AXT INC
Form 10-Q
November 04, 2016
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark One)

Quarterly report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

for the quarterly period ended September 30, 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)

(510) 438-4700

(Registrant's telephone number, including area code)

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

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

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

(Do not check if a 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

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Class	Outstanding at November 3, 2016
Common Stock, $0.001 par value	32,559,384

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PART I. FINANCIAL INFORMATION

Item 1. Financial Statements (unaudited)

AXT, INC.

CONDENSED CONSOLIDATED BALANCE SHEETS

(Unaudited, in thousands, except per share data)

	September 30, 2016	December 31, 2015
ASSETS		
Current assets:		
Cash and cash equivalents	$ 29,661	$ 24,875
Short-term investments	9,563	11,437
Accounts receivable, net of allowances of $1,026 and $985 as of September 30, 2016 and December 31, 2015	18,380	18,468
Inventories	38,731	38,012
Prepaid expenses and other current assets	5,265	4,096
Total current assets	101,600	96,888
Long-term investments	8,124	7,691
Property, plant and equipment, net	29,385	31,422
Related party notes receivable – long-term	1,735	1,781
Other assets	12,084	14,114
Total assets	$ 152,928	$ 151,896
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 7,277	$ 6,460
Accrued liabilities	5,011	6,381
Total current liabilities	12,288	12,841
Long-term portion of royalty payments	719	1,150
Other long-term liabilities	307	344
Total liabilities	13,314	14,335
Commitments and contingencies (Note 12)		
Stockholders' equity:		
Preferred stock Series A, $0.001 par value; 2,000 shares authorized; 883 shares issued and outstanding as of September 30, 2016 and December 31, 2015 (Liquidation preference of $6.6 million and $6.5 million as of September 30, 2016 and December 31, 2015.)	3,532	3,532
	32	32

Common stock, $0.001 par value; 70,000 shares authorized; 32,559 and 32,548 shares issued and outstanding as of September 30, 2016 and December 31, 2015.		
Additional paid-in-capital	195,863	194,646
Accumulated deficit	(67,199)	(70,621)
Accumulated other comprehensive income	2,529	4,382
Total AXT, Inc. stockholders' equity	134,757	131,971
Noncontrolling interests	4,857	5,590
Total stockholders' equity	139,614	137,561
Total liabilities and stockholders' equity	$ 152,928	$ 151,896

See accompanying notes to condensed consolidated financial statements.

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AXT, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

(Unaudited, in thousands, except per share data)

	Three Months Ended September 30, 2016	Three Months Ended September 30, 2015	Nine Months Ended September 30, 2016	Nine Months Ended September 30, 2015
Revenue	$ 21,872	$ 18,371	$ 61,080	$ 59,445
Cost of revenue	14,294	13,766	42,222	45,706
Gross profit	7,578	4,605	18,858	13,739
Operating expenses:				
Selling, general, and administrative	3,313	3,659	10,106	12,685
Research and development	1,566	1,657	4,419	4,287
Restructuring charge	—	—	226	—
Total operating expenses	4,879	5,316	14,751	16,972
Income (loss) from operations	2,699	(711)	4,107	(3,233)
Interest income, net	105	102	303	307
Equity in earnings (loss) of unconsolidated joint ventures	(581)	167	(1,437)	777
Other income, net	164	496	682	1,755
Income (loss) before provision for income taxes	2,387	54	3,655	(394)
Provision for income taxes	176	7	713	334
Net income (loss)	2,211	47	2,942	(728)
Less: Net (income) loss attributable to noncontrolling interests	18	(5)	480	(257)
Net income (loss) attributable to AXT, Inc.	$ 2,229	$ 42	$ 3,422	$ (985)
Net income (loss) attributable to AXT, Inc. per common share:				
Basic	$ 0.07	$ (0.00) *	$ 0.10	$ (0.03)
Diluted	$ 0.07	$ (0.00) *	$ 0.10	$ (0.03)
Weighted average number of common shares outstanding:				
Basic	32,110	31,988	32,043	32,262
Diluted	33,138	31,988	32,615	32,262

* Net loss to AXT, Inc. per common share resulted due to the accrual of preferred dividend liquidation preference during the three months ended September 30, 2015.

See accompanying notes to condensed consolidated financial statements.

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AXT, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(Unaudited, in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Net income (loss)	$ 2,211	$ 47	$ 2,942	$ (728)
Other comprehensive loss, net of tax:				
Change in foreign currency translation loss, net of tax	(233)	(2,626)	(1,801)	(2,321)
Change in unrealized loss on available-for-sale investments, net of tax	(112)	(134)	(253)	(484)
Total other comprehensive loss, net of tax	(345)	(2,760)	(2,054)	(2,805)
Comprehensive income (loss)	1,866	(2,713)	888	(3,533)
Less: Comprehensive loss attributable to noncontrolling interests	48	335	681	41
Comprehensive income (loss) attributable to AXT, Inc.	$ 1,914	$ (2,378)	$ 1,569	$ (3,492)

See accompanying notes to condensed consolidated financial statements.

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AXT, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

(Unaudited, in thousands)

	Nine Months Ended September 30, 2016		2015	
Cash flows from operating activities:				
Net income (loss)	$ 2,942		$ (728)	
Adjustments to reconcile net income (loss) to net cash provided by operating activities:				
Depreciation and amortization	3,620		4,197	
Amortization of marketable securities premium	85		168	
Stock-based compensation	789		1,051	
Provision for doubtful accounts	—		211	
Realized gain on sale of available for sale securities	(429)		(859)	
Loss (gain) on disposal of equipment	(5)		16	
Loss (gain) from equity method investments, net	1,437		(777)	
Changes in operating assets and liabilities:				
Accounts receivable	(72)		363	
Inventories	(1,092)		13	
Prepaid expenses and other current assets	(1,259)		1,920	
Other assets	435		329	
Accounts payable	949		(1,053)	
Accrued liabilities	(1,301)	*	(2,032)	*
Other long-term liabilities, including royalties	(591)		(559)	
Net cash provided by operating activities	5,508		2,260	
Cash flows from investing activities:				
Purchases of equipment	(2,200)		(3,508)	
Proceeds from sale of equipment	35		2	
Purchases of available for sale securities	(10,784)		(13,044)	
Proceeds from sales and maturities of available for sale securities	12,316		14,309	
Investments in non-marketable equity investments	—		(162)	
Dividends received from equity method investments	—		286	
Net cash used in investing activities	(633)		(2,117)	
Cash flows from financing activities:				
Proceeds from common stock options exercised	428		165	
Repurchase of the Company’s common stock, including commission	—		(2,254)	
Dividends paid by joint ventures to their minority shareholders	(39)		(102)	
Net cash provided by (used in) financing activities	389		(2,191)	
Effect of exchange rate changes on cash and cash equivalents	(478)		(581)	
Net increase (decrease) in cash and cash equivalents	4,786		(2,629)	

Cash and cash equivalents at the beginning of the period	24,875	28,814
Cash and cash equivalents at the end of the period	$ 29,661	$ 26,185
Supplemental disclosures:		
Income taxes paid	—	—

* Dividend accrued but not paid by joint ventures of $520 and $544 was included in accrued liabilities as of September 30, 2016 and September 30, 2015, respectively.

See accompanying notes to condensed consolidated financial statements.

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AXT, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

Note 1. Basis of Presentation

The accompanying condensed consolidated financial statements of AXT, Inc. (“AXT,” the “Company,” “we,” “us,” and “our” refer to AXT, Inc. and all of its consolidated subsidiaries) are unaudited, and have been prepared in accordance with accounting principles generally accepted in the United States of America for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly this interim quarterly financial report does not include all disclosures required by accounting principles generally accepted in the United States of America. In the opinion of our management, the unaudited condensed consolidated financial statements reflect all adjustments, consisting only of normal recurring adjustments, considered necessary to present fairly the financial position, results of operations and cash flows of AXT and our consolidated subsidiaries for all periods presented.

Our management has made a number of estimates and assumptions relating to the reporting of assets and liabilities and the disclosure of contingent assets and liabilities to prepare these condensed consolidated financial statements in conformity with accounting principles generally accepted in the United States of America. Actual results could differ materially from those estimates.

The results of operations are not necessarily indicative of the results to be expected in the future or for the full fiscal year. It is recommended that these condensed consolidated financial statements be read in conjunction with our consolidated financial statements and the notes thereto included in our 2015 Annual Report on Form 10-K filed with the Securities and Exchange Commission (the “SEC”) on March 11, 2016 and our Quarterly Reports on Form 10-Q for the three months ended March 31, 2016 and June 30, 2016 filed with the SEC on May 6, 2016 and August 5, 2016, respectively.

The condensed consolidated financial statements include the accounts of AXT, our wholly-owned subsidiary, Beijing Tongmei Xtal Technology Co., Ltd., and our majority-owned, or significantly controlled subsidiaries, Beijing JiYa Semiconductor Material Co., Ltd., Nanjing Jin Mei Gallium Co., Ltd. and Beijing BoYu Semiconductor Vessel Craftwork Technology Co., Ltd. All significant inter company accounts and transactions have been eliminated. Investments in business entities in which we do not have controlling interests, but have the ability to exercise significant influence over operating and financial policies (generally 20-50% ownership), are accounted for by the equity method. For partially-owned subsidiaries that we consolidate, we reflect the noncontrolling interest of the portion we do not own on our condensed consolidated balance sheets in stockholders’ equity and in our condensed consolidated statements of operations.

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Note 2. Investments and Fair Value Measurements

Our cash and cash equivalents consist of cash and instruments with original maturities of less than 90 days. Our investments consist of instruments with original maturities of more than 90 days. As of September 30, 2016 and December 31, 2015, our cash, cash equivalents and investments are classified as follows (in thousands):

	September 30, 2016				December 31, 2015			
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized (Loss)	Fair Value	Amortized Cost	Gross Unrealized Gain	Gross Unrealized (Loss)	Fair Value
Classified as:								
Cash	$ 16,957	$ —	$ —	$ 16,957	$ 10,289	$ —	$ —	$ 10,289
Cash equivalents:								
Certificates of deposit 1	12,704	—	—	12,704	14,586	—	—	14,586
Total cash and cash equivalents	29,661	—	—	29,661	24,875	—	—	24,875
Investments (available for sale):								
Certificates of deposit 2	9,047	2	(9)	9,040	9,795	1	(13)	9,783
Corporate bonds	8,488	—	(24)	8,464	8,776	—	(63)	8,713
Corporate equity securities	48	135	—	183	200	432	—	632
Total investments	17,583	137	(33)	17,687	18,771	433	(76)	19,128
Total cash, cash equivalents and investments	$ 47,244	$ 137	$ (33)	$ 47,348	$ 43,646	$ 433	$ (76)	$ 44,003
Contractual maturities on investments:								
Due within 1 year	$ 9,436			$ 9,563	$ 11,022			$ 11,437
Due after 1 through 5 years	8,147			8,124	7,749			7,691
	$ 17,583			$ 17,687	$ 18,771			$ 19,128

1. Certificate of deposit with original maturities of less than 90 days.
2. Certificate of deposit with original maturities of more than 90 days.

We manage our investments as a single portfolio of highly marketable securities that is intended to be available to meet our current cash requirements. We have no investments in auction rate securities. Certificates of deposit and corporate bonds are typically held until maturity. Corporate equity securities have no maturity and may be sold at any time. Our holding of corporate equity securities consists of common stock of GCS Holdings, Inc. ("GHI") (previously Global Communication Semiconductors, Inc.), a Taiwan publicly-traded company. Previously, we also owned the common stock of Intelligent Epitaxy Technology, Inc. ("IntelliEpi").We began classifying IntelliEpi stock as an available-for-sale security upon its initial public offering in 2013. We sold our remaining IntelliEpi stock in the second quarter of 2015. During the nine months ended September 30, 2015, our cash proceeds from sales of available-for-sale investments was $902,000. Our cost was $43,000 and our gross realized gain from sales of available-for-sale investments was $859,000. As of September 30, 2016, we no longer hold any IntelliEpi stock.

We began classifying GHI as an available-for-sale security in the second quarter of 2015 when we determined that there was sufficient trading volume in the exchange for the stock to be deemed readily marketable. An unrealized gain of $135,000 net of tax was recorded as of September 30, 2016. This security is valued at fair market value at September 30, 2016 and will be marked to market with changes through other comprehensive income until sold. There is no assurance that we will realize this value when the stock is sold in the future. During the three months ended September 30, 2016, we sold some of our GHI stock and our cash proceeds from sales of available-for-sale investments was $113,000. Our cost was $29,000 and our gross realized gain from sales of available-for-sale investments was $84,000. During the nine months ended September 30, 2016, we sold some of our GHI stock and our cash proceeds from sales of available-for-sale investments was $581,000. Our cost was $152,000 and our gross realized gain from sales of available-for-sale investments was $429,000.

The gross unrealized losses related to our portfolio of available-for-sale securities were primarily due to changes in interest rates and market and credit conditions of the underlying securities. We have determined that the gross unrealized losses on some of our available-for-sale securities as of September 30, 2016 are temporary in nature. We periodically review our investment portfolio to identify and evaluate investments that have indications of possible impairment. Factors considered in determining whether a loss is temporary include the magnitude of the decline in market value, the length of time the market value has been below cost (or adjusted cost), credit quality, and our ability and intent to hold the securities for a period of time sufficient to allow for any anticipated recovery in market value.

A portion of our investments would generate a loss if we sold them on September 30, 2016. The following table summarizes the fair value and gross unrealized losses related to available-for-sale securities, aggregated by investment category and length of time that individual securities have been in a continuous unrealized loss position as of September 30, 2016 (in thousands):

	In Loss Position < 12 months		In Loss Position > 12 months		Total In Loss Position	
As of September 30, 2016	Fair Value	Gross Unrealized (Losses)	Fair Value	Gross Unrealized (Losses)	Fair Value	Gross Unrealized (Losses)
Investments:						
Certificates of deposit	$ 3,541	$ (9)	$ 1,440	$ —	$ 4,981	$ (9)
Corporate bonds	5,060	(17)	3,404	(7)	8,464	(24)
Total in loss position	$ 8,601	$ (26)	$ 4,844	$ (7)	$ 13,445	$ (33)

The following table summarizes the fair value and gross unrealized losses related to available-for-sale securities, aggregated by investment category and length of time that individual securities have been in a continuous unrealized loss position as of December 31, 2015 (in thousands):

	In Loss Position < 12 months		In Loss Position > 12 months		Total In Loss Position	
As of December 31, 2015	Fair Value	Gross Unrealized (Loss)	Fair Value	Gross Unrealized (Loss)	Fair Value	Gross Unrealized (Loss)
Investments:						
Certificates of deposit	$ 4,509	$ (11)	$ 3,543	$ (2)	$ 8,052	$ (13)
Corporate bonds	6,866	(56)	1,847	(7)	8,713	(63)

Total in loss position	$ 11,375	$ (67)	$ 5,390	$ (9)	$ 16,765	$ (76)

Investments in Privately-held Companies

We have made strategic investments in private companies located in China in order to gain access at a competitive cost to raw materials that are critical to our substrate business (see Note 7). The investment balances for all of these companies, including minority investments indirectly in privately-held companies made by our consolidated subsidiaries, are accounted for under the equity method and included in “other assets” in the condensed consolidated balance sheets and totaled $10.5 million and $12.1 million as of September 30, 2016 and December 31, 2015, respectively.

As noted above, in the second quarter of 2015, we re-classified our minority investment in GHI, which was accounted for under the cost method, as an available-for- sale security and valued the security at fair market value. As of September 30, 2016 and December 31, 2015, we did not maintain any investments under the cost method.

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Fair Value Measurements

We invest primarily in money market accounts, certificates of deposits, corporate bonds and notes, and government securities. ASC topic 820, Fair value measurement ("ASC 820") establishes three levels of inputs that may be used to measure fair value. Level 1 instrument valuations are obtained from real-time quotes for transactions in active exchange markets of the asset or identical assets. Level 2 instrument valuations are obtained from readily-available, observable pricing sources for comparable instruments. Level 3 instrument valuations are obtained from unobservable inputs in which there is little or no market data, which require us to develop our own assumptions. On a recurring basis, we measure certain financial assets and liabilities at fair value, primarily consisting of our short-term and long-term investments.

The type of instrument valued based on quoted market prices in active markets include our money market funds, which are generally classified within Level 1 of the fair value hierarchy. Other than corporate equity securities which are based on quoted market prices and classified as Level 1, we classify our available-for-sale securities including certificates of deposit and corporate bonds as having Level 2 inputs. The valuation techniques used to measure the fair value of these financial instruments having Level 2 inputs were derived from bank statements, quoted market prices, broker or dealer statements or quotations, or alternative pricing sources with reasonable levels of price transparency.

We place short-term foreign currency hedges that are intended to offset the potential cash exposure related to fluctuations in the exchange rate between the United States dollar and Japanese Yen. We measure the fair value of these foreign currency hedges at each month end and quarter end using current exchange rates and in accordance with generally accepted accounting principles. At quarter end any foreign currency hedges not settled are netted in "accrued liabilities" on the condensed consolidated balance sheet and classified as Level 3 assets and liabilities. As of September 30, 2016 the net change in fair value from the placement of the hedge to settlement at each month end during the quarter had a de minimis impact to the consolidated results.

There were no changes in valuation techniques or related inputs in the three months ended September 30, 2016. There have been no transfers between fair value measurements levels during the three months ended September 30, 2016.

The following table summarizes our financial assets and liabilities measured at fair value on a recurring basis in accordance with ASC 820 as of September 30, 2016 (in thousands):

	Balance as of September 30, 2016	Quoted Prices in Active Markets of Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)

Assets:				
Cash equivalents and investments:				
Certificates of deposit	$ 21,744	$ —	$ 21,744	$ —
Corporate bonds	8,464	—	8,464	—
Corporate equity securities	183	183	—	—
Total	$ 30,391	$ 183	$ 30,208	$ —
Liabilities:				
Foreign currency hedge obligations	$ 53	$ —	$ —	$ 53

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The following table summarizes our financial assets and liabilities measured at fair value on a recurring basis in accordance with ASC 820 as of December 31, 2015 (in thousands):

	Balance as of December 31, 2015	Quoted Prices in Active Markets of Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents and investments:				
Certificates of deposit	$ 24,369	$ —	$ 24,369	$ —
Corporate bonds	8,713	—	8,713	—
Corporate equity securities	632	632	—	—
Total	$ 33,714	$ 632	$ 33,082	$ —
Liabilities:				
Foreign currency hedge obligations	$ 36	$ —	$ —	$ 36

Items Measured at Fair Value on a Nonrecurring Basis

Certain assets that are subject to nonrecurring fair value measurements are not included in the table above. These assets include investments in privately-held companies accounted for by the equity or cost method (See Note 7). We did not record other-than-temporary impairment charges for either of these investments during the three and nine months ended September 30, 2016 and 2015.

Note 3. Inventories

The components of inventories are summarized below (in thousands):

	September 30, 2016	December 31, 2015
Inventories:		
Raw materials	$ 19,355	$ 19,532
Work in process	16,759	16,007
Finished goods	2,617	2,473
	$ 38,731	$ 38,012

As of September 30, 2016 and December 31, 2015, carrying values of inventories were net of inventory reserve of \$11.6 million and \$12.0 million, respectively, for excess and obsolete inventory and \$297,000 and \$625,000, respectively, for lower of cost or market reserves.

Note 4. Property, Plant and Equipment, Net

The components of our property, plant and equipment are summarized below (in thousands):

	September 30, 2016	December 31, 2015
Property, plant and equipment:		
Machinery and equipment, at cost	\$ 41,225	\$ 40,899
Less: accumulated depreciation and amortization	(37,462)	(36,044)
Building, at cost	30,324	30,388
Less: accumulated depreciation and amortization	(9,765)	(9,170)
Leasehold improvements, at cost	5,057	5,059
Less: accumulated depreciation and amortization	(3,601)	(3,306)
Construction in progress	3,607	3,596

$ 29,385 $ 31,422

Note 5. Accrued Liabilities

The components of accrued liabilities are summarized below (in thousands):

	September 30, 2016	December 31, 2015
Accrued compensation and related charges	$ 1,161	$ 2,129
Current portion of royalty payments	575	575
Dividends payable by consolidated joint ventures	520	534
Accrued professional services	531	709
Accrued product warranty	266	497
Accrued income taxes	249	225
Other accrued liabilities	1,709	1,712
	$ 5,011	$ 6,381

Note 6. Related Party Transactions

In August 2011, our consolidated joint venture, Beijing JiYa Semiconductor Material Co., Ltd. (“JiYa”), entered into a non-interest bearing note agreement in the amount of $1.6 million for a loan to one of its equity investment entities. The original term of the loan was for two years and ten months with three periodic principal payments required. After various amendments to the terms of the note, in December 2013, the parties agreed to delay all principal repayment until December 2017. As of September 30, 2016, and December 31, 2015, we included $1.6 million in “Related party notes receivable – long term” in our condensed consolidated balance sheets.

JiYa also purchases raw materials from one of its equity investment entities for production in the ordinary course of business. As of September 30, 2016 and December 31, 2015, amounts payable of $2.4 million were included in “accounts payable” in our condensed consolidated balance sheets.

JiYa also sells raw materials to one of its equity investment entities for production in the ordinary course of business. As of September 30, 2016 and December 31, 2015, amounts receivable of $370,000 and $473,000, respectively, were included in “accounts receivable” in our condensed consolidated balance sheets.

Beginning in 2012, our consolidated joint venture, Nanjing Jin Mei Gallium Co., Ltd. (“Jin Mei”), is contractually obligated under an agency sales agreement to sell raw material on behalf of its equity investment entity. Jin Mei bills the customers and remits the receipts, net of its portions of sales commission, to this equity investment entity. For each of the three months ended September 30, 2016 and 2015, Jin Mei has recorded $0 income from agency sales. For each of the nine months ended September 30, 2016 and 2015, Jin Mei has recorded $1,000 income from agency sales, which were included in “other income (expense), net” in the condensed consolidated statements of operations.

In March 2012, our wholly-owned subsidiary, Beijing Tongmei Xtal Technology Co., Ltd. (“Tongmei”), entered into an operating lease for the land it owns with our consolidated joint venture, Beijing BoYu Semiconductor Vessel Craftwork Technology Co., Ltd. (“BoYu”). The lease agreement for the land of approximately 22,081 square feet commenced on January 1, 2012 for a term of 10 years with annual lease payments of $24,000 subject to a 5% increase at each third year anniversary. The annual lease payment is due by January 31st of each year.

Tongmei has paid certain amounts on behalf of Donghai County Dongfang High Purity Electronic Materials Co., Ltd.(“Dongfang”), its equity investment entity, to purchase materials. The original agreement was signed between Tongmei and Dongfang in 2014 and the date of repayment was set as December 31, 2015. In 2015, both parties agreed to delay the date of repayment to December 31, 2017. As of September 30, 2016 and December 31, 2015, the balance of $111,000 and $114,000, respectively, were included in “Related party notes receivable – long term” in our condensed consolidated balance sheets.

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In April 2014, Tongmei loaned an additional of $45,000 to Dongfang. The loan bears interest at 6.15% per annum and the principal and accrued interest totaling $52,000 as of September 30, 2016 are due on December 31, 2016. As of September 30, 2016, this balance, including both principal and accrued interest, was included in “Related party notes receivable – long term” in our condensed consolidated balance sheets.

Tongmei purchases raw materials from one of our equity investment entities, Emei Shan Jiamei Materials Co. Ltd. (“Jiamei”), for production in the ordinary course of business. As of September 30, 2016 and December 31, 2015, amounts payable of $256,000 and $70,000, respectively, were included in “accounts payable” in our condensed consolidated balance sheets.

Tongmei also purchases raw materials from one of our equity investment entities, Xilingol Tongli Germanium Refine Co. Ltd. (“Tongli”), for production in the ordinary course of business. As of September 30, 2016 and December 31, 2015, amounts payable of $477,000 and $0, respectively, were included in “accounts payable” in our condensed consolidated balance sheets.

In April 2016, our consolidated joint venture, BoYu, provided a personal loan of $180,000 to one of its executive officers. This loan is secured by the officer’s shares in BoYu. The loan bears interest at 2.75% per annum. Principal and accrued interest are due on March 31, 2019. As of September 30, 2016, including both principal and accrued interest, was included in “prepaid expenses and other current assets” in our condensed consolidated balance sheets.

Beijing Kaide Quartz Co. Ltd. (“Kaide”) has been a supplier of customized quartz tubes to the Company since 2004. Beijing XiangHeMing Trade Co. Ltd. (“XiangHeMing”) is a significant shareholder of Kaide. XiangHeMing was previously owned by, among others, certain immediate family members of Davis Zhang, our former President, China Operations, until at least sometime in 2004, at which time the official Chinese government records indicate that Mr. Zhang’s immediate family members transferred their ownership of XiangHeMing to a third party. However, we are currently unable to conclusively determine whether Mr. Zhang’s immediate family members retained any economic interest in XiangHeMing after the transfer. As of September 30, 2016 and December 31, 2015, amounts payable to Kaide of $457,000 and $379,000, respectively, were included in “accounts payable” in our condensed consolidated balance sheets.

Our Related Party Transactions Policy seeks to prohibit all conflicts of interest in transactions between related parties and us, unless they have been approved by our Board of Directors. This policy applies to all of our employees, directors, and our consolidated subsidiaries. Our executive officers retain board seats on the board of directors of the companies in which we have invested in our China joint ventures. See Note 7 for further details.

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Note 7. Investments in Privately-Held Companies

We have made strategic investments in private companies located in China in order to gain access at a competitive cost to raw materials that are critical to our substrate business. Our consolidated subsidiaries have also made investments in private companies. These companies form part of our overall supply chain.

The investments are summarized below (in thousands):

Company	Investment Balance as of September 30, 2016	December 31, 2015	Accounting Method	Ownership Percentage
Beijing JiYa Semiconductor Material Co., Ltd.	$ 3,331	$ 3,331	Consolidated	46 %
Nanjing Jin Mei Gallium Co., Ltd.	592	592	Consolidated	83 %
Beijing BoYu Semiconductor Vessel Craftwork Technology Co., Ltd.	1,346	1,346	Consolidated	70 %
	$ 5,269	$ 5,269		
Donghai County Dongfang High Purity Electronic Materials Co., Ltd.	$ 1,534	$ 1,524	Equity	46 %
Xilingol Tongli Germanium Co. Ltd.	4,421	5,343	Equity	25 %
Emeishan Jia Mei High Purity Metals Co., Ltd.	1,070	1,081	Equity	25 %
	$ 7,025	$ 7,948		

Our ownership of Beijing JiYa Semiconductor Material Co., Ltd. (“JiYa”) is 46%. We continue to consolidate JiYa as we are the founding and largest shareholder, we appoint the general manager and controller and have the ability to exercise control in substance over the long-term strategic decisions made. Our Chief Executive Officer is chairman of the JiYa board and we have appointed one other representative, Davis Zhang, to serve on the board. Mr. Zhang was an executive officer of AXT for 27 years. Further, our Chief Financial Officer, Gary Fischer, is on the board of supervisors of JiYa.

Our ownership of Nanjing Jin Mei Gallium Co., Ltd. (“Jin Mei”) is 83%. We continue to consolidate Jin Mei as we have a controlling financial interest and have majority control of the board. Our Chief Executive Officer is chairman of the Jin Mei board and we have appointed two other representatives to serve on the board.

Our ownership of Beijing BoYu Semiconductor Vessel Craftwork Technology Co., Ltd (“BoYu”) is 70%. We continue to consolidate BoYu as we have a controlling financial interest and have majority control of the board. Our Chief Executive Officer is chairman of the BoYu board and we have appointed two other representatives to serve on the board.

Although we have representation on the board of directors of each of these companies, the daily operations of each of these companies are managed by local management and not by us. Decisions concerning their respective short-term strategy and operations, ordinary course of business capital expenditures, and decisions concerning sales of finished products, are made by local management with regular guidance and input from us.

During the three months ended September 30, 2016 and 2015, the three consolidated joint ventures generated \$399,000 and \$459,000 of income, respectively, of which a loss of \$18,000 and a gain of \$5,000, respectively, were allocated to non-controlling interests, resulting in \$417,000 and \$454,000 of income, respectively, to our net income (loss). During the nine months ended September 30, 2016 and 2015, the three consolidated joint ventures generated a loss of \$82,000 and an income of \$1.7 million, respectively, of which a loss of \$480,000 and a gain of \$257,000 respectively, were allocated to non-controlling interests, resulting in \$398,000 and \$1.4 million of income, respectively, to our net income (loss).

For AXT’s three minority investment entities that are not consolidated, the investment balances are included in “other assets” in our condensed consolidated balance sheets and totaled \$7.0 million and \$7.9 million as of September

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30, 2016 and December 31, 2015. We own 46% of the ownership interests in one of these companies and 25% in each of the other two companies. These three companies are not considered variable interest entities because:

· all three companies have sustainable businesses of their own;

· our voting power is proportionate to our ownership interests;

· we only recognize our respective share of the losses and/or residual returns generated by the companies if they occur; and

· we do not have controlling financial interest in, do not maintain operational or management control of, do not control the board of directors of, and are not required to provide additional investment or financial support to any of these companies.

We also maintain four minority investments indirectly in privately-held companies through our consolidated joint ventures. JiYa holds three investments and Jin Mei holds one investment. These minority investments are accounted for under the equity method in the books of our consolidated joint ventures. As of September 30, 2016 and December 31, 2015, our consolidated joint ventures included these minority investments in “other assets” in our condensed consolidated balance sheets with a carrying value of $3.5 million and $4.1 million, respectively.

AXT’s three direct minority investment entities and the three minority investments of JiYa and the one minority investment of Jin Mei are not consolidated and are accounted for under the equity method and had the following summarized income information (in thousands) for the three and nine months ended September 30, 2016 and 2015.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Net revenue	$ 7,196	$ 9,631	$ 18,472	$ 29,960
Gross (loss) profit	$ (1,510)	$ 2,324	$ (2,089)	$ 8,244
Operating (loss) income	$ (2,449)	$ 829	$ (5,309)	$ 4,172
Net (loss) income	$ (2,416)	$ 805	$ (5,834)	$ 3,546

Our portion of the entity earnings from these seven minority investment entities that are not consolidated and are accounted for under the equity method were a loss of $581,000 and a gain of $167,000 for the three months ended September 30, 2016 and 2015, respectively, and a loss of $1.4 million and a gain of $777,000 for the nine months ended September 30, 2016 and 2015, respectively.

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Note 8. Stockholders' Equity

Consolidated Statement of Changes in Stockholders' Equity

(in thousands)

	Preferred Stock	Common Stock	Additional Paid-In-Capital	Accumulated Deficit	Accumulated Other Comprehensive Income	AXT, Inc Stockholders' Equity	Noncontrolling Interests	Total Stockholders Equity
Balance as of December 31, 2015	$ 3,532	$ 32	$ 194,646	$ (70,621)	$ 4,382	$ 131,971	$ 5,590	$ 137,561
Common stock options exercised			428			428		428
Common stock repurchased						—		—
Stock-based compensation			789			789		789
Net (loss) income				3,422		3,422	(480)	2,942
Dividends declared by joint ventures						—	(52)	(52)
Other comprehensive loss					(1,853)	(1,853)	(201)	(2,054)
Balance as of September 30, 2016	$ 3,532	$ 32	$ 195,863	$ (67,199)	$ 2,529	$ 134,757	$ 4,857	$ 139,614

There were no reclassification adjustments from accumulated other comprehensive income for the nine months ended September 30, 2016 and 2015.

Stock Repurchase Program

On February 21, 2013, our Board of Directors approved a stock repurchase program pursuant to which we could repurchase up to $6.0 million of our outstanding common stock through February 27, 2014. These purchases were to be made from time to time in the open market and were funded from our existing cash balances and cash generated from operations. During 2013, we repurchased approximately 285,000 shares at an average price of $2.51 per share for a total purchase price of $716,000 under the stock repurchase program. As of December 31, 2013, approximately $5.3 million remained available for future repurchases under this program. No shares were repurchased in 2014 under this program and the plan expired on February 27, 2014.

On October 27, 2014, our Board of Directors approved a stock repurchase program pursuant to which we may repurchase up to $5.0 million of our outstanding common stock. These repurchases can be made from time to time in the open market and are funded from our existing cash balances and cash generated from operations. During 2015, we repurchased approximately 908,000 shares at an average price of $2.52 per share for a total purchase price of approximately $2.3 million under the stock repurchase program. During the nine months ended September 30, 2016, we did not repurchase any shares under the approved stock repurchase program. As of September 30, 2016, approximately $2.7 million remained available for future repurchases under this program. See Item 2, Unregistered Sales of Equity Securities and Use of Proceeds in Part II, Other Information, for additional information.

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Note 9. Stock-Based Compensation

We account for stock-based compensation in accordance with the provisions of FASB Accounting Standards Codification (“ASC”) topic 718, Compensation-Stock Compensation (“ASC 718”), which established accounting for stock-based awards exchanged for employee services. Stock-based compensation cost is measured at each grant date, based on the fair value of the award, and is recognized as expense over the employee’s requisite service period of the award. All of our stock compensation is accounted for as an equity instrument.

The following table summarizes compensation costs related to our stock-based awards (in thousands, except per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Cost of revenue	$ 5	$ 5	$ 15	$ 15
Selling, general and administrative	238	260	651	902
Research and development	38	46	123	134
Total stock-based compensation	281	311	789	1,051
Tax effect on stock-based compensation	—	—	—	—
Net effect on net income (loss)	$ 281	$ 311	$ 789	$ 1,051

As of September 30, 2016, the unamortized compensation costs related to unvested stock options granted to employees under our stock option plan was approximately $1.0 million, net of estimated forfeitures of $62,000. These costs will be amortized on a straight-line basis over a weighted-average period of approximately 2.6 years and will be adjusted for subsequent changes in estimated forfeitures. We did not capitalize any stock-based compensation to inventory as of September 30, 2016 and 2015 due to the immateriality of the amount.

We estimate the fair value of stock options using the Black-Scholes valuation model, consistent with the provisions of ASC 718. There were no options granted in the three months ended September 30, 2016 and 2015. There were 68,000 and 20,000 options with weighted average grant date fair values of $1.01 and $0.48 granted in the nine months ended September 30, 2016 and 2015, respectively. The fair value of our stock options granted to employees for the three and nine months ended September 30, 2016 was estimated using the following weighted-average assumptions:

	Three Months Ended September 30,	Nine Months Ended September 30,

	2016*		2016	
Expected term (in years)	—		4.0	
Volatility	—	%	49.21	%
Expected dividend	—	%	—	%
Risk-free interest rate	—	%	1.38	%

*There were no options granted in the three months ended September 30, 2016.

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The following table summarizes the stock option transactions during the nine months ended September 30, 2016 (in thousands, except per share data):

Stock Options	Number of Options Outstanding	Weighted-average Exercise Price	Weighted-average Remaining Contractual Life (in years)	Aggregate Intrinsic Value
Balance as of January 1, 2016	3,779	$ 2.97	6.26	$ 764
Granted	68	2.56		
Exercised	(169)	2.52		
Canceled and expired	(536)	3.21		
Balance as of September 30, 2016	3,142	$ 2.94	6.65	$ 7,319
Options vested as of September 30, 2016 and unvested options expected to vest, net of forfeitures	3,084	$ 2.96	6.61	$ 7,149
Options exercisable as of September 30, 2016	1,825	$ 3.43	5.22	$ 3,479

The aggregate intrinsic value in the table above represents the total pretax intrinsic value, based on our closing price of $5.19 on September 30, 2016, which would have been received by the option holder had all option holders exercised their options on that date.

Restricted stock awards

A summary of activity related to restricted stock awards for the nine months ended September 30, 2016 is presented below (in thousands, except per share data):

Stock Awards	Shares	Weighted-Average Grant Date Fair Value
Non-vested as of January 1, 2016	546	$ 2.39
Granted	49	$ 3.69
Vested	(37)	$ 2.46
Forfeited	(207)	$ 2.55
Non-vested as of September 30, 2016	351	$ 2.47

As of September 30, 2016, the unamortized compensation costs related to unvested restricted stock awards was approximately $548,000, which is to be amortized on a straight-line basis over a weighted average period of approximately 1.1 years.

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Note 10. Net Income (Loss) Per Share

Basic net income (loss) per share is computed using the weighted-average number of common shares outstanding during the periods less shares of common stock subject to repurchase and non-vested stock awards. Diluted net income (loss) per share is computed using the weighted-average number of common shares outstanding and potentially dilutive common shares outstanding during the periods. The dilutive effect of outstanding stock options and restricted stock awards is reflected in diluted earnings per share by application of the treasury stock method. Potentially dilutive common shares consist of common shares issuable upon the exercise of stock options. Potentially dilutive common shares are excluded in net loss periods, as their effect would be anti-dilutive.

A reconciliation of the numerators and denominators of the basic and diluted net income (loss) per share calculations is as follows (in thousands, except per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Numerator:				
Net income (loss) attributable to AXT, Inc	$ 2,229	$ 42	$ 3,422	$ (985)
Less: Preferred stock dividends	(44)	(44)	(132)	(132)
Net income (loss) available to common stockholders	$ 2,185	$ (2)	$ 3,290	$ (1,117)
Denominator:				
Denominator for basic net income (loss) per share - weighted average common shares	32,110	31,988	32,043	32,262
Effect of dilutive securities:				
Common stock options	827	—	425	—
Restricted stock awards	201	—	147	—
Denominator for dilutive net income (loss) per common shares	33,138	31,988	32,615	32,262
Net income (loss) attributable to AXT, Inc. per common share:				
Basic	$ 0.07	$ (0.00)	$ 0.10	$ (0.03)
Diluted	$ 0.07	$ (0.00)	$ 0.10	$ (0.03)
Options excluded from diluted net income (loss) per share as the impact is anti-dilutive	652	3,037	910	3,037
Restricted stock excluded from diluted net income (loss) per share as the impact is anti-dilutive	—	466	—	466

The 883,000 shares of $0.001 par value Series A preferred stock issued and outstanding as of September 30, 2016 and December 31, 2015, valued at $3,532,000, are non-voting and non-convertible preferred stock with a 5.0% cumulative annual dividend rate payable when declared by the board of directors and a $4 per share liquidation preference over common stock, which must be paid before any distribution is made to common stockholders. These preferred shares were issued to Lyte Optronics, Inc. stockholders in connection with the completion of our acquisition of Lyte Optronics, Inc. on May 28, 1999.

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Note 11. Segment Information and Foreign Operations

Segment Information

We operate in one segment for the design, development, manufacture and distribution of high-performance compound semiconductor substrates and sale of materials. In accordance with ASC topic 280, Segment Reporting, our chief operating decision-maker has been identified as our Chief Executive Officer, who reviews operating results to make decisions about allocating resources and assessing performance for the Company. Since we operate in one segment, all financial segment and product line information can be found in the condensed consolidated financial statements.

The following table represents revenue amounts (in thousands) reported for products shipped to customers in the corresponding geographic region:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Europe (primarily Germany)	$ 4,995	$ 4,385	$ 13,946	$ 14,992
China	4,766	3,296	12,041	10,154
Japan	3,499	1,939	8,096	7,176
Asia Pacific (excluding China, Taiwan and Japan)	3,239	2,750	8,391	8,277
Taiwan	2,995	4,131	11,779	10,654
North America (primarily the United States)	2,378	1,870	6,827	8,192
Total	$ 21,872	$ 18,371	$ 61,080	$ 59,445

Long-lived assets consist primarily of property, plant and equipment, and are attributed to the geographic location in which they are located. Long-lived assets by geographic region were as follows (in thousands):

	As of	
	September 30, 2016	December 31, 2015
Long-lived assets by geographic region, net of depreciation:		
North America	$ 618	$ 542
China	28,767	30,880
	$ 29,385	$ 31,422

Significant Customers

One customer, IQE Group, represented 12% of our revenue for the three months ended September 30, 2016 while two customers, Landmark and IQE Group, represented 14% and 12%, respectively, of our revenue for the three months ended September 30, 2015. Our top five customers, although not the same five customers for each period, represented 38% and 45% of our revenue for the three months ended September 30, 2016 and 2015, respectively.

Two customers, IQE Group and Landmark, represented 11% and 10%, respectively, of our revenue for the nine months ended September 30, 2016, while no customer represented more than 10% of our revenue for the nine months ended September 30, 2015. Our top five customers, although not the same five customers for each period, represented 40% and 39% of our revenue for the nine months ended September 30, 2016 and 2015, respectively.

We perform ongoing credit evaluations of our customers' financial condition, and limit the amount of credit extended when deemed necessary, but generally do not require collateral. Two customers accounted for 14% and 10% of our accounts receivable balance as of September 30, 2016, while one customer accounted for 22% of our accounts receivable balance as of December 31, 2015.

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Note 12. Commitments and Contingencies

Indemnification Agreements

We have entered into indemnification agreements with our directors and officers that require us to indemnify our directors and officers against liabilities that may arise by reason of their status or service as directors or officers, other than liabilities arising from willful misconduct of a culpable nature; to advance their expenses incurred as a result of any proceeding against them as to which they could be indemnified; and to obtain directors' and officers' insurance if available on reasonable terms, which we currently have in place.

Product Warranty

We provide warranties for our products for a specific period of time, generally twelve months, against material defects. We provide for the estimated future costs of warranty obligations in cost of sales when the related revenue is recognized. The accrued warranty costs represent the best estimate at the time of sale of the total costs that we expect to incur to repair or replace product parts that fail while still under warranty. The amount of accrued estimated warranty costs are primarily based on historical experience as to product failures as well as current information on repair costs. On a quarterly basis, we review the accrued balances and update the historical warranty cost trends. The following table reflects the change in our warranty accrual which is included in "accrued liabilities" on the condensed consolidated balance sheets, during the three and nine months ended September 30, 2016 and 2015 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Beginning accrued warranty and related costs	$ 330	$ 668	$ 497	$ 802
Accruals for warranties issued	3	78	26	663
Adjustments related to pre-existing warranties including expirations and changes in estimates	(57)	(4)	(188)	(256)
Cost of warranty repair	(10)	(122)	(69)	(589)
Ending accrued warranty and related costs	$ 266	$ 620	$ 266	$ 620

Contractual Obligations

We lease certain office space, warehouse facilities and equipment under long-term operating leases expiring at various dates through December 2025. The majority of our lease obligations relates to our lease agreement for the facility in Fremont, California with approximately 19,467 square feet, which expires in 2017. We have an option to extend the lease for an additional three years.

We entered into a royalty agreement with a competitor effective December 3, 2010 with a term of eight years, terminating December 31, 2018. We and our related companies are granted a worldwide, nonexclusive, royalty bearing, irrevocable license to certain patents for the term of the agreement. We shall pay up to $7.0 million of royalty payments over eight years that began in 2011 based on future royalty bearing sales. This royalty agreement contains a clause that allows us to claim a credit, starting in 2013, in the event that the royalty bearing sales for the year are lower than a pre-determined amount set forth in this agreement.

The following table summarizes our contractual obligations as of September 30, 2016 (in thousands):

	Payments due by period				
Contractual Obligations	Total	Less than 1 year	1-3 years	4-5 years	More than 5 years
Operating leases	$ 422	$ 206	$ 91	$ 52	$ 73
Royalty agreement	1,294	575	719	—	—
Total	$ 1,716	$ 781	$ 810	$ 52	$ 73

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Purchase Obligations with Penalties for Cancellation

In the normal course of business, we issue purchase orders to various suppliers. In certain cases, we may incur a penalty if we cancel the purchase order. As of September 30, 2016, we do not have any outstanding purchase orders that will incur a penalty if cancelled by the Company.

Legal Proceedings

From time to time we may be involved in judicial or administrative proceedings concerning matters arising in the ordinary course of business. We do not expect that any of these matters, individually or in the aggregate, will have a material adverse effect on our business, financial condition, cash flows or results of operations.

Note 13. Foreign Exchange Transaction Gains/Losses

We incurred foreign currency transaction exchange gains of $83,000 and $359,000 for the three months ended September 30, 2016 and 2015, respectively. We incurred foreign currency transaction exchange gains of $327,000 and $569,000 for the nine months ended September 30, 2016 and 2015, respectively. These amounts are included in “other income (expense), net” on our condensed consolidated statements of operations.

Note 14. Income Taxes

We account for income taxes in accordance with ASC topic 740, Income Taxes (“ASC 740”) which requires that deferred tax assets and liabilities be recognized using enacted tax rates for the effect of temporary differences between the book and tax bases of recorded assets and liabilities. ASC 740 also requires that deferred tax assets be reduced by a valuation allowance if it is more likely than not that a portion of the deferred tax asset will not be realized.

We recognize interest and penalties related to uncertain tax positions in income tax expense. Income tax expense for the three and nine months ended September 30, 2016 includes no interest and penalties. As of September 30, 2016, we have no accrued interest and penalties related to uncertain tax positions. We file income tax returns in the U.S. federal, various states and foreign jurisdictions. We have substantially concluded all U.S. federal and state income tax matters through December 31, 2001.

Provision for income taxes for the three and nine months ended September 30, 2016 was mostly related to our wholly owned China subsidiary and our three partially owned subsidiaries in China. We have made a tax election in China whereby certain minimum foreign withholding taxes are treated as an expense and not a tax credit. Besides the state tax liabilities, no income taxes or benefits have been provided for U.S. operations for the three and nine months ended September 30, 2016 due to the loss in the U.S. and the uncertainty of generating future profit in the U.S. which has resulted in our deferred tax asset being fully reserved.

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Note 15. Whistleblower Complaint and Investigation

On February 23, 2015, the Board of Directors announced that, pursuant to an anonymous whistleblower complaint, our Audit Committee has conducted an investigation of certain potential related-party transactions involving Davis Zhang, our former President, China Operations. The investigation did not conclude that there was any intentional misconduct by Mr. Zhang, or that he received any improper benefit from these transactions. Further, the investigation did not reveal any inaccuracies in our financial statements resulting from these transactions. However, the investigation identified certain historical related-party transactions that were not previously disclosed in our filings with the Securities and Exchange Commission ("SEC"). We filed a Current Report on Form 8-K with the SEC on February 23, 2015 to disclose such historical related-party transactions.

On February 20, 2015, the Board waived any potential inconsistencies with our Code of Conduct and Ethics arising from the transactions identified in the investigation. Also, the Audit Committee approved the related-party nature of such transactions to the extent it had not previously approved such transactions. The Board and Audit Committee specified that such waiver and approval would have retroactive effect to the date of commencement of the transactions covered by such waiver and approval. We incurred approximately $1.8 million of professional service fees during the course of this investigation.

Note 16. Restructuring Charges

In the second quarter of 2016, we restructured the operations of Beijing JiYa Semiconductor Material Co., Ltd., which resulted in a reduction in force of 28 positions that were no longer required to support production and operations. Accordingly, we recorded a restructuring charge of approximately $226,000 related to the reduction in force for severance-related expenses. As of June 30, 2016, we had completed this restructuring plan and the reduction in force. During the three month period ended September 30, 2016, we incurred no additional restructuring charges.

Note 17. Recent Accounting Pronouncements

In January 2016, the FASB issued ASU 2016-01, which made changes to the accounting for financial instruments that primarily affect equity investments, financial liabilities under the fair value option, and the presentation and disclosure requirements for financial instruments. The amendments in this update supersede the guidance to classify equity securities with readily determinable fair values into different categories (that is, trading or available-for-sale) and require equity securities to be measured at fair value with changes in the fair value recognized through net income. The standard amends financial reporting by providing relevant information about an entity's equity investments and reducing the number of items that are recognized in other comprehensive income. This update will be effective for the annual periods beginning after December 15, 2017, and interim periods within those annual periods. We are currently assessing the impact of the future adoption of this standard on our condensed consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09, which applies to any entity that either enters into contracts with customers to transfer goods or services or enters into contracts for the transfer of non-financial assets, unless those contracts are within the scope of other standards, superseding the existing revenue recognition requirements in ASC Topic 605 "Revenue Recognition." Pursuant to ASU 2014-09, an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange, as applied through a multi-step process to achieve that core principle. Subsequently, the FASB approved a deferral included in ASU 2015-14 that permits public entities to apply the amendments in ASU 2014-09 for annual reporting periods beginning after December 15, 2017, including interim reporting periods therein, and that would also permit public entities to elect to adopt the amendments as of the original effective date as applicable to reporting periods beginning after December 15, 2016.

The FASB has since issued additional updates of its new standard on revenue recognition issued in May 2014. In March 2016, an amendment was issued to clarify the implementation guidance on principal versus agent consideration. The guidance requires entities to determine whether the nature of its promise to provide goods or services to a customer is performed in a principal or agent capacity and to recognize revenue in a gross or net manner based on its principal/agent designation. In April 2016, amendments were issued to clarify the identification of performance obligations and the licensing implementation guidance in the initial standard. Amendments were issued in May 2016 related to its guidance on assessing collectability, presentation of sales tax, noncash consideration, and completed contracts and contract modification at transition, which reduce the potential for diversity in practice, and the cost and complexity of application at transition and on an ongoing

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basis. The new guidance allows for the amendment to be applied either retrospectively to each prior reporting period presented or retrospectively as a cumulative-effect adjustment as of the date of adoption. We are currently evaluating the impact that the adoption of ASU 2014-09 and ASU 2015-14 may have on our condensed consolidated financial statements and have not elected a transition method as of the period ended September 30, 2016.

In February 2016, the FASB issued ASU 2016-02, which replaces the existing guidance for leases. The new standard establishes a right-of-use (ROU) model that requires a lessee to record a ROU asset and a lease liability on the balance sheet for all leases with terms longer than twelve months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. The guidance is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years and requires retrospective application. We will adopt in fiscal 2020 and is currently evaluating the impact of the guidance on its condensed consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-07, which eliminates the requirement to retrospectively apply the equity method in previous periods when an investor initially obtains significant influence over an investee. Under the amended guidance, the investor should apply the equity method prospectively from the date the investment qualifies for the equity method. The guidance is effective for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years with early application permitted. We are currently evaluating the impact of the future adoption of this standard on our condensed consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, which simplifies several aspects of the accounting for share-based payment award transactions, including the accounting for income taxes, forfeitures and statutory tax withholding requirements, as well as classification in the statement of cash flows. ASU 2016-09 is effective for fiscal years beginning after December 15, 2016, including interim periods. We are currently evaluating the impact of the future adoption of this standard on our condensed consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, which reduces diversity in practice where the FASB was either unclear or did not provide specific guidance for classifying cash payments and receipts in the statement of cash flows for eight specific transactions. The guidance is effective for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years and requires retrospective application with early application permitted. We are currently evaluating the impact of the future adoption of this standard on our condensed consolidated financial statements.

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ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This quarterly report on Form 10-Q 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, the relocation of our manufacturing operations in China 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 quarterly 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 quarterly 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 quarterly 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. This discussion should be read in conjunction with Management’s Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2015 and the condensed consolidated financial statements included elsewhere in this report.

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Overview

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. 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. Alternative or specialty materials are used to replace silicon as the preferred base for the electronic circuits in these situations. We provide such alternative or specialty materials in the form of substrates or wafers, including compound and single element substrates. Our compound substrates combine indium with phosphorous (InP) or gallium with arsenic (GaAs). Our single element substrates are made from germanium (Ge). Historically, most of our revenue has been derived from sales of semi-insulating and semi-conducting GaAs substrates. However, since 2015, our revenue from sales of InP substrates was greater than our revenue from our sales of each type of GaAs substrates. We currently sell the following substrate products in the sizes and for the applications indicated:

Substrates	Substrate Diameter	Applications
InP	2”, 3”, 4”	•Fiber optic lasers and detectors •Data center connectivity •Silicon photonics •Opto Electronics ICs •Terrestrial solar cells (CPV) •Lasers •VCSELs (vertical cavity surface emitting lasers)
GaAs (semi-insulating)	1”, 2”, 3”, 4”, 5”, 6”	•Power amplifiers and radio frequency integrated circuits for wireless handsets (cell phones) •Direct broadcast television •High-performance transistors •Satellite communications
GaAs (semi-conducting)	1”, 2”, 3”, 4”, 6”	•High brightness light emitting diodes (LEDs) •Lasers •VCSELs (vertical cavity surface emitting lasers) •Printer heads

		•Optical couplers
Ge	2”, 4”, 6”	•Satellite and terrestrial solar cells
		•Optical sensors and detectors

We manufacture all of our products in the People’s Republic of China (PRC or China), which generally has favorable costs for facilities and labor compared with comparable facilities in the United States, Europe or Japan. Our supply chain includes partial ownership of ten companies in China (joint ventures). We believe this supply chain arrangement provides us with pricing advantages, reliable supply and enhanced sourcing lead-times for key raw materials which are central to our final manufactured products. Our subsidiaries and joint venture companies produce products including 99.99% pure gallium (4N Ga), high purity gallium, arsenic, germanium, germanium dioxide, pyrolytic boron nitride (pBN) crucibles and boron oxide (B2O3). Our ownership and the ownership held by our consolidated subsidiaries in these entities range from 83% to 20%. We have board representation in all ten of these companies. We consolidate the joint ventures in which we have either a controlling financial interest, or majority financial interest combined with the ability to exercise control in substance over the operation or financial decisions made by the investee. We use the equity method to account for joint ventures in which we have smaller financial interest and have the ability to exercise significant influence, but not control, over the investee. We purchase portions of the materials produced by these joint venture companies for our own use and the joint venture companies sell the remainder of their production to third parties.

The Beijing city government has announced that it will expand its offices into the area where our manufacturing facility is located. The Beijing city government desires to upgrade this area and has applied pressure on manufacturing companies to relocate. It is our understanding that a master development plan of the area where our manufacturing

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facility is located has not yet been formally approved by the China central government and the timeline for relocating our gallium arsenide wafer production operations at our current site has not yet been determined by the China central government. We are advised that the China central government intends to be the final authority in this matter and is committed to having a master plan that is reasonable and orderly. We believe the China central government will undertake a comprehensive review of the master development plan, which will add time to the process.

It is our understanding that there are a number of factors that the Beijing city government could consider that could extend the timeline for our relocation and exempt certain other companies from being asked to relocate under any master development plan. We believe these factors include, among other factors, the stability and credibility of a company, including its reputation; a company that is a publicly listed company, including a company that is publicly listed in the U.S.; high-technology companies; and companies that represent a center of excellence within Beijing (i.e., a company that has received awards and commemorative plaques from the Beijing city government for, among other things, the issuance to the company of a certain number of patents, being a technology development center or hosting postdoctoral research). We believe that we satisfy each of these factors and, accordingly, we may have some flexibility when we work with the government to develop our relocation plan.

The Beijing city government's economic development bureau has requested that we consider maintaining our indium phosphide production operations at our current site, along with our China headquarters and R&D center. We believe we will still relocate gallium arsenide and germanium production, but we may avoid moving indium phosphide production if we elect to remain at our current site.

We have been advised that both the Beijing city government and the China central government desire to continue to encourage investment in China and they do not wish to adversely affect any relocating company or its customers. Further, we have been advised that as long as we continue to show good faith in developing a plan to move at least gallium arsenide production, the timeline for completing such a move is currently flexible. As such, we believe we may be able to relocate the portion of our production facilities that we agree to relocate smoothly and safely and in a reasonable manner, without a material disruption of supply to our customers. The anticipated relocation of all or part of our operations will require us to develop and execute an orderly relocation plan. A failure to properly execute a relocation plan could result in disruption to our production and have a material adverse impact on our revenue and our results of operations and financial condition.

Critical Accounting Policies and Estimates

We prepare our condensed consolidated financial statements in accordance with accounting principles generally accepted in the United States of America. Accordingly, we make estimates, assumptions and judgments that affect the amounts reported on our condensed consolidated financial statements. These estimates, assumptions and judgments about future events and their effects on our results cannot be determined with certainty, and are made based upon our historical experience and on other assumptions that are believed to be reasonable under the circumstances. These estimates may change as new events occur or additional information is obtained, and we may periodically be faced with uncertainties, the outcomes of which are not within our control and may not be known for a prolonged period of time.

We have identified the policies below as critical to our business operations and understanding of our financial condition and results of operations. Critical accounting policies are material to the presentation of our condensed consolidated financial statements and require us to make difficult, subjective or complex judgments that could have a material effect on our financial reports and results of operations. They may require us to make assumptions about matters that are highly uncertain at the time of the estimate. Different estimates that we could have used, or changes in the estimate that are reasonably likely to occur, may have a material impact on our financial condition or results of operations.

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Revenue Recognition

We manufacture and sell high-performance compound semiconductor substrates including indium phosphide and semi-conducting and semi-insulating gallium arsenide and germanium wafers, and our three consolidated subsidiaries sell certain raw materials including 99.99% pure gallium (4N Ga), high purity gallium (7N Ga), pyrolytic boron nitride (pBN) crucibles and boron oxide (B2O3). After we ship our products, there are no remaining obligations or customer acceptance requirements that would preclude revenue recognition. Our products are typically sold pursuant to a purchase order placed by our customers, and our terms and conditions of sale do not require customer acceptance. We recognize revenue upon shipment and transfer of title of products to our customers, which is either upon shipment from our dock, receipt at the customer's dock, or removal from consignment inventory at the customer's location, provided that we have received a signed purchase order, the price is fixed or determinable, title and risk of ownership have transferred, collection of resulting receivables is probable, and product returns are reasonably estimable. We do not provide training, installation or commissioning services.

We provide for future returns based on historical experience, current economic trends and changes in customer demand at the time revenue is recognized.

Accounts Receivable and Allowance for Doubtful Accounts

We periodically review the likelihood of collection on our accounts receivable balances and provide an allowance for doubtful accounts receivable primarily based upon the age of these accounts. We evaluate receivables from U.S. customers with an emphasis on balances in excess of 90 days and for receivables from customers located outside the U.S. with an emphasis on balances in excess of 120 days and establish a reserve on the receivable balances if needed. The reason for the difference in the evaluation of receivables between foreign and U.S. customers is that U.S. customers have historically made payments in a shorter period of time than foreign customers. Foreign business practices generally require us to allow customer payment terms that are longer than those accepted in the United States. We assess the probability of collection based on a number of factors, including the length of time a receivable balance has been outstanding, our past history with the customer and their creditworthiness.

As of September 30, 2016 and December 31, 2015, our accounts receivable, net, balance was $18.4 million and $18.5 million, respectively, which was net of an allowance for doubtful accounts of $484,000 and $561,000, respectively. If actual uncollectible accounts differ substantially from our estimates, revisions to the estimated allowance for doubtful accounts would be required, which could have a material impact on our financial results for the future periods.

The allowance for sales returns is also deducted from gross accounts receivable. As of September 30, 2016 and December 31, 2015, our allowance for sales returns was $542,000 and $424,000, respectively.

Warranty Reserve

We maintain a warranty reserve based upon our claims experience during the prior twelve months and any pending claims and returns of which we are aware. Warranty costs are accrued at the time revenue is recognized. As of September 30, 2016 and December 31, 2015, accrued product warranties totaled $266,000 and $497,000, respectively.

The decrease in accrued product warranties is primarily attributable to decreased claims for quality issues and reduction in estimated replacement costs. If actual warranty costs or pending new claims differ substantially from our estimates, revisions to the estimated warranty liability would be required, which could have a material impact on our financial condition and results of operations for future periods.

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Inventory Valuation

Inventories are stated at the lower of cost or market. Cost is determined using the weighted-average cost method. Our inventory consists of raw materials as well as finished goods and work-in-process that include material, labor and manufacturing overhead costs. We routinely evaluate the levels of our inventory in light of current market conditions in order to identify excess and obsolete inventory, and we provide a valuation allowance for certain inventories based upon the age and quality of the product and the projections for sale of the completed products. As of September 30, 2016 and December 31, 2015, we had an inventory reserve of $11.6 million and $12.0 million, respectively, for excess and obsolete inventory and $297,000 and $625,000, respectively, for lower of cost or market reserves. If actual demand for our products were to be substantially lower than estimated, additional inventory adjustments for excess or obsolete inventory might be required, which could have a material impact on our business, financial condition and results of operations.

Impairment of Investments

We classify marketable investments in debt and equity securities as available-for-sale securities in accordance with ASC topic 320, Investments - Debt and Equity Securities ("ASC 320"). All available-for-sale securities with a quoted market value below cost (or adjusted cost) are reviewed in order to determine whether the decline is other-than-temporary. Factors considered in determining whether a loss is temporary include the magnitude of the decline in market value, the length of time the market value has been below cost (or adjusted cost), credit quality, and our ability and intent to hold the securities for a period of time sufficient to allow for any anticipated recovery in market value.

We also invest in equity instruments of privately-held companies in China for business and strategic purposes. Investments in our non-consolidated joint venture companies are classified as other assets and accounted for under either the equity or cost method, depending on whether we have the ability to exercise significant influence over their operations or financial decisions. We monitor our investments for impairment and record reductions in carrying value when events or changes in circumstances indicate that the carrying value may not be recoverable. Determination of impairment is highly subjective and is based on a number of factors, including an assessment of the strength of investee's management, the length of time and extent to which the fair value has been less than our cost basis, the financial condition and near-term prospects of the investee, fundamental changes to the business prospects of the investee, share prices of subsequent offerings, and our intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in our carrying value. We had no write downs for the three and nine months ended September 30, 2016 or 2015.

Fair Value of Investments

ASC 820, Fair Value Measurement ("ASC 820") establishes three levels of inputs that may be used to measure fair value.

Level 1 instruments represent quoted prices in active markets. Therefore, determining fair value for Level 1 instruments does not require significant management judgment, and the estimation is not difficult.

Level 2 instruments include observable inputs other than Level 1 prices, such as quoted prices for identical instruments in markets with insufficient volume or infrequent transactions (less active markets), issuer bank statements, credit ratings, non-binding market consensus prices that can be corroborated with observable market data, model-derived valuations in which all significant inputs are observable or can be derived principally from or corroborated with observable market data for substantially the full term of the assets or liabilities, or quoted prices for similar assets or liabilities. These Level 2 instruments require more management judgment and subjectivity compared to Level 1 instruments, including:

· Determining which instruments are most similar to the instrument being priced requires management to identify a sample of similar securities based on the coupon rates, maturity, issuer, credit rating, and instrument type, and subjectively select an individual security or multiple securities that are deemed most similar to the security being priced.

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· Determining which model-derived valuations to use in determining fair value requires management judgment. When observable market prices for identical securities or similar securities are not available, we price our marketable debt instruments using non-binding market consensus prices that are corroborated with observable market data or pricing models, such as discounted cash flow models, with all significant inputs derived from or corroborated with observable market data.

Level 3 instruments include unobservable inputs to the valuation methodology that are significant to the measurement of fair value of assets or liabilities. The determination of fair value for Level 3 instruments requires the most management judgment and subjectivity.

We place short-term foreign currency hedges that are intended to offset the potential cash exposure related to fluctuations in the exchange rate between the United States dollar and Japanese yen. We measure the fair value of these foreign currency hedges at each month end and quarter end using current exchange rates and in accordance with generally accepted accounting principles. At quarter end any foreign currency hedges not settled are netted in "accrued liabilities" on the condensed consolidated balance sheet and classified as Level 3 assets and liabilities. As of September 30, 2016 the net change in fair value from the placement of the hedge to settlement at each month end during the quarter had a de minimis impact to the consolidated results.

There have been no transfers between fair value measurement levels during the three and nine months ended September 30, 2016 and 2015.

Impairment of Long-Lived Assets

We evaluate the recoverability of property, equipment and intangible assets in accordance with ASC topic 360, Property, Plant and Equipment ("ASC 360"). When events and circumstances indicate that long-lived assets may be impaired, we compare the carrying value of the long-lived assets to the projection of future undiscounted cash flows attributable to these assets. In the event that the carrying value exceeds the future undiscounted cash flows, we record an impairment charge against income equal to the excess of the carrying value over the assets' fair value. Fair values are determined based on quoted market values, discounted cash flows or internal and external appraisals, as applicable. We had no "Assets held for sale" on the condensed consolidated balance sheet as of September 30, 2016 or December 31, 2015.

Stock-based Compensation

We account for stock-based compensation in accordance with ASC topic 718, Stock-based Compensation ("ASC 718"). Share-based awards granted include stock options and restricted stock awards. We utilize the Black Scholes option pricing model to estimate the grant date fair value of stock options, which requires the input of highly subjective assumptions, including estimating stock price volatility and expected term. Historical volatility of our stock price was used while the expected term for our options was estimated based on historical option exercise behavior and post-vesting forfeitures of options, and the contractual term, the vesting period and the expected term of the outstanding options. Further, we apply an expected forfeiture rate in determining the amount of share-based compensation. We use historical forfeitures to estimate the rate of future forfeitures. Changes in these inputs and assumptions can materially affect the measure of estimated fair value of our stock compensation. The cost of restricted stock awards is determined using the fair value of our common stock on the date of grant.

We recognize the compensation costs net of an estimated forfeiture rate over the requisite service period of the options award, which is generally the vesting term of four years. Compensation expense for restricted stock awards is recognized over the vesting period, which is generally three years or four years. Stock-based compensation expense is recorded in cost of revenue, research and development, and selling, general and administrative expenses.

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Income Taxes

We account for income taxes in accordance with ASC topic 740, Income Taxes ("ASC 740"), which requires that deferred tax assets and liabilities be recognized using enacted tax rates for the effect of temporary differences between the book and tax bases of recorded assets and liabilities. ASC 740 also requires that deferred tax assets be reduced by a valuation allowance if it is more likely than not that a portion of the deferred tax asset will not be realized.

We provide for income taxes based upon the geographic composition of worldwide earnings and tax regulations governing each region, particularly China. The calculation of tax liabilities involves significant judgment in estimating the impact of uncertainties in the application of complex tax laws, particularly in foreign countries such as China.

See Note 14—"Income Taxes" in the notes to condensed financial statements for additional information.

Results of Operations

Revenue

	Three Months Ended September 30,		Increase		Nine Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change	2016	2015	(Decrease)	% Change
	($ in thousands)				($ in thousands)			
Total revenue	$ 21,872	$ 18,371	$ 3,501	19.1 %	$ 61,080	$ 59,445	$ 1,635	2.8 %

Revenue increased $3.5 million, or 19.1%, to $21.9 million for the three months ended September 30, 2016 from $18.4 million for the three months ended September 30, 2015. Revenue increased $1.6 million, or 2.8%, to $61.1 million for the nine months ended September 30, 2016 from $59.4 million for the nine months ended September 30, 2015. The revenue increase for the three months ended September 30, 2016 as compared to the same period in 2015 is a result of strong sales in semi-insulating gallium arsenide and germanium substrates. In addition, raw materials sales also showed strong increase in the three months ended September 30, 2016. For the nine months ended September 30, 2016 the revenue increase was the result of strong substrates sales which was partially offset by a reduction of sales of raw materials.

Revenue by Geographic Region

	Three Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change
	($ in thousands)			
Europe (primarily Germany)	$ 4,995	$ 4,385	$ 610	13.9 %
% of total revenue	23 %	24 %		
China	4,766	3,296	1,470	44.6 %
% of total revenue	22 %	18 %		
Japan	3,499	1,939	1,560	80.5 %
% of total revenue	16 %	11 %		
Asia Pacific (excluding China, Taiwan and Japan)	3,239	2,750	489	17.8 %
% of total revenue	15 %	15 %		
Taiwan	2,995	4,131	(1,136)	(27.5) %
% of total revenue	13 %	22 %		
North America (primarily the United States)	2,378	1,870	508	27.2 %
% of total revenue	11 %	10 %		
Total revenue	$ 21,872	$ 18,371	$ 3,501	19.1 %

Revenue increased from all regions, with the exception of Taiwan primarily due to an increase in sales of our substrates materials as a result of expanding applications in the marketplace. The decrease in Taiwan results from inventory adjustments by end customers experiencing a slowdown in their demand. The revenue increase for the three

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months ended September 30, 2016 as compared to the same period in 2015 is a result of strong sales in semi-insulating gallium arsenide and germanium substrates. In addition, raw materials sales also showed strong increase in the three months ended September 30, 2016.

	Nine Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change
	($ in thousands)			
Europe (primarily Germany)	$ 13,946	$ 14,992	$ (1,046)	(7.0) %
% of total revenue	23 %	25 %		
China	12,041	10,154	1,887	18.6 %
% of total revenue	20 %	17 %		
Taiwan	11,779	10,654	1,125	10.6 %
% of total revenue	19 %	18 %		
Asia Pacific (excluding China, Taiwan and Japan)	8,391	8,277	114	1.4 %
% of total revenue	14 %	14 %		
Japan	8,096	7,176	920	12.8 %
% of total revenue	13 %	12 %		
North America (primarily the United States)	6,827	8,192	(1,365)	(16.7) %
% of total revenue	11 %	14 %		
Total revenue	$ 61,080	$ 59,445	$ 1,635	2.8 %

Revenue increased from all regions, with the exception of North America and Europe, primarily due to an increase in sales of all substrate materials as a result of expanding applications in the marketplace. Revenue decreased from Europe and North America primarily due to a decrease in sales of our raw materials and a reduction of the average selling price of gallium.

Gross Margin

	Three Months Ended September 30,		Increase		Nine Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change	2016	2015	(Decrease)	% Change
	($ in thousands)				($ in thousands)			
Gross profit	$ 7,578	$ 4,605	$ 2,973	64.6 %	$ 18,858	$ 13,739	$ 5,119	37.3 %
Gross Margin %	34.6 %	25.1 %			30.9 %	23.1 %		

Gross margin increased primarily due to a change in product mix, improvements in yield and manufacturing efficiencies and higher production volume for the three and nine months ended September 30, 2016 as compared to the same periods in 2015.

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Selling, General and Administrative Expenses

	Three Months Ended September 30,		Increase		Nine Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change	2016	2015	(Decrease)	% Change
	($ in thousands)				($ in thousands)			
Selling, general and administrative expenses	$ 3,313	$ 3,659	$ (346)	(9.5) %	$ 10,106	$ 12,685	$ (2,579)	(20.3) %
% of total revenue	15.1 %	19.9 %			16.5 %	21.3 %		

Selling, general and administrative expenses decreased $346,000, or 9.5%, to $3.3 million for the three months ended September 30, 2016 from $3.7 million for the three months ended September 30, 2015. The lower selling, general and administrative expenses resulted primarily from lower outside professional consulting service costs and lower personnel-related costs.

Selling, general and administrative expenses decreased $2.6 million, or 20.3%, to $10.1 million for the nine months ended September 30, 2016 from $12.7 million for the nine months ended September 30, 2015. Selling, general and administrative expenses decreased primarily due to the absence of professional service fees incurred in connection with an investigation of potential related-party transactions that concluded in 2015, lower personnel-related costs, lower outside professional consulting service costs, lower stock-based compensation and a decrease in allowance for doubtful accounts.

Research and Development

Three Months Ended September 30,		Increase		Nine Months Ended September 30,		Increase	
2016	2015	(Decrease)	% Change	2016	2015	(Decrease)	% Change
($ in thousands)				($ in thousands)			
$ 1,566	$ 1,657	$ (91)	(5.5) %	$ 4,419	$ 4,287	$ 132	3.1 %

Research and development % of total revenue	7.2 %	9.0 %	7.2 %	7.2 %

Research and development expenses decreased $91,000, or 5.5% to $1.6 million for the three months ended September 30, 2016 from $1.7 million for the three months ended September 30, 2015. The decrease in research and development expenses for the three months ended September 30, 2016 was primarily due to lower product development and testing costs which is partially offset by an increase of personnel-related costs in 2016 as compared to the same period in 2015.

Research and development expenses increased $132,000, or 3.1% to $4.4 million for the nine months ended September 30, 2016 from $4.3 million for the nine months ended September 30, 2015. The increase in research and development expenses for the nine months ended September 30, 2016 was primarily due to higher personnel-related costs and higher consulting expenses, which are partially offset by lower product development and testing costs in 2016 as compared to the same period in 2015.

Restructuring Charges

In the second quarter of 2016, we restructured the operations of Beijing JiYa Semiconductor Material Co., Ltd., which resulted in a reduction in force of 28 positions that were no longer required to support production and operations. Accordingly, we recorded a restructuring charge of approximately $226,000 related to the reduction in force for severance-related expenses of which $122,000 was allocated to noncontrolling interests. As of June 30, 2016, we had completed this restructuring plan and the reduction in force. During the three month period ended September 30, 2016, we incurred no additional restructuring charges.

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Interest Income, Net

	Three Months Ended September 30,		Increase		Nine Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change	2016	2015	(Decrease)	% Change
	($ in thousands)				($ in thousands)			
Interest income, net	$ 105	$ 102	$ 3	2.9 %	$ 303	$ 307	$ (4)	(1.3) %
% of total revenue	0.5 %	0.6 %			0.5 %	0.5 %		

Interest income, net remained virtually unchanged for three and nine months ended September 30, 2016 as compared to the same periods in 2015. The small fluctuation in interest income resulted from our mix of investment securities held.

Equity in Earnings (Loss) of Unconsolidated Joint Ventures

	Three Months Ended September 30,		Increase		Nine Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change	2016	2015	(Decrease)	% Change
	($ in thousands)				($ in thousands)			
Equity in earnings (loss) of unconsolidated joint ventures	$ (581)	$ 167	$ (748)	(447.9) %	$ (1,437)	$ 777	$ (2,214)	(284.9) %
% of total revenue	(2.7) %	0.9 %			(2.4) %	1.3 %		

Equity in earnings (loss) of unconsolidated joint ventures is primarily net income (loss) from our minority-owned joint ventures that are not consolidated. Equity in earnings of unconsolidated joint ventures decreased $748,000 to a loss of $581,000 for the three months ended September 30, 2016 from a gain of $167,000 for the three months ended September 30, 2015. Equity in earnings of unconsolidated joint ventures decreased $2.2 million to a loss of $1.4 million for the nine months ended September 30, 2016 from a gain of $777,000 for the nine months ended September 30, 2015. The decrease in 2016 was a result of declining average selling prices and selling volume in the raw materials businesses.

