II-VI INC
Form 10-K
August 26, 2016

United States

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

x Annual Report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934
for the fiscal year ended June 30, 2016

¨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: 0-16195

II-VI INCORPORATED

(Exact name of registrant as specified in its charter)

PENNSYLVANIA (State or other jurisdiction of incorporation or organization)	25-1214948 (I.R.S. Employer Identification No.)
375 Saxonburg Boulevard Saxonburg, PA (Address of principal executive offices)	16056 (Zip code)

Registrant's telephone number, including area code: 724-352-4455

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

Title of Each Class	Name of Each Exchange on Which Registered

Common Stock, no par value Nasdaq Global Select Market

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

None

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

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

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 x 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 during the preceding 12 months (or for shorter period that the registrant was required to submit and post such files). Yes x No ¨

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

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

Large accelerated filer x 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 x

Aggregate market value of outstanding Common Stock, no par value, held by non-affiliates of the Registrant at December 31, 2015, was approximately $1,100,264,770 based on the closing sale price reported on the Nasdaq Global Select Market. For purposes of this calculation only, directors and executive officers of the Registrant and their spouses are deemed to be affiliates of the Registrant.

Number of outstanding shares of Common Stock, no par value, at August 19, 2016, was 62,637,200.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement, which will be issued in connection with the 2016 Annual Meeting of Shareholders of II-VI Incorporated, are incorporated by reference into Part III of this Annual Report on Form 10-K.

Forward-Looking Statements

This Annual Report on Form 10-K (including certain information incorporated herein by reference) contains forward-looking statements made pursuant to Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements can be identified as those that may predict, forecast, indicate or imply future results, performance or advancements and by forward-looking words such as "expects," "anticipates," "intends," "plans," "projects," "believes," "estim or similar expressions. Forward-looking statements address, among other things, our expectations, our growth strategies, our efforts to increase bookings, sales and revenues, projections of our future profitability, results of operations, capital expenditures, our financial condition or other "forward-looking" information and include statements about revenues, earnings, spending, margins, costs or our actions, plans or strategies.

The forward-looking statements in this Annual Report on Form 10-K involve risks and uncertainties, which could cause actual results, performance or trends to differ materially from those expressed in the forward-looking statements herein or in previous disclosures. II-VI Incorporated believes that all forward-looking statements made by it have a reasonable basis, but there can be no assurance that these expectations, beliefs or projections will actually occur or prove to be correct. Actual results could materially differ from such statements.

The following factors, among others, in some cases have affected and in the future could affect our financial performance and actual results, and could cause actual results for fiscal 2016 and beyond to differ materially from those expressed or implied in any forward-looking statements included in this Annual Report on Form 10-K or otherwise made by our management:

- Our future success depends on continued international sales,
- Our competitive position depends on our ability to develop new products and processes,
- Investments in future markets of potential significant growth may not result in expected returns,
- We may fail to accurately estimate our customers' demand,
- Global economic downturns may adversely affect our business, operating results and financial condition,
- Our global operations are complex to manage,
- We have entered into supply agreements which commit us to supply products on specified terms,
- We depend on highly complex manufacturing processes that require products from limited sources of supply,
- Our global operations are subject to complex legal and regulatory requirements,
- We may encounter substantially increased competition,
- Our competitive position may require significant investments in strategic acquisitions,
- Declines in the operating performance of one of our business segments could result in an impairment of the segment's goodwill and indefinite-lived intangible assets,
- There are limitations on the protection of our intellectual property,
- We are subject to governmental import and export regulations,
- We have agreements with government entities,
- We use and generate hazardous substances that are subject to stringent environmental regulations,
- We may be adversely affected by climate change regulations,
- Data breach incidents and breakdown of information and communication technologies could disrupt our operations and impact our financial results,

- Some systems that use our products are complex in design, and our products may contain defects that are not detected until deployed which could increase our costs and reduce our revenues,
- Significant defense spending cuts and/or reductions in defense programs could adversely impact our business,

- Change in tax rates, tax liabilities or tax accounting rules could affect future results,
- Our success depends on our ability to retain key personnel,
- Natural disasters or other global or regional catastrophic events could disrupt our operations and adversely affect our results,
- A significant portion of our business depends on cyclical industries,
- Increases in commodity prices may adversely affect our results of operations and financial condition,
- Regulations related to conflict minerals could adversely impact our business,
- The market price of our common stock can be highly volatile,
- Provisions in our articles of incorporation and by-laws may limit the price that investors may be willing to pay in the future for shares of our common stock,
- Because we do not currently intend to pay dividends, shareholders will benefit from an investment in our common stock only if it appreciates in value

