APPLIED OPTOELECTRONICS, INC.
Form 10-K
February 26, 2019
Table of Contents

e Mp

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 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, 2018

OR

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

For the transition period from to

Commission File Number: 001-36083

Applied Optoelectronics, Inc.

(Exact name of registrant as specified in its charter)

Delaware	76-0533927

(State or other jurisdiction of incorporation or organization) (I.R.S. Employer Identification No.)

13139 Jess Pirtle Blvd.

Sugar Land, TX 77478

(Address of principal executive offices)

(281) 295-1800

(Registrant's telephone number)

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

(Title of each class)	(Name of each exchange on which registered)
Common Stock, Par value $0.001	NASDAQ Global Market

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 of 1933 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 every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the Registrant was required to submit such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) 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, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

(Check one):

Large accelerated filer
Accelerated filer
Non-accelerated filer
Smaller reporting company
Emerging growth company

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

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

As of June 30, 2018, the aggregate market value of the common stock held by non-affiliates of the Registrant was $715,024,373 based upon the closing sales price of the Registrant's common stock as reported on the NASDAQ Global Markets on June 29, 2018 of $44.90 per share. Shares of common stock held by officers, directors and holders of more than ten percent of the outstanding common stock have been excluded from this calculation because such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of February 20, 2019, the Registrant had 19,882,613 outstanding shares of Common Stock.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's definitive Proxy Statement for the Registrant's 2019 Annual Meeting of Stockholders are incorporated by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. The Proxy Statement will be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days of the Registrant's fiscal year ended December 31, 2018.

Applied Optoelectronics, Inc.

Table of Contents

Table of Contents

PART I

Forward-Looking Information

This Annual Report on Form 10-K contains forward-looking statements that are based on our management’s beliefs and assumptions and on information currently available to our management, including statements appearing under the heading, “Management’s Discussion and Analysis of Financial Condition and Results of Operations”. The statements contained in this Annual Report on Form 10-K that are not purely historical are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. In some cases, you can identify forward-looking statements by terminology such as ‘‘may,’’ ‘‘will,’’ ‘‘should,’’ ‘‘expects, ‘‘plans,’’ ‘‘anticipates,’’ ‘‘believes,’’ ‘‘estimates,” “strategy,” “future,” “likely,” or “would” or by other similar expressions tha uncertainty of future events or outcomes. These forward-looking statements involve risks and uncertainties, as well as assumptions and current expectations, which could cause the company’s actual results to differ materially from those anticipated in such forward-looking statements. These risks and uncertainties include but are not limited to: reduction in the size or quantity of customer orders; change in demand for the company’s products due to industry conditions; our ability to maintain sufficient liquidity; changes in manufacturing operations; volatility in manufacturing costs; delays in shipments of products; disruptions in the supply chain; change in the rate of design wins or the rate of customer acceptance of new products; the company’s reliance on a small number of customers for a substantial portion of its revenues; pricing pressure; a decline in demand for our customers’ products or their rate of deployment of their products; general conditions in the internet data center, cable television or CATV, telecommunications or telecom and fiber-to-the-home or FTTH; changes in the world economy (particularly in the United States and China); the negative effects of seasonality; impact of the Tax Cuts and Jobs Act of 2017, including impact on deferred tax assets and the one-time transition tax on unremitted foreign earnings; realization of deferred tax assets; and other risks and uncertainties described more fully under “Risk Factors” in this Annual Report on Form 10-K and those discussed in the company’s other documents filed with or furnished to the Securities and Exchange Commission. You should not rely on forward-looking statements as predictions of future events. All forward-looking statements in this Annual Report on Form 10-K are based upon information available to us as of the date hereof, and qualified in their entirety by this cautionary statement. Except as required by law, we assume no obligation to update forward-looking statements for any reason after the date of this report to conform these statements to actual results or to changes in the company’s expectations.

Item 1. Business

BUSINESS

Overview

Applied Optoelectronics, Inc. (the “Company”) is a leading, vertically integrated provider of fiber-optic networking products, primarily for four networking end-markets: internet data center, cable television, or CATV, telecommunications, or telecom, and fiber-to-the-home, or FTTH. We design and manufacture a range of optical communications products at varying levels of integration, from components, subassemblies and modules to complete turn-key equipment.

In designing products for our customers, we begin with the fundamental building blocks of lasers and laser components. From these foundational products, we design and manufacture a wide range of products to meet our customers’ needs and specifications, and such products differ from each other by their end market, intended use and level of integration. We are primarily focused on the higher-performance segments within all four of our target markets, which increasingly demand faster connectivity and innovation.

The four end markets we target are all driven by significant bandwidth demand fueled by the growth of network-connected devices, video traffic, cloud computing and online social networking. To address this increased bandwidth demand, CATV and telecommunications service providers are competing directly against each other by providing bundles of voice, video and data services to their subscribers and investing to enhance the capacity, reliability and capability of their networks. The trend of rising bandwidth consumption also impacts the internet data center market, as reflected in the shift to higher speed server connections. As a result of these trends, fiber-optic networking technology

Table of Contents

is becoming essential in all four of our target markets, as it is often the only economical way to deliver the desired bandwidth.

The internet data center market is our largest and fastest growing market. Our customers in this market are generally large internet-based (“Web 2.0”) data center operators, to whom we supply optical transceivers that plug into switches and servers within the data center and allow these network devices to send and receive data over fiber optic cables. The majority of the data center optical transceivers that we sell utilize our own lasers and subassemblies (we refer to the transceivers subassemblies as “light engines”), and we believe that our in-house technology and manufacturing capability for these lasers and subassemblies gives us an advantage over many of our competitors who often lack either development or manufacturing capabilities for these advanced optical modules.

The CATV market is our most established market, for which we supply a broad array of products, including lasers, transmitters and transceivers, and turn-key equipment. Sales of headend, node and distribution equipment have contributed significantly to our revenue in recent years as a result of our ability to meet the needs of CATV equipment vendors who have continued to outsource both the design and manufacturing of this equipment. As the complexity of CATV networks has increased over the years, equipment vendors, many of whom are our customers, have been under pressure to supply a wider variety of increasingly complex equipment to CATV multiple system operators (MSOs). In order to meet these demands, many equipment vendors have looked to engage with suppliers like AOI who have the capability to design and manufacture various network equipment or subassemblies, rather than always developing these devices themselves. This outsourcing trend has been a significant contributor to the revenue we derive from the CATV market. We believe that our extensive high-speed optical, mixed-signal semiconductor and mechanical engineering capabilities position us well to continue to benefit from these industry dynamics.

Our vertically integrated manufacturing model provides us several advantages, including rapid product development, fast response times to customer requests and control over product quality and manufacturing costs. We design, manufacture and integrate our own analog and digital lasers using a combination of Metal Organic Chemical Vapor Deposition, or MOCVD, and our proprietary Molecular Beam Epitaxy, or MBE, fabrication process, which we believe is unique in our industry. We manufacture the majority of the laser chips and optical components that are used in our products. The lasers we manufacture are tested extensively to enable reliable operation over time and our devices are often highly tolerant of changes in temperature and humidity, making them well-suited to the CATV and FTTH markets where networking equipment is often installed outdoors.

In 2018, 2017 and 2016, our revenue was $267.5 million, $382.3 million and $260.7 million and our gross margin was 32.8%, 43.5% and 33.4%. We have grown our annual revenue at a compound annual growth rate, or CAGR, of 30.1% between 2009 and 2018. In the years ended December 31, 2018, 2017 and 2016, we had net income (loss) of $(2.1) million, $74.0 million and $31.2 million, respectively. At December 31, 2018 and 2017, our retained earnings were $36.0 million and $38.1 million, respectively. In 2018, we earned 74.9% of our total revenue from the internet data center market and 19.3% of our total revenue from the CATV market. In 2018, our key customers in the data center market included Facebook, Inc. (Facebook), Microsoft Corp (Microsoft) and Amazon.com (Amazon). In 2018, 2017, and 2016, Facebook accounted for 38.3%, 28.6% and 3.6% of our revenue, Microsoft accounted for 22.1%, 13.8%, and 18.3% of our revenue and Amazon accounted for 12.1%, 35.4%, and 54.6% of our revenue, respectively. In 2018, our key customers in the CATV market included Cisco Systems, Inc. (Cisco); a large CATV equipment company in China; and Arris Group, Inc. (Arris). In 2018, 2017 and 2016, Cisco accounted for 9.9%, 4.8%, and 5.4%, of our revenue, respectively; our large China-based customer accounted for 3.3%, 3.4%, and 1.2% of our revenue, respectively; and Arris accounted for 2.1%, 3.2% and 5.8%, of our revenue, respectively.

Industry Background

During 2018, our four target markets, internet data center, CATV, telecom and FTTH, experienced a significant growth in bandwidth consumption and the corresponding need for network infrastructure improvement to support this growth.

The prevailing trends in our target markets include:

· Trends in the Internet Data Center Market. To support the substantial increase in bandwidth consumption, internet data center operators are increasing the scale of their internet data centers and accelerating data transmission rates. As a result, there is an ongoing transition from the use of copper cable,

Table of Contents

typically at speeds of up to 1 gigabit per second (Gbps), to optical fiber as a transport medium, typically providing speeds from 10 Gbps to 400 Gbps. In recent years, a number of leading internet companies have adopted more open internet data center architectures, using a mix of systems and components from a variety of vendors, and in some cases designing their own equipment. For these companies, compatibility of new networking equipment with legacy infrastructure is not as important, and consequently, these companies are more willing to work with non-traditional equipment vendors, which we believe creates an open and growing opportunity for optical device vendors. Moreover, transmission speeds have continued to increase among the companies who have previously transitioned from copper-based to fiber-based infrastructure, resulting in opportunities for optical device vendors to supply new optical transceivers capable of operating at these higher data rates.

· Trends in the CATV Market. In recent years, CATV service providers have invested extensively to support high speed, two-way communications and we expect that they will continue to do so. In North America, in particular, CATV service providers have begun to upgrade their networks with new technologies like DOCSIS 3.1, which enables them to offer higher speed connections to their customers. In order to increase available bandwidth for their customers beyond the bandwidth possible with the introduction of DOCSIS 3.1, cable MSOs have been reducing the number of customers that are connected to a single node. By reducing the number of "homes per node," the average bandwidth available to each customer is increased. Other new technologies, such as Converged Cable Access Platform (CCAP) and "Remote PHY" are under development by cable equipment suppliers. These technologies are being developed to be a cost-effective solution to provide higher available bandwidth to CATV customers. AOI has developed a unique Remote-PHY product portfolio which started to generate initial revenue in 2018. We believe this product is well positioned in the marketplace as we expect MSOs to begin to deploy this technology more broadly in 2019.

As the complexity of CATV networks has increased over the years, equipment vendors, many of whom are our customers, have been under pressure to supply a wider variety of increasingly complex equipment to CATV MSOs. In order to meet these demands, many equipment vendors have looked to engage with suppliers like AOI who have the capability to design and manufacture various network equipment or subassemblies, rather than always developing these devices themselves. This outsourcing trend has been a significant contributor to the revenue we derive from the CATV market.

· Trends in the Telecom Market. The telecom market is composed of customers who deploy wireline optical networks, other than Passive Optical Networks, or PONs, for telecommunications access networks, including for backhaul of cellular telephone signals. As demand for mobile internet connectivity has increased in recent years, reliable and high-speed optical networks have become increasingly important. In particular, the use of wavelength division multiplexing (WDM) to expand the capacity of mobile networks has led to increased demand for WDM components (including lasers and transceivers) by telecom equipment manufacturers. In coming years, we believe that the deployment of advanced 5G networks will result in increased demand for optical components, especially those used in connecting between antennas and base stations, as well as for backhaul as mentioned above.

· Trends in the FTTH Market. The FTTH market generally refers to the PONs that telecommunications service providers deploy. The most commonly deployed PON technology is Gigabit PON, or GPON, which delivers up to 2.5 Gbps of data, but due to the splitting of the bandwidth among multiple users, the actual bandwidth delivered to an individual subscriber is far less than 2.5 Gbps. One approach that does support true 1 Gbps service to the home is wavelength division multiplexing PON, or WDM-PON, a technology that enables the transmission of multiple wavelengths of data over a single fiber-optic strand.

Our Solutions

We experience certain challenges within our target markets, including continuous pressure to innovate and deliver highly integrated products that perform reliably in harsh, demanding environments and to produce high-quality devices in large volumes at competitive prices.

Table of Contents

By addressing the challenges in our target markets, we provide the following benefits to our customers:

- Enable customers to deliver innovative products. We leverage our extensive expertise in high-speed optical, mixed-signal semiconductor and mechanical engineering, and MOCVD and our proprietary MBE laser fabrication process to deliver technologically advanced products to our customers.

- Enhance efficiency and cost effectiveness of our customers' supply chains. We design and sell products at the level of integration desired by a customer, from components to turn-key equipment, providing our customers a dependable, cost-effective and simplified supply chain.

- Deliver high quality, reliable products in high volume. As a vertically integrated supplier, we are able to monitor and maintain quality control throughout the production process, using our internally produced components where possible for our final products. With manufacturing facilities in the U.S., Taiwan and China, we can support high volume production and timely delivery for our customers around the world.

- Provide sophisticated design solutions to our customers. We believe our in-house expertise in both analog and digital optical engineering enables us to design comprehensive solutions that meet many of the different network architectures and protocols used by our customers.

Our Strengths

Our key competitive strengths include the following:

- Proprietary technological expertise and track record of innovation. We continue to develop innovative products by leveraging our technological expertise, including our proprietary MBE and MOCVD laser fabrication process.

- Innovative light engine design and manufacturing. High-speed data center interconnect transceivers increasingly rely on multiple parallel optical signals. Our expertise in designing and manufacturing light engines, which combine lasers and photodiodes with channel multiplexing and de-multiplexing elements, gives us the ability to quickly develop new products for our data center customers.

- Proven system design capabilities. We have extensive expertise and proven design capabilities in high-speed optical, mixed-signal semiconductor and mechanical engineering, which we believe position us to take advantage of the continuing shift to outsourced design and manufacturing among CATV equipment vendors.

· Industry-leading position in the CATV market. We have continued to be awarded new design and manufacturing opportunities for CATV components and equipment. We serve a majority of the largest CATV equipment manufacturers in the world and our knowledge of both their requirements and the needs of their customers (the CATV network operators) allows us to access these new opportunities.

· Vertically integrated, geographically distributed manufacturing model. Our vertically integrated design and manufacturing process encompasses various steps from laser design and fabrication to complete optical system design and assembly. Furthermore, we have geographically distributed our manufacturing by strategically locating our operations in the U.S., China and Taiwan to reduce development time and production costs, to better support our customers and to help protect our intellectual property.

Our Strategy

We seek to be the leading global provider of optical components, modules and equipment for each of our four target markets, internet data centers, CATV, telecom and FTTH. Our strategy includes the following key elements:

· Continue to penetrate the internet data center market. In the internet data center market, we primarily target internet data center operators who have adopted an open system architecture—one in which the

6

optical connectivity solutions can be provided by a different vendor than the vendor which provides their servers and switches.

- Extend our leadership in CATV networking. We intend to maintain our position as a leading producer of optical components used in CATV networks, and to capture an increasing share of the CATV equipment market as the major equipment vendors continue to outsource the design and manufacturing of such products.

- Develop new products for the Telecom market. Our addressable telecom market has often been limited by our relatively small portfolio of products for this market. In many cases, our telecom product offerings are identical or nearly identical to products that we sell in other markets (for example CATV or internet data center). As we continue to develop new technological capabilities, we intend to develop products specifically for telecom markets.

- Continue to penetrate the FTTH market. We believe our WDM-PON technology is a cost-effective solution for delivering 1 Gbps bandwidth to a home. We intend to capture an increasing share of the FTTH market by delivering optical modules enabling 1 Gbps synchronous service to the home through our customers, who are either internet service providers or manufacturers of networking equipment supplying internet service providers.

- Continue to invest in our capabilities and infrastructure. We intend to continue to invest in new products, new technology and our production infrastructure and facilities to maintain and strengthen our competitive position. We engage in an active research and development program to develop new products and enhance existing products.

- Selectively pursue other opportunities that leverage our existing expertise. Our expertise in designing and manufacturing outdoor equipment for the CATV industry positions us well to pursue applications that are also characterized by having varying and demanding environments, including wireless and wireline telecom infrastructure, industrial robotics, aerospace and defense, and oil and gas exploration.

- Pursue complementary acquisition and strategic alliance opportunities. We evaluate and selectively pursue acquisition opportunities or strategic alliances that we believe will enhance or complement our current product offerings, augment our technology roadmap, or diversify our revenue base.

Our Technology

We believe that we have technology leadership in four key areas: semiconductor laser manufacturing, electronic technologies that enhance the performance of our lasers, optical hybrid integration and mixed-signal semiconductor design.

- Differentiated semiconductor laser manufacturing. We use a combination of MBE and MOCVD processes in the fabrication of our lasers. We believe that the combination of these two epitaxial processes allows our products to benefit from the advantages afforded by each of these techniques. Among the differentiators of MBE relative to MOCVD fabrication are a lower process temperature and the use of solid phase materials rather than gaseous sources to grow wafers and the growth of more highly strained crystals. These factors contribute to longer operating lives of our lasers, improved laser efficiency and threshold current, among other performance attributes that make them well-suited to our target markets. While we believe that these advantages of MBE are important, MBE does have disadvantages including the inability to use certain dopant materials (for example Iron), difficulty in certain types of regrowth, and the necessity to maintain complex ultra-high vacuum equipment. By utilizing MOCVD in a portion of our production process, we are able to ameliorate some of these disadvantages. However, the epitaxial and processing steps required in the fabrication of our devices are very complex, with numerous critical steps requiring highly precise control. As a result of some of these challenges, production yields and the performance attributes of laser devices are highly variable and optimizing these characteristics requires numerous enhancements and modifications to standard MBE equipment and the MBE process. To our knowledge, we are unique in incorporating MBE processes in the production of communications lasers in high volume,

Table of Contents

and believe it would be difficult and time-consuming for other vendors to replicate our production technology.

· Laser enhancement technology. Certain properties of the semiconductor lasers predominantly used in traditional communications devices, such as chirp and wavelength drift, negatively affect their ability to transmit signals over long fiber distances or prevent them from transmitting signals with acceptable fidelity in certain applications. We have developed laser enhancement circuitry that can correct many of these deficiencies. We believe that our technology will become more essential with wider deployment of higher capacity CATV and FTTH systems, which place more stringent demands on laser performance.

· Optical hybrid-integration technology. Reducing the size, power consumption and complexity of optical devices is essential for achieving the price and performance targets of our customers. Our ability to integrate multiple optical networking functions into a single device and to co-package multiple devices into smaller form factors helps us meet customer requirements, and we believe can also create new opportunities. For instance, the transmission speed between network elements (switches and servers, for example) within the data center has continued to increase. However, the rate at which this data can be converted from electrical signals to optical signals by laser diodes has not increased at the same pace. Therefore, to achieve data rates of 40 Gbps and above, many customers utilize multiple lower data rate lasers co-packaged together into a single optical module, which we refer to as a light engine. The technology required to cost-effectively and reliably co-package these lasers and the associated electronic control circuitry is complex. Our extensive experience with the processes and the manufacturing technologies required to produce these devices gives us a competitive advantage.

Similarly, in FTTH and telecom networks, installing new fiber-optic cable is expensive and difficult, and in some situations prohibitively so for a network service provider. As a consequence, network operators seek to maximize the utilization of their installed fiber plant. In long-haul and metropolitan networks, the number of service providers who deployed WDM technology as fiber utilization rose. Fiber utilization in access networks has risen, but the use of WDM technology in the access segment has been problematic due to the relatively high cost and power consumption of the requisite optical devices. We have developed proprietary miniaturized optical packaging, electronic control circuitry and testing algorithms to create a hybrid WDM-PON solution that addresses these historical impediments that we believe will make WDM-PON a cost-effective alternative for deployment.

· Mixed-signal design. As CATV providers continue to evolve from primarily broadcast-video content providers to a mixture of HD video content together with data-connectivity providers, the networks they utilize to offer these services must evolve as well. Older analog networks are giving way to hybrid networks that incorporate both analog and digital signals. For example, many newer networks are being designed with “digital return-path” capabilities, and certain MSOs have begun to deploy “Remote-PHY” technologies. Both of these technologies involve transporting certain network signals in digital format, and then converting these signals to and from analog signals at various points in the MSO’s network. This combination of analog and digital signaling creates unique design challenges. Our engineers have many years of experience in developing equipment, modules and components that are well suited to these sorts of mixed-signal architectures. We believe that having deep experience in both digital and analog signaling allows us to offer superior solutions to our customers, compared with companies who have expertise in only one of these signal types.

Our Products

Our products include an array of optical communications solutions at varying levels of integration. We begin from the fundamental building blocks of lasers and laser components. From these foundational products, we design and manufacture a wide range of products from optical modules to complete turn-key equipment. We design our products to target customers in our identified markets to meet their needs and specifications.

Our components often incorporate one or more of our optical laser chips inside a precision housing that provides mechanical protection as well as standardized electrical contacts. More complex optical components may also include optical filters (for example, for use in WDM) or other optical elements by which optical signals are routed internally within the component. These more advanced components may also include coolers, heaters and sensors that allow the temperature of the laser chip to be measured and controlled. We manufacture the majority of the laser chips and optical components that are used in our own products.

At the next level of integration, our module or sub-assembly products typically contain one or more of our optical components and some additional control circuitry. Examples of modules include our transceiver line primarily used in internet data center markets, telecom markets, and FTTH markets.

At the highest level of integration and complexity, our equipment products typically contain one or more optical components, modules and additional electronic control circuitry required to enable these subsystems to operate independently. For example, our CATV transmitter equipment requires utilization of our optical components and assembly onto a circuit board and to an external housing. Examples of equipment include our CATV transmitter and CATV nodes.

Intellectual Property

We rely on a combination of patent, copyright, trademark trade secret laws and unfair competition laws, as well as confidentiality and licensing arrangements, to establish and protect our intellectual property. We employ various methods to protect these intellectual property rights, including maintaining a technological infrastructure with significant security measures, limiting disclosure and restricting access to only those individuals with an operational need for such information, and having employees, consultants and suppliers execute confidentiality agreements with us. While we expect our intellectual property to provide competitive advantages, we also find meaningful value from unpatented proprietary process knowledge, know-how and trade secrets.

Patents

As of December 31, 2018, we owned a total of 124 U.S. issued patents and 141 patents issued in China and Taiwan, plus a number of pending U.S. and foreign/international patent applications. Our issued U.S. and foreign patents will expire between 2019 and 2037. While our patents are an important element of our success, our business as a whole is not dependent on any one patent or group of patents. We do not anticipate any material effect on our business due to any patents expiring in 2019, and we continue to obtain new patents through our ongoing research and development.

Our portfolio of patents and patent applications covers several different technology families including:

- laser structure and design;
- optical signal conditioning and laser control;
- laser fabrication;
- photodiode and optical receiver design and fabrication;
- optical device and module designs;
- optical device packaging equipment and techniques; and
- optical network enhancements.

Trademarks

We have registered the trademarks APPLIED OPTOELECTRONICS, INC., AOI and our logo with the U.S. Patent and Trademark Office on the Principal Register. These marks are also registered in, or have applications for registration pending in, various foreign trademark offices.

Research and Development

To maintain our growth and competitiveness, we engage in an active research and development program to develop new products and enhance existing products. As a result of these efforts, we anticipate releasing various new or enhanced products over the next several years. Our research and development expenses were approximately $49.9 million, $35.4 million, and $31.8 million for the years 2018, 2017 and 2016, respectively.

As of December 31, 2018, we had a total of 305 employees working in the R&D department, including 15 with Ph.D. degrees. We continue to recruit talented engineers to further enhance our research and development capabilities. We have research and development departments in our facilities in Texas, Georgia, China and Taiwan. Our research and development teams collaborate on joint projects, and by co-locating with our manufacturing operations enable us to achieve an efficient cost structure and improve our time to market.

A key factor in our research and development success is our highly collaborative process for new product development. Particularly in our equipment and module businesses, we often collaborate very closely with our customers from a very early stage in product development. By purposefully fostering this close collaboration, we believe that we can more rapidly develop leading solutions meeting the needs of our customers.

Manufacturing and Operations

We have three manufacturing sites: Sugar Land, Texas, Ningbo, China and Taipei, Taiwan. Our research and development functions are generally partnered with our manufacturing locations, and we have an additional research and development facility in Duluth, Georgia. In our Sugar Land facility, we manufacture laser chips (utilizing our MBE and MOCVD processes), subassemblies and components. The subassemblies are used in the manufacture of components by our other manufacturing facilities or sold to third parties as modules. We manufacture our laser chips only within our Sugar Land facility, where our laser design team is located. In our Taiwan location, we manufacture optical components, such as our butterfly lasers, which incorporate laser chips, subassemblies and components manufactured within our Sugar Land facility. In addition, in our Taiwan location, we manufacture transceivers for the internet data center, telecom, FTTH and other markets. In our China facility, we take advantage of lower labor costs and manufacture certain more labor intensive components and optical equipment systems, such as optical subassemblies and transceivers for the internet data center market, CATV transmitters (at the headend) and CATV outdoor equipment (at the node). Each manufacturing facility conducts testing on the components, modules or subsystems it manufactures and each facility is certified to ISO 9001:2015. Our facilities in Ningbo, China, Taipei, Taiwan, and Sugar Land, Texas are all certified to ISO 14001:2015.

We sell our products to customers worldwide, and in addition to these external customer sales many of our products are used internally in the production of transceivers and equipment that we manufacture. With a vertically integrated manufacturing process, we produce many of our own laser chips and other parts required to manufacture our optical components. Through this model, we are able to reduce development time and product costs as well as actively monitor and control product quality. We incorporate our own components into our transceivers, subsystems and equipment products wherever possible. In instances where we do not produce components ourselves, we source them from external suppliers and regularly evaluate these relationships in an attempt to reduce risk and lower cost.

We depend on a limited number of suppliers, including in some cases our own internal supply, for certain raw materials and components used in our products. We regularly review our vendor relationships in an attempt to mitigate risks and lower costs, especially where we depend on one or two vendors for critical components or raw materials. While maintaining inventories that we believe are sufficient to meet our near-term needs, we strive not to carry significant inventories of externally sourced raw materials. Accordingly, we maintain ongoing communications with our vendors in order to help prevent any interruptions in supply, and have implemented a supply-chain management program to maintain quality and lower purchase prices through standardized purchasing efficiencies and design requirements.

Customers

Our customers are primarily internet data center operators, CATV and telecommunications equipment manufacturers, and internet service providers. We generally employ a direct sales model in North America and in the rest of the world we use both direct and indirect sales channels. In 2018, 2017 and 2016, we obtained 96.4%, 97.0% and 96.0% of our revenue, respectively, through our direct sales efforts and the remainder of our revenue through our indirect sales channels. Our sales channel partners provide logistical services and day-to-day customer support. Where we sell through an indirect sales channel, we work with the end customer to establish technological specifications for our products. Our equipment customers typically offer our equipment under their brand-name and our equipment is often customized with unique design or performance criteria by each of these customers. We also from time to time offer

Table of Contents

design or manufacturing services to customers to assist them in more effectively using our products and realizing time-to-market advantages.

In the last three years, we have taken several actions to increase the diversity of our customer base. These actions include hiring additional sales staff to improve our ability to serve new customers and introduction of new products that we believe will appeal to new customers. Furthermore, we have developed additional original design manufacturer, or ODM, relationships with customers in each of our target markets which should enable us to diversify our revenue base.

In 2018, the three customers who contributed most to our data center revenue were Facebook, Microsoft and Amazon. Our CATV products were used by three large CATV original equipment manufacturers, or OEMs, consisting of Cisco; a large CATV equipment company in China; and Arris (which acquired the Motorola Home Business in 2013 and Pace Plc in 2016). In 2018, revenue from the internet data center market, CATV market, the telecom market, FTTH market and other markets provided 74.9%, 19.3%, 4.9%, 0.3% and 0.6% of our revenue, respectively, compared to 80.2%, 15.9%, 3.4%, 0.1% and 0.4%, respectively, in 2017.

In our telecom market, we manufacture and sell optical products which include transceivers designed to transmit signals used in 4G Long Term Evolution, or LTE, mobile networks, and various products targeted at the metro-scale telecommunications networking market. In 2019, we expect to begin selling products used in advanced 5G mobile networks. We have various other products designed for diverse applications, both inside and outside of communications technology, which generally are derivatives of products developed for our four target markets.

We support our sales efforts by attendance at industry trade shows, technical conferences, advertising in various trade journals and magazines and other promotional efforts. These efforts are aimed at attracting new customers and enhancing our existing customer relationships.

Backlog

We generally make sales pursuant to short-term purchase orders without deposits and subject to rescheduling, revision or cancellation on short notice. We accordingly believe that purchase orders are not an accurate indicator of our future sales and any backlog of purchase orders is not a reliable indicator of our future revenue.

Financial Information by Geographic Region

For information regarding our revenue and long-lived assets by geographic region, see Note P to the Consolidated Financial Statements. For risks relating to our operations see “Item 1A. Risk Factors” and particularly the risks under the caption “Risks related to our operations in China.”

Additional Financial Information

For certain financial information regarding our business, see “Item 6. Selected Financial Data.”

Competition

The optical networking market is intensely competitive. Because of the broad nature of our product offerings, we do not believe that we face a single major competitor across all of our markets. We do, however, experience intense competition in each product area from a number of manufacturers and we anticipate that competition will increase. Our major competitors in one or more of our markets include EMCORE Corporation, Finisar Corporation, Foxconn Interconnect Technology Ltd., InnoLight Technology (Suzhou) Ltd., Intel Corporation, Lumentum Holdings, Inc., Mitsubishi, Molex, LLC, Source Photonics, Inc. and Sumitomo Electric Industries, Ltd.

Many of our competitors are larger than we are and have significantly greater financial, marketing and other resources.

In addition, several of our competitors have large market capitalizations or cash reserves and are much better positioned to acquire other companies to gain new technologies or products that may displace our products. Network equipment providers, who are our customers, and network service providers, who are supplied by our customers, may

Table of Contents

decide to manufacture the optical subsystems incorporated into their network systems in-house. We also encounter potential customers that, because of existing relationships, are committed to the products offered by these competitors.

We believe the principal competitive factors in our target markets include the following:

· use of internally manufactured components;

· product breadth and functionality;

· timing and pace of new product development;

· breadth of customer base;

· technological expertise;

· reliability of products;

· product pricing; and

· manufacturing efficiency.

We believe that we compete favorably with respect to the above factors based on our MBE and MOCVD processes, our vertically integrated model, the performance and reliability of our product offerings, and our technical expertise in light engine design and manufacture.

Seasonality

See Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Seasonality,” regarding seasonality of certain of the Company’s products.

Employees

As of December 31, 2018, we employed 2,956 full-time employees, of which 36 held Ph.D. degrees in a science or engineering field. Of our employees, 449 are located in the U.S., 1,057 are located in Taiwan and 1,450 are located in China. None of our employees are represented by any collective bargaining agreement, but certain employees of our China subsidiary are members of a trade union. We have never suffered any work stoppage as a result of an employment related strike or any employee related dispute and believe that we have satisfactory relations with our employees.

Environmental Matters

Our research and development and manufacturing operations and our products are subject to a variety of federal, state, local and foreign environmental, health and safety laws and regulations, including those governing discharges of pollutants to air and water, the use, storage, handling and disposal of hazardous materials and solid wastes, employee health and safety, and the hazardous material content in our products. Our environmental management systems in our facilities in Sugar Land, Texas, Ningbo, China and Taipei, Taiwan are all certified to meet the requirements of ISO14001:2015. However, there can be no assurance that violations of applicable laws at any of our facilities will not occur in the future as a result of human error, accident, equipment failure or other causes. We use, store and dispose of hazardous materials and solid wastes in our manufacturing operations and hazardous materials are present in our products. We incur costs to comply with environmental, health and safety requirements, and any failure to comply, or the identification of contamination for which we are found liable, could cause us to incur substantial costs, including cleanup costs, natural resource damages, monetary fines, or administrative, civil or criminal penalties, and subject us to property damage and personal injury claims, and result in injunctive relief including the suspension of production, alteration or upgrades of our manufacturing processes, redesign of our products, or curtailment of sales, and could result in adverse publicity. Liability under environmental, health and safety laws can be joint and several and without regard to fault or negligence. For example, pursuant to environmental laws and regulations, including but not limited to the Comprehensive Environmental Response Compensation and Liability Act, or CERCLA, we may be liable for the full amount of any remediation-related costs at properties we currently own or operate or formerly owned, such as our currently owned Sugar Land, Texas facility, or at properties at which we previously operated, as well as at properties we will own or operate in the future, and properties to which we have sent hazardous substances, whether or not we caused the contamination.

We expect that our operations and products will be affected by new environmental requirements on an ongoing basis. Environmental, health and safety requirements have become more stringent over time, and changes to existing requirements could restrict our ability to expand our facilities, require us to acquire costly pollution control equipment, requires us to obtain additional permits for our activities, or cause us to incur other significant expenses or to modify our manufacturing processes or the hazardous material content of our products. Identification of presently unidentified environmental conditions, more vigorous enforcement by a governmental authority, enactment of more stringent legal requirements or other unanticipated events could give rise to adverse publicity, restrict our operations, affect the design or marketability of our products or otherwise cause us to incur material environmental costs or delays in planned activities.

We face increasing complexity in our product design and procurement operations as we adjust to new and upcoming requirements relating to the materials composition of our products. Some jurisdictions in which our products are sold have enacted requirements regarding the hazardous material content of certain products. For example, member states of the European Union and China are among a growing number of jurisdictions that have placed restrictions on the use of lead, among other chemicals, in electronic products, which affect the composition and packaging of our products. The passage of such requirements in additional jurisdictions, or the tightening of standards or elimination of certain exemptions in jurisdictions where our products are already subject to such requirements, could cause us to incur significant expenditures to make our products compliant with new requirements, or could limit the markets into which we may sell our products. Other governmental regulations may require us to reengineer our products to use components that are more environmentally compatible, resulting in additional costs to us.

Sources of Raw Materials

We depend on a limited number of suppliers for certain raw materials, components, and equipment used in our products. We continually review our supplier relationships to mitigate risks and lower costs, especially where we depend on one or two suppliers for critical components or raw materials. While maintaining inventories that we believe are sufficient to meet our near-term needs, we strive not to carry significant inventories of raw materials. Accordingly, we maintain ongoing communications with our suppliers in order to prevent any interruptions in supply, and have implemented a supply-chain management program to maintain quality and lower purchase prices through standardized purchasing efficiencies and design requirements. To date, we generally have been able to obtain sufficient quantities of critical supplies in a timely manner.

We are subject to rules promulgated by the SEC pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act regarding the use of "conflict minerals". These rules have imposed and will continue to impose additional costs and may introduce new risks related to our ability to verify the origin of any "conflict minerals" used in our products.

Export Regulations

The Bureau of Industry and Security (BIS) of the U.S. Department of Commerce is responsible for regulating the export of most commercial items that are classified as dual-use goods that may have both commercial and military applications. Our products are classified under Export Control Classification Numbers, or ECCNs, 5A991 and 6A995. Export Control Classification requirements are dependent upon an item’s technical characteristics, the destination, the end-use, and the end-user, and other activities of the end-user. Should the ECCN change, then the export of our products to certain countries would be restricted. However, we currently do not export our products to any countries on the restricted list, and therefore a change in the ECCN would not materially impact our business.

Corporate Information

We were incorporated in the State of Texas in 1997. In March 2013, Applied Optoelectronics, Inc., a Texas corporation, converted into a Delaware corporation. Prime World International Holdings, Ltd. (“Prime World”) is a wholly-owned subsidiary of the Company incorporated in the British Virgin Islands on January 13, 2006. Prime World is

Table of Contents

the parent company of Global Technology, Inc. (“Global”). Global was established in June 2002 in the People’s Republic of China (“PRC”) and was acquired by Prime World on March 30, 2006. Prime World also operates a division in Taiwan, which is qualified to do business in Taiwan and primarily manufactures transceivers and performs research and development activities.

Our principal executive offices are located at 13139 Jess Pirtle Blvd., Sugar Land, TX 77478, and our telephone number is (281) 295-1800. Our website address is www.ao-inc.com. Information contained on our website is not incorporated by reference into this Annual Report on Form 10-K.

Available Information

We file electronically with the United States Securities and Exchange Commission, or SEC, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended. We make available on our website at www.ao-inc.com free of charge, copies of these reports as soon as reasonably practicable after filing these reports with, or furnishing them to, the SEC.

Item 1A.Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the following risk factors and all other information contained in our Annual Report on Form 10-K, including our consolidated financial statements and related notes. If any of the following risks actually occur, we may be unable to conduct our business as currently planned and our financial condition and results of operations could be seriously harmed. In addition, the trading price of our common stock could decline due to the occurrence of any of these risks and you may lose all or part of your investment.

Risks Inherent in Our Business

We are dependent on our key customers for a significant portion of our revenue and the loss of, or a significant reduction in orders from, any of our key customers would adversely impact our revenue and results of operations.

We generate much of our revenue from a limited number of customers. For each year ended 2018, 2017 and 2016, our top ten customers represented 92.9%, 94.9% and 95.5% of our revenue, respectively. In 2018, Facebook represented

38.3% of our revenue, Microsoft represented 22.1% of our revenue and Amazon represented 12.1% of our revenue. As a result, the loss of, or a significant reduction in orders from any of our key customers would materially and adversely affect our revenue and results of operations. We typically do not have long-term contracts with our customers and instead rely on recurring purchase orders. However, many of our current revenue expectations and forecasts reflect significant anticipated orders from a limited number of key customers. If our key customers do not continue to purchase our existing products or fail to purchase additional products from us, our revenue would decline and our results of operations would be adversely affected.

Changes in our customers' demands may negatively affect our sales and revenue. For example, several of our largest customers have informed us that new architectures being implemented in their datacenters may reduce their demand for 100 Gbps optical transceivers compared to their prior forecasts. This would negatively impact our anticipated revenue from these customers. If we cannot sufficiently increase revenue from these new customers and our other existing customers, then our overall revenue may be adversely affected.

Adverse events affecting our key customers could also negatively affect our ability to retain their business and obtain new purchase orders, which could adversely affect our revenue and results of operations. For example, in recent years, there has been consolidation among various network equipment manufacturers and this trend is expected to continue. We are unable to predict the impact that industry consolidation would have on our existing or potential customers. We may not be able to offset any potential decline in revenue arising from the consolidation of our existing customers with revenue from new customers or additional revenue from the merged company.

Table of Contents

Customer demand is difficult to forecast accurately and, as a result, we may be unable to match production with customer demand.

We make planning and spending decisions, including determining the levels of business that we will seek and accept, production schedules, component procurement commitments, personnel needs and other resource requirements, based on our estimates of product demand and customer requirements. Our products are typically purchased pursuant to individual purchase orders. While our customers may provide us with their demand forecasts, they are typically not contractually committed to buy any quantity of products beyond firm purchase orders. Furthermore, many of our customers may increase, decrease, cancel or delay purchase orders already in place without significant penalty. The short-term nature of commitments by our customers and the possibility of unexpected changes in demand for their products reduce our ability to accurately estimate future customer requirements. On occasion, customers may require rapid increases in production, which can strain our resources, cause our manufacturing to be negatively impacted by materials shortages, necessitate more onerous procurement commitments and reduce our gross margin. We may not have sufficient capacity at any given time to meet the volume demands of our customers, or one or more of our suppliers may not have sufficient capacity at any given time to meet our volume demands. If any of our major customers decrease, stop or delay purchasing our products for any reason, we will likely have excess manufacturing capacity or inventory and our business and results of operations would be harmed.

If our customers do not qualify our products for use on a timely basis, our results of operations may suffer.

Prior to the sale of new products, our customers typically require us to “qualify” our products for use in their applications. At the successful completion of this qualification process, we refer to the resulting sales opportunity as a “design win.” Additionally, new customers often audit our manufacturing facilities and perform other evaluations during this qualification process. The qualification process involves product sampling and reliability testing and collaboration with our product management and engineering teams in the design and manufacturing stages. If we are unable to accurately predict the amount of time required to qualify our products with customers, or are unable to qualify our products with certain customers at all, then our ability to generate revenue could be delayed or our revenue would be lower than expected and we may not be able to recover the costs associated with the qualification process or with our product development efforts, which would have an adverse effect on our results of operations.

In addition, due to rapid technological changes in our markets, a customer may cancel or modify a design project before we have qualified our product or begun volume manufacturing of a qualified product. It is unlikely that we would be able to recover the expenses for cancelled or unutilized custom design projects. Some of these unrecoverable expenses for cancelled or unutilized custom design projects may be significant. It is difficult to predict with any certainty whether our customers will delay or terminate product qualification or the frequency with which customers will cancel or modify their projects, but any such delay, cancellation or modification would have a negative effect on our results of operations.

Our ability to successfully qualify and scale capacity for new technologies and products is important to our ability to grow our business and market presence, and we may invest a significant amount to scale our capacity to meet potential demand from customers for our new technologies and products. If we are unable to qualify and sell any of our new products in volume, on time, or at all, our results of operations may be adversely affected.

We face intense competition which could negatively impact our results of operations and market share.

The markets into which we sell our products are highly competitive. Our competitors range from large, international companies offering a wide range of products to smaller companies specializing in niche markets. Current and potential competitors may have substantially greater name recognition, financial, marketing, research and manufacturing resources than we do, and there can be no assurance that our current and future competitors will not be more successful than us in specific product lines or markets. Some of our competitors may also have better-established relationships with our current or potential customers. Some of our competitors have more resources to develop or acquire new products and technologies and create market awareness for their products and technologies. In addition, some of our competitors have the financial resources to offer competitive products at below-market pricing levels that could prevent us from competing effectively and result in a loss of sales or market share or cause us to lower prices for our products. In recent years, there has been consolidation in our industry and we expect such consolidation to continue. Consolidation involving our competitors could result in even more intense competition. Network equipment manufacturers, who are our customers, and network service providers may decide to manufacture the optical subsystems

Table of Contents

incorporated into their network systems in-house instead of outsourcing such products to companies such as us. We also encounter potential customers that, because of existing relationships with our competitors, are committed to the products offered by our competitors.

We must continually develop successful new products and enhance existing products, and if we fail to do so or if our release of new or enhanced products is delayed, our business may be harmed.

The markets for our products are characterized by frequent new product introductions, changes in customer requirements and evolving industry standards, all with an underlying pressure to reduce cost and meet stringent reliability and qualification requirements. Our future performance will depend on our successful development, introduction and market acceptance of new and enhanced products that address these challenges. If we are unable to make our new or enhanced products commercially available on a timely basis, we may lose existing and potential customers and our financial results would suffer.

In addition, due to the costs and length of research, development and manufacturing process cycles, we may not recognize revenue from new products until long after such expenditures, if at all, and our margins may decrease if our costs are higher than expected, adversely affecting our financial condition and results of operation.

Although the length of our product development cycle varies widely by product and customer, it may take 18 months or longer before we receive our first order. As a result, we may incur significant expenses long before customers accept and purchase our products.

Product development delays may result from numerous factors, including:

- modification of product specifications and customer requirements;
- unanticipated engineering complexities;
- difficulties in reallocating engineering resources and overcoming resource limitations; and
- rapidly changing technology or competitive product requirements.

The introduction of new products by us or our competitors and other changes in our customer's demands could result in a slowdown in demand for our existing products and could result in a write-down in the value of our inventory. We have in the past experienced periodic fluctuations in demand for existing products and delays in new product development, and such fluctuations will likely occur in the future. To the extent we fail to qualify our products and obtain their approval for use, which we refer to as a design win, or experience product development delays for any reason, our competitive position would be adversely affected and our ability to grow our revenue would be impaired.

Furthermore, our ability to enter a market with new products in a timely manner can be critical to our success because it is difficult to displace an existing supplier for a particular type of product once a customer has chosen a supplier, even if a later-to-market product provides better performance or cost efficiency.

The development of new, technologically advanced products is a complex and uncertain process requiring frequent innovation, highly-skilled engineering and development personnel and significant capital, as well as the accurate anticipation of technological and market trends. We cannot assure you that we will be able to identify, develop, manufacture, market or support new or enhanced products successfully or on a timely basis. Further, we cannot assure you that our new products will gain market acceptance or that we will be able to respond effectively to product introductions by competitors, technological changes or emerging industry standards. We also may not be able to develop the underlying core technologies necessary to create new products and enhancements, license these technologies from third parties, or remain competitive in our markets.

Our revenues, growth rates and operating results are likely to fluctuate significantly as a result of factors that are outside our control, which could adversely impact our operating results.

Our revenues, growth rates and operating results are likely to fluctuate significantly in the future as a result of factors that are outside our control. We may not achieve similar revenues, growth rates or operating results in future

Table of Contents

periods. Our revenues, growth rates and operating results for any prior quarterly or annual period should not be relied upon as any indication of our future revenues, growth rates or operating results. The timing of order placement, size of orders and satisfaction of contractual customer acceptance criteria, changes in the pricing of our products due to competitive pressures as well as order or shipment delays or deferrals, with respect to our products, may cause material fluctuations in revenues. For example, revenues for the three months ended March 31, 2018 decreased by 32 percent as compared to the three months ended March 31, 2017 due primarily to lower sales of 40 Gbps data center transceivers, which includes a reduction in average selling prices for certain products as a result of price negotiations with our customers. Our lengthy sales cycle, which may extend to more than one year, may cause our revenues and operating results to vary from period to period and it may be difficult to predict the timing and amount of any variation. Delays or deferrals in purchasing decisions by our customers may increase as we develop new or enhanced products for existing and new markets, including automotive and biotechnology markets. Our current and anticipated future dependence on a small number of customers increases the revenue impact of each such customer’s decision to delay or defer purchases from us, or decision not to purchase products from us. Our expense levels in the future will be based, in large part, on our expectations regarding future revenue sources and, as a result, operating results for any quarterly period in which anticipated material orders fail to occur, or are delayed or deferred, could be significantly harmed.

We are subject to the cyclical nature of the markets in which we compete and any future downturn will likely reduce demand for our products and revenue.

In each of our target markets, including the CATV market, our sales depend on the aggregate capital expenditures of service providers as they build out and upgrade their network infrastructure. These markets are highly cyclical and characterized by constant and rapid technological change, price erosion, evolving standards and wide fluctuations in product supply and demand. In the past, these markets have experienced significant downturns, often connected with, or in anticipation of, the maturation of product cycles. These downturns have been characterized by diminished product demand, production overcapacity, high inventory levels and accelerated erosion of average selling prices. Our historical results of operations have been subject to these cyclical fluctuations, and we may experience substantial period to period fluctuations in our future results of operations. Any future downturn in any of the markets in which we compete could significantly reduce the demand for our products and therefore may result in a significant reduction in our revenue. Our revenue and results of operations may be materially and adversely affected in the future due to changes in demand from individual customers or cyclical changes in any of the markets utilizing our products. We may not be able to accurately predict these cyclical fluctuations and the impact that these fluctuations may have on our revenue and operating results.

If we encounter manufacturing problems, we may lose sales and damage our customer relationships.

We may experience delays, disruptions or quality control problems in our manufacturing operations. These and other factors may cause less than acceptable yields at our facility. Manufacturing yields depend on a number of factors, including the quality of available raw materials, the degradation or change in equipment calibration and the rate and timing of the introduction of new products. Changes in manufacturing processes required as a result of changes in product specifications, changing customer needs and the introduction of new product lines may significantly reduce our manufacturing yields, resulting in low or negative margins on those products. In addition, we use our Molecular Beam Epitaxy, or MBE, fabrication process to make our lasers, in addition to Metal Organic Chemical Vapor Deposition, or MOCVD, the technique most commonly used in optical manufacturing by communications optics vendors, and our MBE fabrication process relies on custom-manufactured equipment. If our MBE or MOCVD fabrication facility in Sugar Land, Texas were to be damaged or destroyed for any reason, our manufacturing process would be severely disrupted. Any such manufacturing problems would likely delay product shipments to our customers. For example, shipments of certain of our 100 Gbps transceiver products to one of our customers decreased during the three months ended September 30, 2018 due to customer concerns about failures of similar products shipped previously. During the quarter, we conducted extensive testing of our products to demonstrate that any potentially affected units could be nearly eliminated from future shipments, and we subsequently resumed shipments with the customer’s agreement. However, additional testing costs and costs to enhance the ongoing monitoring of product quality may adversely affect the results of our operations. Manufacturing problems and any such delays would negatively affect our sales and revenue and could negatively affect our competitive position and reputation. We may also experience delays in production, typically in February, during the Lunar New Year holiday when our facilities in China and Taiwan are closed.

Table of Contents

Given the high fixed costs associated with our vertically integrated business, a reduction in demand for our products will likely adversely impact our gross profits and our results of operations.

We have a high fixed cost base due to our vertically integrated business model, including the fact that 2,529 of our employees as of December 31, 2018 were employed in manufacturing and research and development operations. We may not be able to adjust these fixed costs quickly to adapt to rapidly changing market conditions. Our gross profit and gross margin are greatly affected by our sales volume and volatility on a quarterly basis and the corresponding absorption of fixed manufacturing overhead expenses. In addition, because we are a vertically integrated manufacturer, insufficient demand for our products may subject us to the risk of high inventory carrying costs and increased inventory obsolescence. Given our vertical integration, 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. We may be required to write down inventory costs in the future and our high inventory costs may have an adverse effect on our gross profits and our results of operations.

Increasing costs and shifts in product mix may adversely impact our gross margins.

Our gross margins on individual products and among products fluctuate over each product’s life cycle. Our overall gross margins have fluctuated from period to period as a result of shifts in product mix, the introduction of new products, decreases in average selling prices and our ability to reduce product costs, and these fluctuations are expected to continue in the future. We may not be able to accurately predict our product mix from period to period, and as a result we may not be able to forecast accurately our overall gross margins. The rate of increase in our costs and expenses may exceed the rate of increase in our revenue, either of which would materially and adversely affect our business, our results of operations and our financial condition.

If the CATV market does not continue to develop as we expect, or if there is any downturn in this market, our business would be adversely affected.

Historically, we have generated much of our revenue from the CATV market. In 2018, 2017 and 2016, the CATV market represented 19.3%, 15.9% and 16.7% of our revenue, respectively. In the CATV market, we are relying on expected increasing demand for bandwidth-intensive services and applications such as on-demand television programs, high-definition television channels, or HDTV, social media, peer-to-peer file sharing and online video creation and viewing from network service providers. Without network and bandwidth growth, the need for our products will not increase and may decline, adversely affecting our financial condition and results of operations. Although demand for broadband access is increasing, network and bandwidth growth may be limited by several factors, including an uncertain regulatory environment, high infrastructure costs to purchase and install equipment and uncertainty as to which competing content delivery solution, such as telecommunications, wireless or satellite, will gain the most widespread acceptance. If the trend of outsourcing for the design and manufacture of CATV equipment does not continue, or continues at a slower pace than currently expected, our customers' demand for our design and manufacturing services may not grow as quickly as expected. If expectations for the growth of the CATV market are not realized, our financial condition and results of operations will be adversely affected. In addition, if the CATV market is adversely impacted, whether due to competitive pressure from telecommunication service providers, regulatory changes, or otherwise, our business would be adversely affected. We may not be able to offset any potential decline in revenue from the CATV market with revenue from new customers in other markets.

We have limited operating history in the telecom and FTTH markets, and our business could be harmed if these markets do not develop as we expect.

For 2018 and 2017, respectively, we generated 4.9% and 3.4% of our revenue from the telecom market and 0.3%, and 0.1% of our revenue from the FTTH market. In the telecom market, we generally have sold products that were originally designed for other markets (such as internet data center or FTTH) or are variations of such products. As we gain experience in this market, we have begun to develop products specifically designed for telecom customers. Given our limited experience in this market, the products that we develop may prove to be unsuitable for customer use, or we may be unable to derive profit margins from this market that are similar to what we derive from our other markets. The products that we offer in the FTTH market are relatively new and have not yet gained widespread customer acceptance. For example, our WDM-PON products designed for the FTTH market, have not, and may never, gain widespread acceptance by large internet service providers. Our business in this market is dependent on the deployment of our optical components, modules and subassemblies. We are relying on increasing demand for bandwidth-intensive services and telecommunications service providers' acceptance and deployment of WDM-PON as a technology supporting 1 Gbps service to the home. Without network and bandwidth growth and adoption of our solutions by operators in these markets, we will not be able to sell our products in these markets in high volume or at our targeted margins, which would adversely affect our financial condition and results of operations. For example, WDM-PON technology may not be adopted by equipment and service providers in the FTTH market as rapidly as we expect or in the volumes we need to achieve acceptable margins. Network and bandwidth growth may be limited by several factors, including an uncertain regulatory environment, high infrastructure costs to purchase and install equipment and uncertainty as to which competing content delivery solution, such as CATV, will gain the most widespread acceptance. In addition, as we enter new markets or expand our product offerings in existing markets, our margins may be adversely affected due to competition in those markets and commoditization of competing products. If our expectations for the growth of these markets are not realized, our financial condition and results of operations will be adversely affected.

Our financial results may vary significantly from quarter-to-quarter due to a number of factors, which may lead to volatility in our stock price.

Our quarterly revenue and operating results have varied in the past and will likely continue to vary significantly from quarter-to-quarter. This variability may lead to volatility in our stock price as research analysts and investors respond to these quarterly fluctuations. These fluctuations are due to numerous factors, including:

· the timing, size and mix of sales of our products;

· fluctuations in demand for our products, including the increase, decrease, rescheduling or cancellation of significant customer orders;

· our ability to design, manufacture and deliver products which meet customer requirements in a timely and cost-effective manner;

· new product introductions and enhancements by us or our competitors;

· the gain or loss of key customers;

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

· changes in our pricing and sales policies or the pricing and sales policies of our competitors;

- seasonality of certain of our products and manufacturing capabilities;

- quality control or yield problems in our manufacturing operations;

- supply disruption for certain raw materials and components used in our products;

- capacity constraints of our outside contract manufacturers for a portion of the manufacturing process for some of our products;

- length and variability of the sales cycles of our products;

- unanticipated increases in costs or expenses;

- the loss of key employees;

- different capital expenditure and budget cycles for our customers, affecting the timing of their spending for our products;

- political stability in the areas of the world in which we operate;

Table of Contents

- fluctuations in foreign currency exchange rates;

- changes in accounting rules;

- changes in or limitations imposed by trade protection laws or other regulatory orders or requirements in the United States or in other countries, including tariffs, sanctions, or other costs or requirements which may affect our ability to import or export our products to or from various countries;

- the evolving and unpredictable nature of the markets for products incorporating our solutions; and

- general economic conditions and changes in such conditions specific to our target markets.

The foregoing factors are difficult to forecast, and these, as well as other factors, could materially adversely affect our quarterly and annual operating results. In addition, a significant amount of our operating expenses is relatively fixed in nature due to our internal manufacturing, research and development, sales and general administrative efforts. Any failure to adjust spending quickly enough to compensate for a revenue shortfall could magnify the adverse impact of such revenue shortfall on our results of operations. For these reasons, you should not rely on quarter-to-quarter comparisons of our results of operations as an indicator of future performance. Moreover, our operating results may not meet our announced guidance or the expectations of research analysts or investors, in which case the price of our common stock could decrease significantly. There can be no assurance that we will be able to successfully address these risks.

We depend on key personnel to develop and maintain our technology and manage our business in a rapidly changing market.

The continued services of our executive officers and other key engineering, sales, marketing, manufacturing and support personnel is essential to our success. For example, our ability to achieve new design wins depends upon the experience and expertise of our engineers. Any of our key employees, including our Chief Executive Officer, Chief Financial Officer, Senior Vice President and North America General Manager and Senior Vice President and Asia General Manager, may resign at any time. We do not have key person life insurance policies covering any of our employees. To implement our business plan, we also intend to hire additional employees, particularly in the areas of engineering, manufacturing and sales. Our ability to continue to attract and retain highly skilled employees is a critical factor in our success. Competition for highly skilled personnel is intense. We may not be successful in attracting, assimilating or retaining qualified personnel to satisfy our current or future needs. Our ability to develop, manufacture and sell our products, and thus our financial condition and results of operations, would be adversely affected if we are unable to retain existing personnel or hire additional qualified personnel.

We depend on a limited number of suppliers and any supply interruption could have an adverse effect on our business.

We depend on a limited number of suppliers for certain raw materials and components used in our products. Some of these suppliers could disrupt our business if they stop, decrease or delay shipments or if the materials or components they ship have quality or reliability issues. Some of the raw materials and components we use in our products are available only from a sole source or have been qualified only from a single supplier. Furthermore, other than our current suppliers, there are a limited number of entities from whom we could obtain certain materials and components. We may also face shortages if we experience increased demand for materials or components beyond what our qualified suppliers can deliver. Our inability to obtain sufficient quantities of critical materials or components could adversely affect our ability to meet demand for our products, adversely affecting our financial condition and results of operations.

We typically have not entered into long-term agreements with our suppliers and, therefore, our suppliers could stop supplying materials and components to us at any time or fail to supply adequate quantities of materials or components to us on a timely basis. It is difficult, costly, time consuming and, on short notice, sometimes impossible for us to identify and qualify new suppliers. Our customers generally restrict our ability to change the components in our products. For more critical components, any changes may require repeating the entire qualification process. Our reliance on a limited number of suppliers or a single qualified vendor may result in delivery and quality problems, and reduced control over product pricing, reliability and performance.

Table of Contents

We depend upon outside contract manufacturers for a portion of the manufacturing process for some of our products.

Almost all of our products are manufactured internally. However we also rely upon manufacturers in China, Taiwan and other Asia locations to provide back-end manufacturing and produce the finished portion of a few of our products. Our reliance on a contract manufacturer for these products makes us vulnerable to possible capacity constraints and reduced control over delivery schedules, manufacturing yields, manufacturing quality/controls and costs. If one or more of our contract manufacturers is unable to meet our customer demand in a timely fashion, this could have a material adverse effect on the revenue from our products. If one or more contract manufacturers for one of our products was unable or unwilling to manufacture such product in required volumes and at high quality levels or to continue our existing supply arrangement, we would have to identify, qualify and select an acceptable alternative contract manufacturer or move these manufacturing operations to our internal manufacturing facilities. An alternative contract manufacturer may not be available to us when needed or may not be in a position to satisfy our quality or production requirements on commercially reasonable terms, including price. Any significant interruption in manufacturing our products would require us to reduce our supply of products to our customers, which in turn, would reduce our revenue, harm our relationships with the customer of these products and cause us to forego potential revenue opportunities.

Our products could contain defects that may cause us to incur significant costs or result in a loss of customers.

Our products are complex and undergo quality testing as well as formal qualification by our customers. Our customers' testing procedures are limited to evaluating our products under likely and foreseeable failure scenarios and over varying amounts of time. For various reasons, such as the occurrence of performance problems that are unforeseeable in testing or that are detected only when products age or are operated under peak stress conditions, our products may fail to perform as expected long after customer acceptance. Failures could result from faulty components or design, problems in manufacturing or other unforeseen reasons. Any such failures could delay product shipments to our customers or result in a loss of customers. For example, shipments of certain of our 100 Gbps transceiver products to one of our customers decreased during the three months ended September 30, 2018 due to customer concerns about failures of similar products shipped previously. As a result, we could incur significant costs to repair or replace defective products under warranty, particularly when such failures occur in installed systems. Our products are typically embedded in, or deployed in conjunction with, our customers' products, which incorporate a variety of components, modules and subsystems and may be expected to interoperate with modules produced by third parties. As a result, not all defects are immediately detectable and when problems occur, it may be difficult to identify the source of the problem. We face this risk because our products are widely deployed in many demanding environments and applications worldwide. In addition, we may in certain circumstances honor warranty claims after the warranty has expired or for problems not covered by warranty to maintain customer relationships. Any significant product failure could result in litigation, damages, repair costs and lost future sales of the affected product and other products, divert the attention of our engineering personnel from our product development efforts and cause significant customer relations problems, all of which would harm our business. Although we carry product liability insurance, this insurance may not adequately cover our costs arising from defects in our products or otherwise.

Our loan agreements contain restrictive covenants that may adversely affect our ability to conduct our business.

We have lending arrangements with several financial institutions, including loan agreements with Branch Banking and Trust (BB&T) Bank in the U.S., credit facilities with Taishin International Bank, Development Bank of Singapore and CTBC Bank, a finance lease agreement with Chailease Finance Co., Ltd. in Taiwan and a credit facility with China Construction Bank Co. in China. Our loan agreements governing our long-term debt obligations in the U.S. and Asia contain certain financial and operating covenants that limit our management's discretion with respect to certain business matters. Among other things, these covenants require us to maintain certain financial ratios and restrict our ability to incur additional debt, create liens or other encumbrances, change the nature of our business, sell or otherwise dispose of assets and merge or consolidate with other entities. These restrictions may limit our flexibility in responding to business opportunities, competitive developments and adverse economic or industry conditions. Any failure by us or our subsidiaries to comply with these agreements could harm our business, financial condition and operating results. In addition, our obligations under our loan agreements with BB&T are secured by our accounts receivable, inventory, intellectual property, and all business assets including real estate and equipment. Our credit facilities with China Construction Bank Co. are secured by real estate. A breach of any of covenants under our loan agreements, or a failure

Table of Contents

to pay interest or indebtedness when due under any of our credit facilities could result in a variety of adverse consequences, including the acceleration of our indebtedness.

We may not be able to obtain additional capital when desired, on favorable terms or at all.

We operate in a market that makes our prospects difficult to evaluate and, to remain competitive, we will be required to make continued investments in capital equipment, facilities and technological improvements. We expect that substantial capital will be required to expand our manufacturing capacity and fund working capital for anticipated growth. If we do not generate sufficient cash flow from operations or otherwise have the capital resources to meet our future capital needs, we may need additional financing to implement our business strategy, which includes:

- expansion of research and development;
- expansion of manufacturing capabilities;
- hiring of additional technical, sales and other personnel; and
- acquisitions of complementary businesses.

If we raise additional funds through the issuance of our common stock or convertible securities, the ownership interests of our stockholders could be significantly diluted. These newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. Additional financing may not, however, be available on terms favorable to us, or at all, if and when needed, and our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our infrastructure or respond to competitive pressures could be significantly limited. If we cannot raise required capital when needed, including under our Registration Statement filed with the SEC in October 2016, we may be unable to meet the demands of existing and prospective customers, adversely affecting our sales and market opportunities and consequently our business, financial condition and results of operations.

Data breaches and cyberattacks could compromise our operations, our customers' operations, or the operations of our contract manufacturers upon whom we rely, and cause significant damage to our business and reputation.

Cyberattacks have become more prevalent and much harder to detect and defend against. Companies, including companies in our industry, have been increasingly subject to a wide variety of security incidents, cyberattacks and other attempts to gain unauthorized access to their systems or to deny access and disrupt their systems and operations. These threats can come from a variety of sources, ranging in sophistication from an individual hacker to a state-sponsored attack. Cyber threats may be generic, or they may be custom-crafted against our information systems.

In the ordinary course of our business, we and our data center customers maintain sensitive data on our respective networks, including intellectual property, employee personal information and proprietary or confidential business information relating to our business and that of our customers and business partners. The secure maintenance of this information is critical to our business and reputation. Despite our implementation of network security measures, our network and storage applications may be subject to computer viruses, denial of service attacks, ransomware and other forms of cyber terrorism, unauthorized access by hackers or may be breached due to operator error, malfeasance or other system disruptions. Our customers' network and storage applications may be subject to similar disruptions. It is often difficult to anticipate or immediately detect such incidents and the damage caused by such incidents. Data breaches and any unauthorized access or disclosure of our information, employee information or intellectual property could compromise our business, trade secrets and other sensitive business information, any of which could result in legal action against us, exposure of our intellectual property to our competitors, damages, fines and other adverse effects. A data security breach could also lead to public exposure of personal information of our employees, customers and others. Any such theft, loss or misuse of personal data collected, used, stored or transferred by us to run our business could result in significantly increased security costs or costs related to defending legal claims. Cyberattacks, such as computer viruses or other forms of cyber terrorism, may disrupt access to our network or storage applications. Such disruptions could result in delays or cancellations of customer orders or the production or shipment of our products. Data security breaches involving our data center customers could affect their financial condition and ability to continue to purchase our products. Further, cyberattacks may cause us to incur significant remediation costs, result in product development delays, disrupt key business operations and divert attention of management and key information technology resources.

Table of Contents

These incidents could also subject us to liability, expose us to significant expense and cause significant harm to our reputation and business.

Changes in U.S. and international trade policies, particularly with regard to China, may materially and adversely impact our business and operating results.

The U.S. government has recently made statements and taken certain actions that have led and may lead to further changes to U.S. and international trade policies, including recently-imposed tariffs affecting certain products manufactured in China. Since the beginning of 2018, there has been increasing rhetoric, in some cases coupled with legislative or executive action, from several U.S. and foreign leaders regarding the possibility of instituting tariffs on the foreign imports of certain materials. Three rounds of U.S. tariffs on imports from China have become effective in July 2018, August 2018 and September 2018 (respectively the "U.S. Tariffs on China Imports"). A limited number of our products that have a China country of origin are currently subject to the U.S. Tariffs on China Imports.

It is unknown whether and to what extent new tariffs (or other new laws or regulations) will be adopted, or the effect that any such actions would have on us or our industry. A significant portion of our manufacturing operations is based in Ningbo, China; therefore, if any new tariffs, legislation and/or regulations are implemented, or if existing trade agreements are renegotiated or if China or other affected countries take further retaliatory trade actions, such changes could have a material adverse effect on our business, financial condition, results of operations or cash flows.

Furthermore, the implementation of trade tariffs both globally and between the U.S. and China specifically carries the risk of negatively impacting China's overall economic condition, which could have negative repercussions on us. Imposition of tariffs could cause a decrease in the sales of our products to customers located in China or other customers selling to Chinese end users, which would directly impact our business.

Significant changes to existing international trade agreements could also lead to sourcing or logistics disruption resulting from import delays or the imposition of increased tariffs on our sourcing partners. For example, the Chinese government could, among other things, require the use of local suppliers, compel companies that do business in China to partner with local companies to conduct business and provide incentives to government-backed local customers to buy from local suppliers. Changes in, and responses to, U.S. trade policy could reduce the competitiveness of our products and cause our sales and revenues to drop, which could materially and adversely impact our business and results of operations.

We face a variety of risks associated with our international sales and operations.

We currently derive, and expect to continue to derive, a significant portion of our revenue from sales to international customers. In 2018, 2017 and 2016, 23.1%, 22.7% and 15.8% of our revenue was derived from sales that occurred outside of North America, respectively. In addition, a significant portion of our manufacturing operations is based in Ningbo, China and Taipei, Taiwan. Our international revenue and operations are subject to a number of material risks, including:

· difficulties in staffing, managing and supporting operations in more than one country;

· difficulties in enforcing agreements and collecting receivables through foreign legal systems;

· fewer legal protections for intellectual property in foreign jurisdictions;

· foreign and U.S. taxation issues and international trade barriers, including the adoption or expansion of governmental trade tariffs;

· difficulties in obtaining any necessary governmental authorizations for the export of our products to certain foreign jurisdictions;

· fluctuations in foreign economies;

· fluctuations in the value of foreign currencies and interest rates;

Table of Contents

- trade and travel restrictions;
- domestic and international economic or political changes, hostilities and other disruptions in regions where we currently operate or may operate in the future;
- difficulties and increased expenses in complying with a variety of U.S. and foreign laws, regulations and trade standards, including the Foreign Corrupt Practices Act; and
- different and changing legal and regulatory requirements in the jurisdictions in which we currently operate or may operate in the future.

Negative developments in any of these factors in China or Taiwan or other countries could result in a reduction in demand for our products, the cancellation or delay of orders already placed, difficulties in producing and delivering our products, threats to our intellectual property, difficulty in collecting receivables, and a higher cost of doing business. Although we maintain certain compliance programs throughout the Company, violations of U.S. and foreign laws and regulations may result in criminal or civil sanctions, including material monetary fines, penalties and other costs against us or our employees, and may have a material adverse effect on our business.

Our business operations conducted in China and Taiwan are important to our success. A substantial portion of our property, plant and equipment is located in China and Taiwan. We expect to make further investments in China and Taiwan in the future. Therefore, our business, financial condition, results of operations and prospects are subject to economic, political, legal, and social events and developments in China and Taiwan. Factors affecting military, political or economic conditions in China and Taiwan could have a material adverse effect on our financial condition and results of operations, as well as the market price and the liquidity of our common shares.

In some instances, we rely on third parties to assist in selling our products, and the failure of those parties to perform as expected could reduce our future revenue.

Although we primarily sell our products through direct sales, we also sell our products to some of our customers through third party sales representatives and distributors. Many of such third parties also market and sell products from our competitors. Our third party sales representatives and distributors may terminate their relationships with us at any time, or with short notice. Our future performance will also depend, in part, on our ability to attract additional third party sales representatives and distributors that will be able to market and support our products effectively, especially in markets in which we have not previously distributed our products. If our current third party sales representatives and distributors fail to perform as expected, our revenue and results of operations could be harmed.

Changes in our effective tax rate may adversely affect our results of operation and our business.

We are subject to income taxes in the U.S. and other foreign jurisdictions, including China and Taiwan. In addition, we are subject to various state taxes in states where we have nexus. We base our tax position on the anticipated nature and conduct of our business and our understanding of the tax laws of the countries and states in which we have assets or conduct activities. Our tax position may be reviewed or challenged by tax authorities. Moreover, the tax laws currently in effect may change, and such changes may have retroactive effect, such as the U.S. tax reform legislation commonly referred to as the U.S. Tax Cuts and Jobs Act of 2017 (the “Tax Act”). We have inter-company arrangements in place providing for administrative and financing services and transfer pricing, which involve a significant degree of judgment and are often subject to close review by tax authorities. The tax authorities may challenge our positions related to these agreements. If the tax authorities successfully challenge our positions, our effective tax rate may increase, adversely affecting our results of operation and our business.

The Tax Act significantly changes how the U.S. taxes corporations. The Tax Act requires complex computations to be performed that were not previously required in U.S. tax law, significant judgments to be made in interpretation of the provisions of the Tax Act and significant estimates in calculations, and the preparation and analysis of information not previously relevant or regularly produced. The U.S. Treasury Department, the IRS, and other standard-setting bodies could interpret or issue guidance on how provisions of the Tax Act will be applied or otherwise administered that is different from our interpretation. As we interpret any additional guidance, we may make adjustments to amounts that we have recorded that may materially impact our provision for income taxes in the period in which the adjustments are made.

Failure to manage our growth effectively may adversely affect our financial condition and results of operations.

Successful implementation of our business plan in our target markets requires effective planning and management. Production volumes for some of our products are increasing and we have announced plans to increase our production capacity in response to demand for certain of our current and future products, including adding personnel in some of our locations as well as expanding our physical manufacturing facilities. We currently operate facilities in Sugar Land, Texas, Ningbo, China, Taipei, Taiwan, and Duluth, Georgia. We currently manufacture our lasers using a proprietary process and customized equipment located only in our Sugar Land, Texas facility, and it will be costly to duplicate that facility, to scale our laser manufacturing capacity or to mitigate the risks associated with operating a single facility. The challenges of managing our geographically dispersed operations have increased and will continue to increase the demand on our management systems and resources. Moreover, we are continuing to improve our financial and managerial controls, reporting systems and procedures. Any failure to manage our expansion and the resulting demands on our management systems and resources effectively may adversely affect our financial condition and results of operations.

Future acquisitions may adversely affect our financial condition and results of operations.

As part of our business strategy, we may pursue acquisitions of companies that we believe could enhance or complement our current product portfolio, augment our technology roadmap or diversify our revenue base. Acquisitions involve numerous risks, any of which could harm our business, including:

· difficulties integrating the acquired business;

· unanticipated costs, capital expenditures or liabilities or changes related to research in progress and product development;

· diversion of financial and management resources from our existing business;

· difficulties integrating the business relationships with suppliers and customers of the acquired business with our existing business relationships;

· risks associated with entering markets in which we have little or no prior experience; and

- potential loss of key employees, particularly those of the acquired organizations.

Acquisitions may also result in the recording of goodwill and other intangible assets subject to potential impairment in the future, adversely affecting our operating results. We may not achieve the anticipated benefits of an acquisition if we fail to evaluate it properly, and we may incur costs in excess of what we anticipate. A failure to evaluate and execute an acquisition appropriately or otherwise adequately address these risks may adversely affect our financial condition and results of operations.

We may be subject to disruptions or failures in information technology systems and network infrastructures that could have a material adverse effect on our business and financial condition.

We rely on the efficient and uninterrupted operation of complex information technology systems and network infrastructures to operate our business. A disruption, infiltration or failure of our information technology systems as a result of software or hardware malfunctions, system implementations or upgrades, computer viruses, third-party security breaches, employee error, theft or misuse, malfeasance, power disruptions, natural disasters or accidents could cause a breach of data security, loss of intellectual property and critical data and the release and misappropriation of sensitive competitive information and partner, customer, and employee personal data. Any of these events could harm our competitive position, result in a loss of customer confidence, cause us to incur significant costs to remedy any damages and ultimately materially adversely affect our business and financial condition.

Table of Contents

Our future results of operations may be subject to volatility as a result of exposure to fluctuations in currency exchange rates.

We have significant foreign currency exposure and are affected by fluctuations among the U.S. dollar, the Chinese Renminbi, or RMB, and the New Taiwan dollar, or NT dollar, because a substantial portion of our business is conducted in China and Taiwan. Our sales, raw materials, components and capital expenditures are denominated in U.S. dollars, RMB and NT dollars in varying amounts.

Foreign currency fluctuations may adversely affect our revenue and our costs and expenses, and hence our results of operations. The value of the NT dollar or the RMB against the U.S. dollar and other currencies may fluctuate and be affected by, among other things, changes in political and economic conditions. The RMB currency is no longer being pegged solely to the value of the U.S. dollar. In the long term, the RMB may appreciate or depreciate significantly in value against the U.S. dollar, depending upon the fluctuation of the basket of currencies against which it is currently valued, or it may be permitted to enter into a full float, which may also result in a significant appreciation or depreciation of the RMB against the U.S. dollar. In addition, our currency exchange variations may be magnified by Chinese exchange control regulations that restrict our ability to convert RMB into foreign currency.

Our sales in Europe are denominated in U.S. dollars and fluctuations in the Euro or our customers' other local currencies relative to the U.S. dollar may impact our customers and affect our financial performance. If our customers' local currencies weaken against the U.S. dollar, we may need to lower our prices to remain competitive in our international markets which could have a material adverse effect on our margins. If our customers' local currencies strengthen against the U.S. dollar and if the local sales prices cannot be raised due to competitive pressures, we will experience a deterioration of our margins.

To date, we have not entered into any hedging transactions in an effort to reduce our exposure to foreign currency exchange risk. While we may decide to enter into hedging transactions in the future, the availability and effectiveness of these hedging transactions may be limited and we may not be able to successfully hedge our exposure.

Natural disasters or other catastrophic events could harm our operations.

Our operations in the U.S., China and Taiwan could be subject to significant risk of natural disasters, including earthquakes, hurricanes, typhoons, flooding and tornadoes, as well as other catastrophic events, such as epidemics, terrorist attacks or wars. For example, our corporate headquarters and wafer fabrication facility in Sugar Land, Texas is located near the Gulf of Mexico, an area that is susceptible to hurricanes. We use a proprietary MBE laser manufacturing process that requires customized equipment, and this process is currently conducted and located solely at our wafer fabrication facility in Sugar Land, Texas, such that a natural disaster, terrorist attack or other catastrophic event that affects that facility would materially harm our operations. In addition, our manufacturing facility in Taipei, Taiwan, is susceptible to typhoons and earthquakes, and our manufacturing facility in Ningbo, China, has from time to time, suffered electrical outages. Any disruption in our manufacturing facilities arising from these and other natural disasters or other catastrophic events could cause significant delays in the production or shipment of our products until we are able to shift production to different facilities or arrange for third parties to manufacture our products. We may not be able to obtain alternate capacity on favorable terms or at all. Our property insurance coverage with respect to natural disaster is limited and is subject to deductible and coverage limits. Such coverage may not be adequate or continue to be available at commercially reasonable rates and terms. The occurrence of any of these circumstances may adversely affect our financial condition and results of operation.

Our business could be negatively impacted as a result of shareholder activism.

In recent years, shareholder activists have become involved in numerous public companies. Shareholder activists frequently propose to involve themselves in the governance, strategic direction, and operations of the Company. We may in the future become subject to such shareholder activity and demands. Such demands may disrupt our business and divert the attention of our management and employees, and any perceived uncertainties as to our future direction resulting from such a situation could result in the loss of potential business opportunities, be exploited by our competitors, cause concern to our current or potential customers, and make it more difficult to attract and retain qualified personnel and business partners, all of which could adversely affect our business. In addition, actions of activist shareholders may cause significant fluctuations in our stock price based on temporary or speculative market perceptions or other factors that do not necessarily reflect the underlying fundamentals and prospects of our business.

The unfavorable outcome of any pending or future litigation or administrative action and expenses incurred in connection with litigation could result in financial losses or harm to our business.

We are, and in the future may be, subject to legal actions in the ordinary course of our operations, both domestically and internationally. There can be no assurances as to the favorable outcome of any litigation. In addition it can be costly to defend litigation and these costs could negatively impact our financial results. As disclosed in "Item 3. Legal Proceedings," on August 5, 2017, we and certain of our officers are currently subject to class action litigation related to allegations that we made materially false and misleading statements or failed to disclose material facts. Such litigation includes requests for damages and other relief. As further described in that section, subsequent derivative actions and securities class actions have since been filed. This litigation and any other such litigation could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

If we fail to protect, or incur significant costs in defending, our intellectual property and other proprietary rights, our business and results of operations could be materially harmed.

Our success depends on our ability to protect our intellectual property and other proprietary rights. We rely on a combination of patent, trademark, copyright, trade secret and unfair competition laws, as well as license agreements and other contractual provisions, to establish and protect our intellectual property and other proprietary rights. We have applied for patents in the U.S. and in other foreign countries, some of which have been issued. In addition, we have registered certain trademarks in the U.S. We cannot guarantee that our pending applications will be approved by the applicable governmental authorities. Moreover, our existing and future patents and trademarks may not be sufficiently broad to protect our proprietary rights or may be held invalid or unenforceable in court. A failure to obtain patents or trademark registrations or a successful challenge to our patents and trademark registrations in the U.S. or other foreign countries may limit our ability to protect the intellectual property rights that these patent and trademark registrations intended to cover.

Policing unauthorized use of our technology is difficult and we cannot be certain that the steps we have taken will prevent the misappropriation, unauthorized use or other infringement of our intellectual property rights. Further, we may not be able to effectively protect our intellectual property rights from misappropriation or other infringement in foreign countries where we have not applied for patent protections and where effective patent, trademark, trade secret and other intellectual property laws may be unavailable, or may not protect our proprietary rights as fully as U.S. law. We may seek to secure comparable intellectual property protections in other countries. However, the level of protection afforded by patent and other laws in other countries may not be comparable to that afforded in the U.S.

We also attempt to protect our intellectual property, including our trade secrets and know-how, through the use of trade secret and other intellectual property laws, and contractual provisions. We enter into confidentiality and invention assignment agreements with our employees and independent consultants. We also use non-disclosure agreements with other third parties who may have access to our proprietary technologies and information. Such measures, however, provide only limited protection, and there can be no assurance that our confidentiality and non-disclosure agreements will not be breached, especially after our employees end their employment, and that our trade secrets will not otherwise become known by competitors or that we will have adequate remedies in the event of unauthorized use or disclosure of proprietary information. Unauthorized third parties may try to copy or reverse engineer our products or portions of our products, otherwise obtain and use our intellectual property, or may independently develop similar or equivalent trade secrets or know-how. If we fail to protect our intellectual property and other proprietary rights, or if such intellectual property and proprietary rights are infringed, misappropriated or duplicated, our business, results of operations or financial condition could be materially harmed.

In the future, we may need to take legal actions to prevent third parties from infringing upon or misappropriating our intellectual property or from otherwise gaining access to our technology. Protecting and enforcing our intellectual property rights and determining their validity and scope could result in significant litigation costs and require significant time and attention from our technical and management personnel, which could significantly harm our business. We may not prevail in such proceedings, and an adverse outcome may adversely impact our competitive advantage or otherwise harm our financial condition and our business.

Table of Contents

We may be involved in intellectual property disputes in the future, which could divert management's attention, cause us to incur significant costs and prevent us from selling or using the challenged technology.

Participants in the markets in which we sell our products have experienced frequent litigation regarding patent and other intellectual property rights. While we have a policy in place that is designed to reduce the risk of infringement of intellectual property rights of others and we have conducted a limited review of other companies' relevant patents, there can be no assurance that third parties will not assert infringement claims against us. We cannot be certain that our products would not be found infringing on the intellectual property rights of others. Regardless of their merit, responding to such claims can be time consuming, divert management's attention and resources and may cause us to incur significant expenses. Intellectual property claims against us could force us to do one or more of the following:

· obtain from a third party claiming infringement a license to the relevant technology, which may not be available on reasonable terms, or at all;

· stop manufacturing, selling, incorporating or using our products that use the challenged intellectual property;

· pay substantial monetary damages; or

· expend significant resources to redesign the products that use the technology and to develop non-infringing technology.

Any of these actions could result in a substantial reduction in our revenue and could result in losses over an extended period of time.

In any potential intellectual property dispute, our customers could also become the target of litigation. Because we often indemnify our customers for intellectual property claims made against them with respect to our products, any claims against our customers could trigger indemnification claims against us. These obligations could result in substantial expenses such as legal expenses, damages for past infringement or royalties for future use. Any indemnity claim could also adversely affect our relationships with our customers and result in substantial costs to us.

If we fail to obtain the right to use the intellectual property rights of others that are necessary to operate our business, and to protect their intellectual property, our business and results of operations will be adversely affected.

From time to time we may choose to or be required to license technology or intellectual property from third parties in connection with the development of our products. We cannot assure you that third party licenses will be available to us on commercially reasonable terms, if at all. Generally, a license, if granted, would include payments of up-front fees, ongoing royalties or both. These payments or other terms could have a significant adverse impact on our results of operations. Our inability to obtain a necessary third party license required for our product offerings or to develop new products and product enhancements could require us to substitute technology of lower quality or performance standards, or of greater cost, any of which could adversely affect our business. If we are not able to obtain licenses from third parties, if necessary, then we may also be subject to litigation to defend against infringement claims from these third parties. Our competitors may be able to obtain licenses or cross-license their technology on better terms than we can, which could put us at a competitive disadvantage.

If we fail to maintain an effective system of disclosure controls and internal control over financial reporting, the accuracy and timing of our financial reporting may be adversely affected.

Preparing our consolidated financial statements involves a number of complex manual and automated processes, which are dependent upon individual data input or review and require significant management judgment. One or more of these elements may result in errors that may not be detected and could result in a material misstatement of our consolidated financial statements. The Sarbanes-Oxley Act requires, among other things, that as a publicly-traded company we disclose whether our internal control over financial reporting and disclosure controls and procedures are effective.

We have implemented a system of disclosure and internal controls that we believe provide reasonable assurance that we will be able to timely report our financial results and avoid accounting errors or material weaknesses in future

Table of Contents

periods. However, our internal controls cannot guarantee that no accounting errors exist or that all accounting errors, no matter how immaterial, will be detected because a control system, no matter how well designed and operated, can provide only reasonable, but not absolute assurance that the control system's objectives will be met. If we are unable to implement and maintain an effective system of disclosure controls and internal control over financial reporting, our ability to accurately and timely report our financial results could be adversely impacted. This could result in late filings of our annual and quarterly reports under the Exchange Act, restatements of our consolidated financial statements, a decline in our stock price, suspension or delisting of our common stock by NASDAQ, or other material adverse effects on our business, reputation, results of operations or financial condition.

Our ability to use our net operating losses and certain other tax attributes may be limited.

As of December 31, 2018, we had U.S. accumulated net operating losses, or NOLs, of approximately $47.4 million, federal and state research and development credits ("R&D credits") of $6.6 million, interest expense of $1.0 million and foreign tax credits of $4.6 million for U.S. federal income tax purposes. Under Section 382 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an "ownership change," the corporation's ability to use its pre-change NOLs, tax credits and other pre-change tax attributes to offset its post-change income may be limited. An ownership change is generally defined as a greater than 50% change in equity ownership by value over a 3-year period. Based upon an analysis of our equity ownership, we believe that we have experienced ownership changes; however, we do not believe those limitations result in a material loss of tax benefits. Should we experience additional ownership changes, our NOL carry forwards and tax credits may be further limited.

Our manufacturing operations are subject to environmental regulation that could limit our growth or impose substantial costs, adversely affecting our financial condition and results of operations.

Our properties, operations and products are subject to the environmental laws and regulations of the jurisdictions in which we operate and sell products. These laws and regulations govern, among other things, air emissions, wastewater discharges, the management and disposal of hazardous materials and solid wastes, the contamination of soil and groundwater, employee health and safety and the content, performance, packaging and disposal of products. Our failure to comply with current and future environmental laws and regulations, or the identification of contamination for which we are liable, could subject us to substantial costs, including fines, clean-up costs, natural resource damages, third-party property damages or personal injury claims, administrative, civil or criminal penalties and could result in injunctive relief requiring us to make significant investments to upgrade our facilities, redesign or change our manufacturing processes, redesign our products, or curtail our operations. Liability under environmental, health and safety laws can be joint and several and without regard to fault or negligence. For example, pursuant to environmental laws and regulations, including but not limited to the Comprehensive Environmental Response Compensation and Liability Act, or CERCLA, we may be liable for the full amount of any remediation-related costs at properties we currently own or formerly owned, such as our currently owned Sugar Land, Texas facility, or at properties at which we previously operated, as well as at properties we will own or operate in the future, and properties to which we have sent hazardous substances, whether or not we caused the contamination. Identification of presently unidentified environmental conditions, more vigorous enforcement by a governmental authority, enactment of more stringent legal requirements or other unanticipated events could give rise to adverse publicity, restrict our operations, affect the design or marketability of our products or otherwise cause us to incur material environmental costs, adversely affecting our financial condition and results of operations.

We are exposed to increased expenses and business risk as a result of Restriction on Hazardous Substances, or RoHS directives.

Following the lead of the European Union, or EU, various governmental agencies have either already put into place or are planning to introduce regulations that regulate the permissible levels of hazardous substances in products sold in various regions of the world. For example, the RoHS directive for EU took effect on July 1, 2006. The labeling provisions of similar legislation in China went into effect on March 1, 2007. Consequently, many suppliers of products sold into the EU have required their suppliers to be compliant with the new directive. Many of our customers have adopted this approach and have required our full compliance. Though we have devoted a significant amount of resources and effort in planning and executing our RoHS program, it is possible that some of our products might be incompatible with such regulations. In such events, we could experience the following consequences: loss of revenue, damaged reputation, diversion of resources, monetary penalties, and legal action.

Failure to comply with the U.S. Foreign Corrupt Practices Act could subject us to penalties and other adverse consequences.

We are subject to the U.S. Foreign Corrupt Practices Act which generally prohibits U.S. companies from engaging in bribery or other prohibited payments to foreign officials for the purpose of obtaining or retaining business. In addition, we are required to maintain records that accurately and fairly represent our transactions and have an adequate system of internal accounting controls. Foreign companies, including some that may compete with us, may not be subject to these prohibitions, and therefore may have a competitive advantage over us. If we are not successful in implementing and maintaining adequate preventative measures, we may be responsible for acts of our employees or other agents engaging in such conduct. We could suffer severe penalties and other consequences that may have a material adverse effect on our financial condition and results of operations.

We are subject to governmental export and import controls that could subject us to liability or impair our ability to compete in international markets.

We are subject to export and import control laws, trade regulations and other trade requirements that limit which products we sell and where and to whom we sell our products. Specifically, the Bureau of Industry and Security of the U.S. Department of Commerce is responsible for regulating the export of most commercial items that are so called dual-use goods that may have both commercial and military applications. Our products are classified under Export Control Classification Numbers, or ECCNs, 5A991 and 6A995. Export Control Classification requirements are dependent upon an item’s technical characteristics, the destination, the end-use, the end-user, and other activities of the end-user. Should the regulations applicable to our products change, or the restrictions applicable to countries to which we ship our products change, then the export of our products to such countries could be restricted. As a result, our ability to export or sell our products to certain countries could be restricted, which could adversely affect our business, financial condition and results of operations.

Changes in our products or any change in export or import regulations or related legislation, shift in approach to the enforcement or scope of existing regulations, or change in the countries, persons or technologies targeted by such regulations, could result in delayed or decreased sales of our products to existing or potential customers. In such event, our business and results of operations could be adversely affected. For example, in April 2018, Zhongxing Telecommunications Equipment Corporation and ZTE Kangxun Communications Ltd. (collectively “ZTE”) were added to the U.S. Department of Commerce’s Bureau of Industry and Security’s List of Denied Persons, which imposed a seven year denial of export privileges against ZTE. However, in July 2018, the denial of export privileged was suspended and ZTE was removed from the list of Denied Persons. Although ZTE is not currently one of our significant customers, such actions against customers or potential customers could adversely affect our business and results of operations.

Rapidly changing standards and regulations could make our products obsolete, which would cause our revenue and results of operations to suffer.

We design our products to conform to regulations established by governments and to standards set by industry standards bodies worldwide, such as the American National Standards Institute, the European Telecommunications Standards Institute, the International Telecommunications Union and the Institute of Electrical and Electronics Engineers, Inc. Various industry organizations are currently considering whether and to what extent to create standards applicable to our products. Because certain of our products are designed to conform to current specific industry standards, if competing or new standards emerge that are preferred by our customers, we would have to make significant expenditures to develop new products. If our customers adopt new or competing industry standards with which our products are not compatible, or the industry groups adopt standards or governments issue regulations with which our products are not compatible, our existing products would become less desirable to our customers and our revenue and results of operations would suffer.

Compliance with regulations related to conflict minerals could increase costs and affect the manufacturing and sale of our products.

Public companies are required to disclose the use of tin, tantalum, tungsten and gold (collectively, “conflict minerals”) mined from the Democratic Republic of the Congo and adjoining countries (the “covered countries”) if a conflict mineral(s) is necessary to the functionality of a product manufactured, or contracted to be manufactured, by the

Company. We filed our latest conflict minerals report on Form SD on May 30, 2018. We have previously determined, as part of our compliance efforts, that certain products or components we obtain from our suppliers contain conflict minerals. Based on our Reasonable Country of Origin Inquiry on the source of our conflict minerals for the year ended December 31, 2017, we had reason to believe that certain of such conflict minerals likely originated in covered countries. If we are unable to conclude in the future that all our products are free from conflict minerals originating from covered countries, this could have a negative impact on our business, reputation and/or results of operations. We may also encounter challenges to satisfy customers who require that our products be certified as conflict free, which could place us at a competitive disadvantage if we are unable to substantiate such a claim. Compliance with these rules could also affect the sourcing and availability of some of the minerals used in the manufacture of products or components we obtain from our suppliers, including our ability to obtain products or components in sufficient quantities and/or at competitive prices. Certain of our customers are requiring additional information from us regarding the origin of our raw materials, and complying with these customer requirements may cause us to incur additional costs, such as costs related to determining the origin of any minerals used in our products. Our supply chain is complex and we may be unable to verify the origins for all metals used in our products. We may also encounter challenges with our customers and stockholders if we are unable to certify that our products are conflict free.

Some provisions of our named executive officers' agreements regarding change of control or separation of service contain obligations for us to make separation payments to them upon their termination.

Certain provisions contained in our employment agreements with our named executive officers regarding change of control or separation of service may obligate us to make lump sum severance payments and related payments upon the termination of their employment with us, other than such executive officer's resignation without good reason or our termination of their employment as a result of their disability or for cause. In the event we are required to make these separation payments, it could have a material adverse effect on our results of operations for the fiscal period in which such payments are made.

Risks Related to Our Operations in China

Our business operations conducted in China are critical to our success. A total of $143.1 million, $122.3 million and $81.1 million or 53.6%, 32.0% and 31.1%, of our revenue in the years ended December 31, 2018, 2017 and 2016 was attributable to our product manufactured at our plant in China, respectively. Additionally, a substantial portion of our property, plant and equipment, 36.8%, 29.9% and 23.0% as of December 31, 2018, 2017 and 2016, was located in China, respectively. We expect to make further investments in China in the foreseeable future. Therefore, our business, financial condition, results of operations and prospects are to a significant degree subject to economic, political, legal, and social events and developments in China.

Adverse changes in economic and political policies in China, or Chinese laws or regulations could have a material adverse effect on business conditions and the overall economic growth of China, which could adversely affect our business.

The Chinese economy differs from the economies of most developed countries in many respects, including the level of government involvement, level of development, growth rate, control of foreign exchange and allocation of resources. The Chinese economy has been transitioning from a planned economy to a more market-oriented economy. Despite reforms, the government continues to exercise significant control over China's economic growth by way of the allocation of resources, control over foreign currency-denominated obligations and monetary policy and provision of preferential treatment to particular industries or companies.

In addition, the laws, regulations and legal requirements in China, including the laws that apply to foreign-invested enterprises, or FIEs, are subject to frequent changes. The interpretation and enforcement of such laws is uncertain. Protections of intellectual property rights and confidentiality in China may not be as effective as in the U.S. or other countries or regions with more developed legal systems. Any litigation in China may be protracted and result in substantial costs and diversion of resources and management attention. Any adverse changes to these laws, regulations and legal requirements or their interpretation or enforcement could have a material adverse effect on our business.

Furthermore, while China's economy has experienced rapid growth in the past 20 years, growth has been uneven across different regions, among various economic sectors and over time. China has also in the past and may in the future experience economic downturns due to, for example, government austerity measures, changes in government policies relating to capital spending, limitations placed on the ability of commercial banks to make loans, reduced levels of exports and international trade, inflation, lack of financial liquidity, stock market volatility and global economic conditions. Any of these developments could contribute to a decline in business and consumer spending in addition to other adverse market conditions, which could adversely affect our business.

The termination and expiration or unavailability of our preferential tax treatments in China may have a material adverse effect on our operating results.

Prior to January 1, 2008, entities established in China were generally subject to a 30% state and 3% local enterprise income tax rate. In accordance with the China Income Tax Law for Enterprises with Foreign Investment and Foreign Enterprises, effective through December 31, 2007, our China subsidiary enjoyed preferential income tax rates. Effective January 1, 2008, the China Enterprise Income Tax Law, or the EIT law, imposes a single uniform income tax rate of 25% on all Chinese enterprises, including FIEs, and eliminates or modifies most of the tax exemptions, reductions and preferential treatment available under the previous tax laws and regulations. As a result, our China subsidiary may be subject to the uniform income tax rate of 25% unless we are able to qualify for preferential status. Since calendar year 2012, we have qualified for a preferential 15% tax rate that is available for state-encouraged new high technology enterprises. In order to retain this preferential tax rate, we must meet certain operating conditions, satisfy certain product requirements, meet certain headcount requirements and maintain certain levels of research expenditures. In November 2017, we received approval from the Chinese government to extend this preferential tax treatment for an additional three years, ending November 2020. If we fail to continue to qualify for this preferential rate in the future, we may incur higher tax rates on our income in China. Any future increase in the enterprise income tax rate applicable to us or the expiration or other limitation of preferential tax rates available to us could increase our tax liabilities and reduce our net income.

The turnover of direct labor in manufacturing industries in China is high, which could adversely affect our production, shipments and results of operations.

Employee turnover of direct labor in the manufacturing sector in China is extremely high and retention of such personnel is a challenge to companies located in or with operations in China. Although direct labor costs do not represent a high proportion of our overall manufacturing costs, direct labor is required for the manufacture of our products. If our direct labor turnover rates are higher than we expect, or we otherwise fail to adequately manage our direct labor turnover rates, then our results of operations could be adversely affected.

Chinese regulation of loans to and direct investment by offshore holding companies in China entities may delay or prevent us from making loans or additional capital contributions to our China subsidiary.

Any loans that we wish to make to our China subsidiary are subject to Chinese regulations and approvals. For example, any loans to our China subsidiary to finance their activities cannot exceed statutory limits, must be registered with State Administration of Foreign Exchange, or SAFE, or its local counterpart, and must be approved by the relevant government authorities. Any capital contributions to our China subsidiary must be approved by the Ministry of Commerce or its local counterpart. In addition, under Circular 142, our China subsidiary, as a FIE, may not be able to convert our capital contributions to them into RMB for equity investments or acquisitions in China.

We cannot assure you that we will be able to obtain these government registrations or approvals on a timely basis, if at all, with respect to our future loans or capital contributions to our China subsidiary. If we fail to receive such registrations or approvals, our ability to capitalize our China subsidiary may be negatively affected, which could materially and adversely affect our liquidity and ability to fund and expand our business.

Our China subsidiary is subject to Chinese labor laws and regulations, and Chinese labor laws may increase our operating costs in China.

Chinese labor laws and regulations provide certain protections for our employees located in China, and changes to those labor laws and regulations may increase our costs and reduce our flexibility. The China Labor Contract Law, which went into effect in 2008, together with its implementing rules, provides increased rights to Chinese employees compared to prior employment laws in China. Under the rules under the China Labor Contract Law, the probation period varies depending on contract terms and the employment contract can only be terminated during the probation period for cause upon three days' notice. Additionally, an employer may not be able to terminate a contract during the probation period on the grounds of a material change of circumstances or a mass layoff. The law also has specific provisions on conditions when an employer has to sign an employment contract with open-ended terms. If an employer fails to enter into an open-ended contract in certain circumstances, the employer must pay the employee twice their monthly wage beginning from the time the employer should have executed an open-ended contract. Additionally, an employer must pay severance for nearly all terminations, including when an employer decides not to renew a fixed-term contract. Any further changes to these laws may increase our costs and reduce our flexibility.

An increase in our labor costs in China may adversely affect our business and our profitability.

A significant portion of our workforce is located in China. Labor costs in China have been increasing recently due to labor unrest, strikes and changes in employment laws. If labor costs in China continue to increase, our costs will increase. If we are not able to pass these increases on to our customers, our business, profitability and results of operations may be adversely affected.

We may have difficulty establishing and maintaining adequate management and financial controls over our China operations.

Businesses in China have historically not adopted a western style of management and financial reporting concepts and practices, which includes strong corporate governance, internal controls and computer, financial and other control systems. Moreover, familiarity with U.S. GAAP principles and reporting procedures is less common in China. As a consequence, we may have difficulty finding accounting personnel experienced with U.S. GAAP, and we may have difficulty training and integrating our China-based accounting staff with our U.S.-based finance organization. As a result of these factors, we may experience difficulty in establishing and maintaining management and financial controls over our China operations. These difficulties include collecting financial data and preparing financial statements, books of account and corporate records and instituting business practices that meet U.S. public-company reporting requirements. We may, in turn, experience difficulties in implementing and maintaining adequate internal controls as required under Section 404 of the Sarbanes-Oxley Act.

Risks Related to Our Common Stock

Our stock price has been and is likely to be volatile.

The market price of our common stock has been and is likely to be subject to wide fluctuations in response to, among other things, the risk factors described in this section of this Annual Report on Form 10-K, and other factors beyond our control, such as fluctuations in the valuation of companies perceived by investors to be comparable to us. For example, announcements made by competitors regarding factors influencing their business may cause fluctuations in the valuation of companies throughout our industry, including fluctuations in the valuation of our stock.

Furthermore, the stock markets have experienced price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions, such as recessions, interest rate changes or international currency fluctuations, may negatively affect the market price of our common stock.

In the past, many companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We have been and may become the target of this type of litigation in the future. For example, on August 3, 2017 we provided guidance for the third quarter of 2017, and on August 4, 2017 the market price of our stock decreased significantly. As disclosed in “Item 3. Legal Proceedings,” on August 5, 2017, a class action lawsuit was filed against us and two of our officers. The complaint in this matter alleges that we made materially false and misleading statements or failed to disclose material facts and requests damages and other relief. On August 7, 2018, a derivative class action lawsuit was filed against our chief executive officer, chief financial officer and board of directors. The allegations are substantially similar to those under the August 5, 2017 lawsuit. On October 1, 2018, another class action lawsuit was filed in the U.S. District Court for the Southern District of Texas against us and two of our officers. The complaint in this matter alleges that we made materially false and misleading statements or failed to disclose material facts and a related action was filed on October 10, 2018. These lawsuits and any other such litigation could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

We have incurred and will continue to incur significant increased expenses and administrative burdens as a public company, which could have a material adverse effect on our operations and financial results.

We face increased legal, accounting, administrative and other costs and expenses as a public company that we did not incur as a private company, and greater expenditures may be necessary in the future with the advent of new laws, regulations and stock exchange listing requirements pertaining to public companies. These increased costs will require us to divert a significant amount of money that we could otherwise use to expand our business and achieve our strategic objectives. The Sarbanes-Oxley Act, including the requirements of Section 404, as well as rules and regulations subsequently implemented by the SEC, the Public Company Accounting Oversight Board and the NASDAQ Global Market, impose additional reporting and other obligations on public companies. Compliance with public company requirements has increased our costs and made some activities more time-consuming. For example, we have created board committees and adopted internal controls and disclosure controls and procedures. In addition, we have incurred and will continue to incur additional expenses associated with our SEC reporting requirements. Furthermore, if we identify any issues in complying with those requirements (for example, if we or our auditors identify a material weakness or significant deficiency in our internal control over financial reporting), we could incur additional costs rectifying those issues, and the existence of those issues could adversely affect us, our reputation or investor perceptions of us. Advocacy efforts by stockholders and third parties may also prompt additional changes in governance and reporting requirements, which could further increase our costs. Legal, accounting, administrative and other costs and expenses may increase in the future as we continue to incur both increased external audit fees as well as additional spending to ensure continued regulatory compliance.

We currently do not intend to pay dividends on our common stock and, consequently, your only opportunity to achieve a return on your investment is if the price of our common stock appreciates.

We currently do not plan to declare or pay dividends on shares of our common stock in the foreseeable future. Consequently, your only opportunity to achieve a return on any shares of our common stock that you may acquire will be if the market price of our common stock appreciates and you sell your shares at a profit. There is no guarantee that the price of our common stock in the market will ever exceed the price that you pay.

Our charter documents, stock incentive plans and Delaware law could prevent a takeover that stockholders consider favorable and could also reduce the market price of our stock.

Our amended and restated certificate of incorporation and our amended and restated bylaws and our stock incentive plans contain provisions that could delay or prevent a change in control of our company. These provisions could also make it more difficult for stockholders to elect directors and take other corporate actions. These provisions include:

- providing for a classified board of directors with staggered, three-year terms;
- not providing for cumulative voting in the election of directors;
- authorizing our board of directors to issue, without stockholder approval, preferred stock rights senior to those of common stock;
- prohibiting stockholder action by written consent;
- limiting the persons who may call special meetings of stockholders;
- requiring advance notification of stockholder nominations and proposals; and
- change of control provisions in our stock incentive plans, and the individual stock option agreements, which provide that a change of control may accelerate the vesting of the stock options and equity awards issued under such plans.

Table of Contents

In addition, we are governed by the provisions of Section 203 of the Delaware General Corporate Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding common stock, from engaging in certain business combinations without the approval of substantially all of our stockholders for a certain period of time.

These and other provisions in our amended and restated certificate of incorporation, our amended and restated bylaws and under Delaware law could discourage potential takeover attempts, reduce the price that investors might be willing to pay for shares of our common stock in the future and result in the market price being lower than it would be without these provisions.

If research analysts do not publish research about our business or if they issue unfavorable commentary or downgrade our common stock, our stock price and trading volume could decline.

The trading market for our common stock depends on the research and reports that research analysts publish about us and our business. The price of our common stock could decline if one or more research analysts downgrade our common stock or if those analysts issue other unfavorable commentary or cease publishing reports about us or our business. If one or more of the research analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which could cause our stock price or trading volume to decline.

Item 1B. Unresolved Staff Comments

Not Applicable.

Item 2. Properties

We maintain manufacturing, research and development, sales and administrative offices in the U.S., China and Taiwan. Our corporate headquarters is located at our facility in Sugar Land, Texas. The table below provides information regarding our facilities.

	Owned or Lease	Approximate

Location	Expiration Date	Square Footage	Use
Sugar Land, Texas	Owned (1)	139,450	Administration, sales, manufacturing, research and development
Duluth, Georgia	November 30, 2021 (2)	2,983	Research and development
Ningbo, China	Owned (3)	458,849	Administration, sales, manufacturing, research and development
Taipei, Taiwan	May 31, 2029 (4)	268,797	Administration, sales, manufacturing, research and development

(1) We manufacture laser chips (utilizing our MBE and MOCVD process), subassemblies and components in our Sugar Land, Texas facility.

(2) The lease covering the Georgia office commenced on December 1, 2015 and expires on November 30, 2021.

(3) In our China facility, we manufacture certain more labor intensive components and optical equipment systems, such as optical subassemblies and transceivers for the internet data center market, CATV transmitters (at the headend) and CATV outdoor equipment (at the node). Our China subsidiary acquired the land use rights to the real property on which our current facility is located from the Chinese government. Such land use rights expire on October 7, 2054. Our China subsidiary owns the facility located on such real property. Our China subsidiary also obtained from the Chinese government the land use rights to a second real property located within a close proximity to our current facility. We have begun construction on a new manufacturing facility on the second real property. The land use rights for the second real property expire on December 28, 2067.

(4) In our Taiwan location, we manufacture optical components, such as our butterfly lasers, which incorporate laser chips, subassemblies and components manufactured within our Sugar Land facility. In addition, in our Taiwan location, we manufacture transceivers for the internet data center market, telecom, FTTH and other markets. Our Taiwan subsidiary relocated its entire operation to this facility in November 2014. The lease covering the new facility commenced on June 1, 2014 and expires on May 31, 2029.

Table of Contents

Item 3. Legal Proceedings

From time to time, we may be subject to legal proceedings and litigation arising in the ordinary course of business, including, but not limited to, inquiries, investigations, audits and other regulatory proceedings, such as described below. Except for the lawsuit described below, we believe that there are no claims or actions pending or threatened against us, the ultimate disposition of which would have a material adverse effect on us.

On August 5, 2017, a lawsuit was filed in the U.S. District Court for the Southern District of Texas against the Company and two of our officers in Mona Abouzied v. Applied Optoelectronics, Inc., Chih-Hsiang (Thompson) Lin, and Stefan J. Murry, et al., Case No. 4:17-cv-02399. The complaint in this matter seeks class action status on behalf of our shareholders, alleging violations of Sections 10(b) and 20(a) of the Exchange Act against us, our chief executive officer, and our chief financial officer, arising out of our announcement on August 3, 2017 that "we see softer than expected demand for our 40G solutions with one of our large customers that will offset the sequential growth and increased demand we expect in 100G." The complaint requests unspecified damages and other relief. We dispute the allegations set forth in the complaint and are vigorously contesting the matter. The briefing on our motion to dismiss the complaint was completed on May 21, 2018, and the motion is still pending.

On August 7, 2018, a derivative lawsuit was filed in the United States District Court for the Southern District of Texas styled Lei Jin, derivatively on behalf of Applied Optoelectronics, Inc. v. Chih-Hsiang ("Thompson") Lin, Stefan J. Murry, William H. Yeh, Alex Ignatiev, Richard B. Black, Min-Chu Chen, Alan Moore, and Che-Wei Lin and Applied Optoelectronics, Inc., No. 4:18-cv-02713 alleging breaches of fiduciary duties, unjust enrichment, and violations of Section 14(a) of the Exchange Act based on similar factual allegations as in the Abouzied Securities Class Action. On December 18, 2018, a second derivative complaint was filed styled Yiu Kwong Ng v. Chih-Hsiang ("Thompson") Lin, Stefan J. Murry, William H. Yeh, Alex Ignatiev, Richard B. Black, Min-Chu Chen, Alan Moore, and Che-Wei Lin and Applied Optoelectronics, Inc., No. 4:18-cv-4751 alleging the same causes of actions as the Jin complaint and additional factual allegations regarding our announcement on September 28, 2018 that we had "identified an issue with a small percentage of 25G lasers within a specific customer environment." On January 11, 2019, the court consolidated these two derivative actions, and on January 15, 2019, the court entered an order staying the actions pending the outcome of the motion to dismiss in the Abouzied Securities Class action and the forthcoming motion to dismiss in the Taneja Securities Class Action, described in the following paragraph. The complaint requests unspecified damages and other relief. We dispute the allegations and intend to vigorously contest the matter if and when the stay is lifted.

On October 1, 2018, a securities class action was filed in the United States District Court for the Southern District of Texas styled Gaurav Taneja v. Applied Optoelectronics, Inc., Thompson Lin, and Stefan Murry, Case No. 4:18-cv-3544. The complaint in this matter seeks class action status on behalf of our shareholders, alleging violations of Sections 10(b) and 20(a) of the Exchange Act against us, our chief executive officer, and our chief financial officer, arising out of our announcement on September 28, 2018 that we had "identified an issue with a small percentage of 25G lasers within a specific customer environment." The original complaint requests unspecified damages and other relief. We dispute the allegations set forth in the original complaint and intend to vigorously contest the matter. The case has been consolidated with two identical complaints that were subsequently filed on October 10, 2018 and

October 18, 2018, styled Davin Pokoik v. Applied Optoelectronics, Inc., Chih-Hsiang Lin, and Stefan J. Murry, Case No. 4:18-cv-3722 and Stephen McGrath v. Applied Optoelectronics, Inc., Chih-Hsiang Lin, and Stefan J. Murry, respectively. The three cases were consolidated on January 4, 2019, and Mark Naglich was appointed Lead Plaintiff on that same date. The original complaint requests unspecified damages and other relief. We dispute the allegations in the complaint and intend to vigorously contest the matter. The deadline for Lead Plaintiff to file a consolidated amended complaint is March 5, 2019, and the deadline for our motion to dismiss is sixty days after the consolidated amended complaint is filed.

Item 4. Mine Safety Disclosure

Not Applicable.

Table of Contents

PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

On September 26, 2013, our common stock began to trade on the NASDAQ Global Market under the symbol “AAOI”. Prior to that time, there was no public market for our common stock. As of February 20, 2019 there were 37 holders of record of our common stock (not including beneficial holders of our common stock holding in street name). The following table sets forth, for the periods indicated, the high and low sales prices of our common stock as reported by the NASDAQ Global Market.

	Low	High
Fiscal Year 2017:		
First Quarter	$ 21.88	$ 60.19
Second Quarter	$ 40.28	$ 75.59
Third Quarter	$ 55.13	$ 103.41
Fourth Quarter	$ 36.70	$ 65.75
Fiscal Year 2018:		
First Quarter	$ 23.65	$ 38.89
Second Quarter	$ 24.00	$ 47.04
Third Quarter	$ 24.66	$ 48.80
Fourth Quarter	$ 13.84	$ 24.91

The graph below shows the cumulative total stockholder return of an investment of $100 (and the reinvestment of any dividends thereafter) on September 26, 2013 (the first trading day of our common stock) in (i) our common stock, (ii) the NASDAQ Composite Index and (iii) the NASDAQ Telecommunications Index. Our stock price performance shown in the graph below is not indicative of future stock price performance. The following graph and related information is being “furnished” and shall not be deemed “soliciting material” or be deemed to be “filed” with the SEC, nor shall such information be incorporated by reference into any future filing, except to the extent that we specifically state that such graph and related information are incorporated by reference into such filing.

Table of Contents

PERCENT CHANGE

Date	AAOI		NASDAQ Telecom		NASDAQ Composite	
9/26/2013	100.00	%	100.00	%	100.00	%
12/31/2013	150.70	%	102.48	%	110.28	%
12/31/2014	112.65	%	111.61	%	125.05	%
12/31/2015	172.29	%	103.25	%	132.21	%
12/31/2016	235.34	%	118.59	%	142.13	%
12/29/2017	379.72	%	139.28	%	182.27	%
12/31/2018	251.61	%	146.03	%	186.50	%

For equity compensation plan information refer to Item 12 of this Annual Report on Form 10-K.

Dividend Policy

We have never declared or paid any cash dividends on our capital stock, and we do not anticipate paying any cash dividends on our common stock for the foreseeable future. We currently intend to retain all available funds and future earnings for use in the operation and expansion of our business. Any future determination to pay cash dividends will be at the discretion of our board of directors and will depend upon our financial condition, results of operations, terms of financing arrangements, applicable Delaware law, capital requirements and such other factors as our board of directors deems relevant. In addition, the terms of our loan agreements governing our long-term debt obligations restricts us from paying dividends.

Unregistered Sales of Equity Securities

Not applicable.

Table of Contents

Item 6. Selected Financial Data

SELECTED CONSOLIDATED FINANCIAL DATA

The selected consolidated financial data in this section is not intended to replace our consolidated financial statements and the related notes. You should read this summary consolidated financial data together with the sections titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our audited consolidated financial statements and related notes, all included elsewhere in this Annual Report on Form 10-K. We derived the consolidated statements of operations data for the years ended December 31, 2018, 2017 and 2016 and the consolidated balance sheet data as of December 31, 2018 and 2017 from our consolidated financial statements appearing elsewhere in this Annual Report on Form 10-K. The consolidated statement of operations data for the years ended December 31, 2015 and 2014 and the consolidated balance sheet data as of December 31, 2016, 2015 and 2014 are derived from our audited consolidated financial statements that have previously been filed with the SEC. Our historical results are not necessarily indicative of the results to be expected in the future and results of interim periods are not necessarily indicative of results for the entire year.

The following table sets forth our consolidated results of operations for the periods presented (in thousands, except share and per share data):

	Years ended December 31,				
	2018	2017	2016	2015	2014
Consolidated Statements of Operations Data:					
Revenue	$ 267,465	$ 382,329	$ 260,713	$ 189,903	$ 130,449
Cost of goods sold (1)	179,692	216,049	173,759	129,450	86,203
Gross profit	87,773	166,280	86,954	60,453	44,246
Operating expenses:					
Research and development (1)	49,903	35,365	31,780	20,852	15,970
Sales and marketing (1)	9,141	8,702	6,627	6,381	6,043
General and administrative (1)	39,497	35,262	25,527	19,771	17,095
Total operating expenses	98,541	79,329	63,934	47,004	39,108
Income (loss) from operations	(10,768)	86,951	23,020	13,449	5,138
Interest and other income (expense), net:					
Interest income	282	221	247	328	369
Interest expense	(1,106)	(858)	(1,717)	(1,018)	(326)
	1,814	(1,788)	(547)	(1,591)	(699)

Other income (expense), net					
Total interest and other income (expense), net	990	(2,425)	(2,017)	(2,281)	(656)
Income (loss) before income taxes	(9,778)	84,526	21,003	11,168	4,482
Income tax (expense) benefit	7,632	(10,575)	10,231	(375)	(199)
Net income (loss) attributable to common stockholders	$ (2,146)	$ 73,951	$ 31,234	$ 10,793	$ 4,283
Net income (loss) per share attributable to common stockholders:					
Basic	$ (0.11)	$ 3.87	$ 1.82	$ 0.69	$ 0.30
Diluted	$ (0.11)	$ 3.67	$ 1.76	$ 0.65	$ 0.28
Weighted average shares used to compute net income (loss) per share attributable to common stockholders:					
Basic	19,646,646	19,097,355	17,201,731	15,626,753	14,307,477
Diluted	19,646,646	20,139,105	17,712,928	16,532,850	15,186,961

(1) These expenses include share-based compensation expense. Share-based compensation expense is accounted for at fair value, using the Black-Scholes option-pricing model for stock options and at the fair market value based on quoted market prices of the Company’s stock as of the grant date for restricted stock units and restricted stock awards. Share-based compensation expense is recognized over the vesting period of the awards and was included in cost of goods sold and operating expenses as follows:

Table of Contents

The following table provides share-based compensation expense for the periods presented (in thousands):

	Years ended December 31,		
	2018	2017	2016
Cost of goods sold	$ 795	$ 461	$ 190
Research and development	2,419	1,496	591
Sales and marketing	925	481	357
General and administrative	6,981	5,357	2,695
Total share-based compensation expense	$ 11,120	$ 7,795	$ 3,833

The following table provides selected balance sheet data for the periods presented (in thousands):

	As of December 31,				
	2018	2017	2016	2015	2014
Consolidated balance sheet data:					
Total cash, restricted cash, cash equivalents and short-term investments	$ 58,004	$ 83,984	$ 52,008	$ 40,679	$ 40,873
Working capital (1)	116,857	158,953	97,579	79,848	64,638
Total assets	466,840	452,948	322,318	273,475	183,670
Short-term obligations (2)	28,217	559	8,172	33,906	10,862
Long-term obligations (3)	60,328	48,964	34,961	33,997	20,057
Common stock and additional paid-in-capital	292,500	285,395	265,282	233,353	192,127
Total retained earnings (deficit)	$ 35,992	$ 38,138	$ (37,013)	$ (68,247)	$ (79,040)

(1) Working capital is defined as total current assets less total current liabilities.
(2) Short-term obligations are defined as short-term loans, capital leases, notes payable and bank acceptance payable.
(3) Long-term obligations are defined as long-term loans, capital leases and notes payable.

Table of Contents

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

MANAGEMENT'S DISCUSSION AND ANALYSIS OF

FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with our consolidated financial statements and the accompanying notes appearing elsewhere in this Annual Report on Form 10-K. This discussion and other parts of this Annual Report on Form 10-K contain forward-looking statements that involve risks and uncertainties, such as statements of our plans, objectives, expectations and intentions. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in "Risk Factors."

Overview

We are a leading, vertically integrated provider of fiber-optic networking products. We target four networking end-markets: internet data centers, CATV, telecom and FTTH. We design and manufacture a range of optical communications products at varying levels of integration, from components, subassemblies and modules to complete turn-key equipment. In designing products for our customers, we begin with the fundamental building blocks of lasers and laser components. From these foundational products, we design and manufacture a wide range of products to meet our customers' needs and specifications, and such products differ from each other by their end market, intended use and level of integration. We are primarily focused on the higher-performance segments within the internet data center, CATV, telecom and FTTH markets which increasingly demand faster connectivity and innovation. Our vertically integrated manufacturing model provides us several advantages, including rapid product development, fast response times to customer requests and control over product quality and manufacturing costs.

The four end markets we target are all driven by significant bandwidth demand fueled by the growth of network-connected devices, video traffic, cloud computing and online social networking. Within the internet data center market, we benefit from the increasing use of higher-capacity optical networking technology as a replacement for copper cables, particularly as speeds reach 10 Gbps and above, as well as the movement to open internet data center architectures and the increasing use of in-house equipment design among leading internet companies. Within the CATV market, we benefit from a number of ongoing trends including the global build-out of CATV infrastructure, the move to higher bandwidth networks among CATV service providers and the outsourcing of system design among CATV networking equipment companies. In the FTTH market, we benefit from continuing PON deployments and system upgrades among telecommunication service providers. In the telecom market, we benefit from deployment of new high-speed fiber-optic networks by telecom network operators.

In 2018, 2017 and 2016, our revenue was $267.5 million, $382.3 million and $260.7 million and our gross margin was 32.8%, 43.5% and 33.4%. We have grown our annual revenue at a compound annual growth rate, or CAGR, of 30.1% between 2009 and 2018. In the years ended December 31, 2018, 2017 and 2016, we had net income (loss) of $(2.1) million, $74.0 million and $31.2 million, respectively. At December 31, 2018 and 2017, our retained earnings was $36.0 million and $38.1 million, respectively. In 2018, we earned 74.9% of our total revenue from the internet data center market, and 19.3% of our total revenue from the CATV market.

We sell our products to leading OEMs in the CATV, telecom, and FTTH markets as well as internet data center operators. In 2018, revenue from the internet data center market, CATV market, telecom market and FTTH markets provided 74.9%, 19.3%. 4.9%, and 0.3% of our revenue, respectively, compared to 80.2%, 15.9%. 3.4%, and 0.1% of our 2017 revenue, respectively. In 2018, our key customers in the data center market included, Facebook, Inc. (Facebook), Microsoft Corp (Microsoft) and Amazon.com (Amazon). In 2018, 2017, and 2016, Facebook accounted for 38.3%, 28.6% and 3.6% of our revenue, Microsoft accounted for 22.1%, 13.8%, and 18.3% of our revenue and Amazon accounted for 12.1%, 35.4%, and 54.6% of our revenue, respectively. In 2018, our key customers in the CATV market included Cisco Systems, Inc. (Cisco); a large CATV equipment company in China; and Arris Group, Inc. (Arris). In 2018, 2017 and 2016, Cisco accounted for 9.9%, 4.8%, and 5.4%, of our revenue, respectively; our large China-based customer accounted for 3.3%, 3.4%, and 1.2% of our revenue, respectively; and Arris accounted for 2.1%, 3.2% and 5.8%, of our revenue, respectively.

Table of Contents

In 2018, our revenue decrease of 30.0% over the prior-year was driven primarily by decreased demand for our 40 Gbps and 100 Gbps transceivers as one of our customers reduced its demand for optical transceivers due to changes in the way it architects its network. Additionally, in the third quarter of 2018, we decreased shipments of our 100 Gbps transceiver products to one of our customers due to their concerns about failures of similar products shipped previously. We conducted extensive testing of our products with the goal of demonstrating that any potentially affected units could be nearly eliminated in future shipments. During the time that this issue was being investigated, production activity was reduced as resources were redirected to efforts to identify the root cause of any failures observed, and in order to avoid manufacturing products that could not be proven to meet acceptable quality standards. These decreases were partially offset by an increase in demand for 100 Gbps transceivers from other customers. The decrease in revenue in the CATV market for the year was a result of decreased available production capacity in our China factory associated with staff turnover related to the Lunar New Year. The increase in revenue in our telecom market was primarily attributable to increased demand for telecom products by our customers as they supply new deployments of telecom infrastructure. The increase in revenue in our FTTH market was due to the fluctuation in demand for certain older legacy products and this demand is expected to continue to fluctuate.

We expect continued sales of our 40 Gbps and 100 Gbps products in 2019, and we expect that sales of 100 Gbps products will likely exceed sales of 40 Gbps products. However, quarter-to-quarter results may show considerable variability as is usual in a period of technology transition. Also, several of our customers have indicated more uncertainty in their demand levels in the near term, compared with previous years. This is attributed to uncertainty surrounding general economic conditions and the effect of datacenter architecture changes on transceiver demand. Similar to revenue, our gross margins can fluctuate materially depending on a variety of factors including average selling price changes, product mix, raw material cost reduction or increase, manufacturing utilization rate and changes in manufacturing efficiency.

Our sales model focuses on direct engagement and close coordination with our customers to determine product design, qualifications, performance and price. Our strategy is to use our direct sales force to sell to key accounts and to expand our use of distributors for increased coverage in certain international markets and certain domestic market segments. We have direct sales personnel that cover the U.S., Taiwan and China focusing primarily on major OEM customers and internet data center operators. Throughout our sales cycle, we work closely with our customers to qualify our products into their product lines. As a result, we strive to build strategic and long-lasting customer relationships and deliver products that are customized to our customers' requirements.

Our business depends on winning competitive bid selection processes to develop components, systems and equipment for use in our customers' products. These selection processes are typically lengthy, and as a result our sales cycles will vary based on the level of customization required, market served, whether the design win is with an existing or new customer and whether our solution being designed in our customers' product is our first generation or subsequent generation product. We do not have any long-term purchase commitments (in excess of one year) with any of our customers, most of whom purchase our products on a purchase order basis, however, once one of our solutions is incorporated into a customer's design, we believe that our solution is likely to continue to be purchased for that design throughout that product's life cycle because of the time and expense associated with redesigning the product or substituting an alternative solution.

In 2018, 2017 and 2016, we had 26, 19, and 30 design wins, respectively. We define a design win as the successful completion of the evaluation stage, where our customer has tested our product, verified that our product meets substantially all of their requirements and has informed us that they intend to purchase the product from us. Although we believe that our ability to obtain design wins is a key strength and can provide meaningful and recurring revenue, an increase or decrease in the mere number of design wins does not necessarily correlate to a likely increase or decrease in revenue, particularly in the short term. As such, the number of design wins we achieve on a quarterly or annual basis and any increase or decrease in design wins will not necessarily result in a corresponding increase or decrease in revenue in the same or immediately succeeding quarter or year. For example, if our total number of design wins in an annual or quarterly period increases or decreases compared to the total number of design wins in a prior period, this does not necessarily mean that our revenue in such period will be higher or lower than our revenue in the prior period. In fact, our experience is that some design wins result in significant revenue and some do not, and the timing of such revenue is difficult to predict as it depends on the success of the end customer’s product that uses our components. Thus, some design wins result in orders and significant revenue shortly after the design win is awarded and other design wins do not result in significant orders and revenue for several months or longer after the initial design win (if at all). We do believe that over a period of years the collective impact of design wins correlates to our overall revenue growth.

Factors Affecting Our Performance

Increasing Consumer Demand for Bandwidth. Bandwidth demand in all of our target markets is driving service provider investment in new equipment and in turn generating demand for our products. Increasingly, optical networking technologies are being incorporated into networking equipment, replacing legacy copper-based networking technologies. This shift to optical networking solutions benefits us as a provider of those solutions.

Pricing, Product Cost and Margins. Our products are sold in a highly competitive marketplace, and in many cases our products are only minimally differentiated from those of our competitors. In addition, our sales are heavily concentrated with a small number of end customers. As a result, there is strong pricing pressure across many of our product lines. We have addressed this strong pressure in several ways:

- Lowering our material costs. In some cases, we are able to negotiate more favorable pricing from our raw material suppliers. Also, where feasible, we are often able to develop internal production for certain materials that were previously purchased from other companies. This generally has resulted in lower material costs for us.

- Enhancing the efficiency of our production process. We have been able to automate many of our production processes, which often results in lower labor costs and reduced scrap or rework rates, both of which lower our production cost. In some cases, we have been able to redesign our products to make them less complex to manufacture, and when possible during these redesigns we also incorporate lower cost raw materials.

- Introducing new products. In many cases, newly released products have more features and often higher prices compared with older products. By regularly introducing new products, we attempt to minimize the average price reduction we experience. However, we often initially experience lower gross margins on new products, as our pricing is based upon anticipated volume-driven cost reductions over the life of the design win. Thus, if we are unable to realize our expected cost reductions, we may experience declining gross margins on such products.

Our product pricing is established when the product is initially introduced to the market, and thereafter through periodic negotiations with customers. We generally do not agree to periodic automatic price reductions. Furthermore, due to the dynamics in the CATV market and the value of our outsourced design services to our customers, we believe we face less downward price pressure than many of our competitors in this market. We sell a wide variety of products among our four target markets and our gross margin is heavily dependent in any quarter on the product mix achieved during that period as well as any price changes that we have agreed upon with our customers.

Customer Concentration within End Markets. Historically, our revenue has been significantly concentrated, first within the CATV market and in 2016-2018 within the internet data center market. Moreover, within these markets, revenue tends to be concentrated among a small number of customers. In the last three years, we have taken several actions to increase the diversity of our customer base. These actions include hiring additional sales staff to improve our ability to serve new customers and introduction of new products that we believe will appeal to new customers. Furthermore, we have developed additional original design manufacturer, or ODM, relationships with customers in each of our target markets which should enable us to diversify our revenue base. In 2018 and 2017, we had three customers that each accounted for more than 10% of our revenue.

Product Development. We invest heavily to develop new and innovative products. The majority of our research and development expense is allocated to product development, usually with a specific customer and customer platform in mind. We believe our close coordination with our customers regarding their future product requirements enhances the efficiency of our research and development expenditures.

Table of Contents

Discussion of Financial Performance

Revenue

We generate revenue through the sale of our products to equipment providers for the internet data center, CATV, telecom, FTTH and other markets. We derive a significant portion of our revenue from our top ten customers, and we anticipate that we will continue to do so for the foreseeable future. The following chart provides the revenue contribution from each of the markets we serve for the years 2018, 2017 and 2016, as well as the corresponding percentage of our total revenue for each period (in thousands, except percentages):

	Years ended December 31,					
Market	2018		2017		2016	
Data Center	$ 200,236		$ 306,712		$ 201,314	
CATV	51,699		60,756		43,567	
Telecom	13,159		12,899		12,938	
FTTH	818		490		1,567	
Other	1,553		1,472		1,327	
Total	$ 267,465		$ 382,329		$ 260,713	
	Percentage of Revenue					
Data Center	74.9	%	80.2	%	77.2	%
CATV	19.3	%	15.9	%	16.7	%
Telecom	4.9	%	3.4	%	5.0	%
FTTH	0.3	%	0.1	%	0.6	%
Other	0.6	%	0.4	%	0.5	%
Total Revenue	100	%	100	%	100	%

In 2018, 2017 and 2016, our top ten customers represented 92.9%, 94.9% and 95.5% of our revenue, respectively.

Revenue is recognized when obligations under the terms of a contract with our customer are satisfied; generally this occurs with the transfer of control of products or services. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring products or providing services. A majority of our annual sales are denominated in U.S. dollars, but some sales from our Taiwan location and China-based subsidiary are denominated in NT dollars and RMB, respectively. For the year ended December 31, 2018, 53.6% of our total revenue was manufactured at our China-based subsidiary, with $10.1 million denominated in RMB and 42.5% of our total revenue was from products manufactured at our Taiwan-based facility with no revenue denominated in NT dollars. We expect a similar portion of our sales to be denominated in foreign currencies in 2019.

Cost of goods sold and gross margin

Our cost of goods sold is impacted by variances arising from changes in yields and production volume, as well as increases or decreases in the cost of raw materials used in production. We typically experience lower yields and higher associated costs on new products. For our mature products, we can experience lower yields and higher production costs if customer requirements change or if we experience manufacturing difficulties or quality issues during our production process. Notwithstanding the foregoing, however, in general for our mature products our cost of goods sold for a particular product declines over time as a result of increasing efficiencies in the manufacturing processes, or supply cost declines, as well as yield improvements and testing enhancements.

We manufacture products in three of our four facilities located in the U.S., Taiwan and China. Generally, laser chips and optical components are manufactured in our Sugar Land facility, optical components and subassemblies are manufactured in our Taiwan facility, and optical components and optical equipment are manufactured in our China facility. Because of our vertical integration model, we generally utilize our own optical component products in our semi-finished and finished goods that we sell between and among our respective manufacturing operations. We base those internal sales upon established transfer pricing methodologies. However, we eliminate all of those internal sales, and cost of goods sold transactions, to arrive at total revenue and cost of goods sold on a consolidated basis.

We have a global set of suppliers to help balance considerations related to product availability, quality and cost. Components of our cost of goods sold are denominated in U.S. or NT dollars or RMB, depending upon the manufacturing location.

Gross profit as a percentage of total revenue, or gross margin, has been and is expected to continue to be affected by a variety of factors, including the introduction of new products, production volumes, the mix of products sold, the geographic region in which products are sold, changes in the cost and volumes of materials purchased from our suppliers, changes in labor costs, changes in overhead costs, reserves for excess and obsolete inventories and changes in the average selling prices of our products. Although our overall gross margins over the past three years have been between 32.8% and 43.5%, our gross margins vary more broadly on a product-by-product basis. Our newer and more advanced products typically have higher average selling prices and higher gross margins; however, until the product volumes scale, the gross margin from newer and advanced products may initially be lower. Within our markets, we may sell similar products to different geographic regions at different prices, and therefore realize different gross margins among those similar products. Our strategy is to improve our gross margins through vertical integration such as utilization of our own laser chips and optical sub-components in our solutions. We expect that our gross margins are likely to continue to fluctuate from quarter to quarter because of the variety of products we sell and the relative product mix within a quarter.

Operating expenses

Our operating expenses consist of research and development, sales and marketing, and general and administrative expenses. Personnel costs are the most significant component of operating expenses and include salaries, benefits, bonuses and share-based compensation. With regard to sales and marketing expense, personnel costs also include sales commissions.

Research and development. Research and development, or R&D, expense consists primarily of personnel costs, including share-based compensation for R&D personnel, and R&D work orders (that include material, direct labor and allocated overhead), as well as allocated development costs, such as engineering services, software and hardware tools, depreciation of capital equipment and facility costs. We record all research and development expense as incurred. Customers rely upon us to assist them with the development of new products and modification of existing products because of our extensive optical design and manufacturing expertise. We work closely with our customers in the critical design phase of product development and are occasionally reimbursed for some of these development efforts. As our product portfolio has become broader and as we have placed increasing emphasis on diversifying our customer base, our R&D expenses have risen more quickly than in the past. In the future, we expect research and development expense to increase on a dollar basis, and will likely increase as a percentage of our revenue until revenue from the products developed as a result of this increased R&D investment begin to be recognized, then thereafter we expect R&D expense to decrease as a percentage of our revenue.

Sales and marketing. Sales and marketing expense consists primarily of personnel costs, including share-based compensation for our sales and marketing personnel, as well as travel and trade show expense, sales commissions and the allocation of overall corporate services and facility costs. We sell our products to customers who either incorporate our products into their offering or resell our products to end customers. Because we sell to a limited number of well-established customers, we employ a limited number of sales professionals who are able to cover large markets. We compensate our sales staff through base salary and commissions, with base salary being the largest component of overall compensation. Total sales commissions to employees amounted to less than one percent of our revenue in 2018, 2017 and 2016. Additionally, we pay commissions to third parties on certain product lines and identified customers, which also amounted to less than one percent of our revenue in 2018, 2017 and 2016. As such, our sales and marketing expense does not directly increase with revenue. In the future, we expect sales and marketing expense to increase on a dollar basis as we incrementally increase our overall sales activities, but expect our sales and marketing expense to decline as a percentage of revenue, to the extent our revenue increases over time.

General and administrative. General and administrative expense consists primarily of personnel costs, including share-based compensation, primarily for our finance, human resources, legal and information technology personnel and certain executive officers, as well as professional services costs related to accounting, tax, banking, legal and information technology services, depreciation of capital equipment and facility costs. We expect general and administrative expense to increase as we continue to grow in both size and complexity as a public company. We expect rising costs including increased audit and legal fees, costs to comply with the Sarbanes-Oxley Act and the rules and

Table of Contents

regulations applicable to companies listed on a national stock exchange, as well as investor relations expense and higher insurance premiums. In the future, we expect general and administrative expense to increase on a dollar basis but to decline as a percentage of revenue, to the extent that our revenue increases over time.

Other income (expense)

Interest income consists of income earned on our cash, cash equivalents and short-term investments. Interest expense consists of amounts paid for interest on our short-term and long-term debt borrowings.

Other income (expense), net is primarily made up of foreign currency transaction gains and losses. The functional currency of our China subsidiary is the RMB and the foreign currency transaction gains and losses of our China subsidiary primarily result from their transactions in U.S. dollars. The functional currency of our Taiwan location is the NT dollar and the foreign currency transaction gains and losses of our Taiwan location primarily result from their transactions in U.S. dollars.

Income taxes

We are a U.S. registered company and are subject to income taxes in the U.S. We also operate in a number of countries throughout the world, including Taiwan and China. Consequently, our effective tax rate is impacted by the geographic distribution of our earnings or losses and the tax laws and regulations in each geographical region. We expect that our income taxes will vary in relation to our profitability and the geographic distribution of our profits. In 2018 our effective tax rate was 78.1%. In 2017 and 2016, our effective tax rate was 12.5% and (48.7%), respectively. Our effective U.S. federal income tax rate was 0% prior to 2016 as we incurred operating losses and had recorded a full valuation allowance against those losses, which was released in July 2016.

Our wholly owned subsidiary, Global Technology, Inc., has received preferential tax concessions in China as a national high-tech enterprise. In March 2007, China's parliament enacted the PRC Enterprise Income Tax Law, or the EIT Law, under which, effective January 1, 2008, China adopted a uniform income tax rate of 25% for all enterprises including foreign invested enterprises. Global Technology, Inc. was recognized as a national high-tech enterprise in 2008 and was entitled to a 15% tax rate for a three year period from November 2008 to November 2011. In 2011 and 2014 Global Technology, Inc. renewed its national high-tech enterprise certificate and therefore extended its three year tax preferential status through September 2017. In November 2017, Global Technology, Inc. again renewed its national high-tech enterprise certificate and therefore extended its three year tax preferential status from November 2017 until November 2020.

For the years ended December 31, 2018 and 2017, we had $0.2 million and $0.2 million, respectively, of unrecognized tax benefits related to U.S. tax benefits recognized for which we do not meet the more likely than not threshold.

See additional information regarding income taxes in Note M.

Seasonality

We believe that the demand for our CATV products is seasonal. Historically, revenue derived from our CATV products has usually been highest in the second or third quarter and lowest in the first quarter of each year. The first quarter of the year has historically been negatively affected by reduced economic activity due to the Chinese New Year holiday and the lower level of deployment of outdoor CATV equipment in cold weather environments.

We are uncertain whether the demand for our internet data center, telecom and FTTH products is seasonal, as our sales data does not indicate a significant trend with respect to these products. In 2017, we began to manufacture a meaningful quantity of internet data center products in our Ningbo, China factory. This factory experiences a lengthy shut-down associated with the Lunar New Year holiday which occurs in Q1 of each year. In addition to the factory shut-down, it is also common for employees in the factory to fail to return to work following resumption of operations. In the years 2018, 2017, and 2016, the percentage of employees in our China factory who resigned or were terminated during Q1, relative to the average number of employees during the quarter was 90%, 42%, and 51%, respectively. As a result of this employee turnover, we must hire and train replacement employees. These replacement employees require a period of training and improvement, and this impacts the quantity of products we can produce in the quarter. The combined effect of the factory shut-down and employee turnover in the quarter may also contribute to negative seasonality in Q1.

Our gross margin varies quarter to quarter and varies primarily due to the product mix in a particular quarter, as well as from the level of manufacturing efficiencies, production yields (particularly in the laser chip fabrication process) and overall supply costs.

Results of Operations

The following table set forth our results of operations for the periods presented and as a percentage of our revenue for those periods. The period-to-period comparison of our financial results is not necessarily indicative of our financial results to be achieved in future periods.

	Years ended December 31,					
	2018		2017		2016	
Revenue, net	100.0	%	100.0	%	100.0	%
Cost of goods sold	67.2	%	56.5	%	66.6	%
Gross profit	32.8	%	43.5	%	33.4	%
Operating expenses						
Research and development	18.6	%	9.2	%	12.2	%
Sales and marketing	3.4	%	2.3	%	2.5	%
General and administrative	14.8	%	9.2	%	9.8	%
Total operating expenses	36.8	%	20.7	%	24.5	%
Income (loss) from operations	(4.0)	%	22.7	%	8.9	%
Interest and other income (expense), net	0.4	%	(0.6)	%	(0.8)	%
Income (loss) before income taxes	(3.6)	%	22.1	%	8.1	%
Income tax benefit (expense)	2.8	%	(2.8)	%	3.9	%
Net income (loss)	(0.8)	%	19.3	%	12.0	%

Comparison of Years Ended December 31, 2018 and 2017

Revenue

We generate revenue through the sale of our products to equipment providers and network operators for the internet data center, CATV, telecom, FTTH and other markets. We derive a significant portion of our revenue from our top ten customers, and we anticipate that we will continue to do so for the foreseeable future. The following charts provide the revenue contribution from each of the markets we served for the years ended December 31, 2018 and 2017 (in thousands, except percentages):

	Years ended December 31,				Change	
	2018	% of Revenue	2017	% of Revenue	Amount	%
Data Center	$ 200,236	74.9%	$ 306,712	80.2%	$ (106,476)	(34.7) %
CATV	51,699	19.3%	60,756	15.9%	(9,057)	(14.9) %
Telecom	13,159	4.9%	12,899	3.4%	260	2.0 %
FTTH	818	0.3%	490	0.1%	328	66.9 %
Other	1,553	0.6%	1,472	0.4%	81	5.5 %
Total Revenue	$ 267,465	100.0%	$ 382,329	100.0%	$ (114,864)	(30.0) %

The decrease in revenue for the year was driven primarily by decreased demand for our 40 Gbps and 100 Gbps transceivers as one of our customers reduced its demand for optical transceivers due to changes in the way they architect their network. Additionally, in the third and fourth quarters of 2018, we experienced decreased shipments of our 100 Gbps transceiver products to one of our customers due to their concerns about failures of similar products shipped previously. We conducted extensive testing of our products to demonstrate that any potentially affected units could be nearly eliminated in future shipments. During the time that this issue was being investigated, production activity was reduced as resources were redirected to efforts to identify the root cause of any failures observed, and in order to avoid manufacturing product that could not be proven to meet acceptable quality standards. These decreases were partially

Table of Contents

offset by an increase in demand for 100 Gbps transceivers from other customers. We expect continued sales in 2019 of 100 Gbps and 40 Gbps products to the customer affected by the quality issue. The decrease in revenue in the CATV market for the year was partially a result of decreased available production capacity in our China factory associated with staff turnover related to the Lunar New Year, combined with reduced demand from one of our CATV customers in the second and third quarters associated with excess inventory the customer had previously purchased from us. The increase in revenue in our telecom market was primarily attributable to increased demand for telecom products by our customers as they supply new deployments of telecom infrastructure. The increase in revenue in our FTTH market was due to the fluctuation in demand for certain older legacy products and this demand is expected to continue to fluctuate.

In the years ended December 31, 2018 and 2017, our top ten customers represented 92.9% and 94.9% of our revenue, respectively.

Cost of goods sold and gross margin

	Years ended December 31,					
	2018		2017		Change	
	Amount	% of Revenue	Amount	% of Revenue	Amount	%
	(in thousands, except percentages)					
Cost of goods sold	$ 179,692	67.2 %	$ 216,049	56.5 %	$ (36,357)	(16.8) %
Gross margin	87,773	32.8 %	166,280	43.5 %		

Cost of goods sold decreased by $36.4 million, or 16.8%, from 2017 to 2018, primarily due to a 30.0% decrease in sales over the prior year. The decrease in gross margin for the year ended December 31, 2018 compared to the same period ended December 31, 2017 was primarily the result of lower capacity utilization, resulting in higher fixed cost absorption for 100 Gbps products produced and shipped in the period. In addition, additional costs were incurred for more extensive quality and reliability testing. As noted in the revenue discussion above, production was reduced while we investigated customer reports of failures of similar products shipped previously. This decreased production quantity resulted in higher fixed-cost absorption, and eliminating potentially defective units from our production process temporarily reduced product yields in the third and fourth quarters of 2018.

Operating expenses

Years ended December 31,		
2018	2017	Change

	Amount	% of revenue	Amount	% of revenue	Amount	%
	(in thousands, except percentages)					
Research and development	$ 49,903	18.7 %	$ 35,365	9.2 %	$ 14,538	41.1 %
Sales and marketing	9,141	3.4 %	8,702	2.3 %	439	5.0 %
General and administrative	39,497	14.8 %	35,262	9.2 %	4,235	12.0 %
Total operating expenses	$ 98,541	36.8 %	$ 79,329	20.7 %	$ 19,212	24.2 %

Research and development expense

Research and development expense increased by $14.5 million, or 41.1%, from 2017 to 2018. Research and development costs consist of R&D work orders, R&D material usage and other project related costs related to 40 Gbps, 100 Gbps, and 200/400 Gbps data center products, DOCSIS 3.1 capable CATV products, including remote-PHY products, and other new product development, and depreciation expense resulting from R&D equipment investments. Research and development costs increased from 2017 to 2018 due mainly to increases in personnel-related costs, depreciation expenses associated with new R&D equipment purchased or transferred during the year, materials and supplies used in R&D activities and an increase in costs from R&D work orders. As we continue to focus on broadening our product portfolio, especially increasing our product offerings in the telecom, FTTH and other areas, we expect to continue to increase our R&D investments.

Table of Contents

Sales and marketing expense

Sales and marketing expense increased by $0.4 million, or 5.0%, from 2017 to 2018. This increase was due to increases in personnel costs, duties and freight and trade show expenses, offset by decreased commissions, customs taxes and professional fees.

General and administrative expense

General and administrative expense increased by $4.2 million, or 12.0%, from 2017 to 2018. These increases were primarily due to an increase in personnel-related costs, share-based compensation expenses, depreciation expenses, insurance expenses and professional service fees.

Other income (expense), net

	Years ended December 31,								
	2018			2017			Change		
	Amount	% of revenue		Amount	% of revenue		Amount	%	
	(in thousands, except percentages)								
Interest income	$ 282	0.1	%	$ 221	0.1	%	$ 61	27.6	%
Interest expense	(1,106)	(0.4)	%	(858)	(0.2)	%	(248)	28.9	%
Other income (expense), net	1,814	0.7	%	(1,788)	(0.5)	%	3,602	(201.5)	%
Total other expense, net	$ 990	0.4	%	$ (2,425)	(0.6)	%	$ 3,415	(140.8)	%

Interest income increased over the same prior year periods due to larger cash balances.

Interest expense increased by 28.9% from 2017 to 2018 due to higher debt balances along with higher interest rates in the current year.

Other income (expense) for 2018 was income of $1.8 million, a $3.6 million favorable increase as compared to 2017. These increases were due to a $2.7 million increase of foreign exchange gains resulting from the favorable fluctuation of certain Asian currencies against the U.S. dollar and $0.7 million higher subsidies during the current year from the U.S. and Chinese governments related to our qualification as a high-tech enterprise.

Benefit (provision) for income taxes

	Years ended December 31,				
	2018	2017	Change		
	(in thousands, except percentages)				
Benefit (provision) for income taxes	$ 7,632	$ (10,575)	18,207	(172.2)	%

Our income tax expense (benefit) consists of U.S. income tax, state taxes, Taiwan and China income tax recorded during the periods. Our effective tax rate is affected by recurring items, such as tax rates in state and foreign jurisdictions and the relative amounts of income we earn in those jurisdictions.

We recorded a tax benefit of $7.6 million for the year ended December 31, 2018 as compared to the tax expense of $10.6 million for the year ended December 31, 2017. The income tax benefit in the year ended December 31, 2018 was primarily related to the impact of changes to tax law, offset by the recognition of excess tax benefits attributable to share-based compensation as well as the recognition of research and development credits. The income tax expense recorded in the year ended December 31, 2017 was primarily related to the impact of changes to tax law, offset by the recognition of excess tax benefits attributable to share-based compensation as well as the recognition of research and development credits.

Table of Contents

Comparison of Years Ended December 31, 2017 and 2016

Revenue

We generate revenue through the sale of our products to equipment providers and network operators for the internet data center, CATV, FTTH, telecom and other markets. We derive a significant portion of our revenue from our top ten customers, and we anticipate that we will continue to do so for the foreseeable future. The following charts provide the revenue contribution from each of the markets we served for the years ended December 31, 2017 and 2016 (in thousands, except percentages):

	Years ended December 31,				Change	
	2017	% of Revenue	2016	% of Revenue	Amount	%
Data Center	$ 306,712	80.2%	$ 201,314	77.2%	$ 105,398	52.4 %
CATV	60,756	15.9%	43,567	16.7%	17,189	39.5 %
Telecom	12,899	3.4%	12,938	5.0%	(39)	(0.3) %
FTTH	490	0.1%	1,567	0.6%	(1,077)	(68.7) %
Other	1,472	0.4%	1,327	0.5%	145	10.9 %
Total Revenue	$ 382,329	100.0%	$ 260,713	100.0%	$ 121,616	46.6 %

Revenues in the internet data center market were driven primarily by increasing demand for our 40 Gbps and 100 Gbps transceivers as our customers continued to upgrade their technology infrastructure. We expect to continue to sell 40 Gbps products to our customers in 2018, however we believe that revenue generated from our 40 Gbps products will likely decline as customers continue their transition to 100 Gbps products. The decrease in revenue in our FTTH market is due to a decline in demand for certain older legacy products. The increase in revenue in the CATV market for the year was a result of increased demand from our customers who are supplying equipment for CATV network upgrades which began during the year. The decrease in revenue in our telecom segment was primarily attributable to reduced orders from some of our telecom customers, particularly in China.

In the years ended December 31, 2017 and 2016, our top ten customers represented 94.9% and 95.5% of our revenue, respectively.

Cost of goods sold and gross margin

Years ended December 31,

	2017		2016		Change	
	Amount	% of Revenue	Amount	% of Revenue	Amount	%
	(in thousands, except percentages)					
Cost of goods sold	$ 216,049	56.5 %	$ 173,759	66.6 %	$ 42,290	24.3 %
Gross margin	166,280	43.5 %	86,954	33.4 %		

Cost of goods sold increased by $42.3 million, or 24.3%, from 2016 to 2017, primarily due to a 46.6% increase in sales over the prior year. The increase in gross margin for the year ended December 31, 2017 compared to the same period ended December 31, 2016 was primarily the result of lower production costs associated with certain 40 Gbps and 100 Gbps products. Production costs were reduced due mainly to improved product yields, related to process improvements and automation, as well as raw material cost reduction.

Operating expenses

	Years ended December 31,					
	2017		2016		Change	
	Amount	% of revenue	Amount	% of revenue	Amount	%
	(in thousands, except percentages)					
Research and development	$ 35,365	9.2 %	$ 31,780	12.2 %	$ 3,585	11.3 %
Sales and marketing	8,702	2.3 %	6,627	2.5 %	2,075	31.3 %
General and administrative	35,262	9.2 %	25,527	9.8 %	9,735	38.1 %
Total operating expenses	$ 79,329	20.7 %	$ 63,934	24.5 %	$ 15,395	24.1 %

Table of Contents

Research and development expense

Research and development expense increased by $3.6 million, or 11.3%, from 2016 to 2017. Research and development costs consist of R&D work orders, R&D material usage and other project related costs related to 40 Gbps, 100 Gbps, and 200/400 Gbps data center products, DOCSIS 3.1-capable CATV products, including remote-PHY products, and other new product development, and depreciation expense resulting from R&D equipment investments. Research and development costs increased due mainly to an increase in personnel-related costs and increased overhead costs associated with our new building in Sugar Land, offset by a decrease in materials and supplies used in R&D activities and a decrease in costs from R&D work orders.

Sales and marketing expense

Sales and marketing expense increased by $2.1 million, or 31.3%, from 2016 to 2017. This was due to an increase in personnel costs, including sales commissions, an increase in customs taxes and duties, partially offset by decreased commissions to third parties.

General and administrative expense

General and administrative expense increased by $9.7 million, or 38.1%, from 2016 to 2017. These increases were primarily due to an increase in personnel-related costs, share-based compensation expenses, overhead costs due to our new building in Sugar Land, and additional professional service fees.

General and administrative expenses include costs to comply with Section 404 of the Sarbanes-Oxley Act, or SOX, and other regulations governing public companies, costs of directors' and officers' liability insurance and investor relations activities. As of June 30, 2017, the market value of our common stock held by non-affiliates exceeded $700 million. As of December 31, 2017, we are a "large accelerated filer" and, accordingly no longer qualify as an emerging growth company and no longer are able to rely on certain exemptions that were available to us as an emerging growth company. We anticipate that general and administrative expenses will continue to increase in absolute dollars in the future as we continue to incur both increased external audit fees as well as additional spending to ensure continued SOX and other regulatory compliance.

Other income (expense), net

	Years ended December 31,								
	2017			2016			Change		
	Amount	% of revenue		Amount	% of revenue		Amount	%	
	(in thousands, except percentages)								
Interest income	$ 221	0.1	%	$ 247	0.1	%	$ (26)	(10.5)	%
Interest expense	(858)	(0.2)	%	(1,717)	(0.7)	%	859	(50.0)	%
Other income (expense), net	(1,788)	(0.5)	%	(547)	(0.2)	%	(1,241)	226.9	%
Total other expense, net	$ (2,425)	(0.6)	%	$ (2,017)	(0.8)	%	$ (408)	20.2	%

Interest income decreased over the same prior year periods due to lower investment balances.

Interest expense decreased by 50.0% from 2016 to 2017 due to the repayment of debt that had been previously borrowed to fund expansion projects.

Other income (expense) for 2017 was expense of $1.8 million, a $1.2 million unfavorable increase as compared to 2016. These increases were due to the increase of foreign exchange losses resulting from the unfavorable fluctuation of certain Asian currencies against the U.S. dollar. We qualify as a high-tech enterprise in China, as determined by the Chinese government, and are paid subsidies from time to time by the Chinese government to foster local high-tech manufacturing. We received $0.2 million of government subsidies during 2017 and 2016, respectively.

Table of Contents

Benefit (provision) for income taxes

	Years ended December 31,				
	2017	2016	Change		
	(in thousands, except percentages)				
Benefit (provision) for income taxes	$ (10,575)	$ 10,231	(20,806)	(203.4)	%

Our income tax expense consists of U.S. income tax, state taxes, Taiwan and China income tax recorded during the periods. Our effective tax rate is affected by recurring items, such as tax rates in state and foreign jurisdictions and the relative amounts of income we earn in those jurisdictions.

We recorded a tax expense of $10.6 million for the year ended December 31, 2017 as compared to the tax benefit of $10.2 million for the year ended December 31, 2016. The income tax expense in the year ended December 31, 2017 was primarily related to the provisional impact of changes to tax law, offset by the recognition of excess tax benefits attributable to share-based compensation as well as the recognition of research and development credits. The income tax benefit recorded in the year ended December 31, 2016 was primarily related to the release of the valuation allowance previously recorded against U.S. and Taiwan deferred tax assets.

On December 22, 2017, the Tax Act was signed into law making significant changes to the Internal Revenue Code. Changes include, but are not limited to, a corporate tax rate decrease from 35% to 21% effective for tax years beginning after December 31, 2017, the transition of U.S. international taxation from a worldwide tax system to a territorial system, and a one-time transition tax on the mandatory deemed repatriation of cumulative foreign earnings as of December 31, 2017. We estimated the impact of the Tax Act in our year-end income tax provision in accordance with our understanding of the Tax Act and as a result recorded $7.8 million as additional income tax expense in 2017. The 2017 provisional amount related to the remeasurement of certain deferred tax assets and liabilities, based on the rates at which they are expected to reverse in the future, was $2.8 million. The provisional amount related to the one-time transition tax on the mandatory deemed repatriation of foreign earnings was $5.0 million based on cumulative foreign earnings of $62.8 million.

Liquidity and Capital Resources

As of December 31, 2018, we had $69.4 million of unused borrowing capacity from all of our loan agreements. As of December 31, 2018, our cash, cash equivalents, restricted cash and short-term investments totaled $58.0 million. Cash and cash equivalents are held for working capital purposes and are invested primarily in money market or time deposit funds. We do not enter into investments for trading or speculative purposes. On October 17, 2016, we filed a

Registration Statement on Form S-3 with the Securities and Exchange Commission, which was declared effective on November 1, 2016, providing for the public offer and sale of certain securities of the Company from time to time, at our discretion, up to an aggregate amount of $250 million. Between November 22, 2016 and March 2, 2017, the Company sold 1.6 million shares of common stock at a weighted average price of $31.55 per share, providing proceeds of $48.8 million, net of expenses and underwriting discounts and commissions. No shares of common stock were sold pursuant to this Registration Statement on Form S-3 in the year ended December 31, 2018

The table below sets forth selected cash flow data for the periods presented (in thousands):

	Years ended December 31,		
	2018	2017	2016
Net cash provided by operating activities	$ 14,029	$ 84,284	$ 57,104
Net cash used in investing activities	(76,514)	(70,159)	(41,535)
Net cash provided by financing activities	34,803	18,244	1,655
Effect of exchange rates on cash and cash equivalents	1,738	(385)	1,947
Net increase (decrease) in cash	$ (25,944)	$ 31,984	$ 19,171

Operating activities

In 2018, net cash provided by operating activities was $14.0 million. Net cash provided by operating activities consisted of our net loss of $2.1 million, after the exclusion of non-cash items of $38.5 million, an increase in accounts receivable from our customers of $29.3 million and an increase in accrued liabilities of $0.6 million. These cash

52

Table of Contents

increases were offset by an increase in inventory of $28.4 million, a decrease in accounts payable to our vendors of $13.7 million, a decrease in accrued income tax of $7.4 million and an increase in other current assets of $3.0 million

In 2017, net cash provided by operating activities was $84.3 million. Net cash provided by operating activities consisted of our net income of $74.0 million, after the exclusion of non-cash items of $30.4 million, increase in accounts payable to our vendors of $7.2 million, an increase in accrued liabilities of $4.1 million and an increase in accrued income tax of $6.2 million. These cash increases were offset by an increase in accounts receivable from our customers of $10.1 million, an increase in inventory of $21.9 million and an increase in other current assets of $5.6 million.

In 2016, net cash provided by operating activities was $57.1 million. Net cash provided by operating activities consisted of our net income of $31.2 million, after the exclusion of non-cash items of $9.5 million as well as $10.2 million from the reduction of inventories, increase in accounts payable to our vendors of $9.1 million, decrease in prepaid assets of $4.1 million and an increase in accrued liabilities and accrued income tax of $4.1 million. These cash increases were offset by an increase in accounts receivable from our customers of $11.1 million in 2016.

Investing activities

Our investing activities consisted primarily of capital expenditures and purchases of intangible assets.

In 2018, net cash used in investing activities was $76.5 million. The net cash used consisted of spending on property, plant and equipment and land use rights of $77.4 million offset by sales proceeds from equipment of $0.7 million.

In 2017, net cash used in investing activities was $70.2 million. The net cash used consisted of spending on property, plant and equipment of $67.0 million and an increase of $2.9 million in deferred charges associated with the purchase of new machinery and equipment.

In 2016, net cash used in investing activities was $41.5 million. Spending on property, plant and equipment of $49.4 million was offset by the maturity of short-term investments of $7.7 million.

Financing activities

Our financing activities have historically consisted primarily of proceeds from the issuance of common stock and arrangements with various commercial lenders.

In 2018, our financing activities provided $34.8 million in cash. We received $38.8 million in net borrowings associated with our bank loans and bank acceptance notes. These activities were offset by $4.1 million related to tax withholding associated with employee share-based compensation.

In 2017, our financing activities provided $18.2 million in cash. We received $21.6 million in net proceeds from the sale of our common stock pursuant to an at-the-market offering and $6.2 million in net borrowings associated with our bank loans. These activities were offset by $10.7 million related to tax withholding associated with employee share-based compensation.

In 2016, our financing activities provided $1.7 million in cash. We repaid $22.9 million in net borrowings associated with our bank loans and $2.5 million in net repayments of acceptance payable. We also received $27.2 million in net proceeds from the sale of our common stock pursuant to an at-the-market offering.

Loans and commitments

We have lending arrangements with several financial institutions. In the US, we have revolving lines of credit and term loans with Branch Banking and Trust (BB&T) Bank in the U.S. These term loans contain financial covenants that may limit the amount and types of debt that we may incur. As of December 31, 2018, we were in compliance with these covenants.

In Taiwan, we have a revolving credit facility with Taishin International Bank, a revolving credit facility with Development Bank of Singapore (Taiwan) Ltd, a credit facility with CTBC Bank Co, Ltd. and a finance lease agreement with Chailease Finance Co., Ltd. for Prime World's Taiwan Branch. And in China, we have a revolving line of credit with China Construction Bank with Global. As of December 31, 2018, we had $69.4 million of unused borrowing capacity.

On September 28, 2017, we entered into a Loan Agreement, a Promissory Note, an Addendum to the Promissory Note, a BB&T Security Agreement, a Trademark Security Agreement, and a Patent Security Agreement (together the "Credit Facility") with Branch Banking and Trust Company ("BB&T"). The Credit Facility provides us with a three year, $50 million, revolving line of credit. Borrowings under the Credit Facility will be used for general corporate purposes. We make monthly payments of accrued interest with the final monthly payment being for all principal and all accrued interest not yet paid. Our obligations under the Credit Facility are secured by our accounts receivable, inventory, intellectual property, and all business assets with the exception of real estate and equipment. Borrowings under the Credit Facility bear interest at a rate equal to the one-month LIBOR plus 1.50%. The Credit Facility requires us to maintain certain financial covenants and also contains representations and warranties, and events of default applicable to us that are customary for agreements of this type.

On March 30, 2018, we executed a First Amendment to Loan Agreement, a Note Modification Agreement and Addendum to Promissory Note for $60 million, a Promissory Note and Addendum to Promissory Note for $26 million, a Promissory Note and Addendum to Promissory Note for $21.5 million, a Texas Deed of Trust and Security Agreement, an Assignment of Lease and Rent, and an Environmental Certification and Indemnity Agreement, (collectively, the "Amended Credit Facility"), with BB&T. The Amended Credit Facility amends our three-year $50 million line of credit with BB&T, originally executed on September 28, 2017 (the "Existing Loan"). The Amended Credit Facility (1) increases the principal amount of the three-year line of credit from $50 million to $60 million (the "Line of Credit"); (2) allows us to borrow an additional $26 million from BB&T in the form of a five-year capital expenditure loan (the "CapEx Loan") and (3) allows us to borrow an additional $21.5 million in the form of a seventy-month real estate term loan (the "Term Loan") to refinance our plant and facilities in Sugar Land, Texas. Borrowings under the Line of Credit bear interest at a rate equal to the one-month LIBOR plus a Line of Credit margin ranging between 1.40% and 2.0%. Borrowings under the CapEx Loan bear interest at a rate equal to the one-month LIBOR plus a CapEx Loan margin ranging between 1.30% and 2.0%. Borrowings under the Term Loan bear interest at a rate equal to the one-month LIBOR plus a Term Loan margin ranging between 1.15% and 2.0%. We are required to make monthly payments of principal and accrued interest with the final monthly payments being for all principal and accrued interest not yet paid. Our obligations under the Amended Credit Facility are secured by our accounts receivable, inventory, equipment, intellectual property, real property, and virtually all business assets. As of December 31, 2018, we were in compliance with all covenants under the Amended Credit Facility. As of December 31, 2018, $23.1 million was outstanding under the Line of Credit, $20.1 million was outstanding under the Term Loan and $19.2 million was outstanding under the CapEx Loan.

On February 1, 2019, we executed a Second Amendment to Loan Agreement with BB&T. The original loan agreement with BB&T, executed on September 28, 2017, and a first amendment to the original loan agreement, executed on March 30, 2018, provided us with a three-year $60 million line of credit; a $26 million five-year capital expenditure loan (the "CapEx Loan") and a $21.5 million seventy-month real estate term loan for our plant and facilities in Sugar Land, Texas. The Second Amendment to Loan Agreement extends the CapEx Loan draw-down date from March 30, 2019 to September 30, 2019, requires us to provide BB&T monthly financial statements and revises certain financial covenants which are deemed effective as of September 30, 2018.

On May 27, 2015, our Taiwan branch entered into a Purchase and Sale Contract and a Finance Lease Agreement with Chailease Finance Co, Ltd. (“Chailease”) in connection with certain equipment, structured as a sale lease-back transaction. Pursuant to the Purchase and Sale contract, our Taiwan branch sold certain equipment to Chailease for a purchase price of 180,148,532 New Taiwan dollars, approximately $6.0 million, and simultaneously leased the equipment back from Chailease pursuant to the Finance Lease Agreement. The monthly lease payments range from 3,784,000 New Taiwan dollars, approximately $0.1 million, to 3,322,413 New Taiwan dollars, approximately $0.1 million, during the term of the Finance Lease Agreement, including an initial payment in an amount of 60,148,532 New Taiwan dollars, approximately $2.0 million. The Finance Lease Agreement had a three-year term, with monthly payments, that matured on May 27, 2018. The title to the equipment was transferred to our Taiwan branch upon the expiration of the Finance Lease Agreement.

On June 19, 2018, Prime World entered into a one year revolving credit facility totaling 300 million New Taiwan dollars (“NT$”), or approximately $9.8 million, (the “Taiwan Credit Facility”) with Taishin International Bank

Table of Contents

in Taiwan (the "Bank"). Borrowing under the Taiwan Credit Facility will be used for short-term working capital. Prime World may draw upon the Taiwan Credit Facility from June 19, 2018 until May 31, 2019. The term of each draw shall be either 90 or 120 days. Borrowings under the Taiwan Credit Facility bear interest at a rate of 2.00% for 90 day draws and 1.95% for 120 day draws. At the end of the draw term, Prime World is required to make payment for all principal and accrued interest. The agreements for the Taiwan Credit Facility contain representations and warranties and events of default applicable to Prime World that are customary for agreements of this type. As of December 31, 2018, $3.3 million was outstanding under the Taiwan Credit Facility.

On October 3, 2018, Prime World entered into a revolving credit facility for up to $7 million, (the "Revolving Credit Facility") with the Development Bank of Singapore (Taiwan) Ltd. ("DBS"). Borrowing under the Revolving Credit Facility will be used for short-term working capital. Prime World may draw upon the Revolving Credit Facility from October 3, 2018 until July 26, 2019. The term of each draw shall be either 60 or 90 days depending on the purpose of the draw. Borrowings under the Revolving Credit Facility bear interest at a rate equal to DBS's cost of funds rate plus 1.25% for draws in U.S. Dollars and 1.35% plus the Bank's cost of funds rate for draws in New Taiwan Dollars. As of the execution of the Revolving Credit Facility, DBS's cost of fund's rate is 0.77% for loans made in New Taiwan Dollars and 2.54% for loans made in U.S. Dollars. DBS's cost of fund's rate is adjusted daily. Prime World is required to make monthly payments of accrued interest with the final monthly payment being for all principal and all accrued interest not yet paid. Prime World's obligations under the Revolving Credit Facility are secured by promissory notes executed between Prime World and DBS at the time of each draw. The agreements for the Revolving Credit Facility contain representations and warranties and events of default applicable to the Prime World that are customary for agreements of this type. As of December 31, 2018, $3.6 million was outstanding under the Revolving Credit Facility.

On November 29, 2018, Prime World entered into a Purchase and Sale Contract (the "Sale Contract") and a Finance Lease Agreement with Chailease Finance Co., Ltd. ("Chailease") in connection with certain equipment, structured as a sale lease-back transaction. Pursuant to the Sale Contract, Prime World sold certain equipment to Chailease for a purchase price of NT$267,340,468, or approximately $8.7 million. Simultaneously, Prime World leased the equipment back from Chailease for a term of three-years, pursuant to the Finance Lease Agreement. Prime World is obligated to pay an initial payment of NT$67,340,468, or approximately $2.2 million, thereafter the monthly lease payments range from NT$5,571,229, or $0.2 million, to NT$6,139,188, or approximately $0.2 million. Based on the lease payments made under the Finance Lease Agreement, the annual interest rate is calculated to be 3.5%. Upon an event of default under the Finance Lease Agreement, Prime World's payment obligation is secured by a promissory note to Chailease in the amount of NT$210,601,605, or approximately $6.8 million, subject to certain terms and conditions. The title of the equipment will be transferred to Prime World upon expiration of the Finance Lease Agreement. As of December 31, 2018, $6.3 million was outstanding under the Finance Lease Agreement.

On December 11, 2018, Prime World entered into a one-year credit facility totaling New Taiwan Dollars 150 million (the "Credit Facility") with CTBC Bank Co., Ltd. ("CTBC"). Borrowing under the Credit Facility will be used for short-term working capital. Prime World may draw upon the Credit Facility from December 11, 2018 until October 31, 2019. The term of each draw shall be up to 120 days. Under the Credit Facility borrowing in New Taiwan Dollars bear interest at a rate equal to CTBC's Enterprise Swap Index Rate plus 1.2%; for all foreign currency borrowing interest will bear at a rate equal to CTBC's Cost of Fund lending rate plus 1.2%. As of the execution of the Credit Facility, CTBC's Enterprise Swap Index Rate and Cost of Funds lending rate is 0.69% and 3.40% respectively. At the end of the draw term, Prime World is required to make payment for all principal and accrued interest. The agreements for the Credit Facility contain representations and warranties, and events of default applicable to Prime World that are customary for agreements of this type. As of December 31, 2018, there was no outstanding balance under the Credit Facility.

On September 21, 2018, our China subsidiary, Global Technology, Inc., entered into a five-year revolving credit line agreement, totaling 129,000,000 Chinese Renminbi, or RMB, or approximately $18.6 million, (the “Credit Line”) and a Security Agreement with China Construction Bank Co., Ltd., in Ningbo, China (“CCB”). Borrowing under the Credit Line will be used for general corporate and capital investment purposes, including the issuance of bank acceptance notes to Global’s vendors. Global may draw upon the Credit Line between September 21, 2018 and September 17, 2023; however, the amount of available credit under the Credit Line may be reduced by CCB without notice to Global and may be decreased subject to changes of Chinese government regulations. Each draw bears interest equal to CCB’s commercial banking interest rate effective on the day of the applicable draw. Global’s obligations under the Credit Line will be secured by real property owned by Global in China and mortgaged to CCB under the terms of the

Table of Contents

Security Agreement. As of December 31, 2018, $8.7 million was outstanding under the Credit Line and the outstanding balance of bank acceptance notes issued to vendors was $4.6 million.

On January 21, 2019, Prime World entered into a second Purchase and Sale Contract (the "Second Sales Contract"), Promissory Note, and a second Finance Lease Agreement, (collectively, the "Second Financing Agreements") with Chailease in connection with certain equipment, structured as a sale lease-back transaction. Pursuant to the Second Sales Contract, Prime World sold certain equipment to Chailease for a purchase price of NT$267,333,186, or approximately $8.7 million. Simultaneously, Prime World leased the equipment back from Chailease for a term of three-years, pursuant to the Second Finance Lease Agreement. Prime World is obligated to pay an initial monthly payment of NT$67,333,186, or approximately $2.2 million, thereafter the monthly lease payments range from NT$5,570,167, or approximately $0.2 million to NT$6,082,131, or approximately $0.2 million. Based on the lease payments made under the Second Finance Lease Agreement, the annual interest rate is calculated to be 3.5%. Upon an event of default under the Second Finance Lease Agreement, Prime World's payment obligation will be secured by a promissory note to Chailease at the amount of NT$209,555,736 or approximately $6.8 million, subject to certain terms and conditions. The title of the equipment will be transferred to Prime World upon expiration of the Second Finance Lease Agreement.

One-month LIBOR rates were 2.50% and 1.56% at December 31, 2018 and 2017, respectively.

As of December 31, 2018 and 2017, there was $2.4 million and $1.0 million of restricted cash, investments or security deposit associated mainly with the loan facilities, respectively

China factory construction

On February 8, 2018, we entered into a construction contract with Zhejiang Xinyu Construction Group Co., Ltd. for the construction of a new factory and other facilities at our Ningbo, China location. Construction costs for these facilities under this contract are estimated to total approximately $27.5 million. As of December 31, 2018, approximately $8.2 million of this total cost has been incurred, with the remaining portion due as the construction progresses. Construction under this contract is expected to be completed in early 2020.

Future liquidity needs

We believe that our existing cash and cash equivalents, cash flows from our operating activities, and available credit will be sufficient to meet our anticipated cash needs for the next 12 months. Our future capital requirements will depend on many factors including our growth rate, the timing and extent of spending to support our research and development efforts, the expansion of our sales and marketing activities, the introduction of new and enhanced products, changes in our manufacturing capacity and the continuing market acceptance of our products. In the event we need additional liquidity, we will explore additional sources of liquidity. These additional sources of liquidity could include one, or a combination, of the following: (i) issuing equity or debt securities, (ii) incurring indebtedness secured by our assets and (iii) selling product lines, other assets and/or portions of our business. There can be no guarantee that we will be able to raise additional funds on terms acceptable to us, or at all.

Contractual Obligations and Commitments

The following summarizes our contractual obligations as of December 31, 2018 (in thousands):

	Payments due by period				
	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Notes payable and long-term debt(1)	$ 93,141	$ 29,644	$ 41,427	$ 12,669	$ 9,401
Operating leases(2)	11,166	1,233	2,175	2,010	5,748
Total commitments	$ 104,307	$ 30,877	$ 43,602	$ 14,679	$ 15,149

1) We have several loan and security agreements in China, Taiwan and the U.S. that provide various credit facilities, including lines of credit, bank acceptance payable and term loans. The amount presented in the table represents the principal portion and estimated interest expense for the obligations.
2) We have entered into various non-cancellable operating lease agreements for our offices in Taiwan and the U.S.

Table of Contents

Inflation

We believe that the relatively low rate of inflation in the U.S. over the past few years has not had a significant impact on our sales or operating results or on the prices of raw materials. To the extent we expand our operations in China and Taiwan, such actions may result in inflation having a more significant impact on our operating results in the future.

Off-Balance Sheet Arrangements

During 2018, 2017 and 2016, we did not have any off-balance sheet arrangements that we believe have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that would be material to investors.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with U.S. GAAP. These principles require us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue, expenses and cash flows, and related disclosure of contingent assets and liabilities. Our estimates include those related to revenue recognition, share-based compensation expense, impairment analysis of goodwill and long-lived assets, valuation of inventory, warranty liabilities and accounting for income taxes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Actual results may differ from these estimates. To the extent that there are material differences between these estimates and our actual results, our future financial statements will be affected.

We believe that of our significant accounting policies, which are described in Note B to our consolidated financial statements appearing elsewhere in this Annual Report on Form 10-K, the following accounting policies involve a greater degree of judgment and complexity. Accordingly, we believe these are the most critical to fully understand and evaluate our financial condition and results of operations.

Revenue recognition

We generally employ a direct sales model in North America, and in the rest of the world we use both direct and indirect channels. Our revenue recognition policy is to recognize gross revenue whether our products are sold on a direct or indirect basis, because our reseller customers (indirect channel) honor the same terms and conditions as do our direct sales customers. Revenue is recognized when obligations under the terms of a contract with our customer are satisfied; generally this occurs with the transfer of control of products or services. Contracts or customer purchase orders are used to determine the existence of an obligation. Shipping documents are used to verify delivery. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring products or providing services. Certain customers may receive cash and/or non-cash incentives, which are accounted for as variable consideration. We assess collectability based primarily on the creditworthiness of the customer as determined by credit checks and the customer’s payment history. Customers are generally extended net 30 credit terms from the date of shipment, with some extensions for more creditworthy customers.

Shipping and handling costs are included in operating expenses as fulfillment costs unless we bill our customers for shipping and handling charges, which are included in net sales for the applicable period, and the corresponding shipping and handling expense is reported in cost of sales. We present revenue net of sales returns and allowances, sales taxes and any similar assessments. We provide a limited warranty as part of our standard terms and conditions of sale. This warranty provides for the repair or replacement of our products, at our discretion, that we determine (i) are defective in workmanship, material, or not in compliance with the mutually agreed written applicable specification and (ii) has in fact failed under normal use on or before one year from the date of original shipment of the products. Some of our customers are provided limited warranties between three to five years, on certain limited and identified products. Warranty costs associated with returned goods that are repaired or replaced are charged to cost of goods sold.

During our ordinary course of business, we may enter into new product development agreements to design, customize and develop new products for our customers. Such new product development agreements often involve material cost and engineering hours and therefore non-recurring engineering service (NRE) charges are agreed upon for the customer to reimburse our related costs. We adopt the milestone method in revenue recognition for NRE revenues by using cost-input measurement. We capitalize cost input up to the contractual agreement amount and recognize NRE revenues based upon the agreement schedule. Contracts or customer purchase orders are often used to determine the existence of service agreement.

Share-Based Compensation

We account for share-based compensation in accordance with the provisions of ASC 718, Compensation—Stock Compensation. Share-based compensation expense is recognized based on the estimated grant date fair value in order to recognize compensation cost for those shares expected to vest. Compensation cost is recognized on a straight-line basis over the vesting period of the options and adjusted as forfeitures occur.

Long-lived assets

Depreciation and amortization of the intangible assets and other long-lived assets is provided using the straight-line method over their respective estimated useful lives, reflecting the pattern of economic benefits associated with these assets. Changes in circumstances such as technological advances, changes to our business model, or changes in our capital strategy could cause the actual useful lives of intangible assets or other long-lived assets to differ from initial estimates. When we become aware of such changes, we review the anticipated useful life of the affected assets and make any necessary revisions. In those cases where we determine that the useful life of an asset should be revised, we depreciate the remaining net book value over the new estimated useful life. In December, 2018, our production management undertook a review of the estimated useful life of many of our production-related assets. Based on the results of this review, we believe that it is reasonably likely that estimated asset useful lives may be changed in the near term. If useful lives are revised, we generally expect these revisions to result in longer than current useful lives, and thus lower annual depreciation expense for this equipment.

We evaluate the carrying value of long-lived assets for potential impairment when we determine a triggering event has occurred, or whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. When indicators exist, recoverability of assets is measured by a comparison of the carrying value of the asset group to the estimated undiscounted future net cash flows expected to be generated by the asset. Examples of such triggering events include a significant disposal of a portion of such assets, an adverse change in the market involving the business employing the related asset, a significant decrease in the benefits realized from an acquired business, difficulties or delays in integrating the business, and a significant change in the operations of an acquired business. If such assets are determined not to be recoverable we perform an analysis of the fair value of the asset group and will recognize an impairment loss when the fair value is less than the carrying amount of such assets. The fair value, based on reasonable and supportable assumptions and projections, require subjective judgments. Depending on the assumptions and estimates used, the fair value projected in the evaluation of long-lived assets can vary within a range of outcomes. We consider the likelihood of possible outcomes in determining the best estimate for the fair value of the assets. We did not record any asset impairment charges in 2018 or 2017.

Valuation of inventories

Inventories are stated at the lower of cost (average-cost method) or market. Work in process and finished goods includes materials, labor and allocated overhead. We assess the valuation of our inventory on a periodic basis and provide an allowance for the value of estimated excess and obsolete inventory based on estimates of future demand. During the years ended December 31, 2018, 2017 and 2016, we recorded excess and obsolete inventory charges of \$7.2 million, \$1.9 million, and \$3.7 million, respectively. For the years December 21, 2018, 2017 and 2016, the direct inventory write-offs related to scrap and damaged inventories were \$3.5 million, \$6.8 million and \$5.0 million, respectively.

We have an accounting policy to write down the value of obsolete inventory. We considered the following factors in our determination of the appropriate reserve level: how often we buy material in bulk; the overall market value of raw material, semi-finished goods and finished goods across our varied product lines and within markets; changes in expected demand for our products; the change in valuations historically; the determined safety stock for key customers; and the likelihood of postponement in delivery schedules for materials already placed in finished goods inventory.

Table of Contents

Accounting for income taxes

We account for income taxes in accordance with the provisions of ASC 740, Income Taxes. The liability method is used to account for deferred income taxes. Under the liability method, deferred tax assets and liabilities are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse. The ability to realize deferred tax assets is evaluated annually and a valuation allowance is provided if it is unlikely that the deferred tax assets will not give rise to future benefits in our tax returns.

