 13, 2008)
10.20	Form of Indemnification Agreement between the Registrant and each of its Directors and Executive Officers (incorporated by reference to Exhibit 10.13 to Registration Statement No. 333-136521 filed with the Commission on August 11, 2006)
10.21	Form of Stock Option Agreement under the 2000 Incentive Compensation Plan (incorporated by reference to Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on May 15, 2007)
10.22	Form of Stock Option Agreement under the 2006 Incentive Compensation Plan (incorporated by reference to Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on May 15, 2007)
10.23	Form of Stock Option Agreement under the 2006 Non-Employee Directors Stock Plan (incorporated by reference to Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on May 15, 2007)
10.24	Loan Agreement between the Registrant and Bank of America, N.A. dated as of June 4, 2008 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on June 9, 2008)
10.25	Revolving Credit Note by the Registrant dated June 4, 2008 (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the Commission on June 9, 2008)
10.26	Term Note by the Registrant dated June 4, 2008 (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed with the Commission on June 9, 2008)

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<b>Exhibit</b>	
<b>Number</b>	<b>Description</b>
10.27	Mortgage and Security Agreement between Registrant and Bank of America, N.A. dated as of June 4, 2008 (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed with the Commission on June 9, 2008)
10.28	Second Amendment to Loan Agreement, between the Registrant and Bank of America, N.A., dated as of September 30, 2010 (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on November 9, 2010)
10.29	Revolving Credit Note Modification Agreement No. 1, between the Registrant and Bank of America, N.A., dated as of September 30, 2010 (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on November 9, 2010)
10.30	Term Note Modification Agreement No. 1, between the Registrant and Bank of America, N.A., dated as of September 30, 2010 (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on November 9, 2010)
10.31	Credit Facility Agreement between IPG Laser GmbH and Deutsche Bank AG dated June 23, 2010 (incorporated by reference to Exhibit 10.28 to the Registrant's Annual Report on Form 10-K filed with the Commission on March 15, 2011)
10.32	Guarantee of the Registrant dated October 10, 2007 (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on November 8, 2007)
10.33	Annex 1 dated March 5, 2009, to Guaranty of the Registrant dated October 10, 2007 (incorporated by reference to Exhibit 10.28 to the Registrant's Annual Report on Form 10-K filed with the Commission on March 11, 2009)
10.34	Agreement and Plan of Reorganization among the Registrant, IPG Laser GmbH, Valentin P. Gapontsev and Igor Samartsev, dated as of August 5, 2008 (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on August 11, 2008)
10.35	Investment Agreement by and among the Registrant, The Russian Corporation of Nanotechnologies, IPG Laser GmbH and NTO IRE-Polus, dated October 29, 2010 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on November 4, 2010)
10.36	Form of Put and Call Option Agreement between the Registrant and The Russian Corporation of Nanotechnologies (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the Commission on November 4, 2010)
12.1	Statement re Computation of Earnings to Fixed Charges
21.1	List of Subsidiaries
23.1	Consent of Deloitte & Touche LLP
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a)
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a)
32.1	Certification of Chief Executive Officer and Chief Financial Officer pursuant to Section 1350
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.DEF	XBRL Taxonomy Definition Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase