

AXT INC
Form 10-K
February 27, 2017
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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: 000-24085

AXT, INC.

(Exact name of registrant as specified in its charter)

Delaware	94-3031310
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
4281 Technology Drive, Fremont, California	94538
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (510) 438-4700

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

Title of each class	Name of each exchange on which registered
Common	The NASDAQ Stock Market LLC
Stock,	
\$0.001	

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par value

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

None

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

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

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

reporting company)

Large accelerated filer Accelerated filer Non accelerated filer Smaller reporting company

(Do not check if a smaller reporting company)

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

The aggregate market value of the voting stock held by non-affiliates of the registrant, based upon the closing sale price of \$3.19 for the common stock on June 30, 2016 as reported on the Nasdaq Global Select Market, was approximately \$99,297,229. Shares of common stock held by each officer, director and by each person who owns 10% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not a conclusive determination for other purposes.

As of February 27, 2017, 33,031,479 shares, \$0.001 par value, of the registrant's common stock were outstanding.

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PART I

This Annual Report (including the following section regarding Management’s Discussion and Analysis of Financial Condition and Results of Operations) contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended. Statements relating to our expectations regarding results of operations, customer demand, customer qualifications of our products, our ability to expand our markets or increase sales, the development of new products, applications, enhancements or technologies, gross margins, expense levels, the impact of the adoption of certain accounting pronouncements, our investments in capital projects, our plan to relocate our China manufacturing operations, and our belief that we have adequate cash and investments to meet our needs over the next 12 months are forward-looking statements. Words such as “expects,” “anticipates,” “intends,” “plans,” “believes,” “seeks,” “estimates,” “goals,” “should,” “continues,” “would,” “could” and similar expressions or variations of such words are intended to identify forward looking statements, but are not the exclusive means of identifying forward looking statements in this Annual Report. Additionally, statements concerning future matters such as our strategy, plans, industry trends and the impact of trends and economic cycles on our business are forward-looking statements. All forward-looking statements are based upon management’s views as of the date of this Annual Report and are subject to risks and uncertainties that could cause actual results to differ materially from historical results or those anticipated in such forward-looking statements. Such risks and uncertainties include those set forth under the section entitled “Risk Factors” in Item 1A below, as well as those discussed elsewhere in this Annual Report, and identify important factors that could disrupt or injure our business or cause actual results to differ materially from those predicted in any such forward-looking statements.

These forward-looking statements are not guarantees of future performance. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof. Readers are urged to carefully review and consider the various disclosures made in this report, which attempt to advise interested parties of the risks and factors that may affect our business, financial condition, results of operations and prospects. We undertake no obligation to revise or update any forward looking statements in order to reflect any development, event or circumstance that may arise after the date of this report.

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Item 1. Business

AXT, Inc. (“AXT”, “we,” “us,” and “our” refer to AXT, Inc. and its consolidated subsidiaries) is a worldwide developer and producer of high-performance compound and single element semiconductor substrates, also known as wafers. Our consolidated subsidiaries produce and sell certain raw materials some of which are used in our substrate manufacturing process and some of which are sold to other companies.

Our substrate wafers are used when a typical silicon substrate wafer cannot meet the conductive requirements of a chip. The dominant substrates used in producing semiconductor chips and other electronic circuits are made from silicon. However, certain chips may become too hot or perform their function too slowly if silicon is used as the base material. In addition, optoelectronic applications, such as LED lighting and chip-based lasers, do not use silicon substrates because they require a wave form frequency that cannot be achieved using silicon. Alternative or specialty materials are used to replace silicon as the preferred base in these situations. Our wafers provide such alternative or specialty materials. We have two product lines: specialty material substrates and raw materials. Our compound substrates combine indium with phosphorous (indium phosphide: InP) or gallium with arsenic (gallium arsenide: GaAs). Our single element substrates are made from germanium (Ge).

Our raw materials include both raw gallium and purified gallium. We use purified gallium in producing our GaAs substrates and sell both raw gallium and purified gallium in the open market to other companies for use in magnetic materials, high temperature thermometers and growing single crystal ingots including gallium arsenide, gallium nitride, gallium antimonide, gallium phosphide and other materials and alloys. We also produce pyrolytic boron nitride (pBN) crucibles used in the high temperature (typically in the range 500 C to 1,500 C) growth process of single crystal ingots and epitaxial layer growth in MBE (Molecular Beam Epitaxy) reactors. We use these pBN crucibles in our own ingot growth processes and also sell them in the open market to other companies. Our substrate product group generated 81%, 75% and 72% of our revenue and our raw materials product group generated 19%, 25% and 28% for 2016, 2015 and 2014, respectively.

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The following chart shows our substrate group and their materials, diameters and illustrative applications and shows our raw materials group primary products and illustrative uses and applications.

Products	Substrate Diameter	Sample of Applications
Substrate Group Indium Phosphide (InP)	2", 3", 4"	<ul style="list-style-type: none"> • Fiber optic lasers and detectors • Passive Optical Networks (PONs) • Data center connectivity using light/lasers • Silicon photonics • Photonic ICs (PICs) • High efficiency terrestrial solar cells (CPV) • RF amplifier and switching (military wireless and potential 5G) • Lasers • Infrared LED motion control • Infrared thermal imaging
Gallium Arsenide (GaAs - semi-insulating)	1", 2", 3", 4", 5", 6"	<ul style="list-style-type: none"> • Power amplifiers for wireless devices • Direct broadcast television • High-performance transistors • Satellite communications • High efficiency solar cells for drones
Gallium Arsenide (GaAs - semi-conducting)	1", 2", 3", 4", 6"	<ul style="list-style-type: none"> • 3-D sensing using VCSELs • Data center communication using VCSELs • High brightness light emitting diodes (LEDs)