The foregoing and additional risk factors are described in more detail herein under Item 1A. “Risk Factors”. In addition, we operate in a highly competitive and rapidly changing environment and therefore, new risk factors can arise. It is not possible for management to predict all such risk factors, assess the impact of all such risk factors on our business nor estimate the extent to which any individual risk factor, or combination of risk factors, may cause results to differ materially from those contained in any forward-looking statement. The forward-looking statements included in this Annual Report on Form 10-K speak only as of the date of this Annual Report on Form 10-K. We do not assume any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or developments, or otherwise, except as may be required by the securities laws. We caution you not to rely on them unduly.

Investors should also be aware that while II-VI Incorporated does communicate with securities analysts, from time to time, those communications are conducted in accordance with applicable securities laws. Investors should not assume that II-VI Incorporated agrees with any statement or report issued by any analyst irrespective of the content of the statement or report.

PART I

Item 1. BUSINESS

Introduction

II-VI Incorporated ("II-VI," the "Company," "we," "us," or "our") was incorporated in Pennsylvania in 1971. Our executive offices are located at 375 Saxonburg Boulevard, Saxonburg, Pennsylvania 16056. Our telephone number is 724-352-4455. Reference to "II-VI," the "Company," "we," "us," or "our" in this Annual Report on Form 10-K, unless the context requires otherwise, refers to II-VI Incorporated and its wholly-owned subsidiaries. The Company's name is pronounced "Two Six Incorporated." The majority of our revenues are attributable to the sale of engineered materials and optoelectronic components and devices for industrial laser applications, optical communications products, compound semiconductor substrate-based products and consumer products. Reference to "fiscal" or "fiscal year" means our fiscal year ended June 30 for the year referenced.

The Company's organizational structure is divided into three reporting segments for the purpose of making operational decisions and assessing financial performance: (i) II-VI Laser Solutions, (ii) II-VI Photonics, and (iii) II-VI Performance Products. These segments, and the units within the segments, are reflected in the organization chart below:

During the fiscal year ended June 30, 2016, the Company completed two acquisitions:

February 1, 2016EpiWorks, Inc. (“EpiWorks”)

March 15, 2016ANADIGICS, Inc. (“ANADIGICS”)

These two acquired businesses joined the II-VI Laser Solutions segment. See Note 2 to the Company’s Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K for additional information regarding the Company’s acquisitions, which information is incorporated herein by reference.

On June 3, 2016, the Company sold the assets of ANADIGICS’s radio frequency (“RF”) business. In conjunction with the sale of the RF business, the Company renamed ANADIGICS as II-VI OptoElectronic Devices, Inc. (“OED”). See Note 2 to the Company’s consolidated financial statements included in Item 8 of this Annual Report on Form 10-K for additional information regarding the Company’s disposition of the RF business, which information is incorporated herein by reference.

Information Regarding Market Segments and Foreign Operations

Financial data regarding our revenues, results of operations, industry segments and international sales for the three years ended June 30, 2016 are set forth in the Consolidated Statements of Earnings and in Note 11 to the Company’s Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K and are incorporated herein by reference. We also discuss certain Risk Factors set forth in Item 1A of this Annual Report on Form 10-K related to our foreign operations, which are incorporated herein by reference.

General Description of Business

We develop and manufacture engineered materials, optoelectronic components and products for precision use in industrial, optical communications, military, semiconductor, consumer and life science applications. We use advanced engineered material growth technologies coupled with proprietary high-precision fabrication, micro-assembly, thin-film coating and electronic integration to enable complex optoelectronic devices and modules. Our products are deployed in applications that we believe reduce costs and improve performance and reliability in a variety of applications, including:

- Laser cutting, welding and marking operations,
- 3D sensing consumer applications,
- Optical communication products,
- Intelligence, surveillance and reconnaissance,
- Semiconductor processing and tooling, and
- Thermoelectric cooling and power generation solutions.

A key Company strategy is to develop and manufacture high performance materials that are differentiated from those produced by our competitors. We focus on providing components that are critical to the heart of our customers’ assembly lines for products serving the applications mentioned above.

