

INTEVAC INC
Form 10-K
February 15, 2017
Table of Contents

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, 2016

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 0-26946

INTEVAC, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

94-3125814
(I.R.S. Employer Identification No.)

3560 Bassett Street

Santa Clara, California 95054

(Address of principal executive office, including Zip Code)

Registrant's telephone number, including area code: (408) 986-9888

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

Title of each class

Name of each exchange on which registered

Common Stock (\$0.001 par value)

The Nasdaq Stock Market LLC (NASDAQ Global Select)

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

None.

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

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

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

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

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

As of July 2, 2016, the aggregate market value of voting and non-voting stock held by non-affiliates of the Registrant was approximately \$101,863,142 (based on the closing price for shares of the Registrant's Common Stock as reported by the Nasdaq Stock Market for the last trading day prior to that date). Shares of Common Stock held by each executive officer and director have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

On February 15, 2017, 21,390,336 shares of the Registrant's Common Stock, \$0.001 par value, were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE.

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Portions of the Registrant's Proxy Statement for the 2017 Annual Meeting of Stockholders are incorporated by reference into Part III. Such proxy statement will be filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Table of Contents

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain information in this Annual Report on Form 10-K (report or Form 10-K) of Intevac, Inc. and its subsidiaries (Intevac or the Company), including Management s Discussion and Analysis of Financial Condition and Results of Operations in Item 7, is forward-looking in nature. All statements in this report, including those made by the management of Intevac, other than statements of historical fact, are forward-looking statements. Examples of forward-looking statements include statements regarding Intevac s future financial results, operating results, cash flows and cash deployment strategies, business strategies, costs, products, working capital, competitive positions, management s plans and objectives for future operations, research and development, acquisitions and joint ventures, growth opportunities, customer contracts, investments, liquidity, declaration of dividends, and legal proceedings, as well as market conditions and industry trends. These forward-looking statements are based on management s estimates, projections and assumptions as of the date hereof and include the assumptions that underlie such statements. Forward-looking statements may contain words such as may, will, should, could, would, expect, anticipate, believe, estimate, predict, potential and continue, the negative of these terms, or other comparable terminology. Any expectations based on these forward-looking statements are subject to risks and uncertainties and other important factors, including those discussed in Item 1A, Risk Factors, below and elsewhere in this report. Other risks and uncertainties may be disclosed in Intevac s prior Securities and Exchange Commission (SEC) filings. These and many other factors could affect Intevac s future financial condition and operating results and could cause actual results to differ materially from expectations based on forward-looking statements made in this report or elsewhere by Intevac or on its behalf. Intevac undertakes no obligation to revise or update any forward-looking statements.

The following information should be read in conjunction with the Consolidated Financial Statements and the accompanying Notes to Consolidated Financial Statements included in this report.

PART I

**Item 1. Business
Overview**

Intevac s business consists of two reportable segments:

Thin-film Equipment: Intevac is a leader in the design and development of high-productivity, thin-film processing systems. Our production-proven platforms are designed for high-volume manufacturing of substrates with precise thin-film properties, such as the hard drive media, display cover panel (DCP), and solar photovoltaic (PV) markets we serve currently.

Photonics: Intevac is a leading developer of advanced high-sensitivity digital sensors, cameras and systems that primarily serve the defense industry. We are the provider of integrated digital night-vision imaging systems for the U.S. military.

Intevac was incorporated in California in October 1990 and was reincorporated in Delaware in 2007.

Thin-film Equipment Segment

Hard Disk Drive (HDD) Equipment Market

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Intevac designs, manufactures, markets and services complex capital equipment used to deposit thin films and lubricants onto substrates to produce magnetic disks that are used in HDDs. Disk and disk drive manufacturers produce magnetic disks in a sophisticated manufacturing process involving many steps, including plating, annealing, polishing, texturing, sputtering, etching, stripping and lubrication. Intevac believes its systems represent approximately 60% of the installed capacity for disk sputtering worldwide. Intevac's systems are used

Table of Contents

by manufacturers of magnetic media such as Seagate Technology, Western Digital, including its wholly-owned subsidiary HGST, Fuji Electric, and Showa Denko.

HDDs are a primary storage medium for digital data including nearline cloud applications and are used in products and applications such as personal computers (PCs), enterprise data storage, video players and video game consoles. Intevac believes that HDD media shipments will grow over time, driven by continued high growth rates in digitally-stored data, by the slowing of areal density improvements, by the increase in demand for nearline drives for cloud storage, an increasing tie ratio (the average number of disks per hard drive) and by new and emerging applications. The projected growth rates for digitally-stored data on HDDs exceed the rate of areal density improvements, at the same time as the tie ratio is increasing, which results in demand for magnetic disks outpacing HDD units.

In recent years HDD media units have been negatively impacted by declining PC units, primarily caused as a result of the proliferation of tablets and the transition to centralized storage. Although the HDD industry continues to expect growth in the nearline data storage market segment, the transition to centralized storage combined with the negative growth in PC shipments has resulted in lower HDD shipments in recent years. However, Intevac continues to believe that long-term demand for hard disks required for high capacity HDDs will increase, driven by growth in demand for digital storage, a declining growth rate in areal density improvements, and increased information technology spending to support the transition to cloud storage. The number of disk manufacturing systems needed to support this growth as well as future technology transitions and improvements is expected to vary from year to year depending on the factors noted above.

Intevac expects that HDD manufacturers will extend their utilization of planar perpendicular media with the introduction of Heat Assisted Magnetic Recording (HAMR) expected within the next two to three years. The first HAMR-based HDDs are expected to ship to the marketplace by mid to late 2017. Intevac believes that leading manufacturers of magnetic media are using Intevac systems for HAMR development, creating a significant market opportunity as HAMR is more widely adopted. Significant market penetration of HAMR-based HDDs is expected to occur in mid to late 2018. Intevac believes that the transition to HAMR will require disk manufacturers to upgrade their installed base of equipment, which would result in increased demand for equipment technology upgrades to be performed by Intevac.

Display Cover Panel (DCP) Market

Intevac develops equipment to deposit optically transparent thin films onto DCPs typically found on consumer and automotive electronic products.

DCPs are found in products including smartphones, tablet PCs, wearable devices, gaming systems, digital cameras, automotive infotainment systems and digital signage. In 2016, approximately 1.5 billion mobile phones, 183 million tablet PCs and 102 million wearable devices were shipped to consumers worldwide. For smartphones alone, it is forecasted that nearly 1.9 billion units will ship by 2020, representing a CAGR of greater than 6% for the 2016 – 2020 time period.

The DCP is typically made of tempered glass, such as soda-lime or aluminosilicate, or other materials such as sapphire. The primary function of the DCP is to provide a clear protective interface to the display it protects. In many cases, the DCP is treated with various coatings to enhance its protective performance as well as for clarity, readability and touch sensitivity.

The types of coatings typically found on DCPs of electronic devices include: Scratch Protection (SP) coatings, Anti-Reflection (AR) coatings, and Anti-Finger (AF) coatings.

SP coatings generally consist of hard thin films deposited onto the surface of the DCP. Their primary function is to provide enhanced protection against the incidence of scratch, but they can also provide greater breakage resistance. SP coatings also improve the readability of displays.

Table of Contents

AR coatings enable greater light transmission through the DCP by reducing the light reflected by the surface back to the user's eye. This allows the user to more easily read the display and reduces the required power needed to display the image which results in extending the battery life. A significant drawback to using AR coatings is their susceptibility to scratch. AR coatings are typically soft and must be applied to the outer surface of the DCP. These coatings generally scratch easily, and as such, smartphone manufacturers have been reluctant to implement AR coatings on their products.

AF coatings provide water and oil protection for the surface of the DCP. This coating, which prevents fingerprints, provides greater aesthetics as well as improving readability. AF coatings allow for greater visual acuity when fingerprints are not visible. The drawback to AF coatings is their relatively low resistance to wear. The coating is soft and usually wears off within a few months of product purchase.

Intevac has developed and is currently marketing a SP coating known as Optical Diamond-like-Carbon (oDLC) utilizing its production-proven carbon film technology that is also used on HDD media. This coating provides a hard protective layer which significantly improves the DCP's resistance to scratches and breakage. The scratch protection benefits with the oDLC coating has demonstrated a greater than 9 times improvement over current standard cover glass. Furthermore using a Ring-on-Ring (RoR) test, cover glass with our oDLC coating provides a greater than 20 percent increase in breakage resistance strength over cover glass without the oDLC coating. Intevac expects that the adoption of AR coatings on mobile devices will create an increased need for SP coatings and provide a significant demand opportunity for oDLC.

Solar Market

Intevac designs, manufactures and markets capital equipment for the PV solar manufacturing industry.

A solar cell (also called a PV cell) is a solid state device that converts the energy of sunlight directly into electricity. Assemblies of cells are used to make solar modules, also known as solar panels. Solar panels have broad-based end market applications for utility-scale solar farms; integrated building PV arrays for commercial, retail, and offices; residential rooftop; and for portable devices.

The cost of electricity generated from solar energy, in many cases, remains higher than that of electricity generated from traditional energy sources. However, deployment of photovoltaics is gaining momentum on a worldwide scale, particularly in Asia, North America and other regions, where solar PV is now increasingly competitive with conventional energy sources. Grid parity, whereby solar PV generates power at a levelized cost of electricity (LCOE) less than or equal to the price of power purchased from the electrical grid, has already been reached in about thirty countries. In countries or areas where the cost of solar energy generation remains higher than traditional electricity generation sources, some governments have implemented various tax credits and other financial incentives to promote the growth in solar and other alternative energy sources. As a result of solar energy costs having favorably declined due to the increased scale and improved manufacturing efficiencies spurred by these incentive policies, many governments have reduced or are planning to reduce their incentives for solar, a trend which is likely to continue. However, the United States Investment Tax Credit (ITC) for solar which was due to expire by the end of 2016, has been extended through 2020 to continue the proliferation of solar generated energy in the United States. As of the beginning of 2016 twenty U.S. states had reached grid parity, and an additional twenty-two are poised to reach grid parity within this decade. More than 60 gigawatts of solar capacity was added globally in 2016. In mid-2016 the solar industry entered a downturn as utility-scale solar projects came under pricing pressure and retail deployments were below expectations as U.S. consumers delayed spending as a result of the extension of the ITC. Intevac expects that 2017 will continue to be challenging for the solar industry due to further declines in solar panel pricing, weaker panel demand and lower project activity.