Other Income, Net

	Three Months Ended September 30,		Increase		Nine Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change	2016	2015	(Decrease)	% Change
	($ in thousands)				($ in thousands)			
Other income, net	$ 164	$ 496	$ (332)	(66.9) %	$ 682	$ 1,755	$ (1,073)	(61.1) %
% of total revenue	0.7 %	2.7 %			1.1 %	3.0 %		

Other income, net decreased primarily due to a lower realized gain recognized from sales of available-for-sale investments, lower foreign exchange gain and a lower government subsidy received from our China subsidiary in the three and nine months ended September 30, 2016 as compared to the same periods in 2015.

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Provision for Income Taxes

	Three Months Ended September 30,		Increase		Nine Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change	2016	2015	(Decrease)	% Change
	($ in thousands)				($ in thousands)			
Provision for income taxes	$ 176	$ 7	$ 169	2,414.3 %	$ 713	$ 334	$ 379	113.5 %
% of total revenue	0.8 %	0.0 %			1.2 %	0.6 %		

Provision for income taxes for the three and nine months ended September 30, 2016 were $176,000 and $713,000, respectively, which were mostly related to our China subsidiary and our three consolidated joint ventures in China. No income taxes or benefits have been provided for U.S. operations due to the loss in the U.S. and the uncertainty of generating future profit in the U.S., which has resulted in our deferred tax assets being fully reserved. Our estimated tax rate can vary greatly from year to year because of the change or benefit in the mix of taxable income between our U.S. and China based operations.

Noncontrolling Interests

	Three Months Ended September 30,		Increase		Nine Months Ended September 30,		Increase	
	2016	2015	(Decrease)	% Change	2016	2015	(Decrease)	% Change
	($ in thousands)				($ in thousands)			
Noncontrolling interests	$ (18)	$ 5	$ (23)	(460.0) %	$ (480)	$ 257	$ (737)	(286.8) %
% of total revenue	(0.1) %	0.0 %			(0.8) %	0.4%		

The downward trends in noncontrolling interests' share of earnings and eventual switch to a share of losses for the three and nine months ended September 30, 2016 as compared to the same periods in 2015 were due to lower profitability from our three consolidated subsidiaries in China as profits from sales of raw materials have decreased due to declining average selling prices, which also led to a write down in inventory at one of the consolidated joint ventures.

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Liquidity and Capital Resources

We consider cash and cash equivalents, short-term investments and long-term investments as liquid and available for use within two years in our current operations. Short-term investments and long-term investments are comprised of U.S. government securities and investment-grade corporate notes and bonds. Also included in short-term investments is our investment in common stock of IntelliEpi and GCS Holdings, Inc. (“GHI”). In 2015, we re-categorized our GHI investment from the cost method to short-term investments when we determined that there was sufficient trading volume in the exchange for the stock to be deemed readily marketable.

As of September 30, 2016, our principal source of liquidity was $47.3 million which consisted of cash and cash equivalents of $29.7 million, short-term investments of $9.5 million and long-term investments of $8.1 million. In the nine months ended September 30, 2016, cash and cash equivalents increased by $4.8 million and short-term and long-term investments decreased by $1.5 million. The increase in cash and cash equivalents of $4.8 million in the nine months ended September 30, 2016 was primarily due to net cash provided by operating activities of $5.5 million and net cash provided by financing activities of $0.4 million, which were partially offset by net cash used in investing activities of $0.6 million and the effect of exchange rate changes of $0.5 million. As of September 30, 2016, we and our consolidated joint ventures held approximately $19.8 million in cash and investments in foreign bank accounts. This consists of $14.1 million held by our wholly owned subsidiary in China and $5.7 million held by our three partially-owned consolidated subsidiaries in China. Of this $19.8 million, approximately $12.6 million would not be available for use in the United States without paying United States income taxes. We believe that the current value of our net operating loss carry forward would offset the taxes due.

As of September 30, 2015, our principal source of liquidity was $45.4 million which consisted of cash and cash equivalents of $26.2 million, short-term investments of $8.5 million and long-term investments of $10.7 million. The decrease in cash and cash equivalents of $2.6 million in the nine months ended September 30, 2015 was primarily due to net cash used in investing activities of $2.1 million, and net cash used in financing activities of $2.2 million, and offset by net cash provided by operating activities of $2.3 million and the effect of exchange rate changes of $581,000. As of September 30, 2015, we and our consolidated joint ventures held approximately $18.6 million in cash and investments in foreign bank accounts. This consists of $12.1 million held by our wholly owned subsidiary in China and $6.5 million held by our three partially-owned consolidated subsidiaries in China. Of this $18.6 million, approximately $12.2 million would not be available for use in the United States without paying United States income taxes. We believe that the current value of our net operating loss carry forward would offset the taxes due.

Net cash provided by operating activities of $5.5 million for the nine months ended September 30, 2016 was primarily comprised of a net income of $2.9 million, adjusted for non-cash items of depreciation of $3.6 million, loss on equity method investments of $1.4 million and stock-based compensation of $0.8 million, which were partially offset by realized gain on sales of investments of $0.4 million and a net change of $2.8 million in operating assets and liabilities.

Net cash provided by operating activities of $2.3 million for the nine months ended September 30, 2015 was primarily comprised of an adjustment of non-cash items of depreciation of $4.2 million, amortization of marketable securities premium of$168,000, stock-based compensation of $1.1 million, provision for doubtful accounts of $211,000, loss on disposal property and equipment of $16,000 offset by our net loss of $728,000, realized gain on sales of investments of $859,000, gain on equity investments of $777,000 and a net change of $1.0 million in operating assets and liabilities.

Net cash used in investing activities of $0.6 million for the nine months ended September 30, 2016 was primarily from the purchase of marketable investment securities totaling $10.8 million and the purchase of property, plant and equipment of $2.2 million, which were partially offset by proceeds from maturities and sales of available-for-sale securities of $12.3 million.

Net cash used in investing activities of $2.1 million for the nine months ended September 30, 2015 was primarily from the net purchases of marketable investment securities of $13.0 million and the purchase of property, plant and equipment of $3.5 million and investment in non-marketable equity investments of $162,000, partially offset by proceeds from maturities and sales of available-for-sale securities of $14.3 million and return of equity method investments of $286,000.

Net cash provided by financing activities was $0.4 million for the nine months ended September 30, 2016, which mainly consisted of proceeds from common stock exercised.

Net cash used in financing activities was $2.2 million for the nine months ended September 30, 2015, which consisted of $2.3 million for the repurchase of the Company’s common stock, including commission and fees, and $102,000 net dividends paid by our joint ventures, partially offset by net proceeds of $165,000 on the issuance of common stock pursuant to stock option exercises.

On February 21, 2013, our Board of Directors approved a stock repurchase program pursuant to which we may repurchase up to $6.0 million of our outstanding common stock through February 27, 2014. These purchases were to be made from time to time in the open market and were funded from our existing cash balances and cash generated from operations. During 2013, we repurchased approximately 285,000 shares at an average price of $2.51 per share for a total purchase price of $716,000 under the stock repurchase program. As of December 31, 2013, approximately $5.3 million remained available for future repurchases under this program. No shares were repurchased in 2014 under this program and the plan expired on February 27, 2014.

On October 27, 2014, our Board of Directors approved a stock repurchase program pursuant to which we may repurchase up to $5.0 million of our outstanding common stock. These repurchases can be made from time to time in the open market and are funded from our existing cash balances and cash generated from operations. During 2015, we repurchased approximately 908,000 shares at an average price of $2.52 per share for a total purchase price of approximately $2.3 million under the stock repurchase program. During the nine months ended September 30, 2016, we did not repurchase any shares under the approved stock repurchase program. As of September 30, 2016, approximately $2.7 million remained available for future repurchases under this program. See Item 2, Unregistered Sales of Equity Securities and Use of Proceeds in Part II, Other Information, for additional information.

The China central government is working with the Beijing city government to design a master development plan of the area where our manufacturing facility is located, which will result in the relocation of many of the manufacturing companies in our district. We believe the China central government will undertake a comprehensive review of the master development plan, which will add time to the process. We expect that we will eventually relocate our gallium arsenide production line but the timeline for relocating this production line has not yet been determined by the China central government. The anticipated relocation of at least our gallium arsenide operations in Beijing will require the use of our cash, but no estimate can be made at this time. Funds could be drawn from our existing cash on hand as well as through the sale of part of our current manufacturing facility in China. We believe we have adequate cash, investments and real estate to successfully finance the anticipated relocation of our manufacturing operation.

We believe that we have adequate cash and investments to meet our needs over the next twelve months. If our sales decrease, however, our ability to generate cash from operations will be adversely affected which could adversely affect our future liquidity, require us to use cash at a more rapid rate than expected, and require us to seek additional capital. There can be no assurance that such additional capital will be available or, if available, that it will be on terms acceptable to us.

On October 24, 2016, we filed with the SEC a registration statement on Form S-3, pursuant to which we may offer up to $60,000,000 of common stock, preferred stock, depositary shares, warrants, debt securities and/or units in one or more offerings and in any combination. A prospectus supplement, which we will provide each time we offer securities, will describe the specific amounts, prices and terms of the securities we determine to offer. We intend to use the net proceeds from the sale of securities under the shelf registration statement for general corporate purposes, which may include working capital, capital expenditures, other corporate expenses and acquisitions of complementary products, technologies or businesses.

Cash from operations could be affected by various risks and uncertainties, including, but not limited to those set forth below under Item 1A “Risks Factors.”

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Contractual Obligations and Operating Leases

We lease certain office space, warehouse facilities and equipment under long-term operating leases expiring at various dates through December 2025. The majority of our lease obligations relates to our lease agreement for the facility in Fremont, California with approximately 19,467 square feet.

We entered into a royalty agreement with a competitor effective December 3, 2010 with a term of eight years, terminating December 31, 2018. We and our related companies are granted a worldwide, nonexclusive, royalty bearing, irrevocable license to certain patents for the term of the agreement. We shall pay up to $7.0 million of royalty payments over eight years that began in 2011 based on future royalty bearing sales. This agreement contains a clause that allows us to claim credit, starting in 2013, in the event that the royalty bearing sales for the year is lower than a pre-determined amount set forth in this agreement.

Outstanding contractual obligations as of September 30, 2016 are summarized as follows (in thousands):

	Payments due by period				
Contractual Obligations	Total	Less than 1 year	1-3 years	4-5 years	More than 5 years
Operating leases	$ 422	$ 206	$ 91	$ 52	$ 73
Royalty agreement	1,294	575	719	—	—
Total	$ 1,716	$ 781	$ 810	$ 52	$ 73

Purchase orders or contracts for the purchase of certain goods and services are not included in the preceding table. We cannot determine the aggregate amount of such purchase orders that represent contractual obligations because purchase orders may represent authorizations to purchase rather than binding agreements. For the purposes of this table, contractual obligations for purchase of goods or services are defined as agreements that are enforceable and legally binding and that specify all significant terms, including fixed or minimum quantities to be purchased; fixed, minimum, or variable price provisions; and the approximate timing of the transaction. Our purchase orders are based on our current needs and are fulfilled by our vendors within short time horizons. We also enter into contracts for outsourced services; however, the obligations under these contracts were not significant and the contracts generally contain clauses allowing for cancellation without significant penalty. Contractual obligations that are contingent upon the achievement of certain milestones are not included in the table above.

Off-Balance Sheet Arrangements

As of September 30, 2016, we did not have any off-balance sheet financing arrangements and have never established any special purpose entities as defined under SEC Regulation S-K Item 303(a)(4)(ii).

Recent Accounting Pronouncements

For a description of recent accounting pronouncements, including the expected dates of adoption and estimated effects, if any, on our condensed consolidated financial statements, please see “Note 17 - Recent Accounting Pronouncements” in the Notes to Condensed Consolidated Financial Statements of this Form 10-Q.

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ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Production and Revenue Disruption Risk

The Beijing city government has announced that it will expand its offices into the area where our manufacturing facility is located. The Beijing city government desires to upgrade this area and has applied pressure on manufacturing companies to relocate. It is our understanding that a master development plan of the area where our manufacturing facility is located has not yet been formally approved by the China central government and the timeline for relocating our gallium arsenide wafer production operations at our current site has not yet been determined by the China central government. We are advised that the China central government intends to be the final authority in this matter and is committed to having a master plan that is reasonable and orderly. We believe the China central government will undertake a comprehensive review of the master development plan, which will add time to the process.

It is our understanding that there are a number of factors that the Beijing city government could consider that could extend the timeline for our relocation and exempt certain other companies from being asked to relocate under any master development plan. We believe these factors include, among other factors, the stability and credibility of a company, including its reputation; a company that is a publicly listed company, including a company that is publicly listed in the U.S.; high-technology companies; and companies that represent a center of excellence within Beijing (i.e., a company that has received awards and commemorative plaques from the Beijing city government for, among other things, the issuance to the company of a certain number of patents, being a technology development center or hosting postdoctoral research). We believe that we satisfy each of these factors and, accordingly, we may have some flexibility when we work with the government to develop our relocation plan.

The Beijing city government's economic development bureau has requested that we consider maintaining our indium phosphide production operations at our current site, along with our China headquarters and R&D center. We believe we will still relocate gallium arsenide and germanium production, but we may avoid moving indium phosphide production if we elect to remain at our current site. The anticipated relocation of all or part of our operations will require us to develop and execute an orderly relocation plan. A failure to properly execute a relocation plan could result in disruption to our production and have a material adverse impact on our revenue and our results of operations and financial condition.

Foreign Currency Risk

A significant portion of our business is conducted in currencies other than the U.S. dollar. Foreign exchange losses have had a material adverse effect on our operating results and cash flows in the past and could have a material adverse effect on our operating results and cash flows in the future. If we do not effectively manage the risks associated with this currency risk, our revenue, cash flows and financial condition could be adversely affected. During 2015, we recorded a foreign exchange gain of $717,000, included as part of other income (expense), net in our condensed consolidated statements of operations. During 2014, we recorded net foreign exchange losses of $1.0 million, included as part of other income (expense), net in our condensed consolidated statements of operations. In addition, during 2015, we recorded unrealized foreign currency charges of $377,000 related to financial statement translations which are included in the balance of “accumulated other comprehensive income” on our condensed consolidated balance sheets. We incur foreign currency transaction exchange gains and losses due to operations in general. In the future we may experience foreign exchange losses on our non-functional currency denominated receivables and payables to the extent that we have not mitigated our exposure. Foreign exchange losses could have a materially adverse effect on our operating results and cash flows.

Our product sales to Japanese customers are typically invoiced in Japanese yen. As such we have foreign exchange exposure on our accounts receivable and on any Japanese yen denominated cash deposits. In 2014 and the first half of 2015, the Japanese yen depreciated against the dollar. The major portion of our 2014 exchange loss is attributable to the Japanese yen’s movement.

To partially protect us against fluctuations in foreign currency resulting from accounts receivable in Japanese yen, starting in 2015, we instituted a foreign currency hedging program. We place short term hedges that are intended to offset the potential cash exposure related to fluctuations in the exchange rate between the United States dollar and Japanese yen. We measure the fair value of these hedges at each month end and quarter end using current exchange rates and in accordance with generally accepted accounting principles. At quarter end any foreign currency hedges not settled are netted on the condensed consolidated balance sheet and classified as Level 3 assets and liabilities. As of September 30, 2016 the net change in fair value from the placement of the hedge to settlement at each month end during the quarter had a de minimis impact to the consolidated results.

The functional currency for our foreign operations is the Renminbi, the local currency of China, and in the future we may establish short term hedges covering Renminbi. Most of our operations are conducted in China and most of our costs are incurred in Chinese Renminbi, which subjects us to fluctuations in the exchange rates between the U.S. dollar and the Chinese Renminbi. We incur transaction gains or losses resulting from consolidation of expenses incurred in local currencies for our Chinese subsidiaries, as well as in translation of the assets and liabilities at each balance sheet date. Our financial results could be adversely affected by factors such as changes in foreign currency exchange rates or weak economic conditions in foreign markets, including the revaluation by China of the Renminbi, and any future adjustments that China may make to its currency such as any move it might make to a managed float system with opportunistic interventions. We may also experience foreign exchange losses on our non-functional currency denominated receivables and payables.

We currently are using a hedging program to minimize the effects of currency fluctuations relating to the Japanese yen. While we may apply this program to other currencies, such as the Chinese Renminbi, our hedging position is partial and may not exist at all in the future. It may not succeed in minimizing our foreign currency fluctuation risks. Our primary objective in holding these instruments is to reduce the volatility of earnings and cash flows associated with changes in foreign currency. The program is not designated for trading or speculative purposes. The company may choose not to hedge certain foreign exchange exposures for a variety of reasons, including but not limited to accounting considerations and the prohibitive economic cost of hedging particular exposures.

Interest Rate Risk

Cash and cash equivalents earning interest and certain variable rate debt instruments are subject to interest rate fluctuations. The following table sets forth the probable impact of a 10% change in interest rates (in thousands):

Instrument	Balance as of September 30, 2016	Current Interest Rate	Projected Annual Interest Income	Proforma 10% Interest Rate Decline Income	Proforma 10% Interest Rate Increase Income

Cash and cash equivalents	$	29,661	0.65	%	$	193	$	174	$	212
Investments in marketable debt		17,504	1.20	%		210		189		231
					$	403	$	363	$	443

The primary objective of our investment activities is to preserve principal while maximizing income without significantly increasing risk. Financial instruments that potentially subject us to concentration of credit risk consist primarily of cash and cash equivalents, short-term investments, and trade accounts receivable. We invest primarily in money market accounts, certificates of deposits, corporate bonds and notes, and government securities. We are exposed to credit risks in the event of default by the issuers to the extent of the amount recorded on the condensed consolidated balance sheets. These securities are generally classified as available-for-sale and consequently are recorded on the balance sheet at fair value with unrealized gains or losses reported as a separate component of accumulated other comprehensive income, net of estimated tax. Our cash, cash equivalents and short-term investments and long-term investments are in high-quality instruments placed with major banks and financial institutions and commercial paper. We have no investments in auction rate securities.

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Credit Risk

We perform ongoing credit evaluations of our customers' financial condition, and limit the amount of credit extended when deemed necessary, but generally do not require collateral. Two customers accounted for 14% and 10% of our accounts receivable balance as of September 30, 2016 while one customer accounted for 22% of our accounts receivable balance as of December 31, 2015.

Equity Risk

We maintain minority investments in privately-held companies located in China either invested directly by us and our wholly-own subsidiary or indirectly through our consolidated joint ventures. These minority investments are reviewed for other than temporary declines in value on a quarterly basis. These investments are classified as other assets in the condensed consolidated balance sheets and accounted for under either the equity or cost method, depending on whether we have the ability to exercise significant influence over their operations or financial decisions. We monitor our investments for impairment and record reductions in carrying value when events or changes in circumstances indicate that the carrying value may not be recoverable. Reasons for other than temporary declines in value include whether the related company would have insufficient cash flow to operate for the next twelve months, significant changes in the operating performance and changes in market conditions. As of September 30, 2016 and December 31, 2015, we did not maintain any direct investments under the cost method, our direct minority investments under the equity method totaled $7.0 million and $7.9 million, respectively, and our indirect minority investments by our consolidated joint ventures totaled $3.5 million and $4.1 million, respectively.

ITEM 4. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this quarterly report. Based upon this evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures as defined under Exchange Act Rules 13a-15(e) and 15d-15(e) were effective at the reasonable assurance level to ensure that information required to be disclosed in our Securities Exchange Act reports is recorded, processed, summarized and reported within the time periods specified by the Securities and Exchange Commission and is accumulated and communicated to management, including our Chief

Executive Officer and our Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Our disclosure controls and procedures include components of our internal control over financial reporting. Management's assessment of the effectiveness of our internal control over financial reporting is expressed at the level of reasonable assurance because a control system, no matter how well designed and operated, can provide only reasonable assurance that the control system's objectives will be met.

Changes in Internal Control Over Financial Reporting

No change in our internal control over financial reporting was made in the nine months ended September 30, 2016 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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PART II. OTHER INFORMATION

Item 1. Legal Proceedings

From time to time we may be involved in judicial or administrative proceedings concerning matters arising in the ordinary course of business. We do not expect that any of these matters, individually or in the aggregate, will have a material adverse effect on our business, financial condition, cash flows or results of operation.

Item 1A. Risk Factors

For ease of reference, we have divided these risks and uncertainties into the following general categories:

I. Risks related to our general business;
II. Risks related to international aspects of our business;
III. Risks related to our financial results and capital structure;
IV. Risks related to our intellectual property; and
V. Risks related to compliance, environmental regulations and other legal matters.

I. Risks Related to Our General Business

Silicon substrates (wafers) are significantly lower in cost compared to substrates made from specialty materials and new silicon-based technologies could allow silicon based substrates to replace specialty material based substrates for certain applications.

Historically silicon wafers or substrates are less expensive than specialty material substrates such as those that we produce. Electronic circuit designers will generally consider silicon first and only turn to alternative materials if silicon cannot provide the required functionality in terms of power consumption, speed or other specifications. Beginning in 2011 certain applications that had previously used GaAs substrates adopted a new silicon-based technology called Silicon On Insulator, or SOI. SOI technology uses a silicon-insulator-silicon layered substrate in place of conventional silicon substrates in semiconductor manufacturing. SOI substrates cost less than GaAs substrates and although their performance is not as robust as GaAs substrates in terms of power consumption, heat generation and speed they became acceptable in mobile phone and other applications that were previously dominated by GaAs substrates. The adoption of SOI resulted in decreased GaAs wafer demand, and decreased revenue. If SOI or similar technologies gain more widespread market acceptance, or are used in more applications, our business and operating results could be significantly and adversely affected.

Underutilizing our manufacturing facilities may result in declines in our gross margins.

An important factor in our success is the extent to which we are able to utilize the available capacity in our manufacturing facilities. A number of factors and circumstances may reduce utilization rates, including periods of industry overcapacity, low levels of customer orders, operating inefficiencies, mechanical failures and disruption of operations due to expansion, power interruptions, fire, flood or other natural disasters or calamities. Because many portions of our manufacturing costs are relatively fixed, high utilization rates are critical to our gross margins and operating results. If we fail to achieve acceptable manufacturing volumes or experience product shipment delays, our results of operations will be negatively affected. During periods of decreased demand, we have underutilized our manufacturing lines. If we are unable to improve utilization levels at our facilities during periods of decreased demand and correctly manage capacity, the fixed expense levels will have an adverse effect on our business, financial condition and results of operations. Our gross profit margins have fluctuated from period to period, and these fluctuations are expected to continue in the future. Our gross profit margin has fluctuated from 34.6% in the quarter ended September 30, 2016 to 17.1% for the quarter ended December 31, 2015.

In 2013, we concluded that incoming orders were insufficient and that we were significantly underutilizing our factory capacity. As a result, in February 2014, we announced a restructuring plan with respect to our wholly-owned subsidiary, Beijing Tongmei Xtal Technology Co, Ltd., or Tongmei, in order to better align manufacturing capacity with demand. Under the restructuring plan, we posted a charge of approximately $907,000 in the first quarter of 2014.

If we receive fewer customer orders than forecasted or if our customers delay or cancel orders, we may not be able to reduce our manufacturing costs in the short-term and our gross margins would be negatively affected. In addition, lead times required by our customers are shrinking which reduces our ability to forecast orders and properly balance our capacity utilization.

Our gross margin has fluctuated historically and may decline due to several factors.

Our gross profit margin has fluctuated from period to period as a result of shifts in product mix, the introduction of new products, decreases in average selling prices for products, utilization of our manufacturing capacity and our ability to reduce product costs. These fluctuations are expected to continue in the future.

We do not control the prices at which our subsidiaries and other joint venture companies sell their raw materials products to third parties. However, because we consolidate the results of three of these companies with our own, any reduction in their gross margins could have a significant, adverse impact on our overall gross margins. One or more of our companies has in the past sold, and may in the future sell, raw materials at significantly reduced prices in order to gain volume sales or sales to new customers. In addition, in the three months ended December 31, 2015, the market price of gallium dropped below our per unit inventory cost and we incurred an inventory write down under the lower of cost or market accounting rules. In such events, our gross margin may be adversely impacted. In addition, one of our consolidated subsidiaries has in the past been subject to capacity constraints requiring it to source product from other third party suppliers in order to meet customer demand, resulting in decreased gross margin and adversely impacting our gross margin. This joint venture may in the future continue to experience such capacity restraints, causing our gross margin, and consequently our operating results, to be adversely impacted.

Intense competition in the markets for our products could prevent us from increasing revenue and sustaining profitability.

The markets for our products are intensely competitive. We face competition for our substrate products from other manufacturers of substrates, such as Freiberger Compound Materials, JX, Umicore, Sumitomo Electric Industries and CCTC, from semiconductor device manufacturers that produce substrates for their own use, and from companies, such as TriQuint Semiconductors, RFMD and Skyworks that are actively developing alternative materials to GaAs and marketing semiconductor devices using these alternative materials. We believe that at least two of our major competitors are shipping high volumes of GaAs substrates manufactured using a technique similar to our VGF technology. Other competitors may develop and begin using similar technology. Sumitomo and JX also compete with us in the InP market. If we are unable to compete effectively, our revenue may not increase and we may not achieve profitability. We face many competitors that have a number of significant advantages over us, including:

- greater name recognition and market share in the business;
- more manufacturing experience;
- extensive intellectual property; and
- significantly greater financial, technical and marketing resources.

Our competitors could develop new or enhanced products that are more effective than our products.

The level and intensity of competition has increased over the past years and we expect competition to continue to increase in the future. Competitive pressures have resulted in reductions in the prices of our products, and continued or

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increased competition could reduce our market share, require us to further reduce the prices of our products, affect our ability to recover costs and result in reduced gross margins.

In addition, new competitors have and may continue to emerge, such as a crystal growing company established by a former employee in China that is supplying semi-conducting GaAs wafers to the LED market. Competition from sources such as this could increase, particularly if these competitors are able to obtain large capital investments.

If we have low product yields, the shipment of our products may be delayed and our product cost and operating results may be adversely impacted.

A critical factor in our product cost is yield. Our products are manufactured using complex technologies, and the number of usable substrates we produce can fluctuate as a result of many factors, including:

- impurities in the materials used;
- contamination of the manufacturing environment;
- quality control and inconsistency in quality levels;
- lack of automation and inconsistent processing requiring manual manufacturing steps;
- substrate breakage during the manufacturing process; and
- equipment failure, power outages or variations in the manufacturing process.

In addition, we may modify our process to meet a customer specification but this can impact our yield. If our yields decrease, our revenue could decline if we are unable to produce product to our customers' requirements. At the same time, our manufacturing costs could remain fixed, or could increase. We have experienced product shipment delays and difficulties in achieving acceptable yields on both new and older products, and delays and poor yields have adversely affected our operating results. We may experience similar problems in the future and we cannot predict when they may occur or their duration or severity.

If our manufacturing processes result in defects in our products making them unfit for use by our customers, our products would be rejected, resulting in compensation costs paid to our customers, and possible disqualification. This could lead to revenue loss and market share loss.

The Chinese government has imposed, and may impose in the future, manufacturing restrictions and regulations that require us to move part of our manufacturing operations to a location outside of the Beijing area or temporarily cease or limit manufacturing. Such restrictions would materially and adversely impact our results of operations and our financial condition.

The Beijing city government has announced that it will expand its offices into the area where our manufacturing facility is located. The Beijing city government desires to upgrade this area and has applied pressure on manufacturing companies to relocate. It is our understanding that a master development plan of the area where our manufacturing facility is located has not yet been formally approved by the China central government and the timeline for relocating our gallium arsenide wafer production operations at our current site has not yet been determined by the China central government. We are advised that the China central government intends to be the final authority in this matter and is committed to having a master plan that is reasonable and orderly. We believe the China central government will undertake a comprehensive review of the master development plan, which will add time to the process.

It is our understanding that there are a number of factors that the Beijing city government could consider that could extend the timeline for our relocation and exempt certain other companies from being asked to relocate under any master development plan. We believe these factors include, among other factors, the stability and credibility of a company, including its reputation; a company that is a publicly listed company, including a company that is publicly listed in the U.S.; high-technology companies; and companies that represent a center of excellence within Beijing (i.e., a company that has received awards and commemorative plaques from the Beijing city government for, among other things, the issuance to the company of a certain number of patents, being a technology development center or hosting postdoctoral research). We believe that we satisfy each of these factors and, accordingly, we may have some flexibility when we work with the government to develop our relocation plan.

The Beijing city government's economic development bureau has requested that we consider maintaining our indium phosphide production operations at our current site, along with our China headquarters and R&D center. We believe we will still relocate gallium arsenide and germanium production, but we may avoid moving indium phosphide production if we elect to remain at our current site.

We have been advised that both the Beijing city government and the China central government desire to continue to encourage investment in China and they do not wish to adversely affect any relocating company or its customers. Further, we have been advised that as long as we continue to show good faith in developing a plan to move at least gallium arsenide production, the timeline for completing such a move is currently flexible. As such, we believe we may be able to relocate the portion of our production facilities that we agree to relocate smoothly and safely and in a reasonable manner, without a material disruption of supply to our customers. The anticipated relocation of all or part of our operations will require us to develop and execute an orderly relocation plan. A failure to properly execute a relocation plan could result in disruption to our production and have a material adverse impact on our revenue and our results of operations and financial condition.

The Chinese government has in the past imposed temporary restrictions on manufacturing facilities, such as the restrictions imposed on polluting factories for the 2008 Olympics and the 2014 Asian Pacific Economic Cooperation event. These restrictions included a shut-down of the transportation of materials and power plants to reduce air pollution. To reduce air pollution in Beijing, the Chinese government has sometimes limited the construction of new, or expansion of existing, facilities by manufacturing companies in the Beijing area. If the government applied similar restrictions to us, then such restrictions could have an adverse impact on our results of operations and our financial condition. Our ability to supply current or new orders could be significantly impacted. Customers could then be required to purchase products from our competitors, causing our competitors to take market share from us.

In addition, from time to time, the Chinese government issues new regulations, which may require additional actions on our part to comply. On February 27, 2015, the China State Administration of Work Safety updated its list of hazardous substances. The previous list, which was published in 2002, did not restrict the materials that we use in our wafers. The new list added gallium arsenide. As a result of the newly published list, we were instructed to obtain a permit to continue to manufacture our gallium arsenide substrate wafers. The Beijing municipal authority accepted our permit application in May 2015, but has been slow to take further action and our application remains open while we continue to make preparations in good faith to eventually relocate our gallium arsenide production. If our application is denied in the future then our gallium arsenide production could be disrupted, which could materially and adversely impact our results of operations and our financial condition.

Problems incurred in our 10 partially owned joint venture companies or investment partners could result in a material adverse impact on our financial condition or results of operations.

We have invested in subsidiaries and joint venture companies in China that produce materials including 99.99% pure gallium (4N Ga), high purity gallium (7N Ga), arsenic, germanium, germanium dioxide, pyrolytic boron nitride (pBN) crucibles and boron oxide (B2O3). We purchase a portion of the materials produced by these companies for our use and they sell the remainder of their production to third parties. Our ownership and the ownership held by our consolidated subsidiaries in these entities ranges from 20% to 83%. We consolidate the companies in which we have a majority or controlling financial interest and employ equity accounting for the companies in which we have a smaller ownership interest. Several of these companies occupy space within larger facilities owned and/or operated by one of the other venture partners. Several of these venture partners are engaged in other manufacturing activities at or near the same facility. In some facilities, we share access to certain functions, including water, hazardous waste treatment or air quality treatment. If any of our joint venture partners in any of these ventures experiences problems with its operations,

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disruptions of our joint venture operations could result, having a material adverse effect on the financial condition and results of operation of our joint venture companies, and correspondingly on our financial condition or results of operations. For example, since gallium is a by-product of aluminum, our raw gallium joint venture in China, which is housed in and receives services from an affiliated aluminum plant, could generate lower production of gallium as a result of reduced services provided by the aluminum plant. Accordingly, in order to meet customer supply obligations, our joint venture may have to source materials from another independent third party supplier, resulting in reduced gross margin.

In addition, if any of our joint ventures or venture partners with which our joint ventures share facilities is deemed to have violated applicable laws, rules or regulations governing the use, storage, discharge or disposal of hazardous chemicals during manufacturing, research and development or sales demonstrations, the operations of our joint ventures could be adversely affected and we could be subject to substantial liability for clean-up efforts, personal injury and fines or suspension or cessation of our joint venture operations as a result of the actions of the joint ventures or other venture partners. Employees working for our joint ventures or any of the other venture partners could bring litigation against us as a result of actions taken at the joint venture or venture partner facilities, even though we are not directly controlling the operations, including actions for exposure to chemicals or other hazardous materials at the facilities of our joint ventures or the facilities of any venture partner that are shared by our joint ventures. While we would expect to defend ourselves vigorously in any litigation that is brought against us, litigation is inherently uncertain and it is possible that our business, financial condition, results of operations or cash flows could be affected. Even if we are not deemed responsible for the actions of the joint ventures or venture partners, litigation could be costly, time consuming to defend and divert management attention; in addition, if we are deemed to be the most financially viable of the partners, plaintiffs may decide to pursue us for damages.

Since all of our partially owned companies reside in China, their activities could subject us to a number of risks associated with conducting operations internationally, including:

- difficulties in managing geographically disparate operations;
- difficulties in enforcing agreements through non-U.S. legal systems;
- unexpected changes in regulatory requirements that may limit our ability to manufacture, export the products of our joint venture companies or sell into particular jurisdictions or impose multiple conflicting tax laws and regulations;
- political and economic instability, civil unrest or war;
- terrorist activities that impact international commerce;
- difficulties in protecting our intellectual property rights, particularly in countries where the laws and practices do not protect proprietary rights to as great an extent as do the laws and practices of the United States;
- changing laws and policies affecting economic liberalization, foreign investment, currency convertibility or exchange rates, taxation or employment; and
- nationalization of foreign owned assets, including intellectual property.

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Our revenue, gross margins and profitability can be hurt if the average sales price of the various raw materials in our partially owned companies decreases.

Although the companies in our vertically integrated supply chain have historically made a positive contribution to our financial performance, the average selling prices for many of the raw materials produced have continued to decline and have had a negative impact on our recent financial performance. In particular, the selling prices for 4N gallium and for germanium have been driven down by oversupply and, in the second half of 2015 and in 2016, hurt our total revenue and reduced our gross margin. Low selling prices for raw materials continue and will have a detrimental impact on our 2016 financial performance. There can be no assurance that the oversupply will be corrected by the market. Further, in the fourth quarter of 2015, one of our consolidated subsidiaries incurred a lower of cost or market inventory write down, which negatively impacted our consolidated gross margin. If the pricing environment remains stressed by oversupply and our joint venture companies cannot reduce their production cost, then the reduced average selling prices of the raw materials produced by our joint venture companies will have a continuing adverse impact on our revenue, gross margins and net profit.

Demand for our products may decrease if demand for the end-user applications decrease or if manufacturers downstream in our supply chain experience difficulty manufacturing, marketing or selling their products.

Our products are used as components in electronic products. Accordingly, demand for our products is subject to the demand for end-user applications which utilize our products, as well as factors affecting the ability of the manufacturers downstream in our supply chain to introduce and market their products successfully, including:

- the competition such manufacturers face in their particular industries;
- the technical, manufacturing, sales, marketing and management capabilities of such manufacturers;
- the financial and other resources of such manufacturers; and
- the inability of such manufacturers to sell their products if they infringe third party intellectual property rights.

If demand for the end-user applications for which our products are used decreases, or if manufacturers downstream in our supply chain are unable to develop, market and sell their products, demand for our products will decrease.

The average selling prices of our products may decline over relatively short periods, which may reduce our gross margins.

Since the market for our products is characterized by declining average selling prices resulting from factors such as increased competition, overcapacity, the introduction of new products and decreased sales of products incorporating our products, the average selling prices for our products may decline over relatively short time periods. We have in the past experienced, and in the future may experience, substantial period-to-period fluctuations in operating results due to declining average selling prices. For example, on average, for the year ended December 31, 2015 we experienced average selling price declines of approximately 5% to 15% depending on the substrates product. It is possible that the pace of average selling price declines could accelerate beyond these levels for certain products in a commoditizing market. We anticipate that average selling prices will decrease in the future in response to the unstable demand environment, product introductions by competitors or us, or by other factors, including pricing pressures from significant customers. When our average selling prices decline, our gross profits decline unless we are able to sell more products or reduce the cost to manufacture our products. We generally attempt to combat average selling price declines by improving yields, manufacturing efficiency and working to reduce the costs of our raw materials and of manufacturing our products. We have in the past and may in the future experience declining sales prices, which could negatively impact our revenues, gross profits and financial results. We therefore need to sell our current products in increasing volumes to offset any decline in their average selling prices, and introduce new products, which we may not be able to do, or do on a timely basis.

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We may be unable to reduce the cost of our products sufficiently to enable us to compete with others. Our cost reduction efforts may not allow us to keep pace with competitive pricing pressures and could adversely affect our margins. In order to remain competitive, we must continually reduce the cost of manufacturing our products through design and engineering changes. There is no assurance that any changes effected by us will result in sufficient cost reductions to allow us to reduce the price of our products to remain competitive or improve our gross margins.

Defects in our products could diminish demand for our products.

Our products are complex and may contain defects, including defects resulting from impurities inherent in our raw materials or inconsistencies in our manufacturing processes. We have experienced quality control problems with some of our products, which caused customers to return products to us, reduce orders for our products, or both. We believe that we continue to experience certain reduction in orders as a result of product quality issues. If we experience quality control problems, or experience these or other problems in new products, customers may cancel or reduce orders or purchase products from our competitors and we may be unable to maintain or increase sales to our customers and sales of our products could decline. Defects in our products could cause us to incur higher manufacturing costs and suffer product returns and additional service expenses, all of which could adversely impact our operating results.

If new products developed by us contain defects when released, our customers may be dissatisfied and we may suffer negative publicity or customer claims against us, lose sales or experience delays in market acceptance of our new products.

The loss of one or more of our key substrate customers would significantly hurt our operating results.

Although there was only one customer that represented more than 10% of our revenue for the three months ended September 30, 2016, we believe that a significant portion of our future revenue could be derived from a limited number of substrate customers. Most of our customers are not obligated to purchase a specified quantity of our products or to provide us with binding forecasts of product purchases. In addition, our customers may reduce, delay or cancel orders at any time without any significant penalty. In the past, we have experienced slower bookings, significant push-outs and cancellation of orders from customers. If we lose a major customer or if a customer cancels, reduces or delays orders, or reduces the prices paid for our products, our revenue would decline. In addition, customers that have accounted for significant revenue in the past may not continue to generate revenue for us in any future period. Any delay in scheduled shipments of our products could cause revenue to fall below our expectations and the expectations of market analysts or investors, causing our stock price to decline.

The cyclical nature of the semiconductor industry may limit our ability to maintain or increase net sales and operating results during industry downturns.

The semiconductor industry is highly cyclical and periodically experiences significant economic downturns characterized by diminished product demand, resulting in production overcapacity and excess inventory in the markets we serve. A downturn can result in lower unit volumes and rapid erosion of average selling prices. The semiconductor industry has experienced significant downturns, often in connection with, or in anticipation of, maturing product cycles of both semiconductor companies' and their customers' products or a decline in general economic conditions. This may adversely affect our results of operations and the value of our business.

Our continuing business depends in significant part upon manufacturers of electronic and opto-electronic compound semiconductor devices, as well as the current and anticipated market demand for these devices and products using these devices. As a supplier to the compound semiconductor industry, we are subject to the business cycles that characterize the industry. The timing, length and volatility of these cycles are difficult to predict. The compound semiconductor industry has historically been cyclical due to sudden changes in demand, the amount of manufacturing capacity and changes in the technology employed in compound semiconductors. The rate of changes in demand, including end demand, is high, and the effect of these changes upon us occurs quickly, exacerbating the volatility of these cycles. These changes have affected the timing and amounts of customers' purchases and investments in new technology. These industry cycles create pressure on our revenue, gross margin and net income.

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Our industry has in the past experienced periods of oversupply and that has resulted in significantly reduced prices for compound semiconductor devices and components, including our products, both as a result of general economic changes and overcapacity. When this occurs our operating results and financial condition are adversely affected. Oversupply causes greater price competition and can cause our revenue, gross margins and net income to decline. During periods of weak demand, customers typically reduce purchases, delay delivery of products and/or cancel orders of component parts such as our products. Further order cancellations, reductions in order size or delays in orders could occur and would materially adversely affect our business and results of operations. Actions to reduce our costs may be insufficient to align our structure with prevailing business conditions. We may be required to undertake additional cost-cutting measures, and may be unable to invest in marketing, research and development and engineering at the levels we believe are necessary to maintain our competitive position. Our failure to make these investments could seriously harm our business.

We base our planned operating expenses in part on our expectations of future revenue, and a significant portion of our expense is relatively fixed. If revenue for a particular quarter is lower than we expect, we likely will be unable to proportionately reduce our operating expenses for that quarter, which would harm our operating results. For example, in 2013, we experienced significantly declining gross margins due to the allocation of fixed costs across a lower volume of sales than anticipated.

We purchase critical raw materials and parts for our equipment from single or limited sources, and could lose sales if these sources fail to fill our needs.

We depend on a limited number of suppliers for certain raw materials, components and equipment used in manufacturing our products, including key materials such as quartz tubing from our vendor, Kaide, and polishing solutions. Although several of these raw materials are purchased from suppliers in which we hold an ownership interest, we generally purchase these materials through standard purchase orders and not pursuant to long-term supply contracts, and no supplier guarantees supply of raw materials or equipment to us. If we lose any of our key suppliers, our manufacturing efforts could be significantly hampered and we could be prevented from timely producing and delivering products to our customers. Prior to investing in our subsidiaries and joint ventures, we sometimes experienced delays obtaining critical raw materials and spare parts, including gallium, due to shortages of these materials and we could experience such delays again in the future due to shortages of materials and may be unable to obtain an adequate supply of materials. These shortages and delays could result in higher materials costs and cause us to delay or reduce production of our products. If we have to delay or reduce production, we could fail to meet customer delivery schedules and our revenue and operating results could suffer.

If we do not successfully develop new products to respond to rapidly changing customer requirements, our ability to generate revenue, obtain new customers, and retain existing customers may suffer.

Our success depends on our ability to offer new products, including larger diameter substrates, low defect density substrates and product features that incorporate leading technology and respond to technological advances. In addition, our new products must meet customer needs and compete effectively on quality, price and performance. The life cycles of our products are difficult to predict. The markets for our products are characterized by rapid technological change, changing customer needs and evolving industry standards. If our competitors introduce products employing new technologies or performance characteristics, our existing products could become obsolete and unmarketable. During the past few years, we have seen our competitors selling more substrates manufactured using a crystal growth technology similar to ours, which has eroded our technological differentiation.

The development of new products can be a highly complex process, and we may experience delays in developing and introducing new products. Any significant delay could cause us to fail to timely introduce and gain market acceptance of new products. Further, the costs involved in researching, developing and engineering new products could be greater than anticipated. If we fail to offer new products or product enhancements or fail to achieve higher quality products, we may not generate sufficient revenue to offset our development costs and other expenses or meet our customers' requirements.

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Our substrate products have a long qualification cycle that makes it difficult to plan our expenses and forecast our results.

New customers typically place orders with us for our substrate products three months to a year or more after our initial contact with them. The sale of our products may be subject to delays due to our customers' lengthy internal approval and evaluation processes. During this time, we may incur substantial expenses and expend sales, marketing and management efforts while the customers evaluate our products. These expenditures may not result in sales of our products. If we do not achieve anticipated sales in a period as expected, we may experience an unplanned shortfall in our revenue. As a result, we may not be able to cover expenses, causing our operating results to be adversely effected. In addition, if we fail to meet the product qualification requirements of the customer, we may not have another opportunity to sell products to this customer for many months or even years. In the current competitive climate, the average qualification and sales cycle for our products has lengthened even further and is expected to continue to make it difficult for us to forecast our future sales accurately. We anticipate that sales of any future substrate products will also have lengthy sales cycles and will, therefore, be subject to risks substantially similar to those inherent in the lengthy sales cycles of our current substrate products.

If any of our facilities are damaged by occurrences such as fire, explosion or natural disaster, we might not be able to manufacture our products.

The ongoing operation of our manufacturing and production facilities in China is critical to our ability to meet demand for our products. If we are not able to use all or a significant portion of our facilities for prolonged periods for any reason, we would not be able to manufacture products for our customers. For example, a fire or explosion caused by our use of combustible chemicals and high temperatures during our manufacturing processes or power interruption caused by severe weather conditions could render some or all of our facilities inoperable for an indefinite period of time. Actions outside of our control, such as earthquakes or other natural disasters, could also damage our facilities, rendering them inoperable. If we are unable to operate our facilities and manufacture our products, we would lose customers and revenue and our business would be harmed.

If China places restrictions on freight and transportation routes and on port of entry and departure this could result in shipping delays or increased costs for shipping.

In August 2015 there was an explosion at the Port of Tianjin, China. As a result of this incident the government placed some restrictions on importing certain materials and on freight routes used to transport these materials. We experienced some modest disruption from these restrictions. If the government were to place additional restrictions on the transportation of materials, then our ability to transport our raw materials or products could be limited and result in bottlenecks at shipping ports, affecting our ability to deliver products to our customers. During periods of such restrictions, we may increase our stock of critical materials (such as arsenic, gallium, and other chemicals) for use during the period that these restrictions are likely to last, which will increase our use of cash and increase our inventory level. Any of these restrictions could materially and adversely impact our results of operations and our financial condition.

The financial condition of our customers may affect their ability to pay amounts owed to us.

Many of our customers may be undercapitalized and cope with cash flow issues. Because of competitive market conditions, we frequently allow our customers extended payment terms when shipping products to them. Subsequent to our shipping a product, some customers have been unable to make payments when due, reducing our cash balances and causing us to incur charges to allow for a possibility that some accounts might not be paid. Customers may also be forced to file for bankruptcy. If our customers do not pay their accounts we will be required to incur charges that would reduce our earnings.

We have made and may continue to make strategic investments in raw materials suppliers, which may not be successful and may result in the loss of all or part of our investment.

We have made investments through our subsidiaries and joint ventures in raw material suppliers in China, which provide us with opportunities to gain supplies of key raw materials that are important to our substrate business.

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These affiliates each have a market beyond that provided by us. We do not have influence over all of these companies and in some we have made only a strategic, minority investment. We may not be successful in achieving the financial, technological or commercial advantage upon which any given investment is premised, and we could end up losing all or part of our investment.

We depend on the continuing efforts of our senior management team and other key personnel. If we lose members of our senior management team or other key personnel, or are unable to successfully recruit and train qualified personnel, our ability to manufacture and sell our products could be harmed.

Our future success depends on the continuing services of members of our senior management team and other key personnel. Our industry is characterized by high demand and intense competition for talent, and the turnover rate can be high. We compete for qualified management and other personnel with other semiconductor companies. Our employees could leave our company with little or no prior notice and would be free to work for a competitor. If one or more of our senior executives or other key personnel were unable or unwilling to continue in their present positions, we may not be able to replace them easily or at all, and other senior management may be required to divert attention from other aspects of the business. The loss of any of these individuals or our ability to attract or retain qualified personnel could adversely affect our business.

Our results of operations may suffer if we do not effectively manage our inventory.

We must manage our inventory of raw materials, work-in-process and finished goods effectively to meet changing customer requirements, while keeping inventory costs down and improving gross margins. Although we seek to maintain sufficient inventory levels of certain materials to guard against interruptions in supply and to meet our near term needs, and have to date been able to obtain sufficient supplies of materials in a timely manner, in the future, we may experience shortages of certain key materials. Some of our products and supplies have in the past and may in the future become obsolete while in inventory due to changing customer specifications, or become excess inventory due to decreased demand for our products and an inability to sell the inventory within a foreseeable period. This would result in charges that reduce our gross profit. Furthermore, if market prices drop below the prices at which we value inventory, we may need to take a charge for a reduction in inventory values in accordance with the lower of cost or market valuation rule. We have in the past had to take inventory valuation and impairment charges. Any future unexpected changes in demand or increases in costs of production that cause us to take additional charges for un-saleable, obsolete or excess inventory, or to reduce inventory values, could adversely affect our results of operations.

Financial market volatility and adverse changes in the domestic and global economic environment could have a significant adverse impact on our business, financial condition and operating results.

We are subject to the risks arising from adverse changes and uncertainty in domestic and global economies. Uncertain global economic conditions and low or negative growth in China, Europe and the United States, along with volatility in the financial markets, increasing national debt and fiscal concerns in various regions, pose challenges to our industry. Currently China's economy is slowing and this could impact our financial performance. Although we remain well-capitalized, the cost and availability of funds may be adversely affected by illiquid credit markets. Turbulence in U.S. and international markets and economies may adversely affect our liquidity, financial condition and profitability. Another severe or prolonged economic downturn could result in a variety of risks to our business, including:

- increased volatility in our stock price;
- increased volatility in foreign currency exchange rates;
- delays in, or curtailment of, purchasing decisions by our customers or potential customers either as a result of overall economic uncertainty or as a result of their inability to access the liquidity necessary to engage in purchasing

initiatives;

- increased credit risk associated with our customers or potential customers, particularly those that may operate in industries most affected by the economic downturn; and

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· impairment of our intangible or other assets.

In the recent past we experienced delays in customer purchasing decisions and disruptions in normal volume of customer orders that we believe were in part due to the uncertainties in the global economy and an adverse impact on consumer spending. During challenging and uncertain economic times and in tight credit markets, many customers delay or reduce technology purchases. Should similar events occur again, our business and operating results could be significantly and adversely affected.

Global economic conditions may have an impact on our business and financial condition in ways that we currently cannot predict.

Our operations and financial results depend on worldwide economic conditions and their impact on levels of business spending, which had deteriorated significantly in many countries and regions in previous years. Uncertainties in the financial and credit markets may cause our customers to postpone deliveries of ordered systems and placement of new orders and extended uncertainties may reduce future sales of our products and services. The revenue growth and profitability of our business depends on the overall demand for our substrates, and we are particularly dependent on the market conditions for the wireless, solid state illumination, fiber optics and telecommunications industries. Because the end users of our products are primarily large companies whose businesses fluctuate with general economic and business conditions, a softening of demand for products that use our substrates, caused by a weakening economy, may result in decreased revenue. Customers may find themselves facing excess inventory from earlier purchases, and may defer or reconsider purchasing products due to the downturn in their business and in the general economy. If market conditions deteriorate, we may experience increased collection times and greater write-offs, either of which could have a material adverse effect on our profitability and our cash flow.

Future tightening of credit markets and concerns regarding the availability of credit may make it more difficult for our customers to raise capital, whether debt or equity, to finance their purchases of capital equipment or of the products we sell. Delays in our customers' ability to obtain such financing, or the unavailability of such financing, would adversely affect our product sales and revenues and therefore harm our business and operating results. We cannot predict the timing, duration of or effect on our business of any future economic downturn or the timing or strength of any subsequent recovery.

We may not be able to identify additional complementary joint ventures.

Although we are not currently pursuing additional joint ventures, in the future we might continue to invest in additional joint ventures in order to remain competitive in our marketplace and ensure a supply of critical raw materials. However, we may not be able to identify additional complementary joint venture opportunities or, even once opportunities are identified, we may not be able to reach agreement on the terms of the venture with the other venture partners. Additional joint ventures could cause us to incur contingent liabilities or other expenses, any of which could adversely affect our financial condition and operating results.

The effect of terrorist threats and actions on the general economy could decrease our revenue.

Developed countries such as the United States and China continue to be on alert for terrorist activity. The potential near- and long-term impact terrorist activities may have in regards to our suppliers, customers and markets for our products and the economy is uncertain. There may be embargos of ports or products, or destruction of shipments or our facilities, or attacks that affect our personnel. There may be other potentially adverse effects on our operating results due to significant events that we cannot foresee. Since we perform all of our manufacturing operations in China, terrorist activity or threats against U.S. owned enterprises are a particular concern to us.

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II. Risks Related to International Aspects of Our Business

We derive a significant portion of our revenue from international sales, and our ability to sustain and increase our international sales involves significant risks.

Our revenue growth depends in part on the expansion of our international sales and operations. International sales represented over 80% of our revenue in each of the past three years since 2013. We expect that sales to customers outside the United States, particularly sales to customers in Japan, Taiwan and China, will continue to represent a significant portion of our revenue.

Currently, a significant percentage of our revenue is to customers headquartered in Asia. All of our manufacturing facilities and most of our suppliers are also located outside the United States. Managing our overseas operations presents challenges, including periodic regional economic downturns, trade balance issues, varying business conditions and demands, political instability, variations in enforcement of intellectual property and contract rights in different jurisdictions, differences in the ability to develop relationships with suppliers and other local businesses, changes in U.S. and international laws and regulations, including U.S. export restrictions, fluctuations in interest and currency exchange rates, the ability to provide sufficient levels of technical support in different locations, cultural differences and perceptions of U.S. companies, shipping delays and terrorist acts or acts of war, among other risks. Many of these challenges are present in China, which represents a large potential market for semiconductor devices. Global uncertainties with respect to: (i) economic growth rates in various countries; (ii) sustainability of demand for electronics products; (iii) capital spending by semiconductor manufacturers; (iv) price weakness for certain semiconductor devices; (v) changing and tightening environmental regulations and (vi) political instability in regions where we have operations may also affect our business, financial condition and results of operations.

Our dependence on international sales involves a number of risks, including:

- changes in tariffs, import restrictions, export restrictions, or other trade barriers;
- unexpected changes in regulatory requirements;
- longer periods to collect accounts receivable;
- changes in export license requirements;
- political and economic instability;
- unexpected changes in diplomatic and trade relationships; and
- foreign exchange rate fluctuations.

Our sales are denominated in U.S. dollars, except for sales to our Chinese customers which are denominated in Renminbi and our Japanese customers which are denominated in Japanese yen. Increases in the value of the U.S. dollar could increase the price of our products in non-U.S. markets and make our products more expensive than competitors' products in these markets.

Denominating some sales in Japanese yen subjects us to fluctuations in the exchange rates between the U.S. dollar and the Japanese yen. For example, in the second half of 2014, the exchange rate of Japanese yen to U.S. dollar moved from 101.55 to 119.95 from June 30, 2014 to December 31, 2014. As a result, in 2014 we incurred foreign currency transaction exchange losses which are included in "other income (expense), net" on the condensed consolidated statements of operations of $1.0 million. We incur transaction gains or losses resulting from the purchase and sale activities denominated in foreign currencies other than functional currencies at the respective consolidated entities. We accumulate translation gain or losses resulting from marking certain balance sheet assets and liabilities to the current market rate for those consolidated entities whose functional currencies are other than the reporting currency, which are

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recorded as component of "accumulated other comprehensive income (loss)" on the condensed consolidated balance sheets.

The functional currency of our Chinese subsidiary and joint ventures is the local currency. If we do not effectively manage the risks associated with international sales, our revenue, cash flows and financial condition could be adversely affected.

Changes in tariffs, import or export restrictions, Chinese regulations or other trade barriers may reduce gross margins.

We may incur increases in costs due to changes in tariffs, import or export restrictions, or other trade barriers, unexpected changes in regulatory requirements, any of which could reduce our gross margins. For example, in July 2012, we received notice of retroactive value-added taxes (VATs) levied by the tax authorities in China which applied for the period from July 1, 2011 to June 30, 2012. We expensed the retroactive VATs of approximately $1.3 million in the quarter ended June 30, 2012, which resulted in a decrease in our gross margins. These VATs will continue to negatively impact our gross margins for the future quarters. Given the relatively fluid regulatory environment in China, there could be additional tax or other regulatory changes in the future. Any such changes could directly and materially adversely impact our financial results and general business condition.

Our operating results depend in large part on continued customer acceptance of our substrate products manufactured in China and continued improvements in product quality.

We manufacture all of our products in China, and source most of our raw materials in China. We have in the past experienced quality problems with our China manufactured products. Our previous quality problems caused us to lose market share to our competitors, as some customers reduced their orders from us until our surface quality was as good and consistent as that offered by competitors and instead allocated their requirements for compound semiconductor substrates to our competitors. If we are unable to continue to achieve customer qualifications for our products, or if we are unable to control product quality, customers may not increase purchases of our products, our China facility will become underutilized, and we will be unable to achieve revenue growth.

Changes in China's political, social, regulatory or economic environments may affect our financial performance.

Our financial performance may be affected by changes in China's political, social, regulatory or economic environments. The role of the Chinese central and local governments in the Chinese economy is significant. Chinese policies toward economic liberalization, and laws and policies affecting technology companies, foreign investment, currency exchange rates, taxation structure and other matters could change, resulting in greater restrictions on our ability to do business and operate our manufacturing facilities in China. Any imposition of surcharges or any increase in Chinese tax rates or reduction or elimination of Chinese tax benefits could hurt our operating results. The Chinese government could revoke, terminate or suspend our operating license for reasons related to environmental control over the use of hazardous materials, labor complaints, national security and similar reasons without compensation to us. If the Chinese government were to take any of these actions, we would be prevented from conducting all or part of our business. Any failure on our part to comply with governmental regulations could result in the loss of our ability to manufacture our products.

The Beijing city government has announced that it will expand its offices into the area where our manufacturing facility is located. The Beijing city government desires to upgrade this area and has applied pressure on manufacturing companies to relocate. It is our understanding that a master development plan of the area where our manufacturing facility is located has not yet been formally approved by the China central government and the timeline for relocating our gallium arsenide wafer production operations at our current site has not yet been determined by the China central government. We are advised that the China central government intends to be the final authority in this matter and is committed to having a master plan that is reasonable and orderly. We believe the China central government will undertake a comprehensive review of the master development plan, which will add time to the process.

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It is our understanding that there are a number of factors that the Beijing city government could consider that could extend the timeline for our relocation and exempt certain other companies from being asked to relocate under any master development plan. We believe these factors include, among other factors, the stability and credibility of a company, including its reputation; a company that is a publicly listed company, including a company that is publicly listed in the U.S.; high-technology companies; and companies that represent a center of excellence within Beijing (i.e., a company that has received awards and commemorative plaques from the Beijing city government for, among other things, the issuance to the company of a certain number of patents, being a technology development center or hosting postdoctoral research). We believe that we satisfy each of these factors and, accordingly, we may have some flexibility when we work with the government to develop our relocation plan.

The Beijing city government's economic development bureau has requested that we consider maintaining our indium phosphide production operations at our current site, along with our China headquarters and R&D center. We believe we will still relocate gallium arsenide and germanium production, but we may avoid moving indium phosphide production if we elect to remain at our current site.

If there are power shortages in China, we may have to temporarily close our China operations, which would adversely impact our ability to manufacture our products and meet customer orders, and would result in reduced revenue.

In the past, China has faced power shortages resulting in power demand outstripping supply in peak periods. Instability in electrical supply has caused sporadic outages among residential and commercial consumers causing the Chinese government to implement tough measures to ease the energy shortage. If further problems with power shortages occur in the future, we may be required to make temporary closures of our operations or of our subsidiary and joint venture operations. We may be unable to manufacture our products and would then be unable to meet customer orders except from inventory on hand. As a result, our revenue could be adversely impacted, and our relationships with our customers could suffer, impacting our ability to generate future revenue. In addition, if power is shut off at any of our facilities at any time, either voluntarily or as a result of unplanned brownouts, during certain phases of our manufacturing process including our crystal growth phase, the work in process may be ruined and rendered unusable, causing us to incur costs that will not be covered by revenue, and negatively impacting our cost of revenue and gross margins.

An outbreak of a contagious disease such as Ebola, Severe Acute Respiratory Syndrome (SARS) or the Avian Flu may adversely impact our manufacturing operations and some of our key suppliers and customers.

Any reoccurrence of SARS or an outbreak of a contagious disease, such as Avian Flu or Ebola, may cause us to temporarily close our manufacturing operations. Similarly, if one or more of our key suppliers is required to close for an extended period, we might not have enough raw material inventories to continue manufacturing operations. In addition, while we possess management skills among our China staff that enable us to maintain our manufacturing operations with minimal on-site supervision from our U.S. based staff, our business could also be harmed if travel to or from China and the United States is restricted or inadvisable. If our manufacturing operations were closed for a significant period, we could lose revenue and market share, which would depress our financial performance and could be difficult to recapture. Finally, if one of our key customers is required to close for an extended period, we might not be able to ship product to them, our revenue would decline and our financial performance would suffer.

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III. Risks Related to Our Financial Results and Capital Structure

If we fail to manage periodic contractions, we may utilize our cash balances, resulting in the decline of our existing cash, cash equivalents and investment balances.

We anticipate that our existing cash resources will fund our operations and purchases of capital equipment, as well as provide adequate working capital for the next twelve months. However, our liquidity is affected by many factors including, among others, securing land use rights and facilities for the relocation of our gallium arsenide product line, the extent to which we pursue on-going capital expenditures, the level of our production, and other factors related to the uncertainties of the industry and global economies. If we fail to manage business contractions successfully we may draw down our cash reserves, which would adversely affect our financial condition, reduce our value and possibly impinge our ability to raise debt and equity funding in the future, at a time when we might need to raise additional cash. Accordingly, there can be no assurance that events in the future will not require us to seek additional capital or, if required, that such capital would be available on terms acceptable to us, if at all. As part of our effort to reduce costs, we may lose key staff, production resources and technology that we will need to replenish when end markets recover. These events could reduce our ability to grow profitably as markets recover.

Unpredictable fluctuations in our operating results could disappoint analysts or our investors, which could cause our stock price to decline.

We have experienced, and may continue to experience, significant fluctuations in our revenue, gross margins and earnings. Our quarterly and annual revenue and operating results have varied significantly in the past and may vary significantly in the future due to a number of factors, including:

- our ability to develop, manufacture and deliver high quality products in a timely and cost-effective manner;
- decline in general economic conditions or downturns in the industry in which we compete;
- disruptions during the relocation of our gallium arsenide product line;
- fluctuations in demand for our products;
- expansion of our manufacturing capacity;
- expansion of our operations in China;
- limited availability and increased cost of raw materials;
- the volume and timing of orders from our customers, and cancellations, push-outs and delays of customer orders once booked;
- fluctuation of our manufacturing yields;
- decreases in the prices of our or our competitors’ products;
- costs incurred in connection with any future acquisitions of businesses or technologies; and
- increases in our expenses, including expenses for research and development.

Due to these factors, we believe that period-to-period comparisons of our operating results may not be meaningful indicators of our future performance.

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A substantial percentage of our operating expenses are fixed, and we may be unable to adjust spending to compensate for an unexpected shortfall in revenue. As a result, any delay in generating revenue could cause our operating results to fall below the expectations of market analysts or investors, which could also cause our stock price to decline.

If our operating results and financial performance do not meet the guidance that we have provided to the public, our stock price may decline.

We provide public guidance on our expected operating and financial results. Although we believe that this guidance provides our stockholders, investors and analysts with a better understanding of our expectations for the future, such guidance is comprised of forward-looking statements subject to the risks and uncertainties described in this report and in our other public filings and public statements. Our actual results may not meet the guidance we have provided. If our operating or financial results do not meet our guidance or the expectations of investment analysts, our stock price may decline.

We have adopted certain anti-takeover measures that may make it more difficult for a third party to acquire us.

Our board of directors has the authority to issue up to 2,000,000 shares of preferred stock and to determine the price, rights, preferences and privileges of those shares without any further vote or action by the stockholders. The rights of the holders of common stock will be subject to, and may be adversely affected by, the rights of the holders of any preferred stock that may be issued in the future. The issuance of shares of preferred stock could have the effect of making it more difficult for a third party to acquire a majority of our outstanding voting stock. We have no present intention to issue additional shares of preferred stock.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws may have the effect of delaying or preventing a merger, acquisition or change of control, or changes in our management, which could adversely affect the market price of our common stock. The following are some examples of these provisions:

- the division of our board of directors into three separate classes, each with three-year terms;
- the right of our board to elect a director to fill a space created by a board vacancy or the expansion of the board;
- the ability of our board to alter our amended and restated bylaws; and
- the requirement that only our board or the holders of at least 10% of our outstanding shares may call a special meeting of our stockholders.

Furthermore, because we are incorporated in Delaware, we are subject to the provisions of Section 203 of the Delaware General Corporation Law. These provisions prohibit us from engaging in any business combination with any interested stockholder (a stockholder who owns 15% or more of our outstanding voting stock) for a period of three years following the time that such stockholder became an interested stockholder, unless:

- $66^2/_3$% of the shares of voting stock not owned by the interested stockholder approve the merger or combination, or
- the board of directors approves the merger or combination or the transaction which resulted in the stockholder becoming an interested stockholder.

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Our common stock may be delisted from The Nasdaq Global Select Market, which could negatively impact the price of our common stock and our ability to access the capital markets.

Our common stock is listed on The Nasdaq Global Select Market. The bid price of our common stock has in the past closed below the $1.00 minimum per share bid price required for continued inclusion on The Nasdaq Global Select Market under Marketplace Rule 5450(a). If the bid price of our common stock remains below $1.00 per share for thirty consecutive business days, we could be subject to delisting from the Nasdaq Global Select Market.

Any delisting from The Nasdaq Global Select Market could have an adverse effect on our business and on the trading of our common stock. If a delisting of our common stock were to occur, our common stock would trade on the OTC Bulletin Board or on the "pink sheets" maintained by the National Quotation Bureau, Inc. Such alternatives are generally considered to be less efficient markets, and our stock price, as well as the liquidity of our common stock, may be adversely impacted as a result. Delisting from The Nasdaq Global Select Market could also have other negative results, including the potential loss of confidence by suppliers and employees, the loss of institutional investor interest and fewer business development opportunities, as well as the loss of liquidity for our stockholders.

IV. Risks Related to Our Intellectual Property

Intellectual property infringement claims may be costly to resolve and could divert management attention.

Other companies may hold or obtain patents on inventions or may otherwise claim proprietary rights to technology necessary to our business. The markets in which we compete are comprised of competitors that in some cases hold substantial patent portfolios covering aspects of products that could be similar to ours. We could become subject to claims that we are infringing patent, trademark, copyright or other proprietary rights of others. We have in the past been involved in lawsuits alleging patent infringement, and could in the future be involved in similar litigation. For example, we entered into a settlement agreement with Sumitomo Electric Industries in 2011 to settle its claim of patent infringement.

If we are unable to protect our intellectual property, including our proprietary process technology, we may lose valuable assets or incur costly litigation.

We rely on a combination of patents, copyrights, trademarks, trade secrets and trade secret laws, non-disclosure agreements and other intellectual property protection methods to protect our proprietary technology. However, we believe that, due to the rapid pace of technological innovation in the markets for our products, our ability to establish and maintain a position of technology leadership also depends on the skills of our development personnel. We believe that our internal, non-patented proprietary process technology methods, systems and processes are a valuable and critical element of our intellectual property. We must establish and maintain safeguards to avoid the theft of these processes. Despite our efforts to protect our intellectual property, third parties can develop products or processes similar to ours. Our means of protecting our proprietary rights may not be adequate, and our competitors may independently develop similar technology, duplicate our products or design around our patents. We believe that at least two of our competitors have begun to ship GaAs substrates produced using a process similar to our VGF process. Our competitors may also develop and patent improvements to the VGF technology upon which we rely, and thus may limit any exclusivity we enjoy by virtue of our patents or trade secrets.

It is possible that pending or future United States or foreign patent applications made by us will not be approved, that our issued patents will not protect our intellectual property, or that third parties will challenge our ownership rights or the validity of our patents. In addition, the laws of some foreign countries may not protect our proprietary rights to as great an extent as do the laws of the United States and it may be more difficult to monitor the use of our intellectual property. Our competitors may be able to legitimately ascertain non-patented proprietary technology embedded in our systems. If this occurs, we may not be able to prevent the development of technology substantially similar to ours.

We may have to resort to costly litigation to enforce our intellectual property rights, to protect our trade secrets or know-how or to determine their scope, validity or enforceability. Enforcing or defending our proprietary technology is

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expensive, could cause us to divert resources and may not prove successful. Our protective measures may prove inadequate to protect our proprietary rights, and if we fail to enforce or protect our rights, we could lose valuable assets.

V. Risks Related to Compliance and Other Legal Matters

We need to continue to improve or implement our systems, procedures and controls.

We rely on certain manual processes for data collection and information processing, as do our joint venture companies. If we fail to manage these procedures properly or fail to effectively manage a transition from manual processes to automated processes, our systems and controls may be disrupted. To manage our business effectively, we may need to implement additional management information systems, further develop our operating, administrative, financial and accounting systems and controls, add experienced senior level managers, and maintain close coordination among our executive, engineering, accounting, marketing, sales and operations organizations.

We are subject to internal control evaluations and attestation requirements of Section 404 of the Sarbanes Oxley Act.

Pursuant to Section 404 of the Sarbanes Oxley Act of 2002, we must include in our Annual Report on Form 10-K a report of management on the effectiveness of our internal control over financial reporting. Ongoing compliance with this requirement is complex, costly and time-consuming. If: (1) we fail to maintain effective internal control over financial reporting; or (2) our management does not timely assess the adequacy of such internal control, we could be subject to regulatory sanctions and the public's perception of us may be adversely impacted.

If we fail to comply with environmental and safety regulations, we may be subject to significant fines or forced to cease our operations; in addition, we could be subject to suits for personal injuries caused by hazardous materials.

We are subject to federal, state and local environmental and safety laws and regulations in all of our operating locations, including laws and regulations of China, such as laws and regulations related to the development, manufacture and use of our products, the use of hazardous materials, the operation of our facilities, and the use of our real property. These laws and regulations govern the use, storage, discharge and disposal of hazardous chemicals during manufacturing, research and development, and sales demonstrations. If we fail to comply with applicable regulations, we could be subject to substantial liability for clean-up efforts, personal injury and fines or suspension or be forced to cease our operations, and/or suspend or terminate the development, manufacture or use of certain of our products, the use of our facilities, or the use of our real property, each of which could have a material adverse effect on our business, financial condition and results of operations.

In addition, from time to time, the Chinese government issues new regulations, which may require additional actions on our part to comply. On February 27, 2015, the China State Administration of Work Safety updated its list of hazardous substances. The previous list, which was published in 2002, did not restrict the materials that we use in our wafers. The new list added gallium arsenide. As a result of the newly published list, we were instructed to obtain a permit to continue to manufacture our gallium arsenide substrate wafers. The Beijing municipal authority accepted our permit application in May 2015, but has been slow to take further action and our application remains open while we continue to make preparations in good faith to eventually relocate our gallium arsenide production. If our application is denied in the future, then our gallium arsenide production could be disrupted, which could materially and adversely impact our results of operations and our financial condition.

For example, in 2005, a complaint was filed against us alleging personal injury, general negligence, intentional tort, wage loss and other damages, including punitive damages, as a result of exposure of plaintiffs to high levels of gallium arsenide in gallium arsenide wafers, and methanol. Other current and/or former employees could bring litigation against us in the future. Although we have put in place engineering, administrative and personnel protective equipment programs to address these issues, our ability to expand or continue to operate our present locations could be restricted or we could be required to acquire costly remediation equipment or incur other significant expenses if we were found liable for failure to comply with environmental and safety regulations. Existing or future changes in laws or regulations in the United States and China may require us to incur significant expenditures or liabilities, or may restrict our operations. In addition, our employees could be exposed to chemicals or other hazardous materials at our facilities and we may be subject to lawsuits seeking damages for wrongful death or personal injuries allegedly caused by exposure to chemicals or hazardous materials at our facilities.

Litigation is inherently uncertain and while we would expect to defend ourselves vigorously, it is possible that our business, financial condition, results of operations or cash flows could be affected in any particular period by litigation pending and any additional litigation brought against us. In addition, future litigation could divert management’s attention from our business and operations, causing our business and financial results to suffer. We could incur defense or settlement costs in excess of the insurance covering these litigation matters, or that could result in significant judgments against us or cause us to incur costly settlements, in excess of our insurance limits.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Repurchases of Equity Securities

On February 21, 2013, our Board of Directors approved a stock repurchase program pursuant to which we may repurchase up to $6.0 million of our outstanding common stock through February 27, 2014. These purchases were to be made from time to time in the open market and were funded from our existing cash balances and cash generated from operations. During 2013, we repurchased approximately 285,000 shares at an average price of $2.51 per share for a total purchase price of $716,000 under the stock repurchase program. As of December 31, 2013, approximately $5.3 million remained available for future repurchases under this program. No shares were repurchased in 2014 under this program and the plan expired on February 27, 2014.

On October 27, 2014, our Board of Directors approved a stock repurchase program pursuant to which we may repurchase up to $5.0 million of our outstanding common stock. These repurchases can be made from time to time in the open market and are funded from our existing cash balances and cash generated from operations. During 2015, we repurchased approximately 908,000 shares at an average price of $2.52 per share for a total purchase price of approximately $2.3 million under the stock repurchase program. No shares were repurchased in the nine month ended September 30, 2016 under this program. As of September 30, 2016, approximately $2.7 million remained available for future repurchases under this program.

Item 3. Defaults upon Senior Securities

None

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None

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Item 6. Exhibits

a. Exhibits

Exhibit Number	Description
31.1	Certification by Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification by Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification by Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification by Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance.
101.SCH	XBRL Taxonomy Extension Schema.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase.
101.DEF	XBRL Taxonomy Extension Definition Linkbase.
101.LAB	XBRL Taxonomy Extension Label Linkbase.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

	AXT, INC.	
Dated: November 4, 2016	By:	/s/ MORRIS S. YOUNG Morris S. Young Chief Executive Officer (Principal Executive Officer)
		/s/ GARY L. FISCHER Gary L. Fischer Chief Financial Officer and Corporate Secretary (Principal Financial Officer and Principal Accounting Officer)

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