Our U.S. production and research and development operations are located in Pennsylvania, California, New Jersey, Texas, Mississippi, Massachusetts, Connecticut, Delaware, New York, Florida and Illinois and our non-U.S. production operations are based in China, Singapore, Vietnam, the Philippines, Germany and Switzerland. We also utilize a contract manufacturer in Thailand. In addition to sales offices at most of our manufacturing sites, we have sales and marketing subsidiaries in Hong Kong, Japan, Germany, China, Switzerland, Belgium, the United Kingdom ("U.K."), Italy and South Korea. Approximately 63% of our revenues for the fiscal year ended June 30, 2016 were generated from sales to customers outside of the United States ("U.S.").

Our Markets and Products

Our market-focused businesses are organized by technology and products. Our businesses are composed of the following primary markets:

Our Markets:	Addressable Markets:	Fiscal Year 2016 Revenues by Market:
Industrial	Material processing - including laser cutting, welding, drilling, ablation, cladding, heat treating and marking. Chemical Vapor Deposition ("CVD") Diamond - windows, tooling, microwave and radiation detection. 3D sensing and printing applications.	$294 million
Optical Communications	Optical high-speed datacom applications and high power sensing for consumer electronic applications. Low-power polarization locked products for optical mouse and finger navigation applications. CATV networks and data centers. Metro to long haul and undersea networks.	$298 million
Military	Intelligence, surveillance, and reconnaissance.	$104 million
Other	Semiconductor, display and refractory components. Life science, medical and cosmetic devices. Cooling, heating and power generation. Consumer applications.	$131 million

The details of our Addressable Markets and our Key Products by Business Unit:

II-VI Laser Solutions Segment

II-VI Infrared Optics Group:

- Design, manufacture and marketing of engineered materials and optoelectronic components for industrial applications.

Increases in the installed worldwide base of carbon dioxide ("CO_2") and fiber laser machines for a variety of laser processing applications have driven CO_2 laser optics component consumption. It is estimated that there are over 75,000 CO_2 laser systems currently deployed in the world. CO_2 and fiber lasers offer benefits in a wide variety of cutting, welding, drilling, ablation, cladding, heat treating and marking applications for materials such as steel alloys, non-ferrous metals, plastics, wood, paper, fiberboard, ceramics and composites.

Laser systems enable manufacturers to reduce parts cost and improve quality, as well as improve process precision, speed, throughput, flexibility, repeatability and automation. Automobile manufacturers, for example, deploy lasers both to cut body components and to weld those parts together in high-throughput production lines. Manufacturers of motorcycles, lawn mowers and garden tractors cut, trim, and weld metal parts with lasers to reduce post-processing steps and, therefore, lower overall manufacturing costs. Furniture manufacturers utilize lasers because of their easily reconfigurable, low-cost prototyping and production capabilities for customer-specified designs. In high-speed food and pharmaceutical packaging lines, laser marking is used to provide automated product, date and lot coding on containers.

In addition to being installed by original equipment manufacturers ("OEMs") of laser systems in new machine builds, our optical components are purchased as replacement parts by end-users of laser machines to maintain proper system

performance.

In newer and developing market segments, Silicon Carbide (“SiC”) and CVD Diamond both exhibit very high thermal conductivities for use in high-end applications in the semiconductor and optoelectronic markets. CVD Diamond also has applications in the windows, tooling, microwave and radiation detection markets.

The key products enabling these applications in our addressable markets include precision infrared optoelectronic components such as lenses, output couplers, windows, mirrors and scan-lenses for use in CO_2 and fiber lasers. Our precision optoelectronic components are used to control laser energy, enhance the properties of the laser beam and focus and direct laser beams to a target work surface. The optoelectronic components include both reflective and transmissive optics and are made from materials such as zinc selenide, zinc sulfide, copper, silicon, gallium arsenide ("GaAs") and germanium. Transmissive optics used with CO_2 lasers are predominately made from zinc selenide. We believe we are the largest manufacturer of zinc selenide in the world.

II-VI HIGHYAG Division:

- Design, manufacture and marketing of customized technology for laser material processing to deliver both low-power and high-power one-micron laser light for industrial applications.

In many areas of material processing, laser technology has proven to be a better alternative to conventional production techniques. It has also enabled novel processing steps not previously achievable with legacy technologies. The precise cut and elegant seam are visible proof of a laser beam's machining efficiency.

Industrial applications such as welding, drilling and cutting have driven the recent market growth of one-micron laser systems, and are demanding increased performance, lower total cost of ownership, ease of use and portability of the one-micron laser systems. One-micron laser systems require efficient and reliable tools for the most demanding automotive and machine tool industries.

The key product enabling these applications include modular laser processing heads for fiber lasers, direct diode lasers and other one-micron laser systems. We also manufacture beam delivery systems including fiber optic cables and modular beam coupling systems.

II-VI OptoElectronic Materials & Devices Group:

II-VI Laser Enterprise Division:

- Design, manufacture and marketing of advanced semiconductor laser diodes and low-power polarization locked laser diodes.

We market advanced laser technology diodes for material processing, medical, cosmetic, 3-D sensing and printing applications and are exploring other new market opportunities for our high-power lasers.

In addition, we sell low-power polarization locked products for optical mouse and finger navigation applications. Our market opportunities for vertical cavity surface emitting laser ("VCSEL") products are expanding to include optical high-speed datacom applications and high-power sensing for consumer electronics applications.

II-VI OptoElectronic Devices Division:

- Design, manufacture and marketing of six-inch GaAs wafers.

Current markets include consumer electronics, WiFi, Internet of Things and automotive. The need for epitaxial semiconductor wafers is critical as devices require more power and storage capacity.

II-VI EpiWorks:

- Design, manufacture and marketing of epitaxial compound semiconductor wafers.

Epitaxial compound semiconductor wafers are driving performance in many differentiated markets including consumer electronics, laser projection, data centers, tailored heating and industrial marking. Our products are geared toward enabling higher performance photonic and RF components for consumer, communications, network and mobile applications and RF components for wireless handsets, tablets and the Internet of Things. We are a leading producer of advanced epitaxial wafers tailored for optimal performance in multiple next generation applications including LED and laser wafers used in displays and RF wafers used in smartphones.

II-VI Suwtech Division:

- Design, manufacture and marketing of high-power lasers for industrial applications and green lasers for consumer, life science and industrial applications. We supply high-power laser, green laser, narrow line-width laser and Q-switched laser solutions. Additionally, the division creates ultra-hard material laser cutting machines for industrial applications.

The need for high-power and green laser for industrial and medical applications continues to grow as does the need for a laser cutting device capable of processing the next generation of ultra-hard materials like diamond.

II-VI Photonics Segment

II-VI Photop Group:

- Our engineering resources are broadly based for design, manufacture and marketing of a diverse range of customized optics, including optical assemblies for consumer and commercial applications such as fiber optic communications, projection and display products, lasers, medical equipment and bio-medical instrumentation. Products include a wide variety of standard and custom laser gain materials, optics, optical components and optical module assemblies. Our laser gain materials are produced to stringent industry standards and precisely fabricated to customer specifications, and include neodymium-doped yttrium aluminum garnet ("Nd:YAG") and erbium-doped yttrium aluminum garnet ("Er:YAG") components for many types of laser systems.
- In addition, we design, manufacture and market crystal and optical components to major OEM customers for fiber, solid state and gas laser systems used in industrial and medical applications.
- The II-VI Photop market is driven by applications in the optical communications, medical and life science, and industrial markets. The optical communications market segment requires delivery of ever-increasing data bandwidth and necessitates innovations in performance and cost of the underlying optics and optical components.
- Medical and life science applications continue to gain traction in the market for laser procedures for aesthetic, vision correction, dental, ophthalmic, surgical and diagnostic lasers and instruments.
- Industrial market segments are addressed by solid state lasers and fiber lasers, which are used in high-power applications such as cutting, welding, drilling, and lower power applications such as marking and engraving. These industrial applications are demanding higher performance levels for less cost and more efficiency, creating competition for older technologies.
- II-VI Photop also addresses opportunities in the semiconductor processing, instrumentation, test and measurement and research market segments.

II-VI Optical Communications Group:

- Design, manufacture and marketing of optical components, assemblies, modules, transceivers and monitor products for use in communications, cable television ("CATV") networks and data centers.
- Design, manufacture and marketing of Erbium Doped Fiber Amplifiers ("EDFA") and their source 980 nanometer ("nm") pump laser diodes used to compensate for losses in optical fiber and other optical components and modules in optical transmission systems.
- Design, manufacture and marketing of Optical Time Domain Reflectometry ("OTDR") products for embedded monitoring of the physical line integrity in optical transmission systems.