The PV industry continues to focus on the development of high-efficiency cell technologies aimed at simultaneously boosting PV efficiency and reducing solar energy production costs. New vacuum process

Table of Contents

technologies and integrated processing steps are expected to become increasingly important as companies search for lower-cost manufacturing solutions for PV cells.

Intevac offers products for wafer-based crystalline silicon (c-Si) solar cell manufacturing processes, the prevailing manufacturing process in the PV industry. Intevac's products for the solar industry are specifically focused on cell designs with the highest energy conversion efficiency, which are within the n-type mono crystalline portion of the market.

Intevac offers thin-film vacuum process manufacturing solutions for c-Si cell fabrication applications. Intevac offers high-productivity process equipment solutions that enable low-cost solar cell manufacturing with high cell efficiency, consistent with the PV industry's focus and requirements. Intevac has developed two vacuum process application technologies for solar cell manufacturing: one utilizes Physical Vapor Deposition (PVD) technology for the deposition of thin films onto c-Si wafers, and the other utilizes ion implantation, which selectively changes the electrical characteristics of the c-Si solar cell.

PVD is a process used in multiple ways in the manufacturing of solar cells such as for fabricating electrical contacts and conductor layers, depositing reflective layers of various types, and for growing transparent conductive oxide layers, all of which are critical to the efficiency of solar cells.

Ion implantation is a solar cell processing technology whereby an impurity is added to a PV structure to improve its conductivity. In ion implantation, a beam of ions of a desired dopant element such as phosphorus or boron is electrostatically accelerated and directed toward the target material, introducing the impurity. In a subsequent thermal annealing step, the dopant is electrically activated. The ion implant processes enable precision engineering of the dose and of the depth of dopant elements to form emitter structures in working solar cells. Ion implantation is a technique being introduced to solar cell lines as a means to lower the cost per watt to manufacture the cell. Ion implantation can replace existing diffusion processes in existing solar processing lines for present-day PV cell structures, and is also extendable to new advanced cell structures. In both cases, ion implant-formed emitters are created with fewer processing steps, and therefore at lower cost, than the diffusion processes implant displaces. Intevac's ion implantation products are based upon technology developed by Solar Implant Technologies, Inc. (SIT) which was acquired by Intevac in November 2010.

Thin-Film Equipment Products

Intevac's Thin-film Equipment product portfolio addressing each of these markets is based around common core technologies and competencies. Intevac believes its Thin-film Equipment product portfolio can be extended to support adjacent markets. Based on its history and market and technology leadership in the hard disk drive industry, Intevac offers superior high-productivity vacuum handling of small substrates at the lowest cost of ownership. Lowest cost of ownership includes various advantages such as high target utilization, high throughput, small footprint, double-sided coating, and reduced materials costs.

Table of Contents

Product Table

The following table presents a representative list of the Thin-film Equipment products that we offered during fiscal 2016, fiscal 2015 and fiscal 2014.

**Thin Film Equipment Products
Hard Disk Drive Equipment Market**

200 Lean[®] Disk Sputtering System

Uses PVD and chemical vapor deposition (CVD) technologies.

Deposits magnetic films, non-magnetic films and protective carbon-based overcoats.

Provides high-throughput for small-substrate processing.

Over 150 units installed.

200 Lean Etch and Deposition System

Uses PVD and etch technologies.

For use in HAMR and patterned media development.

AccuLuber[™] Disk Lubrication System

Deposits lubricants onto the hard disk's surface to improve durability and reduce surface friction.

Lubricates disks while under vacuum.

Eliminates the environmentally hazardous use of solvents.

Upgrades, spares, consumables and services
(non-systems business)

Upgrades to the installed base to support the continued growth in areal density or reduce the manufacturing cost per disk.

DCP Market

INTEVAC VERTEX[™] System

Utilizes vertical sputtering for multiple film types.

Provides high-throughput for small-substrate processing.

Uses leading target utilization technology.

Modular design enables expandability.

Enables low-temperature processing.

Solar PV Market

INTEVAC MATRIX[™] PVD System

Deposits electrical contacts and conductor layers, reflective layers, and transparent conductive oxide layers, all of which are critical to the efficiency of solar cells.

Includes patented Linear Scanning Magnetic Array (LSMA) magnetron source, with industry-leading target utilization rate of

over 65 percent.

Provides high-throughput for small-substrate processing.

INTEVAC MATRIX Implant System

Utilizes the chambers and transport mechanism of the MATRIX platform while using the implant sources from the ENERGi system.

ENERGi Implant System

Supports both phosphorus and boron dopant technologies.

Extendable to new advanced solar cell structures.

Adjacent Markets

INTEVAC MATRIX System

Incorporates multiple thin-film deposition techniques such as PVD and CVD.

Consists of high-speed linear transport.

Flexible design enables handling of various different small substrate sizes and shapes.

Performs double-sided coating within vacuum.

Table of Contents

Photonics Segment

Photonics Market

Intevac Photonics develops, manufactures and sells compact, cost-effective, high-sensitivity digital-optical products for the capture and display of extreme low-light images. These products incorporate high resolution digital night-image sensors operating in the visible and near infrared (NIR) light spectrums and are based on Intevac s proprietary EBAPS® (Electron Bombarded Active Pixel Sensor) technology.

Photonics products primarily address the high performance military night-vision market. Our products provide digital imagery in extremely low-light level conditions. Intevac provides these products for military aircraft including the U.S. Army AH-64 Apache Attack Helicopter and the F-35 Joint Strike Fighter. Additionally, the Company is developing applications to address ground vehicles, and soldier head-mounted and weapon-mounted applications.

Military Products

Intevac s EBAPS sensors are incorporated into custom-designed cameras, modules and goggle products for high performance military applications. Intevac s EBAPS sensors can be integrated at various levels with optics, electronics, software, and displays based upon customer specifications and requirements. Customization typically occurs in the areas of electronics, near-eye micro-displays, and mechanical packaging. Intevac s products by application are:

Helicopter Pilotage

Intevac provides a night-vision camera with a 2.0 mega-pixel resolution EBAPS module which is turret-mounted on the Apache helicopter. The low-light level digital video is then viewable by the helicopter pilot on a Head-Mounted Display (HMD) enabling the pilot to have enhanced night vision and allowing the aircrew to view multiple aircraft-mounted sensor information. In addition the U.S. Navy has funded a High Resolution Digital Night Vision Goggle (HRDG) development program incorporating a 4.0 mega-pixel resolution EBAPS module for aviation applications. The initial HRDG prototypes were delivered to the U.S. Navy in 2016.

Fixed Wing Aircraft Pilotage

Intevac provides night-vision cameras with a 2.0 mega-pixel resolution EBAPS module which is integrated with the F-35 fighter pilot s helmet and enables the pilot to have enhanced night vision incorporating navigational and tactical information.

Long-Range Target Identification

Intevac provides the Laser Illuminated Viewing and Ranging (LIVAR®) shortwave-infrared camera for long range military night time surveillance systems that can identify targets at distances of up to twenty kilometers. Photonics LIVAR camera is incorporated into long range target identification systems manufactured by a major defense contractor.

Soldier Mobility

Both the U.S. Army and Special Operations Command sponsored programs to develop binocular night-vision goggles incorporating digitally fused low-light level and thermal image sensors. Both head-mounted digital imaging systems will allow low-light level and thermal imagery to be viewed individually or to be overlaid. Our solution targets the

fused night-vision monocular for U.S. Army ground forces, which is the program of record to replace analog night vision. We delivered our first demonstrator monocular to the Army in 2016, for evaluation of alternatives for the fused mobility vision program. We will be demonstrating not only superior night-vision capability, but the advantage of digital, such as zoom, information overlay, and wireless digital image transmission and reception.

Table of Contents*Virtual Reality (VR), Simulation, and Wireless Weapon Sights*

Intevac provides HMDs for applications in VR, simulation, training, and wireless weapon sights. The HMD is a near-eye, high definition, wide field of view micro-display system for portable viewing of video in military and commercial markets. Depending on the application, Intevac provides configuration choices that include monocular or binocular, mono or stereo video, and wired or wireless interfaces. Integral Inertial Measurement Units (IMU) are also offered.

Rifle Sight

Intevac provided EBAPS modules that were integrated by our customers into a weapon sight attached to weaponry, including rifles for night time aiming and targeting.

Commercial Products*Low-Light Cameras*

Photonics MicroVista[®] product line of commercial compact and lightweight low-light Complementary Metal Oxide Semiconductor (CMOS) cameras provides high sensitivity in the ultraviolet, visible or NIR regions of the spectrum for use in industrial inspection, bio-medical and scientific applications. These cameras are primarily sold through distribution channels and to original equipment manufacturers.

Backlog

Intevac s backlog of orders at December 31, 2016 was \$68.5 million, as compared to January 2, 2016 of \$51.2 million. Backlog at December 31, 2016 consisted of \$46.3 million of Thin-film Equipment backlog and \$22.2 million of Photonics backlog. Backlog at January 2, 2016 consisted of \$19.3 million of Thin-film Equipment backlog and \$31.8 million of Photonics backlog. Backlog at December 31, 2016 includes four 200 Lean systems, three PV implant systems and four PVD DCP coating systems. Backlog at January 2, 2016 includes one PV deposition system, two PV implant systems and one PVD DCP coating system. Backlog includes only customer orders with scheduled delivery dates.

Customer Concentration

Historically, a significant portion of Intevac s revenue in any particular period has been attributable to sales to a limited number of customers.

The following customers accounted for at least 10 percent of Intevac s consolidated net revenues in fiscal 2016, 2015, and 2014.

	2016	2015	2014
Seagate Technology	34%	22%	15%
U.S. Government	22%	26%	32%
Elbit Systems of America	10%	*	*
HGST	*	15%	17%

* Less than 10%

Intevac expects that sales of Intevac's products to relatively few customers will continue to account for a high percentage of Intevac's revenues in the foreseeable future.