We record uncertain tax positions in accordance with ASC 740 on the basis of a two-step process in which (1) we determine whether it is more likely than not that the tax positions will be sustained on the basis of the technical merits of the position and (2) for those tax positions that meet the more-likely-than-not recognition threshold, we recognize the largest amount of tax benefit that is more than 50 percent likely to be realized upon ultimate settlement with the related tax authority.

We recognize interest and penalties related to unrecognized tax benefits on the income tax expense line in the accompanying consolidated statement of operations. Accrued interest and penalties are included on the related tax liability line in the consolidated balance sheet.

Tax Cuts and Jobs Act

On December 22, 2017, the U.S. government enacted the Tax Act. The Tax Act makes broad and complex changes to the U.S. tax code, including, but not limited to, (1) reducing the U.S. federal corporate tax rate from 35 percent to 21 percent; (2) requiring companies to pay a one-time transition tax (“Transition Tax”) on certain unrepatriated earnings of foreign subsidiaries; (3) generally eliminating U.S. federal income taxes on dividends from foreign subsidiaries; (4) a new provision designed to tax global intangible low-taxed income (“GILTI”); (5) eliminating the corporate alternative minimum tax (“AMT”) and changing how existing AMT credits can be realized; (6) creating the base erosion anti-abuse tax (“BEAT”), a new minimum tax; (7) creating a new limitation on deductible interest expense; and (8) changing rules related to uses and limitations of net operating loss carryforwards created in tax years beginning after December 31, 2017.

Shortly after enactment of the Tax Act, the SEC staff issued SAB 118, which provides guidance on accounting for the tax effects of the Tax Act. SAB 118 provides a measurement period that should not extend beyond one year from the Tax Act enactment date for companies to complete the accounting under ASC 740. In accordance with SAB 118, a company must reflect the income tax effects of those aspects of the Tax Act for which the accounting under ASC 740 is complete. To the extent that a company’s accounting for certain income tax effects of the Tax Act is incomplete but it is able to determine a reasonable estimate, it must record a provisional estimate in the financial statements. If a company cannot determine a provisional estimate to be included in the financial statements, it should continue to apply ASC 740 on the basis of the provisions of the tax laws that were in effect immediately before the enactment of the Tax Act.

The Transition Tax is a tax on certain previously untaxed accumulated and current earnings and profits (E&P) of our foreign subsidiaries. We were able to reasonably estimate the Transition Tax and recorded a provisional Transition Tax obligation of $5.0 million, with a corresponding adjustment of $5.0 million to income tax expense for the year ended December 31, 2017. On the basis of revised E&P computations that were completed during the reporting period, we recognized an additional measurement-period adjustment of ($1.8) million to the Transition Tax obligation, with a corresponding adjustment of ($1.8) million to income tax benefit during year ended December 31, 2018, net of foreign tax credit considerations. The effect of the measurement-period adjustment on the 2018 effective tax rate was approximately 18.8 percent. The Transition Tax, which has now been determined to be complete, resulted in recording a total Transition Tax obligation of $3.2 million, with a corresponding adjustment of $3.2 million to income tax expense.

See additional information regarding income taxes in Note M of our Consolidated Financial Statements.

Recent Accounting Pronouncements

See Note B of our Consolidated Financial Statements for a description of recent accounting pronouncements.

Table of Contents

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Market Risks

Market risk represents the risk of loss that may impact our financial statements through adverse changes in financial market prices and rates and inflation. Our market risk exposure results primarily from fluctuations in foreign exchange and interest rates. We manage our exposure to these market risks through our regular operating and financing activities. We have not historically attempted to reduce our market risks through hedging instruments; we may, however, do so in the future.

Interest Rate Fluctuation Risk

Our cash equivalents consisted primarily of money market funds, and interest and non-interest bearing bank deposits. Our primary objective is to maintain the security of our principal balances and ensure liquidity. We attempt to maximize the return on these balances without significantly increasing risk, but have little opportunity to do so given the short-term nature of our investments and current interest rate environments. We do not anticipate any material effect on our cash balances or investment portfolio due to fluctuations in interest rates.

We are exposed to market risk due to the possibility of changing interest rates associated with certain debt instruments. As of December 31, 2018, our U.S. debt bears a variable rate of interest that is based on LIBOR. The debt subject to variable rates is subject to fluctuation in the LIBOR. As of December 31, 2018, we had not hedged our interest rate risk.

With respect to our interest expense for the three months ended December 31, 2018, an increase of 1.0% in each of our interest rates would have resulted in an increase of $0.8 million in our interest expense for such period.

Foreign Exchange Rates

We operate on an international basis with a large portion of our business conducted in our Taiwan branch and China subsidiary. We use the U.S. dollar as our reporting currency for our consolidated financial statements. The financial records of our China subsidiary and our Taiwan branch are maintained in their respective local currencies, the RMB and the NT dollar, which are the functional currencies for our China subsidiary and our Taiwan branch, respectively. Assets and liabilities are translated at prevailing exchange rates at the balance sheet date, equity accounts are translated at historical exchange rates and revenues, expenses, gains and losses are translated using the average rate for the then current period using a monthly average. Translation adjustments are reported as cumulative translation adjustments and are shown as a separate component of accumulated other comprehensive income in our statement of stockholders’ equity and comprehensive income.

All transactions in currencies other than their functional currencies during the year are subject to foreign exchange risk when the exchange rate fluctuates on the respective relevant dates of such transactions. Transaction gains and losses are recognized in our statements of operations in other income (expense). Monetary assets and liabilities existing at the balance sheet date denominated in currencies other than the functional currencies are re-measured at the exchange rates prevailing on the Balance Sheet date and unrealized exchange differences are recorded in our consolidated income statement. In October 2015, we determined that certain intercompany loans are long-term investments. Therefore, exchange gain (loss) arising from re-measurement of intercompany loans were recorded in the Cumulative Translation Adjustment accounts.

During the year ended December 31, 2018, we recognized $0.7 million of exchange gains arising from foreign currency transactions and re-measurement of monetary assets and liabilities dominated in non-functional currency on balance sheet date.

During the year ended December 31, 2018, 3.8% of our revenue was denominated in RMB and none of our revenue was denominated in NT dollars. In the year ended December 31, 2018, 21.4% of our operating expenses were denominated in RMB and 32.7% of our operating expenses were denominated in NT dollars. Accordingly, fluctuations in exchange rates directly affect our cost of goods sold and net income, and have a significant impact on our operating margins. If exchange rates of RMB and NT dollars for U.S. dollars were 1% higher during the year ended December 31, 2018, our operating expenses would have had been higher by $0.5 million.

As of December 31, 2018, we held the U.S. dollar denominated liabilities net of assets of approximately $15.3 million in our China subsidiary and $13.8 million in our Taiwan branch. With respect to these U.S. Dollar denominated net liabilities as of December 31, 2018, if exchange rates of RMB and NT dollars for U.S. dollars were 1% higher during the year ended December 31, 2018, our other operating expenses would have been reduced by $0.3 million. Any significant revaluation of the RMB and NT dollars may materially and adversely affect the cash flows, revenues, and net income as reported in U.S. Dollars.

We currently do not use derivative financial instruments to mitigate this exposure. We continue to review this issue and may consider hedging certain foreign exchange risks through the use of currency forwards or options in future years.

Item 8. Financial Statements and Supplementary Data

The information required by this item is incorporated by reference to the consolidated financial statements and accompanying notes set forth on pages F-1 through F-30 of this Annual Report on Form 10-K

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

a. Evaluation of Disclosure Controls and Procedures.

The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Our disclosure controls and procedures are designed to provide reasonable assurance of achieving their control objectives.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2018. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of the end of the period covered in this report, our disclosure controls and procedures were effective.

b. Management's Annual Report on Internal Control over Financial Reporting.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act). Internal control over financial reporting is a process designed by, or under the supervision of, the issuer's principal executive and principal financial officers, or persons performing similar functions, and effected by our board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) 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 (iii) 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 its inherent limitations, internal control

Table of Contents

over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that our degree of compliance with the policies or procedures may deteriorate.

Our management conducted an evaluation of the effectiveness of our internal control over financial reporting as of the end of the period covered by this Annual Report on Form 10-K based on the framework in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organization of the Treadway Commission. Based on this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2018.

Grant Thornton LLP, the independent registered public accounting firm that audited the consolidated financial statements included in this Annual Report on Form 10-K, has issued a report, included below, on the effectiveness of our internal control over financial reporting as of December 31, 2018.

c. Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) identified in connection with management's evaluation required by the Rules 13a-15(d) and 15d-15(d) under the Exchange Act that occurred during our last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders

Applied Optoelectronics, Inc.

Opinion on internal control over financial reporting

We have audited the internal control over financial reporting of Applied Optoelectronics, Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2018, based on criteria established in the 2013 Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in the 2013 Internal Control—Integrated Framework issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the consolidated financial statements of the Company as of and for the year ended December 31, 2018, and our report dated February 26, 2019 expressed an unqualified opinion on those financial statements.

Basis for opinion

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 are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. 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.

Definition and limitations of internal control over financial reporting

A company’s 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. 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 its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ GRANT THORNTON LLP

Houston, Texas

February 26, 2019

Table of Contents

Item 9B. Other Information

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required regarding our directors is incorporated herein by reference from the information contained in our definitive Proxy Statement for the 2019 Annual Meeting of Stockholders (our “Proxy Statement”), a copy of which will be filed with the Securities and Exchange Commission within 120 days after the end of our fiscal year ended December 31, 2018.

The information required regarding our executive officers is incorporated herein by reference from the information contained in the section entitled “Management” in our Proxy Statement.

The information required regarding Section 16(a) beneficial ownership reporting compliance is incorporated by reference from the information contained in our Proxy Statement.

The information required with respect to procedures by which security holders may recommend nominees to our board of directors, the composition of our Audit Committee, and whether the Company has an “audit committee financial expert”, is incorporated by reference from the information contained in our Proxy Statement.

Adoption of Code of Ethics

The Company has adopted a Code of Business Conduct and Ethics (the “Code”) applicable to all of our board of director members, employees and executive officers, including our Chief Executive Officer (Principal Executive Officer), and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer). The Company has made the Code available on our website at http://www.ao-inc.com.

The Company intends to satisfy the public disclosure requirements regarding (1) any amendments to the Code, or (2) any waivers under the Code given to our Principal Executive Officer, Principal Financial Officer and Principal Accounting Officer by posting such information on our website at www.ao-inc.com. There were no amendments to the Code or waivers granted thereunder relating to the Principal Executive Officer, Principal Financial Officer or Principal Accounting Officer during 2018.

Item 11. Executive Compensation

The information required regarding the compensation of our directors and executive officers is incorporated herein by reference from the information contained in the sections entitled “Executive Compensation,” and “Director Compensation,” “Compensation Committee Report” in our Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required regarding security ownership of our 5% or greater stockholders and of our directors and management is incorporated herein by reference from the information contained in the section entitled “Security Ownership of Certain Beneficial Owners and Management” in our Proxy Statement.

The information required regarding securities authorized for issuance our equity compensation plans is incorporated herein by reference from the information contained in the section entitled “Employee Benefit Plans” in our Proxy Statement.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required regarding related transactions is incorporated herein by reference from the information contained in our Proxy Statement.

Item 14. Principal Accounting Fees and Services

The information required by Part III, Item 14, regarding principal accounting fees and services is incorporated by reference from the information contained in our Proxy Statement, a copy of which will be filed with the Securities and Exchange Commission within 120 days after the end of our fiscal year ended December 31, 2018.

Table of Contents

Part IV

Item 15. Exhibits, Financial Statements Schedules

a) (1) The consolidated financial statements are listed on the Index to Consolidated Financial Statements to this report beginning on page F 1.

(a)(2) Financial Statement Schedules. Financial statement schedules have been omitted, as the information required to be set forth therein is included in the Consolidated Financial Statements or Notes thereto appearing in this Annual Report on Form 10-K.

(a)(3) Exhibits. See the Exhibit immediately following Item 16. Form 10-K Summary of this Form 10-K..

Item 16. Form 10-K Summary

None.

Table of Contents

EXHIBIT INDEX

			Incorporated By Reference			
Number		Exhibit Description	Form	File No.	Exhibit	Filing Date
3.1		Amended and Restated Certificate of Incorporation of the registrant, as currently in effect	10-Q	001-36083	3.1	November 14, 2013
3.2		Amended and Restated Bylaws of the registrant, as currently in effect	10-Q	001-36083	3.2	November 14, 2013
4.1		Common Stock Specimen	8-K	001-36083	4.1	November 14, 2016
10.1		Form of Indemnification Agreement between the registrant each of its Directors and certain of its Executive Officers	S-1	333-190591	10.1	August 13, 2013
10.2	†	2004 Incentive Share Plan	S-1	333-190591	10.4	August 13, 2013
10.2.1	†	Form of Stock Option Agreement under 2004 Incentive Share Plan	S-1	333-190591	10.4.1	August 13, 2013
10.3	†	2006 Incentive Share Plan	S-1	333-190591	10.5	August 13, 2013
10.3.1	†	First Amendment to 2006 Incentive Share Plan	S-1/A	333-190591	10.5.1	August 27, 2013
10.3.2	†	Form of Stock Option Agreement under 2006 Incentive Share Plan	S-1	333-190591	10.5.2	August 13, 2013
10.4	†	Amended and Restated 2013 Equity Incentive Plan	10-K	001-36083	10.6	March 9, 2017
10.4.1	†	Form of Restricted Stock Award Agreement under 2013 Equity Incentive Plan	S-1	333-190591	10.6.1	August 13, 2013
10.4.2	†	Form of Restricted Stock Unit Award Agreement under 2013 Equity Incentive Plan	S-1	333-190591	10.6.2	August 13, 2013
10.4.3	†	Form of Stock Appreciation Right Award Agreement under 2013 Equity Incentive Plan	S-1	333-190591	10.6.3	August 13, 2013

10.4.4	†	Form of Notice of Stock Option Award and Stock Option Award Agreement under 2013 Equity Incentive Plan	S-1	333-190591	10.6.4	August 13, 2013
10.5	†	Employment Agreement regarding Change of Control or Separation of Service between the registrant and Chih-Hsiang (Thompson) Lin, dated January 28, 2007	S-1	333-190591	10.12	August 13, 2013
10.5.1	†	Amended and Restated Employment Agreement regarding Change of Control or Separation of Service between the registrant and Chih-Hsiang (Thompson) Lin, dated April 16, 2013	S-1	333-190591	10.12.1	August 13, 2013
10. 6	†	Employment Agreement, dated August 5, 2016, between Applied Optoelectronics, Inc. and Stefan J. Murry	10-Q/A	001-36083	10.20	August 9, 2016
10.7	†	Employment Agreement, dated August 5, 2016, between Applied Optoelectronics, Inc. and Mr. Joshua Yeh	10-Q/A	001-36083	10.21	August 9, 2016
10.8	†	Employment Agreement, dated August 5, 2016, between Applied Optoelectronics, Inc. and Dr. Fred Chang	10-Q/A	001-36083	10.22	August 9, 2016
10.9	†	Employment Agreement, dated August 5, 2016, between Applied Optoelectronics, Inc. and David C. Kuo	10-K	001-36083	10.9	February 28, 2018

Table of Contents

Number	Exhibit Description	Incorporated By Reference Form	File No.	Exhibit	Filing Date
10.10	Translation of Chinese form of RMB Working Capital Loan Agreement between the Global Technology Inc. and China Construction Bank	10-K	001-36083	10.11.13	March 6, 2014
10.11	Translation of Chinese form of USD Trust Receipt Loan Agreement between Global Technology Inc. and China Construction Bank	10-K	001-36083	10.12	March 6, 2014
10.12	Translation of Lease Agreement dated April 1, 2014 between the Company and Taiwan Asset Management Corporation for office and manufacturing space at No. 18, Gong 4th Rd., Gong'er Industrial Park, Linkou District, New Taipei City 244, Taiwan (R.O.C.)	8-K	001-36083	1.01	April 7, 2014
10.13	Construction Loan Agreement, dated January 26, 2015, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.1	January 30, 2015
10.13.1	Commercial Security Agreement, dated January 26, 2015, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.2	January 30, 2015
10.13.2	Promissory Note, dated January 26, 2015, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.3	January 30, 2015
10.14	Translation of Comprehensive Credit Line Contract and General Agreement, dated April 1, 2015, between Applied Optoelectronics, Inc., Taiwan Branch, and China Construction Bank, Taipei Branch	8-K	001-36083	10.1	April 7, 2015
10.14.1	Translation of Approval Notice of China Construction Bank, Taipei Branch	8-K	001-36083	10.2	April 7, 2015
10.15	Translation of Purchase and Sale Contract between Applied Optoelectronics, Inc., Taiwan Branch, and Chailease Finance Co., Ltd.	8-K	001-36083	10.1	June 2, 2015
10.15.1	Translation of Finance Lease Agreement between Applied Optoelectronics, Inc., Taiwan Branch, and Chailease Finance Co., Ltd.	8-K	001-36083	10.2	June 2, 2015
10.16		8-K	001-36083	10.1	

	Credit Agreement, dated June 30, 2015, among Applied Optoelectronics, Inc., East West Bank and Comerica Bank				July 7, 2015
10.16.1	Security Agreement, dated June 30, 2015, among Applied Optoelectronics, Inc., East West Bank and Comerica Bank	8-K	001-36083	10.2	July 7, 2015
10.16.2	Patent Security Agreement, dated June 30, 2015, among Applied Optoelectronics, Inc., East West Bank and Comerica Bank	8-K	001-36083	10.3	July 7, 2015
10.16.3	Trademark Security Agreement, dated June 30, 2015, among Applied Optoelectronics, Inc., East West Bank and Comerica Bank	8-K	001-36083	10.4	July 7, 2015
10.16.4	East West Bank Promissory Note, dated June 30, 2015, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.5	July 7, 2015
10.16.5	Comerica Bank Promissory Note, dated June 30, 2015, between Applied Optoelectronics, Inc. and Comerica Bank	8-K	001-36083	10.6	July 7, 2015

Table of Contents

		Incorporated By Reference			
Number	Exhibit Description	Form	File No.	Exhibit	Filing Date
10.16.6	2nd Lien Construction Deed of Trust, dated June 30, 2015, among Applied Optoelectronics, Inc., East West Bank and Comerica Bank	8-K	001-36083	10.7	July 7, 2015
10.17	Translation of Purchase and Sale Contract between Applied Optoelectronics, Inc., Taiwan Branch, and Chailease Finance Co., Ltd.	8-K	001-36083	10.1	July 7, 2015
10.17.1	Translation of Finance Lease Agreement and Promissory Note between Applied Optoelectronics, Inc., Taiwan Branch, and Chailease Finance Co., Ltd.	8-K	001-36083	10.2	July 7, 2015
10.18	Office Lease Agreement between Applied Optoelectronics, Inc. and GIG VAOI Breckinridge, LLC dated November 5, 2015	10-Q	001-36083	10.1	November 9, 2015
10.19	Translation of Purchase and Sale Contract, Finance Lease Agreement and Promissory Note between Applied Optoelectronics, Inc., Taiwan Branch, and Chailease Finance Co., Ltd.	8-K	001-36083	10.1	April 6, 2016
10.20	Translation of the General Crediting Agreement, dated April 8, 2016, between Applied Optoelectronics, Inc. and E. Sun Commercial Bank Co., Ltd.	8-K	001-36083	10.1	April 14, 2016
10.20.1	Translation of the Promissory Note, dated April 8, 2016, between Applied Optoelectronics, Inc. and E. Sun Commercial Bank Co., Ltd.	8-K	001-36083	10.2	April 14, 2016
10.20.2	Translation of Loan Approval Notice by E. Sun Commercial Bank Co., Ltd.	8-K	001-36083	10.3	April 14, 2016
10.21	Translation of Comprehensive Credit Line Contract and General Agreement, dated April 22, 2016, between Applied Optoelectronics, Inc., Taiwan Branch, and China Construction Bank, Taipei Branch	8-K	001-36083	10.1	April 28, 2016
10.21.1	Translation of Approval Notice of China Construction Bank, Taipei Branch, dated March 29, 2016	8-K	001-36083	10.2	April 28, 2016

10.21.2	Translation of the Promissory Note, dated April 22, 2016 between China Construction Bank – Taipei Branch and Applied Optoelectronics, Inc., Taiwan Branch	8-K	001-36083	10.3	April 28, 2016
10.22	Change in Terms Agreement, dated June 14, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.1	June 17, 2016
10.22.1	Notice of Final Agreement, dated June 14, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.2	June 17, 2016
10.22.2	Modification to the Construction Loan Agreement, dated June 14, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.3	June 17, 2016
10.23	First Amendment to Credit Agreement and Limited Consent, dated June 24, 2016, between Applied Optoelectronics, Inc., East West Bank and Comerica Bank	8-K	001-36083	10.1	June 30, 2016

Number	Exhibit Description	Incorporated By Reference Form	File No.	Exhibit	Filing Date
10.23.1	$17,500,000 Amended and Restated Revolving Credit Note, dated June 24, 2016, between Applied Optoelectronics, Inc. and Comerica Bank	8-K	001-36083	10.2	June 30, 2016
10.23.2	$2,500,000 Amended and Restated Revolving Credit Note, dated June 24, 2016, between Applied Optoelectronics, Inc. and Comerica Bank	8-K	001-36083	10.3	June 30, 2016
10.23.3	$5,000,000 Amended and Restated Term Note, dated June 24, 2016, between Applied Optoelectronics, Inc. and Comerica Bank	8-K	001-36083	10.4	June 30, 2016
10.23.4	$5,000,000 Term Note, dated June 24, 2016, between Applied Optoelectronics, Inc. and Comerica Bank	8-K	001-36083	10.5	June 30, 2016
10.23.5	$17,500,000 Amended and Restated Revolving Credit Note, dated June 24, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.6	June 30, 2016
10.23.6	$2,500,000 Amended and Restated Revolving Credit Note, dated June 24, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.7	June 30, 2016
10.23.7	$5,000,000 Amended and Restated Term Note, dated June 24, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.8	June 30, 2016
10.23.8	$5,000,000 Term Note, dated June 24, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.9	June 30, 2016
10.23.9	First Modification to Promissory Note, dated June 24, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.10	June 30, 2016
10.24	Change in Terms Agreement, dated October 5, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.1	October 7, 2016
10.24.1	Notice of Final Agreement, dated October 5, 2016, between Applied Optoelectronics, Inc. and East West Bank	8-K	001-36083	10.2	October 7, 2016
10.24.2		8-K	001-36083	10.3	

	Second Modification to the Construction Loan Agreement, dated October 5, 2016, between Applied Optoelectronics, Inc. and East West Bank				October 7, 2016
10.25	Translation of Early Termination Agreement, dated January 25, 2017, between Applied Optoelectronics, Inc. and Chailease Finance Company, Ltd.	8-K	001-36083	10.1	January 30, 2017
10.26	Loan Agreement, dated September 28, 2017, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.1	October 4, 2017
10.26.1	Promissory Note, dated September 28, 2017, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36-83	10.2	October 4, 2017
10.26.2	Addendum to the Promissory Note, dated September 28, 2017, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36-83	10.3	October 4, 2017

Table of Contents

Number	Exhibit Description	Incorporated By Reference Form	File No.	Exhibit	Filing Date
10.26.3	BB&T Security Agreement, dated September 28, 2017, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.4	October 4, 2017
10.26.4	Trademark Security Agreement, dated September 28, 2017, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.5	October 4, 2017
10.26.5	Patent Security Agreement, dated September 28, 2017, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.6	October 4, 2017
10.27	Translation of Early Termination Agreement, dated October 5, 2017, between Prime World International Holdings Ltd., and Chailease Finance Co., Ltd.	8-K	001-36083	10.1	October 11, 2017
10.28	Supply Agreement, effective November 8, 2017, between Applied Optoelectronics, Inc. and Facebook, Inc.	8-K	001-36083	10.1	February 24, 2018
10.29	Master Purchase Agreement, effective January 2, 2018, between Applied Optoelectronics, Inc. and Facebook, Inc.	8-K	001-36083	10.2	February 21, 2018
10.30	Translation of Lease Agreement between Global Technology, Inc. and the People's Republic of China in Zhejiang Province, Ningbo City, Land Resources Bureau	10-K	001-36083	10.30	February 28, 2018
10.30.1	Translation of Investment and Construction Agreement between Global Technology, Inc. and the People's Republic of China in Zhejiang Province, Ningbo City, Land Resources Bureau	10-K	001-36083	10.30.1	February 28, 2018
10.31	Translation of Construction Agreement between Global Technology, Inc. and Zhejiang Xinyu Construction Group Co., Ltd. dated February 8, 2018	10-Q	001-36083	10.5	May 8, 2018
10.32	First Amendment to Loan Agreement, dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.1	April 5, 2018
10.32.1		8-K	001-36083	10.2	

	Addendum to the Promissory Note ($60 million), dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company				April 5, 2018
10.32.2	Promissory Note ($26 million), dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.3	April 5, 2018
10.32.3	Addendum to the Promissory Note ($26 million), dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.4	April 5, 2018
10.32.4	Promissory Note ($21.5 million), dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.5	April 5, 2018

71

Table of Contents

Number	Exhibit Description	Incorporated By Reference Form	File No.	Exhibit	Filing Date
10.32.5	Addendum to the Promissory Note ($21.5 million), dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.6	April 5, 2018
10.32.6	Note Modification Agreement, dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.7	April 5, 2018
10.32.7	Assignment of Lease and Rent, dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.8	April 5, 2018
10.32.8	Texas Deed of Trust and Security Agreement, dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.9	April 5, 2018
10.32.9	Environmental Certification and Indemnity Agreement, dated March 30, 2018, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.10	April 5, 2018
10.33	Translation of the Approval Notice of Credit Line, dated June 12, 2018	8-K	001-36083	10.1	June 25, 2018
10.33.1	Translation of the Credit Facility Agreement, dated June 19, 2018, between Prime World International Holdings Ltd. and Taishin International Bank (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 25, 2018)	8-K	001-36083	10.2	June 25, 2018
10.33.2	Translation of the Agreement on Providing Collateral, dated June 19, 2018, between Prime World International Holdings Ltd., and Taishin International Bank (filed as Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 25, 2018)	8-K	001-36083	10.3	June 25, 2018
10.33.3	Translation of the NT$300 Million Promissory Note, dated June 19, 2018, between Prime World International Holdings Ltd. and Taishin International Bank (filed as Exhibit 10.4 to the	8-K	001-36083	10.4	June 25, 2018

	Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 25, 2018)				
10.33.4	Translation of the Maximum Loan (Credit Line) Agreement, dated September 21, 2018, between Global Technology, Inc. and China Construction Bank Co., Ltd.	8-K	001-36083	10.1	September 27, 2018
10.33.5	Translation of the Security Agreement, dated September 21, 2018, between Global Technology, Inc. and China Construction Bank Co., Ltd.	8-K	001-36083	10.2	September 27, 2018
10.34	Letter of Offer, dated July 26, 2018, between Prime World International Holdings, Ltd. and the Development Bank of Singapore (Taiwan) Ltd.	8-K	001-36083	10.1	October 9, 2018

Table of Contents

Number		Exhibit Description	Incorporated By Reference Form	File No.	Exhibit	Filing Date
10.34.1		Conditions Governing Facilities Granted by and Transactions Entered into with DBS Bank (Taiwan) Ltd., dated October 3, 2018, between Prime World International Holdings Ltd. and the Development Bank of Singapore (Taiwan) Ltd.	8-K	001-36083	10.2	October 9, 2018
10.35		First Amendment to Lease, dated October 8, 2018, between Applied Optoelectronics, Inc. and GIG VAOI Breckinridge, LLC.	8-K	001-36083	10.1	October 12, 2018
10.36		Translation of Purchase and Sale Contract, Finance Lease Agreement and Promissory Note between, Prime World International Holdings, Ltd., and Chailease Finance Co., Ltd.	8-K	001-36083	10.1	December 6, 2018
10.37		Translation of Agreement for Individually Negotiated Terms and Conditions between, Prime World International Holdings, Ltd., and CTBC Bank, Ltd.	8-K	001-36083	10.1	December 17, 2018
10.37.1		Translation of Approval Notice between, Prime World International Holdings, Ltd., and CTBC Bank, Ltd.	8-K	001-36083	10.2	December 17, 2018
10.37.2		Translation of General Agreement for Omnibus Credit Lines between, Prime World International Holdings, Ltd., and CTBC Bank, Ltd.	8-K	001-36083	10.3	December 17, 2018
10.37.3		Translation of Promissory Note between, Prime World International Holdings, Ltd., and CTBC Bank, Ltd.	8-K	001-36083	10.4	December 17, 2018
10.38		Translation of Purchase and Sale Contract, Finance Lease Agreement and Promissory Note between, Prime World International Holdings, Ltd. and Chailease Finance Co., Ltd.	8-K	001-36083	10.1	January 25, 2019
10.39		Second Amendment to Loan Agreement, dated February 1, 2019, between Applied Optoelectronics, Inc. and Branch Banking and Trust Company	8-K	001-36083	10.1	February 7, 2019
23.1	*	Consent of Grant Thornton LLP				
24.1						

		Power of Attorney (see the signature page in this Annual Report on Form 10-K).
31.1	*	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of The Sarbanes-Oxley Act of 2002.
31.2	*	Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of The Sarbanes-Oxley Act of 2002.

Table of Contents

Number		Exhibit Description	Incorporated By Reference Form	File No.	Exhibit	Filing Date
32.1	*	Certification of Principal Executive Officer and Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350 as adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002.				
101.INS		XBRL Instance Document				
101.SCH		XBRL Taxonomy Extension Schema Document				
101.CAL		XBRL Taxonomy Extension Calculation Linkbase Document				
101.DEF		XBRL Taxonomy Extension Definition Linkbase Document				
101.LAB		XBRL Taxonomy Extension Label Linkbase Document				
101.PRE		XBRL Taxonomy Extension Presentation Linkbase Document				

* Filed herewith.

† Management contract, compensatory plan or arrangement.

Table of Contents

SIGNATURES

Pursuant to the requirements of the Securities and Exchange Act of 1934, the registrant has duly caused this Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized, on February 26, 2019.

APPLIED OPTOELECTRONICS, INC.

By: /s/ Chih-Hsiang (Thompson) Lin
Chih-Hsiang (Thompson) Lin,
President and Chief Executive Officer and
Chairman of the Board of Directors

February 26, 2019

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Chih-Hsiang (Thompson) Lin and Stefan J. Murry, and each of them, jointly and severally, his attorneys-in-fact, each with the power of substitution, for him in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities and Exchange Act of 1934, this Form 10-K has been signed by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Date
/s/ Chih-Hsiang (Thompson) Lin CHIH-HSIANG (THOMPSON) LIN, President, Chief Executive Officer and Chairman of the Board of Directors (principal executive officer)	February 26, 2019
/s/ STEFAN J. MURRY STEFAN J. MURRY, Chief Financial Officer (principal financial officer and principal accounting officer)	February 26, 2019

Signature	Date
/s/ WILLIAM H. YEH WILLIAM H. YEH, Director	February 26, 2019
/s/ RICHARD B. BLACK RICHARD B. BLACK, Director	February 26, 2019
/s/ CHE-WEI LIN CHE-WEI LIN, Director	February 26, 2019
/s/ ALEX IGNATIEV ALEX IGNATIEV, Director	February 26, 2019
/s/ ALAN MOORE ALAN MOORE, Director	February 26, 2019
/s/ MIN-CHU (MIKE) CHEN MIN-CHU (MIKE) CHEN, Director	February 26, 2019

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders

Applied Optoelectronics, Inc.

Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of Applied Optoelectronics, Inc. (a Delaware corporation) and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income, changes in shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in the 2013 Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"), and our report dated February 26, 2019 expressed an unqualified opinion.

Basis for opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2008.

Houston, Texas

February 26, 2019

Table of Contents

Applied Optoelectronics, Inc. and Subsidiaries

CONSOLIDATED BALANCE SHEETS

(in thousands, except per share data)

	December 31, 2018	2017
ASSETS		
Current Assets		
Cash and cash equivalents	$ 55,646	$ 82,936
Restricted cash	2,358	1,012
Short-term investments	—	36
Accounts receivable - trade, net of allowance of $32 and $33, respectively	30,534	59,850
Inventories	93,256	75,768
Prepaid income tax	1,188	1,394
Prepaid expenses and other current assets	11,293	8,665
Total current assets	194,275	229,661
Property, plant and equipment, net	234,211	197,943
Land use rights, net	5,814	804
Intangible assets, net	3,977	4,007
Deferred income tax assets	21,714	12,801
Other assets, net	6,849	7,732
TOTAL ASSETS	$ 466,840	$ 452,948
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Current portion of notes payable and long-term debt	$ 23,589	$ 559
Accounts payable	29,910	43,624
Bank acceptance payable	4,628	—
Accrued income taxes	—	7,422
Accrued liabilities	19,291	19,103
Total current liabilities	77,418	70,708
Notes payable and long-term debt, less current portion	60,328	48,964
TOTAL LIABILITIES	137,746	119,672
Stockholders' equity:		
Preferred Stock; 5,000 shares authorized at $0.001 par value; no shares issued and outstanding at December 31, 2018 and December 31, 2017, respectively	—	—
Common Stock; 45,000 shares authorized at $0.001 par value; 19,810 and 19,451 shares issued and outstanding at December 31, 2018 and December 31, 2017, respectively	20	19
Additional paid-in capital	292,480	285,376
Accumulated other comprehensive income	602	9,743
Retained earnings	35,992	38,138
TOTAL STOCKHOLDERS' EQUITY	329,094	333,276
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 466,840	$ 452,948

The accompanying notes are an integral part of these consolidated financial statements.

Table of Contents

Applied Optoelectronics, Inc. and Subsidiaries

CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except share and per share data)

	Year ended December 31,		
	2018	2017	2016
Revenue, net	$ 267,465	$ 382,329	$ 260,713
Cost of goods sold	179,692	216,049	173,759
Gross profit	87,773	166,280	86,954
Operating expenses			
Research and development	49,903	35,365	31,780
Sales and marketing	9,141	8,702	6,627
General and administrative	39,497	35,262	25,527
Total operating expenses	98,541	79,329	63,934
Income (loss) from operations	(10,768)	86,951	23,020
Other income (expense)			
Interest income	282	221	247
Interest expense	(1,106)	(858)	(1,717)
Other income (expense), net	1,814	(1,788)	(547)
Total other income (expense), net	990	(2,425)	(2,017)
Income (loss) before income taxes	(9,778)	84,526	21,003
Income tax (expense) benefit	7,632	(10,575)	10,231
Net income (loss)	$ (2,146)	$ 73,951	$ 31,234
Net income (loss) per share			
Basic	$ (0.11)	$ 3.87	$ 1.82
Diluted	$ (0.11)	$ 3.67	$ 1.76
Weighted average shares used to compute net income (loss) per share:			
Basic	19,646,646	19,097,355	17,201,731
Diluted	19,646,646	20,139,105	17,712,928

The accompanying notes are an integral part of these consolidated financial statements.

Table of Contents

Applied Optoelectronics, Inc. and Subsidiaries

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(in thousands)

	Year ended December 31,		
	2018	2017	2016
Net income (loss)	$ (2,146)	$ 73,951	$ 31,234
Gain (loss) on foreign currency translation adjustment	(9,141)	10,628	(1,177)
Comprehensive income (loss)	$ (11,287)	$ 84,579	$ 30,057

The accompanying notes are an integral part of these consolidated financial statements.