The optical communications market is being driven in part by demand for high-bandwidth communication capabilities through increasing worldwide usage of the Internet and data services, the growing number of broadband users, mobile device and cloud computing users, and the greater reliance on high-bandwidth capabilities in our daily lives. High-bandwidth communication networks are being extended closer to the end-user with fiber-to-the-home and other fiber optic networks. Mobile data traffic also is increasing as smart phones continue to proliferate with increasingly sophisticated audio, photo, video, email and Internet capabilities, as well as data connection and storage through cloud computing networks. The resulting traffic, in turn, is felt throughout the network, including the core that depends on

optical technology. Our passive components, assemblies and modules are used for filtering, switching, combining and routing optical wavelengths within optical networks. Our monitoring products are used for measuring the performance of optical channels and systems.

Our 980 nm pump laser diodes are designed for use as high-power, highly reliable pump sources for EDFAs in terrestrial access, cross-connect, metro to long haul and undersea (submarine) repeater applications. Single mode high-power uncooled modules are designed for both the single channel and small form factor terrestrial market and also the stringent high reliability demands of the submarine (subsea) network market. In addition, we market EDFAs that are used to compensate for losses in optical fiber and other optical components and modules in optical transmission systems. We

offer optical amplifiers at all levels of functionality, from simple optical modules through full circuit cards, which plug directly into our customers' equipment racks and service the metro, regional and long-haul optical transmission markets. In some cases, we add additional switching and monitoring functionality to the base amplifier.

II-VI Performance Products Segment

II-VI Optical Systems:

- Design, manufacture and marketing of Ultra Violet ("UV"), Visible ("VIS") and Infrared ("IR") optical components and high-precision optical assemblies, laser gain material and micro-fine conductive mesh patterns for intelligence, surveillance, reconnaissance and other military, life science and commercial laser and imaging applications.

We provide several key assemblies and optical components such as windows, domes, laser rods and optics and related sub-assemblies to military, semiconductor, medical, and life sciences markets for UV, VIS, and IR applications in night vision, targeting, navigation, missile warning, and Homeland Security Intelligence, Surveillance and Reconnaissance systems.

Infrared windows and window assemblies for navigational and targeting systems are deployed on fixed and rotary-wing aircraft, such as the F-35 Joint Strike Fighter, F-16 fighter jet, Apache Attack Helicopter, unmanned platforms such as the Predator and Reaper Unmanned Aerial Vehicle ("UAV") and ground vehicles such as the Abrams M-1 Tank and Bradley Fighting Vehicle.

Additionally, multiple fighter jets, including the F-16, are equipped with large area sapphire windows, as a key component for the aircraft, providing advanced targeting and imaging systems. Our ability to grow large sapphire materials and manufacture these materials into large area sapphire windows has played a key role in our ability to provide an even larger suite of sapphire panels, which are a key component of the F-35 Joint Strike Fighter Electro Optical Targeting System.

Infrared domes are used on missiles with infrared guidance systems ranging from small, man-portable designs to larger designs mounted on helicopters, fixed-wing aircraft and ground vehicles. High-precision domes are an integral component of a missile's targeting system, providing efficient tactical capability, while serving as a protective cover to its internal components.

The Company also offers precision optical engineering and manufacturing, with particular efficiency in designing to customer end-item specifications, assisting with co-engineering designs, and designing for manufacturability. The high precision optical components and assemblies programs include Deep Impact Comet Flyby HRI & MRI, Lunar Reconnaissance Orbiter, Hellfire II Missile Optics, missile launch detection sensor optical assembly, and High Altitude Observatory telescopes among others. In addition to imaging, many of these systems employ laser designation and range-finding capabilities supported by our YAG material growth and competency in short wave infrared and visible optics. Turreted systems and mounted targeting pods employ these capabilities in addition to hand-held soldier systems. Rotary and fixed-wing platforms also use missile warning systems to protect against shoulder fired man-portable missiles. Our competencies in material growth for UV crystals and our optical assembly capabilities provide significant support to these missile warning systems. A key attribute to several of these systems is the ability to filter electro-magnetic interference using micro-fine conductive mesh patterns. This technology is also applied to non-optical applications for absorbing and transmitting energy from the surfaces of aircraft and missiles.

II-VI Marlow:

- Design, manufacture and marketing of Thermoelectric Modules ("TEMs") and assemblies for cooling, heating and power generation applications in the defense, telecommunications, medical, consumer and industrial markets.

TEMs are solid-state semiconductor devices that act as small heat pumps to cool, heat and temperature stabilize a wide range of materials, components and systems. Conversely, the principles underlying thermoelectrics allow TEMs to be used as a source of power when subjected to temperature differences. TEMs are more reliable than alternative cooling solutions that require moving parts and provide more precise temperature control solutions than competing technologies.