Foreign sales accounted for 48% of revenue in fiscal 2016, 35% of revenue in fiscal 2015, and 21% of revenue in fiscal 2014. The majority of Intevac's foreign sales are to companies in Asia or to U.S. companies for

Table of Contents

use in their Asian manufacturing or development operations. Intevac anticipates that foreign sales will continue to be a significant portion of Intevac's Thin-film Equipment revenues. Intevac's disk sputtering equipment customers include magnetic disk manufacturers, such as Fuji Electric and Showa Denko, and vertically integrated HDD manufacturers, such as Seagate, Western Digital and HGST. Intevac's PV solar equipment customers include solar panel manufacturers, such as First Solar and SunPower. Intevac's DCP equipment customers include DCP manufacturers, such as Truly Opto-electronics. Intevac's customers' manufacturing facilities are primarily located in California, China, Taiwan, Japan, Malaysia and Singapore.

Competition

The principal competitive factors affecting the markets for Intevac Thin-film Equipment products include price, product performance and functionality, ease of integration, customer support and service, reputation and reliability. Intevac has one major competitor, Canon Anelva, in the hard disk drive equipment market and has historically experienced intense worldwide competition for magnetic disk sputtering equipment. Intevac primarily faces competition from large established global competitors in the PV equipment market including Applied Materials, Centrotherm Photovoltaics, Amtech, Jusung and Von Ardenne. Intevac faces competition in the DCP market from glass manufacturers that may develop scratch resistant glass, from touchscreen manufacturers that may adopt harder substrate materials, or from other equipment companies, chemical companies or the display cover plate manufacturers themselves that may offer competing protective coatings including oDLC. These competitors generally have substantially greater financial, technical, marketing, manufacturing and other resources as compared to Intevac. Furthermore, any of Intevac's competitors may develop enhancements to, or future generations of, competitive products that offer superior price or performance features. In addition, new competitors, with enhanced products may enter the markets that Intevac currently serves.

The principal competitive factors affecting Photonics products include price, extreme low-light level detection performance, power consumption, resolution, size, ease of integration, reliability, reputation and customer support and service. Intevac faces substantial competition for Photonics products, and many competitors have substantially greater resources and brand recognition. In the military market, Harris Corporation and L-3 Communications are large and well-established defense contractors and are the primary U.S. manufacturers of analog image intensifier tubes used in Generation-III night-vision devices and their derivative products. Intevac expects that other companies will develop digital night-vision products and aggressively promote their sales. Within the near-eye display market, Intevac also currently faces competition from Rockwell-Collins, Kopin and Six 15 Technologies in the defense space and anticipates that in the future it will experience competition from lower performance, niche commercial HMD providers expanding into defense applications, all of which can offer cost-competitive products.

Marketing and Sales

Thin-film Equipment sales are made primarily through Intevac's direct sales force. Intevac also sells its products through distributors in Japan and China. The selling process for Intevac's Thin-film Equipment products is multi-level and lengthy, involving individuals from marketing, engineering, operations, customer service and senior management.

Installing and integrating new equipment requires a substantial investment by a customer. Sales of Intevac's systems depend, in significant part, upon the decision of a prospective customer to replace obsolete equipment or to increase manufacturing capacity by upgrading or expanding existing manufacturing facilities or by constructing new manufacturing facilities, all of which typically involve a significant capital commitment. Intevac's systems have a lengthy sales cycle, during which Intevac may expend substantial funds and management time and effort with no assurance that a sale will result.

The production of large complex systems requires Intevac to make significant investments in inventory both to fulfill customer orders and to maintain adequate supplies of spare parts to service previously shipped systems.

Table of Contents

Intevac maintains inventories of spare parts in the United States, Singapore, Malaysia and China to support its Thin-film Equipment customers. Intevac often requires its Thin-film Equipment customers to pay for systems in three installments, with a portion of the system price billed upon receipt of an order, a portion of the price billed upon shipment, and the balance of the price and any sales tax due upon completion of installation and acceptance of the system at the customer's factory.

Intevac provides process and applications support, customer training, installation, start-up assistance and post-installation service support to Intevac's Thin-film Equipment customers. Intevac has field offices in Singapore, China, and Malaysia to support Intevac's customers in Asia.

Warranties for Intevac's Thin-film Equipment products typically range between 12 and 24 months from customer acceptance. During the warranty period any necessary non-consumable parts are supplied and installed without charge.

Sales of Photonics products for military applications are primarily made to the end user through Intevac's direct sales force. Intevac sells to the U.S. government and to leading defense contractors such as Lockheed Martin Corporation, Northrop Grumman Corporation, Elbit Systems of America, Raytheon, DRS Technologies, BAE and Safran Electronics and Defense.

Intevac is subject to long sales cycles in the Photonics segment because many of Intevac's products, such as Intevac's night-vision systems, typically must be designed into Intevac's customers' products, which are often complex and state-of-the-art. These development cycles are generally multi-year, and Intevac's sales are dependent on Intevac's customer successfully integrating Intevac's product into its product, completing development of its product and then obtaining production orders for its product. Sales of these products are also often dependent on ongoing funding of defense programs by the U.S. government and its allies. Additionally, sales to international customers are contingent on issuance of export licenses by the U.S. government.

Photonics generally invoices its research and development customers either as costs are incurred, or as program milestones are achieved, depending upon the particular contract terms. As a government contractor, Intevac invoices customers using estimated annual rates approved by the Defense Contracts Audit Agency (DCAA).

Research and Development and Intellectual Property

Intevac's long-term growth strategy requires continued development of new products. Intevac works closely with Intevac's customers to design products that meet their planned technical and production requirements. Product development and engineering organizations are located primarily in the United States and Singapore.

Intevac invested \$18.2 million (22.7% of net revenue) in fiscal 2016, \$15.7 million (20.8% of net revenue) in fiscal 2015, and \$15.8 million (24.2% of net revenue) in fiscal 2014 for product development and engineering programs to create new products and to improve existing technologies and products. Intevac has spent an average of 27.4% of net revenues on product development and engineering over the last five years.

Intevac's competitive position significantly depends on Intevac's research, development, engineering, manufacturing and marketing capabilities, and not just on Intevac's patent position. However, protection of Intevac's technological assets by obtaining and enforcing intellectual property rights, including patents, is important. Therefore, Intevac's practice is to file patent applications in the United States and other countries for inventions that Intevac considers important. Although Intevac does not consider Intevac's business materially dependent upon any one patent, the rights of Intevac and the products made and sold under Intevac's patents along with other intellectual property, including

trademarks, know-how, trade secrets and copyrights, taken as a whole, are a significant element of Intevac's business.

Table of Contents

Intevac enters into patent and technology licensing agreements with other companies when management determines that it is in Intevac's best interest to do so. Intevac pays royalties under existing patent license agreements for use of certain patented technologies in several of Intevac's products. Intevac also receives, from time to time, royalties from licenses granted to third parties. Royalties received from or paid to third parties have not been material to Intevac's consolidated results of operations.

In the normal course of business, Intevac periodically receives and makes inquiries regarding possible patent infringements. In dealing with such inquiries, it may be necessary or useful for us to obtain or grant licenses or other rights. However, there can be no assurance that such licenses or rights will be available to us on commercially reasonable terms, or at all. If Intevac is not able to resolve or settle claims, obtain necessary licenses and/or successfully prosecute or defend Intevac's position, Intevac's business, financial condition and results of operations could be materially and adversely affected.

Manufacturing

Intevac manufactures its Thin-film Equipment products at its facilities in California and Singapore. Intevac's Thin-film Equipment manufacturing operations include electromechanical assembly, vacuum processing, fabrication of sputter sources, and system assembly, alignment and testing.

Photonics products are manufactured at Intevac's facilities in California. Photonics manufactures sensors, cameras, integrated camera systems, and near-eye display systems using advanced manufacturing techniques and equipment. Intevac's operations include vacuum processing, and electromechanical and optical system assembly.

Employees

At December 31, 2016, Intevac had 286 employees, including 14 contract employees.

Compliance with Environmental Regulations

Intevac is subject to a variety of governmental regulations relating to the use, storage, discharge, handling, emission, generation, manufacture, treatment and disposal of toxic or otherwise hazardous substances, chemicals, materials or waste. Intevac treats the cost of complying with government regulations and operating a safe workplace as a normal cost of business and allocates the cost of these activities to all functions, except where the cost can be isolated and charged to a specific function. The environmental standards and regulations promulgated by government agencies in California and Singapore are rigorous and set a high standard of compliance. Intevac believes its costs of compliance with these regulations and standards are comparable to other companies operating similar facilities in these jurisdictions.

Table of Contents**Executive Officers of the Registrant**

Certain information about our executive officers as of February 15, 2017 is listed below:

Name	Age	Position
<i>Executive Officers:</i>		
Wendell T. Blonigan	55	President and Chief Executive Officer
James Moniz	59	Executive Vice President, Finance and Administration, Chief Financial Officer and Treasurer
Andres Brugal	59	Executive Vice President and General Manager, Photonics
Jay Cho	52	Executive Vice President and General Manager, Thin-Film Equipment
Christopher Smith	57	Vice President, Business Development
<i>Other Key Officers:</i>		
Babak Adibi	62	Vice President and General Manager, Solar Implant
Verle Aebi	62	Chief Technology Officer, Photonics
Terry Bluck	57	Vice President, Chief Technology Officer, Thin-film Equipment
Kimberly Burk	51	Vice President, Global Human Resources
Timothy Justyn	54	Senior Vice President of Global Operations

Mr. Blonigan joined Intevac in July 2013 as President and Chief Executive Officer. Prior to joining Intevac, Mr. Blonigan co-founded Orbotech LT Solar in 2009 and served as the company's Chief Executive Officer until 2013. From 2006 until 2009, he was the Chief Operating Officer at Photon Dynamics, Inc. In 1991, Mr. Blonigan joined Applied Materials' AKT display subsidiary. During his tenure at AKT, he held various positions. In 2003, he was appointed President and served in this role until 2006; from 1999 through 2003 he was Vice President, and prior to that time he was Director of Engineering and New Product Development. Mr. Blonigan holds a BS in electronic engineering technology from DeVry University Missouri Institute of Technology.