Applied Optoelectronics, Inc. and Subsidiaries

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

Years ended December 2016, 2017 and 2018

(in thousands)

	Preferred Stock Number of shares	Amount	Common Stock Number of shares	Amount	Additional paid-in capital	Accumulated other comprehensive gain (loss)	Retained earnings/ (Accumulated deficit)	Stockholders' equity
January 1, 2016	—	$ —	16,839	$ 17	$ 233,336	$ 292	$ (68,247)	$ 165,398
Public offering of common stock, net	—	—	1,126	1	27,236	—	—	27,237
Issuance of shares under equity plans	—	—	276	—	—	—	—	—
Stock options exercised	—	—	159	—	859	—	—	859
Share-based compensation	—	—	—	—	3,833	—	—	3,833
Net income	—	—	—	—	—	—	31,234	31,234
Loss on foreign currency translation adjustment	—	—	—	—	—	(1,177)	—	(1,177)
Other	—	—	—	—	—	—	—	—
December 31, 2016	—	$ —	18,400	$ 18	$ 265,264	$ (885)	$ (37,013)	$ 227,384
Public offering of common stock, net	—	—	459	1	21,571	—	—	21,572
Stock options exercised, net of shares withheld for employee tax	—	—	418	—	(6,630)	—	—	(6,630)
Issuance of restricted stock, net of shares withheld for employee tax	—	—	174	—	(2,631)	—	—	(2,631)
Share-based compensation	—	—	—	—	7,795	—	—	7,795
Cumulative effect of previously unrecognized tax benefits	—	—	—	—	—	—	1,207	1,207
Net income	—	—	—	—	—	—	73,951	73,951
	—	—	—	—	—	10,628	—	10,628

Foreign currency translation adjustment								
December 31, 2017	—	$ —	19,451	$ 19	$ 285,376	$ 9,743	$ 38,138	$ 333,276
Stock options exercised, net of shares withheld for employee tax	—	—	121	—	(2,073)	—	—	(2,073)
Issuance of restricted stock, net of shares withheld for employee tax	—	—	238	1	(1,943)	—	—	(1,942)
Share-based compensation	—	—	—	—	11,120	—	—	11,120
Foreign currency translation adjustment	—	—	—	—	—	(9,141)	—	(9,141)
Net loss	—	—	—	—	—	—	(2,146)	(2,146)
December 31, 2018	—	$ —	19,810	$ 20	$ 292,480	$ 602	$ 35,992	$ 329,094

The accompanying notes are an integral part of these consolidated financial statements.

Table of Contents

Applied Optoelectronics, Inc. and Subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Year ended December 31, 2018	2017	2016
Operating activities:			
Net income (loss)	$ (2,146)	$ 73,951	$ 31,234
Adjustments to reconcile net income to net cash provided by operating activities:			
Lower of cost or market reserve adjustment to inventory	7,166	1,866	3,707
Depreciation and amortization	29,698	20,381	14,188
Amortization of debt issuance costs	42	81	—
Deferred income taxes, net	(8,964)	(114)	(11,426)
Loss (gain) on disposal of assets	7	97	126
Share-based compensation	11,120	7,795	3,833
Unrealized foreign exchange gain	(548)	330	(937)
Changes in operating assets and liabilities:			
Accounts receivable, trade	29,316	(10,080)	(11,147)
Prepaid income tax	230	(1,386)	—
Inventories	(28,403)	(21,876)	10,207
Other current assets	(2,939)	(4,266)	4,119
Accounts payable	(13,714)	7,249	9,105
Accrued income taxes	(7,390)	6,204	988
Accrued liabilities	554	4,052	3,107
Net cash provided by operating activities	14,029	84,284	57,104
Investing activities:			
Maturities of short-term investments	36	8	7,752
Purchase of property, plant and equipment	(71,854)	(66,968)	(49,442)
Purchase of land use rights	(5,591)	—	—
Proceeds from disposal of equipment	697	171	14
Deposits and prepaid for equipment	674	(2,871)	688
Purchase of intangible assets	(476)	(499)	(547)
Net cash used in investing activities	(76,514)	(70,159)	(41,535)
Financing activities:			
Proceeds from issuance of notes payable and long-term debt, net of debt issuance costs	47,849	—	28,858
Principal payments of long-term debt and notes payable	(3,133)	(42,758)	(5,855)
Proceeds from line of credit borrowings	155,078	88,003	117,172
Repayments of line of credit borrowings	(165,569)	(39,003)	(163,068)
Proceeds from bank acceptance payable	4,595	—	5,850
Repayments of bank acceptance payable	—	(309)	(8,398)
Repayments of note payable	—	—	(1,000)
Exercise of stock options	120	1,460	859

Payments of tax withholding on behalf of employees related to share-based compensation	(4,137)	(10,721)	—
Proceeds from common stock offering, net	—	21,572	27,237
Net cash provided by financing activities	34,803	18,244	1,655
Effect of exchange rate changes on cash	1,738	(385)	1,947
Net increase (decrease) in cash, cash equivalents and restricted cash	(25,944)	31,984	19,171
Cash, cash equivalents and restricted cash at beginning of period	83,948	51,964	32,793
Cash, cash equivalents and restricted cash at end of period	$ 58,004	$ 83,948	$ 51,964
Supplemental disclosure of cash flow information:			
Cash paid for:			
Interest	$ 848	$ 872	$ 1,689
Income taxes	8,470	5,835	(12)
Non-cash investing and financing activities:			
Net change in accounts payable related to property and equipment additions	$ (1,151)	$ 4,582	$ –

The accompanying notes are an integral part of these consolidated financial statements.

Table of Contents

Applied Optoelectronics, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE A—ORGANIZATION AND OPERATIONS

Applied Optoelectronics, Inc. ("AOI" or the "Company") was incorporated in the State of Texas on February 28, 1997. In March 2013, the Company converted into a Delaware corporation. The Company is a leading, vertically integrated provider of fiber-optic networking products, primarily for four networking end-markets: internet data center, cable television, telecommunications and fiber-to-the-home. The Company designs and manufactures a wide range of optical communications products at varying levels of integration, from components, subassemblies and modules to complete turn-key equipment.

The Company has manufacturing and research and development facilities located in the U.S., Taiwan and China. At its corporate headquarters and manufacturing facilities in Sugar Land, Texas, the Company primarily manufactures lasers and laser components and performs research and development activities for laser component and optical module products. The Company operates in Taipei, Taiwan and Ningbo, China through its wholly-owned subsidiary Prime World International Holdings, Ltd. ("Prime World", incorporated in the British Virgin Islands). Prime World is the parent of Global Technology, Inc. ("Global", incorporated in the People's Republic of China). Through Global, the Company primarily manufactures certain of its data center transceiver products, including subassemblies and transceivers, as well as Cable TV Broadband ("CATV") systems and equipment, and performs research and development activities for the CATV products. Prime World also operates a branch in Taiwan, which primarily manufactures transceivers. The Company also has a research and development center in Duluth, Georgia.

NOTE B—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

1. Basis of Presentation

The consolidated financial statements include the accounts of the Company and all of its wholly-owned subsidiaries and are prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). All intercompany balances and transactions have been eliminated in consolidation.

2. Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported. Actual results could differ from those estimates in the consolidated financial statements and accompanying notes. Significant estimates and assumptions that impact these financial statements relate to, among other things, allowance for doubtful accounts, inventory reserve, product warranty costs, share-based compensation expense, estimated useful lives of property and equipment, and taxes.

3. Foreign Currency Translation

The functional currency for the Company's foreign operations is the local currency. The assets and liabilities of these operations are translated at the rate of exchange in effect on the balance sheet date and sales and expenses are translated at monthly average rates. The resulting gains or losses from translation are included in a separate component of other comprehensive income. There is no tax effect on the foreign currency translation because it is management's intent to reinvest the undistributed earnings of its foreign subsidiaries indefinitely. Transaction gains and losses resulting from re-measuring monetary asset and liability accounts that are denominated in a currency other than a subsidiary's functional currency are included in net foreign exchange gain and loss and are included in net income except for those intercompany balances that are long-term investments in nature. The translation gain or losses from the long-term investment nature of intercompany balances are treated as translation adjustments and included in comprehensive income.

4. Fair Value

The carrying value of cash, cash equivalents and short-term investments, accounts receivable, accounts payable, and note receivable approximate their historical fair values due to their short-term maturities. The carrying value of the debt approximates its fair value due to the short-term nature of the debt since it renews frequently at current interest rates. Management believes that the interest rates in effect at each year end represent the current market rates for similar borrowings.

The fair value measurement standard defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The standard characterizes inputs used in determining fair value according to a hierarchy that prioritized inputs based on the degree to which they are observable. The three levels of the fair value hierarchy are as follows:

Level 1—Inputs represent quoted prices in active markets for identical assets or liabilities.

Level 2—Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3—Inputs that are not observable from objective sources, such as management's internally developed assumptions used in pricing an asset or liability.

Assets and liabilities that are required to be fair valued on a recurring basis include money market funds, marketable securities, equity instruments and contingent consideration.

Money market funds are valued with Level 1 inputs, using quoted market prices, and are included in cash and cash equivalents on the Company's consolidated balance sheets.

5. Cash and Cash Equivalents

The Company considers all highly liquid securities with an original maturity of ninety days or less from the date of purchase to be cash equivalents. Cash in foreign accounts was approximately $8.0 million and $21.0 million at December 31, 2018 and 2017, respectively.

The Company maintains cash and cash equivalents at U.S. financial institutions for which the combined account balances in individual institutions may exceed Federal Deposit Insurance Corporation ("FDIC") insurance coverage and, as a result, there is a concentration of credit risk related to amounts on deposit in excess of FDIC insurance coverage. As of December 31, 2018, approximately $46.1 million of U.S. deposits were not covered by FDIC insurance. The Company has not experienced any losses and believes it is not exposed to any significant risk with such accounts.

6. Restricted Cash/Compensating Balances

The Company is required to maintain a compensation deposit equal to 30% of its bank acceptance notes to vendors. The Company's Taiwan and China subsidiaries also use time deposits for customs guarantees. As of December 31, 2018 and 2017, the amount of restricted cash was $2.4 million and $1.0 million, respectively.

7. Accounts Receivable/Allowance for Doubtful Accounts

The Company carries its accounts receivable at the net amount that it estimates to be collectible. An allowance for uncollectable accounts is maintained through a charge against operations. The allowance is determined by management review of outstanding amounts per customer, historical payments and the aging of accounts.

8. Concentration of Credit Risk and Significant Customers

Financial instruments which potentially subject the Company to concentrations of credit risk include cash, cash equivalents and accounts receivable. The Company places all cash and cash equivalents with high-credit quality financial institutions.

The Company performs ongoing credit valuations of its customers' financial condition whenever deemed necessary and generally does not require deposits or collateral to support customer receivables. The historical amount of losses on uncollectible accounts has been within the Company's estimates. The Company generates much of its revenue from a limited number of customers. In 2018, 2017 and 2016, its top five customers represented 85.7%, 86.1% and 87.8% of its revenue, respectively. In 2018, Facebook, Microsoft and Amazon represented 38.3%, 22.1% and 12.1% of its revenue, respectively. In 2017, Amazon, Facebook and Microsoft represented 35.4%, 28.6% and 13.8% of its revenue, respectively. In 2016, Amazon, Microsoft and Arris represented 54.6%, 18.3% and 5.8% of its revenue, respectively. The five largest receivable balances for customers represented an aggregate of 70.2%, and 82.6% of total accounts receivable at December 31, 2018 and 2017, respectively. As of December 31, 2018, Microsoft, Amazon and Facebook represented 23.2%, 18.7% and 12.6% of total accounts receivable, respectively. As of December 31, 2017, Amazon and Microsoft represented 36.1% and 19.5% of total accounts receivable, respectively. No other customer represented greater than ten percent of revenue in 2018, 2017 or 2016 or greater than ten percent of total accounts receivable at December 31, 2018 or 2017.

9. Inventories

Inventories are stated at the lower of cost (average-cost method) or market. Work in process and finished goods includes materials, labor and allocated overhead. The Company assesses the valuation of its inventory on a periodic basis and provides write-offs for the value of estimated excess and obsolete inventory based on estimates of future demand.

10. Property, Plant and Equipment

Property, plant and equipment are stated at cost, net of accumulated depreciation and amortization. The Company calculates depreciation using the straight-line method over the following estimated useful lives:

	Useful lives
Buildings	20 - 42 years
Land improvements	10 years
Machinery and equipment	2 - 20 years
Furniture and fixtures	3 - 7 years
Computer equipment and software	3 - 10 years
Leasehold improvements	The shorter of the life of the applicable lease or the useful life of the improvement
Transportation equipment	5 years

Major improvements are capitalized and expenditures for maintenance and repairs are expensed as incurred. Construction in progress represents property, plant and equipment under construction or being installed. Costs include original cost, installation, construction and other direct costs which include interest on borrowings used to finance the asset. Construction in progress is transferred to the appropriate fixed asset account and depreciation commences when the asset has been substantially completed and placed in service.

Land use rights allow the Company rights for 50 years to certain land in Ningbo, China on which the Company built a facility that included office space, manufacturing operations and employee dormitories. The land use rights are recorded at cost and are amortized on the straight-line basis over the useful life of the related contract. The land use rights expire on October 7, 2054 and December 28, 2067.

11. Intangible Assets

Intangible assets consist of intellectual property that is stated at cost less accumulated amortization. As of December 31, 2018, the Company had 265 total patents issued. The costs incurred to obtain such patents have been capitalized and are being amortized over an estimated life of 20 years. The Company periodically evaluates its intangible assets to determine whether events or changes in circumstances indicate that a patent or trademark may not be applicable to the Company’s current products or is no longer in use. If such a determination is made, the intangible asset is impaired and the remaining value of the patent or trademark will be expensed at that time.

Table of Contents

12. Impairment of Long-Lived Assets

The Company accounts for impairment of long-lived assets in accordance with Accounting Standards Codification ("ASC") 360, Property, Plant and Equipment, ("ASC 360"). Long-lived assets consist primarily of property, plant and equipment. In accordance with ASC 360, the Company evaluates the carrying value of long-lived assets when it determines a triggering event has occurred, or whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. When indicators exist, recoverability of assets is measured by a comparison of the carrying value of the asset group to the estimated undiscounted future net cash flows expected to be generated by the asset. Examples of such triggering events include a significant disposal of a portion of such assets, an adverse change in the market involving the business employing the related asset, a significant decrease in the benefits realized from an acquired business, difficulties or delays in integrating the business, and a significant change in the operations of an acquired business. If such assets are determined not to be recoverable, the Company perform an analysis of the fair value of the asset group and will recognize an impairment loss when the fair value is less than the carrying amounts of such assets. The fair value, based on reasonable and supportable assumptions and projections, require subjective judgments. Depending on the assumptions and estimates used, the appraised fair value projected in the evaluation of long-lived assets can vary within a range of outcomes. The Company considers the likelihood of possible outcomes in determining the best estimate for the fair value of the assets. The Company did not record any asset impairment charges in 2018 or 2017.

13. Comprehensive Income (Loss)

ASC 220, Comprehensive Income, ("ASC 220") establishes rules for reporting and display of comprehensive income and its components. ASC 220 requires that unrealized gains and losses on the Company's foreign currency translation adjustments be included in comprehensive income (loss).

14. Share-based Compensation

The Company accounts for share-based compensation in accordance with the provisions of ASC 718, Compensation—Stock Compensation. Share-based compensation expense is recognized based on the estimated grant date fair value in order to recognize compensation cost for those shares expected to vest. Compensation cost is recognized on a straight-line basis over the vesting period of the options and adjusted as forfeitures occur.

15. Revenue Recognition

The Company derives revenue from the manufacture and sale of fiber optic networking products. Revenue recognition follows the criteria of ASC 606, Revenue from Contracts with Customers. Specifically, the Company recognizes revenue when obligations under the terms of a contract with its customer are satisfied; generally this occurs with the transfer of control of products or services.

16. Product Warranty

The Company generally offers a one-year limited warranty for its products but it can extend for longer periods of three to five years for certain products sold to certain customers. The Company estimates the costs that may be incurred under its basic limited warranty and records a liability for the amount of such costs at the time when product defects occur. Factors that affect the Company's warranty liability include the historical and anticipated rates of warranty claims and cost to repair. While the Company believes that its warranty accrual is adequate, the actual warranty costs may exceed the accrual, cost of sales will increase in the future. As of December 31, 2018 and 2017, the amount of accrued warranty was $1.0 million and $1.1 million, respectively.

17. Advertising Costs

Advertising costs are charged to operations as incurred and amounted to approximately $0.5 million, $0.3 million and $0.2 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Table of Contents

18. Research and Development

Research and development costs are charged to operations as incurred. The Company receives reimbursement for certain development costs, which are capitalized when incurred, up to the reimbursable amount.

19. Income Taxes

The Company accounts for income taxes in accordance with the provisions of ASC 740, Income Taxes. The liability method is used to account for deferred income taxes. Under the liability method, deferred tax assets and liabilities are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse. The ability to realize deferred tax assets is evaluated annually and a valuation allowance is provided if it is unlikely that the deferred tax assets will not give rise to future benefits in the Company's tax returns.

The Company records uncertain tax positions in accordance with ASC 740 on the basis of a two-step process in which (1) it determines whether it is more likely than not that the tax positions will be sustained on the basis of the technical merits of the position and (2) for those tax positions that meet the more-likely-than-not recognition threshold, it recognizes the largest amount of tax benefit that is more than 50 percent likely to be realized upon ultimate settlement with the related tax authority.

The Company recognizes interest and penalties related to unrecognized tax benefits on the income tax expense line in the accompanying consolidated statement of operations. Accrued interest and penalties are included on the related tax liability line in the consolidated balance sheet.

20. Recent Accounting Pronouncements

Recent Accounting Pronouncements Adopted in 2018

In October 2016, the FASB issued ASU No. 2016-16, Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory, which requires the recognition of the income tax consequences of an intra-entity transfer of an asset, other than inventory, when the transfer occurs. The Company adopted the guidance on January 1, 2018, with no impact on the financial statements.

In May 2014, the FASB issued Accounting Standards Update (ASU) No. 2014-09, Revenue from Contracts with Customers (Topic 606). The new revenue recognition guidance establishes a new control-based revenue recognition model, changes the basis for deciding when revenue is recognized over time or at a point in time, provides new and more detailed guidance on specific topics and expands and improves disclosures about revenue. The Company evaluated its revenues and the new guidance had immaterial impact to recognition practices upon adoption on January 1, 2018. As part of the adoption, the Company elected to apply the new guidance on a modified retrospective basis. The Company did not record a cumulative effect adjustment to retained earnings for initially applying the new guidance as no revenue recognition differences were identified in the timing or amount of revenue. See Note C, "Revenue Recognition" for additional information on the required disclosures related to the impact of adopting this standard.

The FASB issued ASU No. 2016-01, Financial Instruments – Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities with further clarifications made in February 2018 with the issuance of ASU No. 2018-03. The amended guidance requires certain equity investments that are not consolidated and not accounted for under the equity method to be measured at fair value with changes in fair value recognized in net income rather than as a component of accumulated other comprehensive income (loss). It further states that an entity may choose to measure equity investments that do not have readily determinable fair values using a quantitative approach, or measurement alternative, which is equal to its cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. The Company adopted this amended guidance on January 1, 2018, with no impact on its financial statements.

In March 2018, the FASB issued ASU No. 2018-05, Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118. ASU No. 2018-05, effective 2018, expands income tax accounting and disclosure guidance to include SAB 118 issued by the SEC in December 2017. SAB 118 provides guidance on accounting for the income tax effects of the U.S. Tax Cuts and Jobs Act of 2017 (the “Tax Act”) and among other things allows for a measurement period not to exceed one year for companies to finalize the provisional amounts recorded as of December 31, 2017. See Note M, “Income Taxes” for additional information on the Company’s accounting for the Tax Act.

In January 2018, the FASB released guidance on the accounting for tax on the global intangible low-taxed income ("GILTI") provisions of the Tax Cuts and Jobs Act (the "Tax Act"). The GILTI provisions impose a tax on foreign income in excess of a deemed return on tangible assets of foreign corporations. The guidance indicates that either accounting for deferred taxes related to GILTI inclusions or to treat any taxes on GILTI inclusions as period cost are both acceptable methods subject to an accounting policy election. Effective the first quarter of 2018, the Company elected to treat any potential GILTI inclusions as a period cost as there was no material impact from GILTI inclusions. See Note M, “Income Taxes” for additional information on the Company’s accounting for the Tax Act

Recent Accounting Pronouncements Yet to be Adopted

On February 25, 2016, the FASB released ASU No. 2016-02, Leases, to complete its project to overhaul lease accounting. The ASU codifies ASC 842, Leases, which will replace the guidance in ASC 840. The new standard establishes a right-of-use model (ROU) that requires a lessee to recognize a ROU asset and lease liability on the balance sheet for all leases with a term longer than 12 months. The guidance is effective for public business entities in fiscal years beginning after December 15, 2018. The Company expects to adopt the new standard on January 1, 2019 and has elected to recognize a cumulative effect adjustment to the beginning balance sheet of retained earnings in the period of adoption pursuant to ASU 2018-11. The Company expects to use the package of practical expedients that allows it not reassess under the new standard its prior conclusion about lease identification, lease classifications and initial indirect costs. The Company will adopt this ASU on January 1, 2019 with a cumulative adjustment to retained earnings. The Company believes the most significant effects relate to the recognition of new ROU assets and lease liabilities on its balance sheet for its Taiwan branch. Upon adoption, the Company expects to recognize additional operating liabilities in approximately $10.3 million, with corresponding ROU assets of approximately $9.3 million based on the present value of the remaining minimum rental payments under the current leasing standards for existing operating leases. The Company has additionally assessed the impact of Topic 842 on its internal controls over financial reporting.

In June 2016, the FASB issued ASU 2016-13 Financial Instruments - Credit Losses, Measurement of Credit Losses on Financial Instruments, which changes the way entities measure credit losses for most financial assets and certain other instruments that are not measured at fair value through net earnings. The new standard is effective for annual periods beginning after December 15, 2019, including interim periods within those annual periods. The Company is evaluating the impact the adoption of the new standard will have on its consolidated financial statements and related disclosures.

NOTE C—REVENUE RECOGNITION

Revenue from Contracts with Customers

On January 1, 2018, the Company adopted Topic 606 using the modified retrospective method. Under the modified retrospective method, the Company did not record a cumulative effect adjustment to retained earnings for initially applying the new guidance as no revenue recognition differences were identified in the timing or amount of revenue. Results for reporting periods beginning after January 1, 2018 are presented under Topic 606, while prior period amounts are not adjusted and continue to be reported in accordance with its historic accounting under Revenue Recognition ("Topic 605").

The adoption of Topic 606 represents a change in accounting principle that will provide financial statement readers with enhanced revenue recognition disclosures. In accordance with Topic 606, revenue is recognized when obligations under the terms of a contract with its customer are satisfied; generally this occurs with the transfer of control of products or services. Revenue is measured as the amount of consideration the Company expects to receive in exchange for transferring products or providing services. Certain customers may receive cash and/or non-cash incentives, which are accounted for as variable consideration. To achieve this core principle, the Company applies the following five steps:

1. Identify the contract with a customer

A contract with a customer exists when (i) the Company enters into an agreement with a customer that defines each party's rights regarding the products or services to be transferred and identifies the payment terms related to these products or services, (ii) both parties to the contract are committed to perform their respective obligations, (iii) the contract has commercial substance, and (iv) the Company determines that collection of substantially all consideration for products or services that are transferred is probable based on the customer's intent and ability to pay the promised consideration. The Company applies judgment in determining the customer's ability and intention to pay, which is based on a variety of factors including the customer's payment history or, in the case of a new customer, published credit and financial information pertaining to the customer.

2. Identify the performance obligations in the contract

Performance obligations promised in a contract are identified based on the products or services that will be transferred to the customer that are both capable of being distinct, whereby the customer can benefit from the product or service either on its own or together with other resources that are readily available from third parties or from the Company, and are distinct in the context of the contract, whereby the transfer of the products or services is separately identifiable from other promises in the contract. To the extent a contract includes multiple promised products or services, the Company must apply judgment to determine whether promised products or services are capable of being distinct and distinct in the context of the contract. If these criteria are not met, the promised products or services are accounted for as a combined performance obligation. The Company has elected to account for shipping and handling activities as a fulfillment cost as permitted by the standard.

3. Determine the transaction price

The transaction price is determined based on the consideration to which the Company will be entitled in exchange for transferring products or services to the customer. To the extent the transaction price is variable, revenue is recognized at an amount equal to the consideration to which the Company expects to be entitled. This estimate includes customer sales incentives which are accounted for as a reduction to revenue and estimated using either the expected value method or the most likely amount method, depending on the nature of the program. The Company will adjust its consideration for any rebates if it is more likely than not that the rebate conditions will be met.

4. Allocate the transaction price to performance obligations in the contract

If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. Contracts that contain multiple performance obligations require an allocation of the transaction price to each performance obligation based on a relative standalone selling price basis unless a portion of the variable consideration related to the contract is allocated entirely to a performance obligation. The Company determines standalone selling price based on the price at which the performance obligation is sold separately.

5. Recognize revenue when or as the Company satisfies a performance obligation

The Company generally satisfies performance obligations at a point in time. Revenue is recognized based on the transaction price at the time the related performance obligation is satisfied by transferring a promised product or service to a customer.

Disaggregation of Revenue

Revenue is classified based on the location of where the product is manufactured. For additional information on the disaggregated revenues by geographical region, see Note P, "Segments and Geographic Information."

Table of Contents

Revenue is also classified by major product category and is presented below (in thousands):

	Years ended December 31,					
	2018	% of Revenue	2017	% of Revenue	2016	% of Revenue
Data Center	$ 200,236	74.9%	$ 306,712	80.2%	$ 201,314	77.2%
CATV	51,699	19.3%	60,756	15.9%	43,567	16.7%
Telecom	13,159	4.9%	12,899	3.4%	12,938	5.0%
FTTH	818	0.3%	490	0.1%	1,567	0.6%
Other	1,553	0.6%	1,472	0.4%	1,327	0.5%
Total Revenue	$ 267,465	100.0%	$ 382,329	100.0%	$ 260,713	100.0%

NOTE D—CASH, CASH EQUIVALENTS AND RESTRICTED CASH

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the statement of financial position that sum to the total of the same such amounts in the statement of cash flows (in thousands):

	As of December 31,	
	2018	2017
Cash and cash equivalents	$ 55,646	$ 82,936
Restricted cash	2,358	1,012
Total cash, cash equivalents and restricted cash shown in the statement of cash flows	$ 58,004	$ 83,948

Restricted cash includes guarantee deposits for customs duties and compensating balances required for certain credit facilities.

NOTE E—EARNINGS PER SHARE

Basic net income (loss) per share has been computed using the weighted-average number of shares of common stock outstanding during the period. Diluted net income (loss) per share has been computed using the weighted-average number of shares of common stock and dilutive potential common shares from options and restricted stock units outstanding during the period. In periods with net losses, normally dilutive shares become anti-dilutive. Therefore, basic and dilutive earnings per share are the same.

The following table presents the computation of the basic and diluted net income (loss) per share for the periods indicated (in thousands, except per share amounts):

	Year ended December 31,		
	2018	2017	2016
Numerator:			
Net income (loss)	$ (2,146)	$ 73,951	$ 31,234
Denominator:			
Weighted average shares used to compute net income (loss) per share			
Basic	19,647	19,097	17,202
Effect of dilutive options and restricted stock units	—	1,042	511
Diluted	19,647	20,139	17,713
Net income (loss) per share			
Basic	$ (0.11)	$ 3.87	$ 1.82
Diluted	$ (0.11)	$ 3.67	$ 1.76

The following potentially dilutive securities were excluded from diluted net income (loss) per share as their effect would have been antidilutive during periods of net loss:

	As of December 31,		
	2018	2017	2016
Employee stock options	263	—	—
Restricted stock units	117	—	—
Total antidilutive shares	380	—	—

NOTE F—INVENTORIES

At December 31, 2018 and 2017, inventories consisted of the following (in thousands):

	As of December 31,	
	2018	2017
Raw materials	$ 30,214	$ 26,648
Work in process and sub-assemblies	49,192	31,060
Finished goods	13,850	18,060
Total inventory	$ 93,256	$ 75,768

For the years ended December 31, 2018, 2017 and 2016, the lower of cost or market reserve adjustment expensed for inventory was $7.2 million, $1.9 million and $3.7 million, respectively. For the years December 21, 2018, 2017 and 2016, the direct inventory write-offs related to scrap and damaged inventories were $3.5 million, $6.8 million and $5.0 million, respectively.

NOTE G—PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment consisted of the following for the periods indicated (in thousands):

	As of December 31,	
	2018	2017
Land improvements	$ 806	$ 806
Building and improvements	80,960	78,785
Machinery and equipment	214,718	168,993
Furniture and fixtures	5,043	4,663
Computer equipment and software	9,709	8,248
Transportation equipment	658	718
	311,894	262,213
Less accumulated depreciation and amortization	(95,233)	(70,194)
	216,661	192,019
Construction in progress	16,449	4,823
Land	1,101	1,101
Total property, plant and equipment, net	$ 234,211	$ 197,943

For the years ended December 31, 2018, 2017 and 2016, depreciation expense of property, plant and equipment was $29.2 million $19.9 million and $13.7 million, respectively.

Table of Contents

NOTE H—INTANGIBLE ASSETS

Intangible assets consisted of the following for the periods indicated (in thousands):

	2018 Gross Amount	Accumulated amortization	Intangible assets, net
Patents	$ 6,983	$ (3,008)	$ 3,975
Trademarks	15	(13)	2
Total intangible assets	$ 6,998	$ (3,021)	$ 3,977

	2017 Gross Amount	Accumulated amortization	Intangible assets, net
Patents	$ 6,524	$ (2,519)	$ 4,005
Trademarks	14	(12)	2
Total intangible assets	$ 6,538	$ (2,531)	$ 4,007

For the years ended December 31, 2018, 2017 and 2016, amortization expense for intangible assets, included in general and administrative expenses on the income statement, was $0.5 million each year. The remaining weighted average amortization period for intangible assets is approximately 8 years.

At December 31, 2018, future amortization expense for intangible assets is estimated to be (in thousands):

2019	$ 505
2020	506
2021	506
2022	506
2023	506
thereafter	1,448
	$ 3,977

NOTE I—FAIR VALUE OF FINANCIAL INSTRUMENTS

The following table presents a summary of the Company's financial instruments measured at fair value on a recurring basis as of December 31, 2018 (in thousands):

	Quoted prices in active markets for identical assets (Level 1)	Significant other observable remaining inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets:				
Cash and cash equivalents	$ 55,646	$ —	$ —	$ 55,646
Restricted cash	2,358	—	—	2,358
Total assets	$ 58,004	$ —	$ —	$ 58,004
Liabilities:				
Bank acceptance payable	—	$ 4,628	—	$ 4,628
Total liabilities	$ —	$ 4,628	$ —	$ 4,628

Table of Contents

The following table presents a summary of the Company's financial instruments measured at fair value on a recurring basis as of December 31, 2017 (in thousands):

	Quoted prices in active markets for identical assets (Level 1)	Significant other observable remaining inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets:				
Cash and cash equivalents	$ 82,936	$ —	$ —	$ 82,936
Restricted cash	1,012	—	—	1,012
Short term investments	36	—	—	36
Total assets	$ 83,984	$ —	$ —	$ 83,984
Liabilities:				
Bank acceptance payable	—	$ —	—	$ —
Total liabilities	$ —	$ —	$ —	$ —

NOTE J—NOTES PAYABLE AND LONG-TERM DEBT

Notes payable and long-term debt consisted of the following for the periods indicated (in thousands):

	December 31, 2018	2017
Revolving line of credit with a U.S. bank up to $60,000 with interest at LIBOR plus 1.4%, maturing September 28, 2020	$ 23,104	$ 49,000
Term loan with a U.S. bank with monthly payments of principal and interest at LIBOR plus 1.15%, maturing April 1, 2024	20,067	—
Term loan with a U.S. bank with monthly payments of principal and interest at LIBOR plus 1.3%, maturing between April 1, 2023 and December 18, 2023	19,164	—
Revolving line of credit with a Taiwan bank up to $9,767 with interest at 2%, maturing May 31, 2019	3,256	—
Revolving line of credit with a Taiwan bank up to $7,000 with interest at 1.5%, maturing July 26, 2019	3,550	—
Notes payable to a finance company due in monthly installments with 4.5% interest, which matured May 27, 2018	—	559

Notes payable to a finance company due in monthly installments with 3.4% interest, maturing November 30, 2021	6,331	—
Revolving line of credit with a China bank up to $18,599 with interest ranging from 3.7% to 4.6%	8,652	—
Sub-total	84,124	49,559
Less debt issuance costs, net	(207)	(36)
Grand total	83,917	49,523
Less current portion	(23,589)	(559)
Non-current portion	$ 60,328	$ 48,964

Bank Acceptance Notes Payable		
Bank acceptance notes issued to vendors with a zero percent interest rate	$ 4,628	$ —

The current portion of long-term debt is the amount payable within one year of the balance sheet date of December 31, 2018.

Table of Contents

Maturities of notes payable and long-term debt are as follows for the future years ending December 31 (in thousands):

2019	$ 23,589
2020	31,375
2021	8,160
2022	6,242
2023	5,369
2024 and thereafter	9,182
Total outstanding	$ 83,917

On September 28, 2017, the Company entered into a Loan Agreement, a Promissory Note, an Addendum to the Promissory Note, a BB&T Security Agreement, a Trademark Security Agreement, and a Patent Security Agreement (together the “Credit Facility”) with Branch Banking and Trust Company (“BB&T”). The Credit Facility provides the Company with a three year, $50 million, revolving line of credit. Borrowings under the Credit Facility will be used for general corporate purposes. The Company makes monthly payments of accrued interest with the final monthly payment being for all principal and all accrued interest not yet paid. The Company’s obligations under the Credit Facility are secured by the Company’s accounts receivable, inventory, intellectual property, and all business assets with the exception of real estate and equipment. Borrowings under the Credit Facility bear interest at a rate equal to the one-month LIBOR plus 1.50%. The Credit Facility requires the Company to maintain certain financial covenants and also contains representations and warranties, and events of default applicable to the Company that are customary for agreements of this type.

On March 30, 2018, the Company executed a First Amendment to Loan Agreement, a Note Modification Agreement and Addendum to Promissory Note for $60 million, a Promissory Note and Addendum to Promissory Note for $26 million, a Promissory Note and Addendum to Promissory Note for $21.5 million, a Texas Deed of Trust and Security Agreement, an Assignment of Lease and Rent, and an Environmental Certification and Indemnity Agreement, (collectively, the “Amended Credit Facility”), with BB&T. The Amended Credit Facility amends the Company’s three-year $50 million line of credit with BB&T, originally executed on September 28, 2017 (the “Existing Loan”). The Amended Credit Facility (1) increases the principal amount of the three-year line of credit from $50 million to $60 million (the “Line of Credit”); (2) allows the Company to borrow an additional $26 million from BB&T in the form of a five-year capital expenditure loan (the “CapEx Loan”) and (3) allows the Company to borrow an additional $21.5 million in the form of a seventy-month real estate term loan (the “Term Loan”) to refinance the Company’s plant and facilities in Sugar Land, Texas. Borrowings under the Line of Credit bear interest at a rate equal to the one-month LIBOR plus a Line of Credit margin ranging between 1.40% and 2.0%. Borrowings under the CapEx Loan bear interest at a rate equal to the one-month LIBOR plus a CapEx Loan margin ranging between 1.30% and 2.0%. Borrowings under the Term Loan bear interest at a rate equal to the one-month LIBOR plus a Term Loan margin ranging between 1.15% and 2.0%. The Company is required to make monthly payments of principal and accrued interest with the final monthly payments being for all principal and accrued interest not yet paid. The Company’s obligations under the Amended Credit Facility are secured by the Company’s accounts receivable, inventory, equipment, intellectual property, real property, and virtually all business assets. As of December 31, 2018, the Company was in compliance with all covenants under the Amended Credit Facility. As of December 31, 2018, $23.1 million was outstanding under the Line of Credit, $20.1 million was outstanding under the Term Loan and $19.2 million was outstanding under the CapEx Loan.