Mr. Moniz joined Intevac as Executive Vice President, Finance and Administration, Chief Financial Officer and Treasurer in November 2014. Mr. Moniz previously served as the Chief Financial Officer of Nanometrics, Inc. from 2009 until his retirement in 2011. During 2008, Mr. Moniz was the Chief Financial Officer at Photon Dynamics, Inc. From 2000 until 2008, Mr. Moniz served as the Chief Financial Officer at Nextest Systems Corporation. Prior to Nextest, Mr. Moniz held senior financial management positions at Millennium Vision Corporation, Lockheed Martin Corporation, Loral Corporation and Varian Associates. Mr. Moniz holds an MBA, a BS in accounting and a BS in marketing from San Jose State University.

Mr. Brugal joined Intevac as Executive Vice President and General Manager, Photonics in January 2012. Before joining Intevac, Mr. Brugal was employed at Vision Systems International, a joint venture between Rockwell Collins and Elbit Systems of America, from 2006 to 2012, serving as President and Chief Executive Officer from April 2007 to January 2012. From 2005 to 2006, Mr. Brugal was employed as a consultant for DRS Technologies, a subsidiary of Finmeccanica SPA. Mr. Brugal retired from active service with the U.S. Navy in October 2005 with the rank of Captain. Mr. Brugal holds an MS in strategic studies and security affairs from the U.S. Naval War College and a BS in general engineering from the U.S. Naval Academy.

Mr. Cho joined Intevac in January 2014 and currently serves as Executive Vice President and General Manager, Thin-Film Equipment. Prior to joining Intevac, Mr. Cho was President, Chief Executive Officer and Co-Founder of REEnewal Corporation. From 2006 to 2011, Mr. Cho served as Vice President / General Manager of the Tester and

Repair Business Units of Orbotech LTD. From 2005 to 2006, Mr. Cho served as Vice President, Product Development at Metara Inc. From 1992 to 2005, Mr. Cho held various management positions at Novellus Systems, Inc. Prior to Novellus, Mr. Cho worked for Digital Equipment Corporation and Intermec Corporation. Mr. Cho holds a BS in electrical engineering from Washington State University and an MBA from University of Phoenix.

Table of Contents

Mr. Smith joined Intevac in August 2010 and currently serves as Vice President, Business Development. Prior to joining Intevac, Mr. Smith served as Senior Vice President Sales and Customer Support at Oerlikon Solar, from November 2007 to August 2010. From 2006 to 2007 he served as Senior Vice President of Sales and Service with Cymer. Previously, Mr. Smith was employed by Applied Materials from 1994 to 2006. While at Applied Materials he held a variety of executive-level customer support and operations positions. He also served as product business group general manager for Chemical Mechanical Polishing and was managing director of Global Business Development for the Dielectric and Physical Vapor Deposition Product Business Groups. Mr. Smith earned his BS in Business Administration / Material Management from San Jose State University.

Dr. Adibi joined Intevac in November 2010 as Vice President and General Manager, Solar Implant. Prior to joining Intevac, Dr. Adibi was President, Chief Technology Officer and Co-Founder of Solar Implant Technologies. Prior to founding Solar Implant Technologies, Dr. Adibi worked for Silicon Genesis Corporation from 2006 to 2008 as the General Manager of the Solar Equipment Division. From 2003 to 2006 he served as Vice President in the Laser Annealing Product Division of Ultratech. Previously, Dr. Adibi was employed by Applied Materials from 1985 to 2003. While at Applied Materials he held a variety of executive-level engineering positions. Dr. Adibi holds numerous patents in the area of ion implantation, a PhD in ion implantation and semiconductors and a MS in nuclear power from Surrey University in England and a BS in physics from the Imperial College of London.

Mr. Aebi has served as Chief Technology Officer of the Photonics business since August 2006. Previously, Mr. Aebi served as President of the Photonics Division from July 2000 to July 2006 and as General Manager of the Photonics Division since May 1995. Mr. Aebi was elected as a Vice President of the Company in September 1995. From 1988 through 1994, Mr. Aebi was the Engineering Manager of the night-vision business Intevac acquired from Varian Associates in 1991, where he was responsible for new product development in the areas of advanced photocathodes and image intensifiers. Mr. Aebi holds a BS in physics and an MS in electrical engineering from Stanford University.

Mr. Bluck rejoined Intevac as Vice President, Chief Technology Officer of the Thin-film Equipment in August 2004. Mr. Bluck had previously worked at Intevac from December 1996 to November 2002 in various engineering positions. The business unit Mr. Bluck worked for was sold to Photon Dynamics in November 2002, and he was employed there as Vice President, Rapid Thermal Process Product Engineering until August 2004. Mr. Bluck holds a BS in physics from San Jose State University.

Ms. Burk joined Intevac in May 2000 and currently serves as Vice President of Global Human Resources. Prior to joining Intevac, Ms. Burk served as Human Resources Manager of Moen, Inc. from 1999 to 2000 and as Human Resources Manager of Lawson Mardon from 1994 to 1999. Ms. Burk holds a BS in sociology from Northern Illinois University.

Mr. Justyn has served as Senior Vice President of Global Operations from February 2015. Mr. Justyn served as Vice President, Photonics from October 2008 to February 2015. Mr. Justyn served as Vice President, Thin-film Equipment Manufacturing from April 1997 to October 2008. Mr. Justyn joined Intevac in February 1991 and has served in various roles in our Thin-film Equipment Products Division and our former night-vision business. Mr. Justyn holds a BS in chemical engineering from the University of California, Santa Barbara.

Available Information

Intevac's website is <http://www.intevac.com>. Intevac makes available free of charge, on or through its website, its annual, quarterly and current reports, and any amendments to those reports, as soon as reasonably practicable after electronically filing such reports with, or furnishing them to, the SEC. This website address is intended to be an inactive textual reference only and none of the information contained on Intevac's website is part of this report or is

incorporated by reference herein.

Table of Contents**Trademarks**

Intevac's trademarks, include the following: 200 Lean[®] AccuLuber[®], EBAHSNERGi[®], I-Port[®], LINTARVAC MATRIX[®], MicroVista[®] NightVista[®] Night Port[®], oDLC[®] and INTEVAC VERTEX[®].

Item 1A. Risk Factors

The following factors could materially affect Intevac's business, financial condition or results of operations and should be carefully considered in evaluating the Company and its business, in addition to other information presented elsewhere in this report.

The industries we serve are cyclical, volatile and unpredictable.

A significant portion of our revenue is derived from the sale of equipment used to manufacture commodity technology products such as disk drives, PV solar cells and cell phones. This subjects us to business cycles, the timing, length and volatility of which can be difficult to predict. When demand for commodity technology products exceeds production capacity, then demand for new capital equipment such as ours tends to be amplified. Conversely, when supply of commodity technology products exceeds demand, then demand for new capital equipment such as ours tends to be depressed. For example, sales of systems for magnetic disk production were depressed from late 2007 through 2009. The number of new systems delivered increased in 2010 as customers increased their production capacity in response to increased demand for data storage, but decreased in 2011 through 2015 as the hard disk drive industry did not add the same level of capacity that it did in 2010. We cannot predict with any certainty when these cycles will begin or end. Our sales of systems for magnetic disk production increased modestly in 2016 as a customer upgraded the technology level of its manufacturing capacity. 2017 sales of systems for magnetic disk production are expected to be at the same levels as 2016.

Our equipment represents only a portion of the capital expenditure that our customers incur when they upgrade or add production capacity. Accordingly, our customers generally commit to making large capital expenditures far in excess of the cost of our systems alone when they decide to purchase our systems. The magnitude of these capital expenditures requires our customers to have access to large amounts of capital. Our customers generally reduce their level of capital investment during downturns in the overall economy or during a downturn in their industries. In addition, in recent years the photovoltaic market has undergone a downturn, which is likely to impact our sales of PV products.

We must effectively manage our resources and production capacity to meet rapidly changing demand. Our business experiences rapid growth and contraction, which stresses our infrastructure, internal systems and managerial resources. During periods of increasing demand for our products, we must have sufficient manufacturing capacity and inventory to meet customer demand; attract, retain and motivate a sufficient number of qualified individuals; and effectively manage our supply chain. During periods of decreasing demand for our products, we must be able to align our cost structure with prevailing market conditions; motivate and retain key employees and effectively manage our supply chain.

Sales of our equipment are primarily dependent on our customers' upgrade and capacity expansion plans and whether our customers select our equipment.

We have no control over our customers' upgrade and capacity expansion plans, and we cannot be sure they will select, or continue to select, our equipment when they upgrade or expand their capacity. The sales cycle for our equipment

systems can be a year or longer, involving individuals from many different areas of Intevac and numerous product presentations and demonstrations for our prospective customers. Our sales process also commonly includes production of samples and customization of our products. We do not typically enter into long-term contracts with our customers, and until an order is actually submitted by a customer there is no binding commitment to purchase our systems.

Table of Contents

Sales of new manufacturing systems are also dependent on obsolescence and replacement of the installed base of our customers' existing equipment with newer, more capable equipment. If upgrades are developed that extend the useful life of the installed base of systems, then we tend to sell more upgrade products and fewer new systems, which can significantly reduce total revenue. For example, some of our 200 Lean customers continue to use legacy systems for the production of perpendicular media, which delayed the replacement of such systems with new 200 Lean systems.

Our 200 Lean customers also experience competition from companies that produce alternative storage technologies like flash memory, which offer smaller size, lower power consumption and more rugged designs. These storage technologies are being used increasingly in enterprise applications and smaller form factors such as tablets, smart-phones, ultra-books, and notebook PCs instead of hard disk drives. Tablet computing devices and smart-phones have never contained, nor are they likely in the future to contain, a disk drive. Products using alternative technologies, such as flash memory, optical storage and other storage technologies are becoming increasingly common and could become a significant source of competition to particular applications of the products of our 200 Lean customers, which could adversely affect our results of operations. If alternative technologies, such as flash memory, replace hard disk drives as a significant method of digital storage, then demand for our hard disk manufacturing products would decrease.

The Photonics business is also subject to long sales cycles because many of its products, such as our military imaging products, often must be designed into the customers' end products, which are often complex state-of-the-art products. These development cycles are typically multi-year, and our sales are contingent on our customers successfully integrating our product into their product, completing development of their product and then obtaining production orders for their product from the U.S. government or its allies.

We operate in an intensely competitive marketplace, and our competitors have greater resources than we do.

In the market for our disk sputtering systems, we experience competition primarily from Canon Anelva, which has sold a substantial number of systems worldwide. In the Photovoltaic (PV) equipment market, Intevac faces competition from large established competitors including Applied Materials, Centrotherm Photovoltaics, Amtech, Jusung and Von Ardenne. In the market for our military imaging products we experience competition from companies such as Harris Corporation and L-3 Communications. Some of our competitors have substantially greater financial, technical, marketing, manufacturing and other resources than we do, especially in the DCP and PV equipment markets. Our competitors may develop enhancements to, or future generations of, competitive products that offer superior price or performance features, and new competitors may enter our markets and develop such enhanced products. Moreover, competition for our customers is intense, and our competitors have historically offered substantial pricing concessions and incentives to attract our customers or retain their existing customers.

Our growth depends on development of technically advanced new products and processes.

We have invested heavily, and continue to invest, in the development of new products, such as our 200 Lean and other PVD systems, our coating systems for DCP, our solar systems for PV applications, our digital night-vision products and our near-eye display products. Our success in developing and selling new products depends upon a variety of factors, including our ability to: predict future customer requirements, make technological advances, achieve a low total cost of ownership for our products, introduce new products on schedule, manufacture products cost-effectively including transitioning production to volume manufacturing; commercialize and attain customer acceptance of our products; and achieve acceptable and reliable performance of our new products in the field. Our new product decisions and development commitments must anticipate continuously evolving industry requirements significantly in advance of sales. In addition, we are attempting to expand into new or related markets, including the PV and cell phone cover glass markets. Our expansion into the PV market is dependent upon the success of our customers' development plans.

To date we have not recognized material revenue from such products. Failure to correctly assess the size of the markets, to successfully develop

Table of Contents

cost effective products to address the markets or to establish effective sales and support of the new products would have a material adverse effect on future revenues and profits. In addition, if we invest in products for which the market does not develop as anticipated, we may incur significant charges related to such investments.

Rapid technological change in our served markets requires us to rapidly develop new technically advanced products. Our future success depends in part on our ability to develop and offer new products with improved capabilities and to continue to enhance our existing products. If new products have reliability or quality problems, our performance may be impacted by reduced orders, higher manufacturing costs, delays in acceptance and payment for new products and additional service and warranty expenses.

We are exposed to risks associated with a highly concentrated customer base.

Historically, a significant portion of our revenue in any particular period has been attributable to sales of our disk sputtering systems to a limited number of customers. This concentration of customers, when combined with changes in the customers' specific capacity plans and market share shifts can lead to extreme variability in our revenue and financial results from period to period.

The concentration of our customer base may enable our customers to demand pricing and other terms unfavorable to Intevac, and makes us more vulnerable to changes in demand by a given customer. Orders from a relatively limited number of manufacturers have accounted for, and will likely continue to account for, a substantial portion of our revenues. The loss of one of these large customers, or delays in purchasing by them, could have a material and adverse effect on our revenues.

Our operating results fluctuate significantly from quarter to quarter, which can lead to volatility in the price of our common stock.

Our quarterly revenues and common stock price have fluctuated significantly. We anticipate that our revenues, operating margins and common stock price will continue to fluctuate for a variety of reasons, including: (1) changes in the demand, due to seasonality, cyclicalities and other factors in the markets for computer systems, storage subsystems and consumer electronics containing disks as well as cell phones and PV solar cells our customers produce with our systems; (2) delays or problems in the introduction and acceptance of our new products, or delivery of existing products; (3) timing of orders, acceptance of new systems by our customers or cancellation of those orders; (4) new products, services or technological innovations by our competitors or us; (5) changes in our manufacturing costs and operating expense; (6) changes in general economic, political, stock market and industry conditions; and (7) any failure of our operating results to meet the expectations of investment research analysts or investors.

Any of these, or other factors, could lead to volatility and/or a rapid change in the trading price of our common shares. In the past, securities class action litigation has been instituted against companies following periods of volatility in the market price of their securities. Any such litigation, if instituted against Intevac, could result in substantial costs and diversion of management time and attention.

We may not be able to obtain export licenses from the U.S. government permitting delivery of our products to international customers.

Many of our products, especially Photonics' products, require export licenses from U.S. government agencies under the Export Administration Act, the Trading with the Enemy Act of 1917, the Arms Export Act of 1976 or the International Traffic in Arms Regulations. These regulations limit the potential market for some of our products. We can give no assurance that we will be successful in obtaining all the licenses necessary to export our products.

Heightened government scrutiny of export licenses for defense related products has resulted in lengthened review periods for our license applications. Exports to countries that are not considered by the U.S. government to be allies are likely to be prohibited, and even sales to U.S. allies may be limited. Failure to comply with export control laws, including identification and reporting of all exports and re-exports of controlled

Table of Contents

technology or exports made without correct license approval or improper license use could result in severe penalties and revocation of licenses. Failure to obtain export licenses, delays in obtaining licenses, or revocation of previously issued licenses would prevent us from selling the affected products outside the United States and could negatively impact our results of operations.

The Photonics business is dependent on U.S. government contracts, which are subject to fixed pricing, immediate termination and a number of procurement rules and regulations.

We sell our Photonics products and services directly to the U.S. government, as well as to prime contractors for various U.S. government programs. The U.S. government is considering significant changes in the level of existing, follow-on or replacement programs. We cannot predict the impact of potential changes in priorities due to military transformations and/or the nature of future war-related activities. A shift of government priorities to programs in which we do not participate and/or reductions in funding for or the termination of programs in which we do participate, unless offset by other programs and opportunities, could have a material adverse effect on our financial position, results of operations, or cash flows.

Funding of multi-year government programs is subject to congressional appropriations, and there is no guarantee that the U.S. government will make further appropriations, particularly given the U.S. government's recent focus on spending in other areas and spending reductions. Sales to the U.S. government and its prime contractors may also be affected by changes in procurement policies, budget considerations and political developments in the United States or abroad. For example, if the U.S. government is less focused on defense spending or there is a decrease in hostilities, demand for our products could decrease. The loss of funding for a government program would result in a loss of future revenues attributable to that program. The influence of any of these factors, which are beyond our control, could negatively impact our results of operations.

A significant portion of our U.S. government revenue is derived from fixed-price development and production contracts. Under fixed-price contracts, unexpected increases in the cost to develop or manufacture a product, whether due to inaccurate estimates in the bidding process, unanticipated increases in material costs, reduced production volumes, inefficiencies or other factors, are borne by us. We have experienced cost overruns in the past that have resulted in losses on certain contracts, and may experience additional cost overruns in the future. We are required to recognize the total estimated impact of cost overruns in the period in which they are first identified. Such cost overruns could have a material adverse effect on our results of operations.

Generally, government contracts contain provisions permitting termination, in whole or in part, without prior notice at the government's convenience upon the payment of compensation only for work done and commitments made at the time of termination. We cannot ensure that one or more of the government contracts under which we, or our customers, operate will not be terminated under these circumstances. Also, we cannot ensure that we, or our customers, would be able to procure new government contracts to offset the revenues lost as a result of any termination of existing contracts, nor can we ensure that we, or our customers, will continue to remain in good standing as federal contractors.

As a U.S. government contractor we must comply with specific government rules and regulations and are subject to routine audits and investigations by U.S. government agencies. If we fail to comply with these rules and regulations, the results could include: (1) reductions in the value of our contracts; (2) reductions in amounts previously billed and recognized as revenue; (3) contract modifications or termination; (4) the assessment of penalties and fines; and (5) suspension or debarment from government contracting or subcontracting for a period of time or permanently.

Changes to our effective tax rate affect our results of operations.

As a global company, we are subject to taxation in the United States, Singapore and various other countries. Significant judgment is required to determine and estimate worldwide tax liabilities. Our future effective tax rate could be affected by: (1) changes in tax laws; (2) the allocation of earnings to countries with differing tax rates;

Table of Contents

(3) changes in worldwide projected annual earnings in current and future years; (4) accounting pronouncements; or (5) changes in the valuation of our deferred tax assets and liabilities. Although we believe our tax estimates are reasonable, there can be no assurance that any final determination will not be different from the treatment reflected in our historical income tax provisions and accruals, which could result in additional payments by Intevac.

Our success depends on international sales and the management of global operations.

In previous years, the majority of our revenues have come from regions outside the United States. Most of our international sales are to customers in Asia, which includes products shipped to overseas operations of U.S. companies. We currently have manufacturing facilities in California and Singapore and international customer support offices in Singapore, China, and Malaysia. We expect that international sales will continue to account for a significant portion of our total revenue in future years. Certain of our suppliers are also located outside the United States.

Managing our global operations presents challenges including, but not limited to, those arising from: (1) global trade issues; (2) variations in protection of intellectual property and other legal rights in different countries; (3) concerns of U.S. governmental agencies regarding possible national commercial and/or security issues posed by growing manufacturing business in Asia; (4) fluctuation of interest rates, raw material costs, labor and operating costs, and exchange rates; (5) variations in the ability to develop relationships with suppliers and other local businesses; (6) changes in the laws and regulations of the United States, including export restrictions, and other countries, as well as their interpretation and application; (7) the need to provide technical and spares support in different locations; (8) political and economic instability; (9) cultural differences; (10) varying government incentives to promote development; (11) shipping costs and delays; (12) adverse conditions in credit markets; (13) variations in tariffs, quotas, tax codes and other market barriers; and (14) barriers to movement of cash.

We must regularly assess the size, capability and location of our global infrastructure and make appropriate changes to address these issues.

Difficulties in integrating past or future acquisitions could adversely affect our business.