On May 27, 2015, the Company’s Taiwan branch entered into a Purchase and Sale Contract and a Finance Lease Agreement with Chailease Finance Co, Ltd. (“Chailease”) in connection with certain equipment, structured as a sale lease-back transaction. Pursuant to the Purchase and Sale contract, the Company’s Taiwan branch sold certain equipment to Chailease for a purchase price of 180,148,532 New Taiwan dollars, approximately $6.0 million, and simultaneously leased the equipment back from Chailease pursuant to the Finance Lease Agreement. The monthly lease payments range from 3,784,000 New Taiwan dollars, approximately $0.1 million, to 3,322,413 New Taiwan dollars, approximately $0.1 million, during the term of the Finance Lease Agreement, including an initial payment in an amount of 60,148,532 New Taiwan dollars, approximately $2.0 million. The Finance Lease Agreement had a three-year term, with monthly payments, that matured on May 27, 2018. The title to the equipment was transferred to the Company’s Taiwan branch upon the expiration of the Finance Lease Agreement.

On June 19, 2018, Prime World entered into a one year revolving credit facility totaling 300 million New Taiwan dollars (“NT$”), or approximately $9.8 million, (the “Taiwan Credit Facility”) with Taishin International Bank

Table of Contents

in Taiwan (the “Bank”). Borrowing under the Taiwan Credit Facility will be used for short-term working capital. Prime World may draw upon the Taiwan Credit Facility from June 19, 2018 until May 31, 2019. The term of each draw shall be either 90 or 120 days. Borrowings under the Taiwan Credit Facility bear interest at a rate of 2.00% for 90 day draws and 1.95% for 120 day draws. At the end of the draw term, Prime World is required to make payments for all principal and accrued interest. The agreements for the Taiwan Credit Facility contain representations and warranties and events of default applicable to Prime World that are customary for agreements of this type. As of December 31, 2018, $3.3 million was outstanding under the Taiwan Credit Facility.

On October 3, 2018, Prime World entered into a revolving credit facility for up to $7 million, (the “Revolving Credit Facility”) with the Development Bank of Singapore (Taiwan) Ltd. (“DBS”). Borrowing under the Revolving Credit Facility will be used for short-term working capital. Prime World may draw upon the Revolving Credit Facility from October 3, 2018 until July 26, 2019. The term of each draw shall be either 60 or 90 days depending on the purpose of the draw. Borrowings under the Revolving Credit Facility bear interest at a rate equal to DBS’s cost of funds rate plus 1.25% for draws in U.S. Dollars and 1.35% plus the Bank’s cost of funds rate for draws in New Taiwan Dollars. As of the execution of the Revolving Credit Facility, DBS’s cost of fund’s rate is 0.77% for loans made in New Taiwan Dollars and 2.54% for loans made in U.S. Dollars. DBS’s cost of fund’s rate is adjusted daily. Prime World is required to make monthly payments of accrued interest with the final monthly payment being for all principal and all accrued interest not yet paid. Prime World’s obligations under the Revolving Credit Facility is secured by promissory notes executed between Prime World and DBS at the time of each draw. The agreements for the Revolving Credit Facility contain representations and warranties and events of default applicable to the Prime World that are customary for agreements of this type. As of December 31, 2018, $3.6 million was outstanding under the Revolving Credit Facility.

On November 29, 2018, Prime World entered into a Purchase and Sale Contract (the “Sale Contract”) and a Finance Lease Agreement with Chailease Finance Co., Ltd. (“Chailease”) in connection with certain equipment, structured as a sale lease-back transaction. Pursuant to the Sale Contract, Prime World sold certain equipment to Chailease for a purchase price of NT$267,340,468, or approximately $8.7 million. Simultaneously, Prime World leased the equipment back from Chailease for a term of three-years, pursuant to the Finance Lease Agreement. Prime World is obligated to pay an initial payment of NT$67,340,468, or approximately $2.2 million, thereafter the monthly lease payments range from NT$5,571,229, or $0.2 million, to NT$6,139,188, or approximately $0.2 million. Based on the lease payments made under the Finance Lease Agreement, the annual interest rate is calculated to be 3.5%. Upon an event of default under the Finance Lease Agreement, Prime World’s payment obligation will be secured by a promissory note to Chailease in the amount of NT$210,601,605, or approximately $6.8 million, subject to certain terms and conditions. The title of the equipment will be transferred to Prime World upon expiration of the Finance Lease Agreement. As of December 31, 2018, $6.3 million was outstanding under the Finance Lease Agreement.

On December 11, 2018, Prime World entered into a one-year credit facility totaling New Taiwan Dollars 150 million (the “Credit Facility”) with CTBC Bank Co., Ltd. (“CTBC”). Borrowing under the Credit Facility will be used for short-term working capital. Prime World may draw upon the Credit Facility from December 11, 2018 until October 31, 2019. The term of each draw shall be up to 120 days. Under the Credit Facility borrowing in New Taiwan Dollars will bear interest at a rate equal to CTBC’s Enterprise Swap Index Rate plus 1.2%; for all foreign currency borrowing interest bear at a rate equal to CTBC’s Cost of Fund lending rate plus 1.2%. As of the execution of the Credit Facility, CTBC’s Enterprise Swap Index Rate and Cost of Funds lending rate is 0.69% and 3.40% respectively. At the end of the draw term, Prime World is required to make payments for all principal and accrued interest. The agreements for the Credit Facility contain representations and warranties, and events of default applicable to Prime World that are customary for agreements of this type. As of December 31, 2018, there was no outstanding balance under the Credit Facility.

On September 21, 2018, the Company’s China subsidiary, Global Technology, Inc., entered into a five-year revolving credit line agreement, totaling 129,000,000 Chinese Renminbi, or RMB, or approximately $18.6 million, (the “Credit Line”) and a Security Agreement with China Construction Bank Co., Ltd., in Ningbo, China (“CCB”). Borrowing under the Credit Line will be used for general corporate and capital investment purposes, including the issuance of bank acceptance notes to Global’s vendors. Global may draw upon the Credit Line between September 21, 2018 and September 17, 2023; however, the amount of available credit under the Credit Line may be reduced by CCB without notice to Global and may be decreased subject to changes of Chinese government regulations. Each draw bears interest equal to CCB’s commercial banking interest rate effective on the day of the applicable draw. Global’s obligations under the Credit Line is secured by real property owned by Global in China and mortgaged to CCB under the terms of the Security Agreement. As of December 31, 2018, $8.7 million was outstanding under the Credit Line and the outstanding balance of bank acceptance notes issued to vendors was $4.6 million.

As of December 31, 2018 and 2017, the Company had $69.4 million and $1.0 million of unused borrowing capacity, respectively.

One-month LIBOR rates were 2.50% and 1.56% at December 31, 2018 and 2017, respectively.

As of December 31, 2018 and 2017, there was $2.4 million and $1.0 million of restricted cash, investments or security deposit associated mainly with the loan facilities, respectively.

NOTE K—ACCRUED LIABILITIES

Accrued liabilities consisted of the following for the periods indicated (in thousands):

	As of December 31,	
	2018	2017
Accrued payroll	$ 10,772	$ 11,693
Accrued rent	1,200	1,180
Accrued employee benefits	2,862	2,035
Accrued state and local taxes	1,088	951
Advance payments	426	441
Accrued product warranty	995	1,118
Accrued commission expenses	398	425
Accrued professional fees	315	181
Accrued capital expenditures	371	—
Accrued other	864	1,079
Total accrued liabilities	$ 19,291	$ 19,103

NOTE L—OTHER INCOME AND EXPENSE

Other income and expense consisted of the following for the periods indicated (in thousands):

	Year ended December 31,		
	2018	2017	2016
Foreign exchange transaction gain (loss)	$ 663	$ (2,012)	$ (617)
Government subsidy income	934	211	164
Other non-operating gain	224	110	32
Loss on disposal of assets	(7)	(97)	(126)
Total other income (expense), net	$ 1,814	$ (1,788)	$ (547)

NOTE M—INCOME TAXES

The sources of the Company's income (loss) from operations before income taxes were as follows (in thousands):

	Year ended December 31,		
	2018	2017	2016
Domestic	$ (11,444)	$ 17,497	10,047
Foreign	1,666	67,029	10,956
Total income (loss) before income taxes	$ (9,778)	$ 84,526	21,003

Table of Contents

The provision for income tax expense (benefit) for the years ended December 31, was as follows (in thousands):

Current:	2018	2017	2016
Federal	$ —	$ —	$ (15)
State	80	(292)	256
Foreign	1,349	10,965	962
Total	$ 1,429	$ 10,673	$ 1,203
Deferred:			
Federal	$ (6,391)	$ 2,015	$ (10,794)
State	61	(1,669)	(130)
Foreign	(2,731)	(444)	(510)
Total	$ (9,061)	$ (98)	$ (11,434)
Income tax (benefit) expense	$ (7,632)	$ 10,575	$ (10,231)

Deferred income tax assets and liabilities result principally from net operating losses, different methods of recognizing depreciation, reserves for doubtful accounts and inventory, research and development credits and foreign tax credits. At December 31, the net deferred tax assets and liabilities are comprised of the following approximate amounts (in thousands):

	2018	2017
NOL carryforward	$ 12,049	$ 7,739
Inventory reserves	1,490	837
AMT credit	172	345
Unrealized gains and losses	69	92
Share-based compensation	510	732
Foreign tax credit	4,599	2,018
Research and development credits	6,648	4,626
Interest	208	—
Other	718	573
Deferred tax assets	26,463	16,962
Depreciation and amortization	(4,749)	(4,161)
Deferred tax liabilities	(4,749)	(4,161)
Deferred tax assets, net	$ 21,714	$ 12,801

The Company has a U.S. net operating loss carry forward of approximately $47.4 million, $32.8 million of which, if unused, expires between 2025 and 2032 and $14.6 million of which, can be carryforward indefinitely. The Company has U.S. and state research and development tax credits of $6.6 million, which, if unused, expire between 2028 and 2038. In addition, the Company has foreign tax credits of $4.6 million, which, if unused, will expire in 2027. Utilization of U.S. net operating losses and tax credit carry forwards are subject to an annual limitation due to the ownership change limitations set forth in Internal Revenue Code Section 382. During 2016, the Company updated its

Section 382 analysis resulting in the recognition of additional utilizable net operating losses. Additional ownership changes could result in the expiration of the net operating loss and tax credit carryforwards before utilization.

On October 2016, the FASB issued ASU No. 2016-16, Income Taxes (Topic 740): Intra-Entity Transfer of Assets Other Than Inventory (“ASU 2016-16”), which requires the recognition of the income tax consequences of an intra-entity transfer of as asset, other than inventory, when the transfer occurs. The Company adopted guidance on January 1, 2018, with no impact on its financial statements.

Table of Contents

A reconciliation of the U.S. federal income tax rate of 21%, 35% and 35% for the years ended December 31, 2018, 2017 and 2016, respectively, to the Company's effective income tax rate follows (in thousands):

	2018	2017	2016
Expected taxes at statutory rate	$ (2,053)	$ 29,584	$ 7,351
Non-deductible/non-taxable items	1,020	1,212	565
Foreign rate differences	(1,043)	(11,656)	(654)
Foreign permanent differences	(1,067)	416	(1,005)
Increase (decrease) in valuation allowance	—	(1,700)	(13,063)
Share-based compensation	(1,325)	(10,348)	—
Section 382 limitation	—	—	(3,065)
Changes in tax rates	(103)	2,768	(361)
Transition tax adjustment, net of foreign tax credits	(1,777)	5,067	—
Research and development credits	(2,022)	(2,821)	—
Uncertain tax positions	—	(1,616)	—
Foreign other	514	—	—
Other, net	224	(331)	1
Tax (benefit) expense	$ (7,632)	$ 10,575	$ (10,231)

The Company's provision for income taxes in 2018 was lower than in 2017 primarily due to a decrease in pre-tax income and the impact of the 2017 Tax Act, partially offset by excess tax benefits from stock-based compensation, recording research and development credits, and the U.S. return-to-accrual adjustment as a result of the 2017 Tax Act as discussed below.

The Company's provision for income taxes in 2017 was higher than in 2016 primarily due to an increase in pre-tax income and the provisional effect of the 2017 Tax Act, partially offset by excess tax benefits from stock-based compensation and recording research and development credits, including a portion of which were previously uncertain.

The Company's wholly owned subsidiary, Prime World is a tax-exempt entity under the Income Tax Code of the British Virgin Islands.

The Company's wholly owned subsidiary, Global Technology, Inc., has enjoyed preferential tax concessions in China as a national high-tech enterprise. In March 2007, China's parliament enacted the PRC Enterprise Income Tax Law, or the EIT Law, under which, effective January 1, 2008, China adopted a uniform income tax rate of 25% for all enterprises including foreign invested enterprises. Global Technology, Inc. was recognized as a National high-tech enterprise in 2008 and was entitled to a 15% tax rate for a three year period from November 2008 to November 2017. Global Technology, Inc. renewed its National high-tech enterprise certificate and was therefore extended its three-year tax preferential status from November 2017 to November 2020. This tax holiday reduced its 2018 and 2017 income tax provision by approximately $0.5 and $1.4 million respectively, but had no overall effect on the 2016 income tax provision due to a full valuation allowance. This tax holiday increased its fiscal 2018 and 2017 diluted earnings per share by approximately $0.03 and $0.07 respectively, but had no effect on its 2016 diluted earnings per share due to the full valuation allowance. Effective January 1, 2016, China expanded the scope of the National high-tech enterprise to include additional deductions for qualifying research and development.

As of December 31, 2018, 2017 and 2016, the total amount of unrecognized tax benefit was $0.2 million, $0.2 million, and $1.8 million, respectively. The following is a tabular reconciliation of the total amounts of unrecognized tax benefits (in thousands):

	2018	2017	2016
Unrecognized tax benefits — January 1	$ 181	$ 1,797	$ 1,797
Gross increases — tax positions in prior period	—	—	—
Gross decreases — tax positions in prior period	—	(1,616)	—
Unrecognized tax benefits — December 31	$ 181	$ 181	$ 1,797

As of December 31, 2018 and 2017, the Company had $0.2 million of unrecognized tax benefits related to U.S. tax benefits recognized for prior branch losses, respectively. As of December 31, 2016, the Company had $1.8 million of unrecognized tax benefits related to U.S. tax benefits recognized for prior year branch losses and research and development credits. If recognized, none of the amounts would have an impact on the Company's effective tax rate, but rather would result in adjustments to other tax accounts, primarily deferred taxes.

The Company recognizes interest accrued related to unrecognized tax benefits and penalties as income tax expense. Related to the unrecognized tax benefits noted above, it has not accrued penalties or interest during 2018 as a result of net operating losses. During 2017 or 2016, the Company also accrued no penalties or interest.

The Company is subject to taxation in the United States and various states and foreign jurisdictions. The Company's open tax years subject to examination in the U.S. federal and state jurisdictions are 2015 through 2017. To the extent allowed by law, the taxing authorities may have the right to examine prior periods where net operating losses or tax credits were generated and carried forward, and make adjustments up to the amount of the net operating loss or tax credit carryforward. The Company is subject to examination for tax years 2010 forward for various foreign jurisdictions.

Effects of the Tax Cuts and Jobs Act

On December 22, 2017, the President of the United States signed Public Law No. 115-97, commonly referred to as the Tax Cut and Jobs Act of 2017 (the "Tax Act"). The Tax Act made significant changes to the U.S. tax code, which included, but were not limited to: a U.S. federal corporate tax rate decrease from 35% to 21%, effective January 1, 2018; a shift to a modified territorial tax regime, which requires companies to pay a one-time transition tax on the mandatory deemed repatriation of the cumulative earnings of certain foreign subsidiaries as of December 31, 2017; a new provision designed to tax global intangible low-taxed income ("GILTI") of foreign subsidiaries; a limitation of the deduction for net operating losses; elimination of net operating loss carrybacks; immediate deductions for depreciation expense for certain qualified property; additional limitations on the deductibility of executive compensation and limitations on the deductibility of interest.

In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act (SAB 118), which allowed us to record provisional amounts during a measurement period not to extend beyond one year of the enactment data. As a result, we previously provided a provisional estimate of the effect of the Tax Act in our financial statements. In third quarter of 2018, we completed our analysis to determine the effect of the Tax Act and the material impact of the Tax Act is described below.

The deemed repatriation transition tax (the "Transition Tax") is a tax on certain previously untaxed accumulated and current earnings and profits ("E&P") of our foreign subsidiaries. The company was able to reasonably estimate the Transition Tax and recorded a provisional Transition Tax obligation of $5.0 million, with a corresponding adjustment of $5.0 million to income tax expense for the year ended December 31, 2017. On the basis of revised E&P computations that were completed during the reporting period, the Company recognized an additional measurement-period adjustment of ($1.8) million to the Transition Tax obligation, with a corresponding adjustment of ($1.8) million to income tax expense during the reporting period, net of foreign tax credit considerations. The effect of the measurement-period adjustment on the 2018 effective tax rate was approximately 18.8%. The Transition Tax, which has now been determined to be complete, resulted in recording a total Transition Tax obligation of $3.2 million, with a corresponding adjustment of $3.2 million to income tax expense.

As of December 31, 2018, the Company has accumulated undistributed earnings generated by its foreign subsidiaries of approximately $44 million. Because $44 million of such earnings have previously been subject to the one-time transition tax on foreign earnings required by the 2017 Tax Act, any additional taxes due with respect to such earnings or the excess of the amount for financial reporting over the tax basis of our foreign investments would generally be limited to foreign and state taxes. The Company intends, however, to indefinitely reinvest these earnings and expects future U.S. cash generation to be sufficient to meet future U.S. cash needs.

NOTE N—SHARE-BASED COMPENSATION

Equity Plans

The Company's board of directors and stockholders approved the following equity plans:

· the 1998 Share Incentive Plan

Table of Contents

- the 2000 Share Incentive Plan
- the 2004 Share Incentive Plan
- the 2006 Share Incentive Plan
- the Amended and Restated 2013 Equity Incentive Plan ("2013 Plan")

The Company issued stock options, restricted stock awards ("RSAs") and restricted stock units ("RSUs") to employees, consultants and non-employee directors. Stock option awards generally vest over a four year period and have a maximum term of ten years. Stock options under these plans have been granted with an exercise price equal to the fair market value on the date of the grant. Nonqualified and Incentive Stock Options, RSAs and RSUs may be granted from these plans. Prior to the Company's initial public offering in September 2013, the fair market value of the Company's stock had been historically determined by the board of directors and from time to time with the assistance of third party valuation specialists.

Stock Options

Options have been granted to the Company's employees under the five incentive plans and generally become exercisable as to 25% of the shares on the first anniversary date following the date of grant and semi-annually thereafter. All options expire ten years after the date of grant.

The following is a summary of option activity (in thousands, except per share data):

	Number of shares	Weighted Average Exercise Price	Weighted Average Share Price on Date of Exercise	Weighted Average Fair Value	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value
	(in thousands, except price data)					
Outstanding, January 1, 2016	1,310	9.07		$ 4.59		$ 10,598
Exercised	(159)	6.91	$ 19.90	2.56		2,071
Forfeited	(21)	7.96		3.29		273
	1,130	9.40		4.90		15,872

Outstanding, December 31, 2016						
Exercised	(418)	8.56	$ 59.31	4.51		21,224
Forfeited	(176)	9.42		4.97		4,998
Outstanding, December 31, 2017	536	10.04		5.19		14,888
Exercised	(122)	9.79	$ 36.18	5.00		3,223
Forfeited	(127)	9.92		5.10		697
Outstanding, December 31, 2018	287	$ 10.19		$ 5.31	4.60	1,503
Exercisable, December 31, 2018	287	$ 10.19			4.60	1,503
Vested and expected to vest	287	$ 10.19			4.60	$ 1,503

As of December 31, 2018, there was no unrecognized stock option expense.

Table of Contents

Restricted Stock Unit/Awards

The following is a summary of RSU/RSA activity (in thousands, except per share data):

	Number of shares	Weighted Average Share Price on Date of Release	Weighted Average Fair Value	Aggregate Intrinsic Value
	(in thousands, except price data)			
Outstanding at January 1, 2016	152		$ 11.20	$ 2,611
Granted	497	$ 13.50	15.73	7,815
Released	(122)		14.09	1,644
Cancelled/Forfeited	(10)		15.38	180
Outstanding, December 31, 2016	517		14.79	12,128
Granted	510		38.87	19,803
Released	(289)	$ 60.87	20.92	17,579
Cancelled/Forfeited	(31)		24.23	1,181
Outstanding, December 31, 2017	707		29.23	26,732
Granted	526		33.74	17,768
Released	(363)	$ 33.86	28.87	12,306
Cancelled/Forfeited	(44)		32.91	680
Outstanding, December 31, 2018	826		32.07	12,744
Vested and expected to vest	826		$ 32.07	$ 12,744

The aggregate intrinsic value of RSUs and RSAs outstanding at December 31, 2018 was $12.7 million. Unrecognized compensation expense related to these RSUs and RSAs at December 31, 2018 was $24.0 million. This expense is expected to be recognized over 2.49 years.

Share-Based Compensation

The Company recognizes compensation expense on a straight-line basis over the applicable vesting term of the award and expense is adjusted as forfeitures occur.

In 2014, the Company ceased issuing stock options and began issuing RSUs and RSAs as share-based compensation to employees. The Company estimates the fair value of RSUs and RSAs at the fair market value on the grant date.

Employee share-based compensation expenses recognized for the years ended December 31, were as follows (in thousands):

Share-Based compensation - by expense type:

	2018	2017	2016
Cost of goods sold	$ 795	$ 461	$ 190
Research and development	2,419	1,496	591
Sales and marketing	925	481	357
General and administrative	6,981	5,357	2,695
Total share-based compensation expense	$ 11,120	$ 7,795	$ 3,833

Share-Based compensation - by award type:

	2018	2017	2016
Employee stock options	$ 12	$ 853	$ 1,460
Restricted stock units	11,108	6,942	2,373
Total share-based compensation expense	$ 11,120	$ 7,795	$ 3,833

Table of Contents

NOTE O—STOCKHOLDERS’ EQUITY

Common Stock

The Company’s Amended and Restated Certificate of Incorporation authorizes the issuance of up to 45,000,000 shares of common stock, all of which have been designated voting common stock.

Preferred Stock

The Company’s Amended and Restated Certificate of Incorporation authorizes the issuance of up to 5,000,000 shares of preferred stock.

Public Offerings of Common Stock

On October 17, 2016, the Company filed a Registration Statement on Form S-3 with the Securities and Exchange Commission effective November 1, 2016, providing for the public offer and sale of certain securities of the Company from time to time, at its discretion, up to an aggregate amount of $250 million. In connection with such Form S-3, the Company entered into an Equity Distribution Agreement with Raymond James & Associates, Inc. pursuant to which the Company may issue and sell shares of the Company’s stock having an aggregate offering price of up to $50.0 million (the “Second ATM Offering”) from time to time through Raymond James & Associates, Inc. On November 22, 2016, the Company commenced sales of common stock through the Second ATM Offering. The Company completed its Second ATM Offering in March 2017 and sold 1.6 million shares of common stock at a weighted average price of $31.55 per share, providing proceeds of $48.8 million, net of expenses and underwriting discounts and commissions.

NOTE P—SEGMENT AND GEOGRAPHIC INFORMATION

The Company operates in one reportable segment. The Company’s Chief Executive Officer, who is considered to be the chief operating decision maker, manages the Company’s operations as a whole and reviews financial information presented on a consolidated basis, accompanied by information about product revenue, for purposes of evaluating financial performance and allocating resources.

The following tables set forth the Company's revenue and asset information by geographic region. Revenue is classified based on the location of where the product is manufactured. Long-lived assets in the tables below comprise only property, plant, equipment and intangible assets (in thousands):

	For the years ended December 31,		
	2018	2017	2016
Revenues:			
United States	$ 10,795	$ 18,209	$ 18,035
Taiwan	113,547	241,820	161,611
China	143,123	122,300	81,067
	$ 267,465	$ 382,329	$ 260,713

	As of December 31,		
	2018	2017	2016
Long-lived assets:			
United States	$ 88,815	$ 75,446	$ 66,028
Taiwan	65,451	67,379	48,728
China	89,736	59,929	34,113
	$ 244,002	$ 202,754	$ 148,869

The Company serves four primary markets, the internet data center, CATV, telecom and FTTH markets. Of the Company's total revenues in 2018, the Company earned $200.2 million, or 74.9%, from the internet data center market, $51.7 million, or 19.3%, from the CATV market, $13.2 million, or 4.9%, from the telecom market and $0.8 million, or 0.3%, from the FTTH market. Of the Company's total revenues in 2017, the Company earned $306.7 million, or 80.2%, from the internet data center market, $60.8 million, or 15.9%, from the CATV market, $12.9 million, or 3.4%, from the telecom market and $0.5 million, or 0.1%, from the FTTH market. Of the Company's total revenues in 2016, the

Table of Contents

Company earned $201.3 million, or 77.2%, from the internet data center market, $43.6 million, or 16.7%, from the CATV market, $12.9 million, or 5.0%, from the telecom market and $1.6 million, or 0.6%, from the FTTH market.

NOTE Q—EMPLOYEE BENEFIT PLANS

On August 1, 2000, the Company established a 401(k) profit sharing plan covering employees meeting certain age and service requirements. The plan provides for discretionary Company contributions to be allocated based on the employee's eligible contributions. The Company made contributions of $0.8 million, $0.6 million and $0.6 million to the 401(k) plan for the years ended December 31, 2018, 2017 and 2016, respectively.

Employees of Global participate in a state-mandated social security program in China. Under this program, pension costs are recorded on the basis of required monthly contributions to employees' individual accounts during their service periods. Under the regulations of the People's Republic of China, Global is required to make fixed contributions to a fund, which is under the administration of the local labor departments. Pension expense for Global was $0.9 million, $0.8 million and $0.6 million in the years ended for the year ended December 31, 2018, 2017 and 2016, respectively.

Employees Prime World's Taiwan branch participate in a pension program under the Taiwan Labor Pension Act. Pension expense for the Prime World's Taiwan branch was $0.9 million, $0.9 million and $0.8 million for the years ended December 31, 2018, 2017 and 2016, respectively.

NOTE R—COMMITMENTS AND CONTINGENCIES

Commitments

The Company conducts part of its operations from leased facilities and also leases equipment. Rent expense was $1.2 million, $1.1 million and $1.1 million, respectively, for the years ended December 31, 2018, 2017 and 2016, respectively.

At December 31, 2018, the approximate minimum rental commitments under noncancellable leases in excess of one year that expire at varying dates through 2029 were as follows (in thousands):

Year ending December 31,	Amount
2019	$ 1,233
2020	1,144
2021	1,031
2022	993
2023	1,017
thereafter	5,748
	$ 11,166

Employment Agreements and Consultancy Agreements

The Company has entered into employment and indemnification agreements with three executive officers. These agreements provide that if their employment is terminated as a result of a change of control of the Company, or if their employment is terminated for certain other reasons set forth in the agreements, the Company will be required to pay a severance payment in an amount equal to their annual base salary, and other additional compensation due under the terms of the agreements.

The Company has also entered into employment and indemnification agreements with one other executive officer. These agreements provide that if their employment is terminated as a result of a change of control of the Company, the Company will be required to pay a severance payment in an amount equal to six months of their annual base salary and other additional compensation due under the terms of the agreements.

Table of Contents

Contingencies

From time to time, the Company may be subject to legal proceedings and litigation arising in the ordinary course of business, including, but not limited to, inquiries, investigations, audits and other regulatory proceedings, such as described below. The Company records a loss provision when it believes it is both probable that a liability has been incurred and the amount can be reasonably estimated. Unless otherwise disclosed, the Company is unable to estimate the possible loss or range of loss for the legal proceeding described below.

Except for the lawsuits described below, the Company believes that there are no claims or actions pending or threatened against it, the ultimate disposition of which would have a material adverse effect on it.

Class Action and Shareholder Derivative Litigation

On August 5, 2017, a lawsuit was filed in the U.S. District Court for the Southern District of Texas against the Company and two of its officers in Mona Abouzied v. Applied Optoelectronics, Inc., Chih-Hsiang (Thompson) Lin, and Stefan J. Murry, et al., Case No. 4:17-cv-02399. The complaint in this matter seeks class action status on behalf of the Company's shareholders, alleging violations of Sections 10(b) and 20(a) of the Exchange Act against the Company, its chief executive officer, and its chief financial officer, arising out of its announcement on August 3, 2017 that "we see softer than expected demand for our 40G solutions with one of our large customers that will offset the sequential growth and increased demand we expect in 100G." The complaint requests unspecified damages and other relief. The Company disputes the allegations set forth in the complaint and is vigorously contesting the matter. The briefing on the Company's motion to dismiss the complaint was completed on May 21, 2018, and the motion is still pending.

On August 7, 2018, a derivative lawsuit was filed in the United States District Court for the Southern District of Texas styled Lei Jin, derivatively on behalf of Applied Optoelectronics, Inc. v. Chih-Hsiang ("Thompson") Lin, Stefan J. Murry, William H. Yeh, Alex Ignatiev, Richard B. Black, Min-Chu Chen, Alan Moore, and Che-Wei Lin and Applied Optoelectronics, Inc., No. 4:18-cv-02713 alleging breaches of fiduciary duties, unjust enrichment, and violations of Section 14(a) of the Exchange Act based on similar factual allegations as in the Abouzied Securities Class Action. On December 18, 2018, a second derivative complaint was filed styled Yiu Kwong Ng v. Chih-Hsiang ("Thompson") Lin, Stefan J. Murry, William H. Yeh, Alex Ignatiev, Richard B. Black, Min-Chu Chen, Alan Moore, and Che-Wei Lin and Applied Optoelectronics, Inc., No. 4:18-cv-4751 alleging the same causes of actions as the Jin complaint and additional factual allegations regarding the Company's announcement on September 28, 2018 that it had "identified an issue with a small percentage of 25G lasers within a specific customer environment." On January 11, 2019, the court consolidated these two derivative actions, and on January 15, 2019, the court entered an order staying the actions pending the outcome of the motion to dismiss in the Abouzied Securities Class action and the forthcoming motion to dismiss in the Taneja Securities Class Action, described in the following paragraph. The complaint requests unspecified damages and other relief. The Company disputes the allegations and intends to vigorously contest the matter if and when the stay is lifted.

On October 1, 2018, a securities class action was filed in the United States District Court for the Southern District of Texas styled Gaurav Taneja v. Applied Optoelectronics, Inc., Thompson Lin, and Stefan Murry, Case No. 4:18-cv-3544. The complaint in this matter seeks class action status on behalf of the Company's shareholders, alleging violations of Sections 10(b) and 20(a) of the Exchange Act against the Company, the chief executive officer, and the chief financial officer, arising out of the Company's announcement on September 28, 2018 that it had "identified an issue with a small percentage of 25G lasers within a specific customer environment." The original complaint requests unspecified damages and other relief. The Company disputes the allegations set forth in the original complaint and intends to vigorously contest the matter. The case has been consolidated with two identical complaints that were subsequently filed on October 10, 2018 and October 18, 2018, styled Davin Pokoik v. Applied Optoelectronics, Inc., Chih-Hsiang Lin, and Stefan J. Murry, Case No. 4:18-cv-3722 and Stephen McGrath v. Applied Optoelectronics, Inc., Chih-Hsiang Lin, and Stefan J. Murry, respectively. The three cases were consolidated on January 4, 2019, and Mark Naglich was appointed Lead Plaintiff on that same date. The original complaint requests unspecified damages and other relief. The Company disputes the allegations in the complaint and intends to vigorously contest the matter. The deadline for Lead Plaintiff to file a consolidated amended complaint is March 5, 2019, and the deadline for our motion to dismiss is sixty days after the consolidated amended complaint is filed.

Table of Contents

NOTE S—SUBSEQUENT EVENTS

The Company has evaluated subsequent events through the date the financial statements were issued.

On January 3, 2019, the Company repaid its revolving bank line of credit of $23.1 million.

On January 21, 2019, Prime World entered into a second Purchase and Sale Contract (the "Second Sales Contract"), Promissory Note, and a second Finance Lease Agreement, (collectively, the "Second Financing Agreements") with Chailease in connection with certain equipment, structured as a sale lease-back transaction. Pursuant to the Second Sales Contract, Prime World sold certain equipment to Chailease for a purchase price of NT$267,333,186, or approximately $8.7 million. Simultaneously, Prime World leased the equipment back from Chailease for a term of three-years, pursuant to the Second Finance Lease Agreement. Prime World is obligated to pay an initial monthly payment of NT$67,333,186, or approximately $2.2 million, thereafter the monthly lease payments range from NT$5,570,167, or approximately $0.2 million to NT$6,082,131, or approximately $0.2 million. Based on the lease payments made under the Second Finance Lease Agreement, the annual interest rate is calculated to be 3.5%. Upon an event of default under the Second Finance Lease Agreement, Prime World's payment obligation will be secured by a promissory note to Chailease at the amount of NT$209,555,736 or approximately $6.8 million, subject to certain terms and conditions. The title of the equipment will be transferred to Prime World upon expiration of the Second Finance Lease Agreement.

On February 1, 2019, the Company executed a Second Amendment to Loan Agreement with BB&T. The original loan agreement with BB&T, executed on September 28, 2017, and a first amendment to the original loan agreement, executed on March 30, 2018, provided the Company with a three-year $60 million line of credit; a $26 million five-year capital expenditure loan (the "CapEx Loan") and a $21.5 million seventy-month real estate term loan for the Company's plant and facilities in Sugar Land, Texas. The Second Amendment to Loan Agreement extends the CapEx Loan draw-down date from March 30, 2019 to September 30, 2019, requires the Company to provide BB&T monthly financial statements and revises certain financial covenants.

NOTE T—Selected Quarterly Financial Data (unaudited)

The following tables set forth a summary of the Company's quarterly financial information for each of the four quarters for the years ended December 31, 2018 and 2017 (in thousands, except per share data):

	First	Second	Third	Fourth

Year ended December 31, 2018	Quarter	Quarter	Quarter	Quarter
Revenue	$ 65,239	$ 87,822	$ 56,386	$ 58,018
Cost of goods sold	39,403	53,959	38,849	47,481
Gross profit	25,836	33,863	17,537	10,537
Gross margin	39.6%	38.6%	31.1%	18.2%
Operating expenses:				
Research and development	11,736	12,645	14,180	11,342
Sales and marketing	2,474	2,377	2,370	1,920
General and administrative	9,456	9,898	10,591	9,552
Total operating expenses	23,666	24,920	27,141	22,814
Income (loss) from operations	2,170	8,943	(9,604)	(12,277)
Interest and other income (expense), net	(1,046)	1,387	578	71
Net income (loss) before taxes	1,124	10,330	(9,026)	(12,206)
Income tax (expense) benefit	996	(2,296)	5,294	3,638
Net income (loss)	$ 2,120	$ 8,034	$ (3,732)	$ (8,568)
Net income (loss) per share—basic	$ 0.11	$ 0.41	$ (0.19)	$ (0.43)
Net income (loss) per share—diluted	$ 0.11	$ 0.40	$ (0.19)	$ (0.43)

Table of Contents

Year ended December 31, 2017	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Revenue	$ 96,224	$ 117,371	$ 88,879	$ 79,855
Cost of goods sold	54,752	64,089	49,507	47,701
Gross profit	41,472	53,282	39,372	32,154
Gross margin	43.1%	45.4%	44.3%	40.3%
Operating expenses:				
Research and development	7,432	8,073	9,190	10,670
Sales and marketing	1,903	2,158	2,551	2,090
General and administrative	7,822	8,786	9,580	9,074
Total operating expenses	17,157	19,017	21,321	21,834
Income from operations	24,315	34,265	18,051	10,320
Interest and other expense, net	(872)	(111)	(541)	(901)
Net income before taxes	23,443	34,154	17,510	9,419
Income tax (expense) benefit	(3,654)	(5,083)	1,865	(3,703)
Net income	$ 19,789	$ 29,071	$ 19,375	$ 5,716
Net income per share—basic	$ 1.06	$ 1.52	$ 1.00	$ 0.29
Net income per share—diluted	$ 1.00	$ 1.43	$ 0.95	$ 0.28