We have completed a number of acquisitions and dispositions during our operating history. For example, in 2007, we acquired certain assets of DeltaNu, LLC and certain assets of Creative Display Systems, LLC, in 2008 we acquired certain assets of OC Oerlikon Balzers Ltd., in 2010 we acquired the outstanding shares of SIT, in 2012 we completed the sale of certain semiconductor mainframe technology assets and in 2013 we completed the sale of the assets of DeltaNu. We have spent and may continue to spend significant resources identifying and pursuing future acquisition opportunities. Acquisitions involve numerous risks including: (1) difficulties in integrating the operations, technologies and products of the acquired companies; (2) the diversion of our management's attention from other business concerns; and (3) the potential loss of key employees of the acquired companies. Failure to achieve the anticipated benefits of the prior and any future acquisitions or to successfully integrate the operations of the companies we acquire could have a material and adverse effect on our business, financial condition and results of operations. Any future acquisitions could also result in potentially dilutive issuance of equity securities, acquisition or divestiture-related write-offs or the assumption of debt and contingent liabilities. In addition, we have made and will continue to consider making strategic divestitures. With any divestiture, there are risks that future operating results could be unfavorably impacted if targeted objectives, such as cost savings, are not achieved or if other business disruptions occur as a result of the divestiture or activities related to the divestiture.

We may be subject to additional impairment charges due to potential declines in the fair value of our assets.

As a result of our acquisitions, we have significant intangible assets and had significant goodwill on our balance sheet. We test these assets for impairment on a periodic basis as required, and whenever events or

Table of Contents

changes in circumstances indicate that the carrying value may not be recoverable. The events or changes that could require us to test our intangible assets for impairment include: a significant reduction in our stock price, and as a result market capitalization, changes in our estimated future cash flows, as well as changes in rates of growth in our industry or in any of our reporting units. In the fourth quarter of 2012, as a result of a decline in our market capitalization and a reduction in our revenue expectations we recorded a goodwill impairment charge in the amount of \$18.4 million. We will continue to evaluate the carrying value of our intangible assets and if we determine in the future that there is a potential further impairment, we may be required to record additional charges to earnings which could materially adversely affect our financial results and could also materially adversely affect our business.

Our success is dependent on recruiting and retaining a highly talented work force.

Our employees are vital to our success, and our key management, engineering and other employees are difficult to replace. We do not maintain key person life insurance on any of our employees. The expansion of high technology companies worldwide has increased demand and competition for qualified personnel, and has made companies increasingly protective of prior employees. It may be difficult for us to locate employees who are not subject to non-competition agreements and other restrictions.

The majority of our U.S. operations are located in California where the cost of living and of recruiting employees is high. Our operating results depend, in large part, upon our ability to retain and attract qualified management, engineering, marketing, manufacturing, customer support, sales and administrative personnel. Furthermore, we compete with industries such as the hard disk drive, semiconductor, and solar industries for skilled employees. Failure to retain existing key personnel, or to attract, assimilate or retain additional highly qualified employees to meet our needs in the future, could have a material and adverse effect on our business, financial condition and results of operations.

We are dependent on certain suppliers for parts used in our products.

We are a manufacturing business. Purchased parts constitute the largest component of our product cost. Our ability to manufacture depends on the timely delivery of parts, components and subassemblies from suppliers. We obtain some of the key components and subassemblies used in our products from a single supplier or a limited group of suppliers. If any of our suppliers fail to deliver quality parts on a timely basis, we may experience delays in manufacturing, which could result in delayed product deliveries, increased costs to expedite deliveries or develop alternative suppliers, or require redesign of our products to accommodate alternative suppliers. Some of our suppliers are thinly capitalized and may be vulnerable to failure.

Our business depends on the integrity of our intellectual property rights.

The success of our business depends upon the integrity of our intellectual property rights, and we cannot ensure that: (1) any of our pending or future patent applications will be allowed or that any of the allowed applications will be issued as patents or will issue with claims of the scope we sought; (2) any of our patents will not be invalidated, deemed unenforceable, circumvented or challenged; (3) the rights granted under our patents will provide competitive advantages to us; (4) other parties will not develop similar products, duplicate our products or design around our patents; or (5) our patent rights, intellectual property laws or our agreements will adequately protect our intellectual property or competitive position.

From time to time, we have received claims that we are infringing third parties' intellectual property rights or seeking to invalidate our rights. We cannot ensure that third parties will not in the future claim that we have infringed current or future patents, trademarks or other proprietary rights relating to our products. Any claims, with or without merit,

could be time-consuming, result in costly litigation, cause product shipment delays or require us to enter into royalty or licensing agreements. Such royalty or licensing agreements, if required, may not be available on terms acceptable to us.

Table of Contents

We could be involved in litigation.

From time to time we may be involved in litigation of various types, including litigation alleging infringement of intellectual property rights and other claims. Litigation is expensive, subjects us to the risk of significant damages and requires significant management time and attention and could have a material and adverse effect on our business, financial condition and results of operations.

We are subject to risks of non-compliance with environmental and other governmental regulations.

We are subject to a variety of governmental regulations relating to the use, storage, discharge, handling, emission, generation, manufacture, treatment and disposal of toxic or otherwise hazardous substances, chemicals, materials or waste. If we fail to comply with current or future regulations, such failure could result in suspension of our operations, alteration of our manufacturing process, remediation costs or substantial civil penalties or criminal fines against us or our officers, directors or employees. Additionally, these regulations could require us to acquire expensive remediation or abatement equipment or to incur substantial expenses to comply with them.

We are also subject to a variety of other governmental regulations and may incur significant costs associated with the compliance with these regulations. For example rules adopted by the SEC to implement the Dodd-Frank Wall Street Reform and Consumer Protection Act impose diligence and disclosure requirements regarding the use of conflict minerals mined from the Democratic Republic of Congo and adjoining countries in the products we manufacture. Compliance with these regulations is likely to result in additional costs and expenses or may affect the sourcing and availability of the components used in the products we manufacture.

Business interruptions could adversely affect our operations.

Our operations are vulnerable to interruption by fire, earthquake, floods or other natural disaster, quarantines or other disruptions associated with infectious diseases, national catastrophe, terrorist activities, war, disruptions in our computing and communications infrastructure due to power loss, telecommunications failure, human error, physical or electronic security breaches and computer viruses, and other events beyond our control. We do not have a detailed disaster recovery plan. Despite our implementation of network security measures, our tools and servers may be vulnerable to computer viruses, break-ins and similar disruptions from unauthorized tampering with our computer systems and tools located at customer sites. Political instability could cause us to incur increased costs in transportation, make such transportation unreliable, increase our insurance costs or cause international currency markets to fluctuate. All these unforeseen disruptions and instabilities could have the same effects on our suppliers and their ability to timely deliver their products. In addition, we do not carry sufficient business interruption insurance to compensate us for all losses that may occur, and any losses or damages incurred by us could have a material adverse effect on our business and results of operations. For example, we self-insure earthquake risks because we believe this is the prudent financial decision based on the high cost of the limited coverage available in the earthquake insurance market. An earthquake could significantly disrupt our operations, most of which are conducted in California. It could also significantly delay our research and engineering effort on new products, most of which is also conducted in California. We take steps to minimize the damage that would be caused by business interruptions, but there is no certainty that our efforts will prove successful.

We could be negatively affected as a result of a proxy contest and the actions of activist stockholders.

A proxy contest with respect to election of our directors, or other activist stockholder activities, could adversely affect our business because: (i) responding to a proxy contest and other actions by activist stockholders can be costly and time-consuming, disruptive to our operations and divert the attention of management and our employees;

(ii) perceived uncertainties as to our future direction caused by activist activities may result in the loss of potential business opportunities, and may make it more difficult to attract and retain qualified personnel and business partners; and (iii) if individuals are elected to our Board of Directors with a specific agenda, it may adversely affect our ability to effectively and timely implement our strategic plans.

Table of Contents

We are required to evaluate our internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act of 2002, and any adverse results from such evaluation could result in a loss of investor confidence in our financial reports and have an adverse effect on our stock price.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, our management must perform evaluations of our internal control over financial reporting. Beginning in 2004, our Form 10-K has included a report by management of their assessment of the adequacy of such internal control. Additionally, our independent registered public accounting firm must publicly attest to the effectiveness of our internal control over financial reporting.

We have completed the evaluation of our internal controls over financial reporting as required by Section 404 of the Sarbanes-Oxley Act. Although our assessment, testing, and evaluation resulted in our conclusion that as of December 31, 2016, our internal controls over financial reporting were effective, we cannot predict the outcome of our testing in future periods. Ongoing compliance with this requirement is complex, costly and time-consuming. If Intevac fails to maintain effective internal control over financial reporting; our management does not timely assess the adequacy of such internal control; or our independent registered public accounting firm does not deliver an unqualified opinion as to the effectiveness of our internal control over financial reporting, then we could be subject to restatement of previously reported financial results, regulatory sanctions and a decline in the public's perception of Intevac, which could have a material and adverse effect on our business, financial condition and results of operations.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Intevac maintains its corporate headquarters in Santa Clara, California. The location, approximate size and type of facility of the principal properties are listed below. Intevac leases all of its properties and does not own any real estate.

Location	Square Footage	Principal Use
Santa Clara, CA	169,583	Corporate Headquarters; Thin-film Equipment and Photonics Marketing, Manufacturing, Engineering and Customer Support
Carlsbad, CA	10,360	Photonics Micro Display Product Manufacturing
Singapore	31,947	Thin-film Equipment Manufacturing and Customer Support
Malaysia	1,291	Thin-film Equipment Customer Support
Shenzhen, China	2,568	Thin-film Equipment Customer Support

Intevac considers these properties adequate to meet its current and future requirements. Intevac regularly assesses the size, capability and location of its global infrastructure and periodically makes adjustments based on these assessments.

Item 3. Legal Proceedings

From time to time, Intevac is involved in claims and legal proceedings that arise in the ordinary course of business. Intevac expects that the number and significance of these matters will increase as Intevac's business expands. Any

claims or proceedings against us, whether meritorious or not, could be time consuming, result in costly litigation, require significant amounts of management time, result in the diversion of significant operational resources, or require us to enter into royalty or licensing agreements which, if required, may not be available on terms favorable to us or at all. Intevac is not presently a party to any lawsuit or proceeding that, in Intevac's opinion, is likely to seriously harm Intevac's business.

Item 4. *Mine Safety Disclosures*

Not applicable.

Table of Contents**PART II****Item 5. *Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities*****Price Range of Common Stock**

Intevac common stock is traded on The Nasdaq Stock Market (NASDAQ Global Select) under the symbol IVAC. As of February 15, 2017, there were 94 holders of record. In fiscal years 2016 and 2015, Intevac did not declare or pay cash dividends to its stockholders. Intevac currently has no plans to declare or pay cash dividends.

The following table sets forth the high and low closing sale prices per share as reported on The Nasdaq Stock Market for the periods indicated.

	High	Low
Fiscal 2016:		
First Quarter	\$ 5.08	\$ 4.21
Second Quarter	5.74	4.35
Third Quarter	6.25	5.49
Fourth Quarter	8.55	5.65
Fiscal 2015:		
First Quarter	\$ 7.23	\$ 6.13
Second Quarter	6.14	4.80
Third Quarter	6.02	4.55
Fourth Quarter	5.34	4.49

Recent Sales of Unregistered Securities

None.

Table of Contents**Performance Graph**

The following graph compares the cumulative total stockholder return on Intevac's Common Stock with that of the NASDAQ US Benchmark Total Return Index and the NASDAQ Computer Hardware (Subsector) Total Return Index. The comparison assumes \$100 was invested on December 31, 2011 in Intevac Common Stock and in each of the foregoing indices and assumes reinvestment of dividends, if any. The performance shown in the graph represents past performance and should not be considered an indication of future performance.

**COMPARISON OF CUMULATIVE TOTAL RETURN SINCE DECEMBER 31, 2011
AMONG INTEVAC, NASDAQ US BENCHMARK TOTAL RETURN INDEX AND
NASDAQ COMPUTER HARDWARE (SUBSECTOR) TOTAL RETURN INDEX**

	12/31/11	12/31/12	12/31/13	01/03/15	01/02/16	12/31/16
Intevac, Inc.	\$ 100	\$ 62	\$ 100	\$ 100	\$ 64	\$ 116
Nasdaq US Benchmark Total Return Index	100	116	155	175	176	199
Nasdaq Computer Hardware Total Return Index	100	120	141	190	174	201

Repurchases of Intevac Common Stock

The following table provides information as of December 31, 2016 with respect to the shares of common stock repurchased by Intevac during the fourth quarter of fiscal 2016.

	Total Number of Shares Purchased	Average Price Paid per Share	Aggregate Price Paid (in thousands, except per share data)	Total Number of Shares Purchased as Part of Publicly Announced Program*	Maximum Dollar Value of Shares That May Yet be Purchased Under the Program*
October 2, 2016 to October 29, 2016		\$	\$		\$ 1,507
October 30, 2016 to November 26, 2016		\$	\$		\$ 1,507
November 27, 2016 to December 31, 2016		\$	\$		\$ 1,507

* On November 21, 2013, the Board of Directors approved a stock repurchase program authorizing up to \$30 million in repurchases.

Table of Contents**Item 6. Selected Financial Data**

The following selected financial information has been derived from Intevac's historical audited consolidated financial statements and should be read in conjunction with the consolidated financial statements, the accompanying notes and Management's Discussion and Analysis of Financial Condition and Results of Operations for the corresponding fiscal years.

	Fiscal Year ⁽¹⁾				
	2016	2015	2014	2013	2012
	(in thousands, except per share data)				
Net revenues	\$ 80,124	\$ 75,160	\$ 65,550	\$ 69,632	\$ 83,424
Gross profit	\$ 30,409	\$ 26,317	\$ 17,433	\$ 21,973	\$ 34,158
Operating loss	\$ (7,563)	\$ (8,738)	\$ (19,354)	\$ (17,823)	\$ (42,533)
Net loss	\$ (7,441)	\$ (9,166)	\$ (27,445)	\$ (15,696)	\$ (55,319)
Loss per share:					
Basic and Diluted	\$ (0.36)	\$ (0.41)	\$ (1.16)	\$ (0.66)	\$ (2.37)
At year end:					
Total assets	\$ 108,324	\$ 97,681	\$ 120,275	\$ 148,276	\$ 172,503

- ¹ On February 19, 2014, the Board of Directors of the Company approved the Company's change to a 52-53 week fiscal year ending on the Saturday nearest to December 31 of each year in order to improve the alignment of financial and business processes and to streamline financial reporting. Each fiscal quarter consists of 13 weeks, with an occasional fourth quarter extending to 14 weeks, if necessary, for the fiscal year to end on the Saturday nearest to December 31. The Company's fiscal 2016, fiscal 2015 and fiscal 2014 years ended on December 31, 2016, January 2, 2016 and on January 3, 2015, respectively.

Table of Contents

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

Management's Discussion and Analysis (MD&A) is intended to facilitate an understanding of Intevac's business and results of operations. This MD&A should be read in conjunction with Intevac's Consolidated Financial Statements and the accompanying Notes to Consolidated Financial Statements included elsewhere in this Form 10-K. The following discussion contains forward-looking statements and should also be read in conjunction with the cautionary statement set forth at the beginning of this Form 10-K. MD&A includes the following sections:

Overview: a summary of Intevac's business, measurements and opportunities.

Results of Operations: a discussion of operating results.

Liquidity and Capital Resources: an analysis of cash flows, sources and uses of cash, contractual obligations and financial position.

Critical Accounting Policies: a discussion of critical accounting policies that require the exercise of judgments and estimates.

Overview

Intevac is a provider of vacuum deposition equipment for a wide variety of thin-film applications, and a leading provider of digital night-vision technologies and products to the defense industry. The Company leverages its core capabilities in high-volume manufacturing of small substrates to provide process manufacturing equipment solutions to the HDD, DCP, and solar cell industries. Intevac also provides sensors, cameras and systems for government applications such as night vision and long-range target identification. Intevac's customers include manufacturers of hard disk media, DCPs and solar cells as well as the U.S. government and its agencies, allies and contractors. Intevac reports two segments: Thin-film Equipment and Photonics. Effective in the first quarter of 2015, Intevac renamed the Equipment segment Thin-film Equipment.

Product development and manufacturing activities occur in North America and Asia. Intevac has field offices in Asia to support its Thin-film Equipment customers. Intevac's products are highly technical and are sold primarily through Intevac's direct sales force. Intevac also sells its products through distributors in Japan and China.

Intevac's results are driven by a number of factors including success in its equipment growth initiatives in the DCP and solar markets and by worldwide demand for HDDs. Demand for HDDs depends on the growth in digital data creation and storage, the rate of areal density improvements, the end-user demand for PCs, enterprise data storage, nearline cloud applications, video players and video game consoles that include such drives. Intevac continues to execute its strategy of equipment diversification into new markets by introducing new products, such as for a thin-film PVD application for protective coating for DCP manufacturing and a thin-film PVD application for PV solar cell manufacturing. Intevac believes that expansion into these markets will result in incremental equipment revenues for Intevac and decrease Intevac's dependence on the HDD industry. Intevac's equipment business is subject to cyclical industry conditions, as demand for manufacturing equipment and services can change depending on supply and demand for HDDs, cell phones, and PV cells as well as other factors such as global economic conditions and technological advances in fabrication processes.

Fiscal Year	2016	2015	2014	Change	Change
				2016 vs. 2015	2015 vs. 2014
(in thousands, except percentages and per share amounts)					
Net revenues	\$ 80,124	\$ 75,160	\$ 65,550	\$ 4,964	\$ 9,610
Gross profit	30,409	26,317	17,433	4,092	8,884
Gross margin percent	38.0%	35.0%	26.6%	3.0 points	8.4 points
Operating loss	(7,563)	(8,738)	(19,354)	1,175	10,616
Net loss	(7,441)	(9,166)	(27,445)	1,725	18,279
Net loss per diluted share	\$ (0.36)	\$ (0.41)	\$ (1.16)	\$ 0.05	\$ 0.75

Table of Contents

Fiscal 2014 financial results reflected a challenging environment. In the HDD industry media unit shipments grew slightly year over year, reversing a downward trend over the last few years and PC sales increased. These are primary drivers for demand for our HDD manufacturing equipment. During fiscal 2014, our HDD customers' media production capacity continued to exceed demand, which limited the near-term demand for our 200 Lean systems. The Company shipped only two 200 Lean systems to HDD manufacturers during 2014. In 2014 the PV market also improved as increased consumer demand for solar panels began to offset a global oversupply of production capacity experienced by solar cell manufacturers. In 2014, Intevac executed on its diversification strategy to enter into new and adjacent markets by introducing new products and shipped the first MATRIX PVD system for solar cell manufacturing and the first VERTEX coating system for DCPs. In fiscal 2014, Photonics business levels increased as Photonics delivered large scale production shipments of the pilot night-vision systems for the Apache helicopter. The fiscal 2014 net loss reflected lower net revenues, lower gross margins, lower operating expenses and higher income tax expenses from the establishment of a \$9.4 million deferred tax valuation allowance on the deferred tax assets in Singapore. Fiscal 2014 operating expenses reflected savings from cost reduction initiatives which were implemented in the first half of fiscal 2014, offset in part by increased costs associated with a contested Board of Directors election. During fiscal 2014, as part of an effort to lower cash expenditures but to continue to reward employees for their hard work, the Company modified certain executive incentive variable compensation programs to be settled in restricted stock units with a one year vesting and as a result recorded lower variable compensation expense. During fiscal 2014, the Company did not recognize an income tax benefit on the U.S. and Singapore net operating losses.

Fiscal 2015 financial results reflected a continued challenging environment. In the HDD industry media unit shipments declined year over year and PC sales decreased. PC sales were negatively impacted by price increases in Asian markets as a result of a stronger U.S. dollar against Asian currencies. During fiscal 2015, our HDD customers' media production capacity continued to exceed demand, which limited the near-term demand for our 200 Lean systems. The Company shipped only one 200 Lean system to a HDD manufacturer during 2015. In 2015 the PV market continued to improve as global solar panel installations increased 33% over the previous year. In 2015, Intevac continued to execute on its diversification strategy to enter into new and adjacent markets and revenue recognized the first MATRIX PVD system for solar cell manufacturing and the first VERTEX coating system for DCPs. Intevac also received new customer system orders for VERTEX coating systems for DCPs and MATRIX tools for both solar metallization and implant. In fiscal 2015, Photonics business levels decreased as both Photonics' product sales and Photonics' contract research and development (R&D) declined. The fiscal 2015 net loss reflected higher net revenues, higher gross margins and lower operating expenses. Fiscal 2015 operating expenses reflected savings from cost reduction initiatives which were implemented in the first half of fiscal 2015. During fiscal 2015, as part of a continued effort to lower cash expenditures, the Company settled certain executive incentive variable compensation programs with restricted stock units with a one year vesting. During fiscal 2015, the Company did not recognize an income tax benefit on the U.S. and Singapore net operating losses.

Fiscal 2016 financial results reflected an improved environment. In 2016 the HDD industry began to show signs of improvement as media unit shipments and PC sales increased in the second half of the year. Intevac revenue recognized four 200 Lean systems with an additional four in backlog at the end of the year as one of our HDD customers upgraded the technology level of its manufacturing capacity. In 2016 Intevac gained traction with its entry into the DCP market and booked its first production capacity order. In 2016, Intevac recognized revenue on one VERTEX coating system for DCPs and shipped an additional four VERTEX systems that are undergoing installation and acceptance testing. In 2016 the PV market showed signs of stress as utility-scale solar projects came under pricing pressure and retail deployments were below expectations as U.S. consumers delayed spending as a result of the extension of the ITC. In 2016, Intevac recognized revenue on one MATRIX PVD system and one implant system for solar cell manufacturing and shipped an additional two Energi implant systems that are undergoing installation and acceptance testing. In fiscal 2016, Photonics business levels were at similar levels compared to the prior year as increased Photonics' product sales were offset by lower Photonics' contract R&D. The fiscal 2016 net loss reflected

higher net revenues and higher gross margins, offset in part by higher operating expenses as the Company made incremental R&D investments in both its business units. During

Table of Contents

fiscal 2016, as part of a continued effort to lower cash expenditures, the Company settled certain executive incentive variable compensation programs with restricted stock units with a one year vesting. During fiscal 2016, the Company did not recognize an income tax benefit on the U.S. and Singapore net operating losses.

Given the momentum we have built in our business, we believe that we are currently on the path to profitability in fiscal 2017. Intevac expects that HDD equipment sales will be approximately at the same levels as 2016 as a HDD manufacturer takes delivery of the four 200 Lean systems in backlog. In 2017, Intevac expects higher sales of new Thin-film Equipment products as Intevac revenue recognizes the four VERTEX coating systems and two Energi implant systems that are currently undergoing installation activities at our customer sites and the one solar PVD MATRIX tool in backlog. For fiscal 2017, Intevac expects that Photonics business levels will be about the same levels as 2016 as Photonics continues to deliver production shipments of the pilot night-vision systems for the Apache helicopter and night-vision camera modules for the F35 Joint Strike Fighter program.

Results of Operations*Net revenues*

	2016	Fiscal Year 2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
	(in thousands)				
Thin-film Equipment	\$ 45,253	\$ 39,622	\$ 25,290	\$ 5,631	\$ 14,332
Photonics					
Products	29,089	28,450	29,173	639	(723)
Contract R&D	5,782	7,088	11,087	(1,306)	(3,999)
	34,871	35,538	40,260	(667)	(4,722)
Total net revenues	\$ 80,124	\$ 75,160	\$ 65,550	\$ 4,964	\$ 9,610

Net revenues consist primarily of sales of equipment used to manufacture thin-film disks, PV cells, DCPs and related equipment and system components; sales of low-light imaging products; and revenue from contract R&D related to the development of electro-optical sensors, cameras and systems.

The increase in Thin-film Equipment revenues in fiscal 2016 versus fiscal 2015 was due primarily to revenue recognized on four 200 Lean systems, one solar implant ENERGi system, one VERTEX coating system for DCPs and a MATRIX PVD system, offset in part by a decrease in revenue recognized on technology upgrades and spare parts. The increase in Thin-film Equipment revenues in fiscal 2015 versus fiscal 2014 was due primarily to revenue recognized on new PVD solar and DCP equipment including the first MATRIX PVD system and the first VERTEX coating system for DCPs as well as an increase in revenue recognized on technology upgrades and spare parts. Thin-film Equipment revenues in fiscal 2014 reflected lower revenue recognized on technology upgrades and spare parts. Intevac delivered four 200 Lean systems in 2016 compared to one 200 Lean system in fiscal 2015 and compared to two 200 Lean systems in fiscal 2014.

Photonics revenues decreased by 1.9% to \$34.9 million in fiscal 2016 versus fiscal 2015 and decreased by 11.7% to \$35.5 million in fiscal 2015 versus fiscal 2014. Contract R&D revenue in fiscal 2016, fiscal 2015 and fiscal 2014 decreased sequentially as a result of a lower volume of contracts. In fiscal 2014 Intevac completed its major R&D

contract with the U.S. Army to develop a pilot night-vision system for the Apache helicopter.

Photonics product revenue increased in fiscal 2016 versus fiscal 2015 due to increased shipments of night-vision camera modules for the F35 Joint Strike Fighter program, offset in part by lower shipments and lower average sales prices for the Apache pilot night-viewing camera. Photonics product revenue decreased in fiscal 2015 as a result of lower average sales prices for the Apache pilot night-viewing camera. Photonics product revenue in fiscal 2014 reflected the transition to large scale production deliveries for the Apache pilot night-viewing camera.

Table of Contents

In 2017, Photonics revenue is expected to be about the same level as in 2016. Substantial growth in future Photonics revenues is dependent on the proliferation of Intevac's technology into major military programs, continued defense spending, the ability to obtain export licenses for foreign customers and obtaining production subcontracts for these programs.

Backlog

	December 31, 2016	January 2, 2016
	(in thousands)	
Thin-film Equipment	\$ 46,283	\$ 19,337
Photonics	22,244	31,833
Total backlog	\$ 68,527	\$ 51,170

Thin-film Equipment backlog at December 31, 2016 includes four 200 Lean systems, four PVD coating systems for DCPs and three PV implant systems. Thin-film Equipment backlog at January 2, 2016 includes one PV deposition system, one PVD coating system for DCPs and two PV implant systems.

Significant portions of Intevac's revenues in any particular period have been attributable to sales to a limited number of customers. The following customers accounted for at least 10 percent of Intevac's consolidated net revenues in fiscal 2016, 2015, and 2014.

	2016	2015	2014
Seagate Technology	34%	22%	15%
U.S. Government	22%	26%	32%
Elbit Systems of America	10%	*	*
HGST	*	15%	17%

* Less than 10%

Revenue by geographic region

	2016	Fiscal Year 2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
	(in thousands)				
United States	\$ 42,048	\$ 49,034	\$ 51,584	\$ (6,986)	\$ (2,550)
Asia	37,143	23,855	9,931	13,288	13,924
Europe	933	2,271	4,035	(1,338)	(1,764)
Total net revenues	\$ 80,124	\$ 75,160	\$ 65,550	\$ 4,964	\$ 9,610

International sales include products shipped to overseas operations of U.S. companies. The decrease in sales to the U.S. region in 2016 versus 2015 was primarily due to no shipments of 200 Leans to factories in the U.S. compared to one 200 Lean delivered to a U.S. factory in 2015 and lower contract R&D, offset in part by revenue recognized on one MATRIX PVD system. The decrease in sales to the U.S. region in 2015 versus 2014 was primarily due to lower average sales prices for the Apache pilot night-viewing camera.

The increase in sales to the Asia region in 2016 versus 2015 was primarily due to increased equipment sales including four 200 Lean systems, one solar implant ENERGi system and one VERTEX coating system for DCPs, offset in part by a decrease in revenue recognized on technology upgrades and spare parts. The increase in sales to the Asia region in 2015 versus 2014 was primarily due to the sale of the first MATRIX PVD system for solar panels, the sale of the first VERTEX coating system for DCPs and higher sales of technology upgrades to disk manufacturers.

Table of Contents

The decrease in sales to the Europe region in 2016 versus 2015 and in 2015 versus 2014 was primarily due to lower sales of Photonics digital night-vision cameras to a NATO customer. This contract ended in fiscal 2015.

Gross margin

	2016	Fiscal Year 2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
	(in thousands, except percentages)				
Thin-film Equipment gross profit	\$ 14,847	\$ 12,852	\$ 167	\$ 1,995	\$ 12,685
% of Thin-film Equipment net revenues	32.8%	32.4%	0.7%		
Photonics gross profit	\$ 15,562	\$ 13,465	\$ 17,266	\$ 2,097	\$ (3,801)
% of Photonics net revenues	44.6%	37.9%	42.9%		
Total gross profit	\$ 30,409	\$ 26,317	\$ 17,433	\$ 4,092	\$ 8,884
% of net revenues	38.0%	35.0%	26.6%		

Cost of net revenues consists primarily of purchased materials and costs attributable to contract R&D, and also includes assembly, test and installation labor and overhead, customer-specific engineering costs, warranty costs, royalties, provisions for inventory reserves and scrap.

Thin-film Equipment gross margin was 32.8% in fiscal 2016 compared to 32.4% in fiscal 2015 and 0.7% in fiscal 2014. Fiscal 2016 gross margins improved slightly over fiscal 2015 due primarily to higher revenue levels, higher factory utilization and lower provisions for inventory reserves, offset in part by lower sales of higher-margin upgrades. Fiscal 2015 gross margins improved over fiscal 2014 due primarily to higher sales of higher-margin upgrades, higher factory utilization and lower provisions for inventory reserves. Fiscal 2014 gross margins reflect a \$3.1 million reserve against certain solar implant inventory. Gross margins in the Thin-film Equipment business vary depending on a number of factors, including product mix, product cost, system configuration and pricing, factory utilization, and provisions for excess and obsolete inventory.

Photonics gross margin was 44.6% in fiscal 2016 compared to 37.9% in fiscal 2015 and 42.9% in fiscal 2014. Fiscal 2016 gross margins improved over fiscal 2015 due primarily to higher margins on products and lower inventory provisions, offset in part by lower margins on contract R&D. Fiscal 2015 gross margins declined over fiscal 2014 due primarily to lower margins on products and contract R&D, higher manufacturing engineering costs, and higher inventory provisions, offset in part by lower provisions for loss contracts. Manufacturing costs for digital night-vision products decreased in fiscal 2016, 2015 and 2014 as a result of cost reductions and yield improvements.

Research and development

	2016	Fiscal Year 2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
	(in thousands)				
Research and development expense	\$ 18,156	\$ 15,661	\$ 15,832	\$ 2,495	