Rubicon Technology, Inc.
Form 10-K
March 14, 2016
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, DC 20549

FORM 10-K

(Mark one)

x **Annual report pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2015**

or

¨ **Transition report pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934 for the transition period from __________ to __________**

Commission file number 001-33834

RUBICON TECHNOLOGY, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**36-4419301**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**
900 East Green Street Bensenville, Illinois	**60106**
(Address of Principal Executive Offices)	**(Zip Code)**

Registrant s Telephone Number, Including Area Code: (847) 295-7000

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

Title of each class	**Name of each exchange on which registered**
Common Stock, Par Value $0.001 per share	**The NASDAQ Global Market**

Securities registered pursuant to Section 12(g) of the Act: None

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

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

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, 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 x No ¨

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

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 the definitions of large accelerated filer , accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act.

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

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

As of June 30, 2015, there were 23,709,896 shares of common stock outstanding held by nonaffiliates of the registrant, with an aggregate market value of the common stock (based upon the closing price of these shares on the NASDAQ Global Market) of approximately $57,615,047.

The number of shares of the registrant s common stock outstanding as of the close of business on March 9, 2016 was 26,722,958.

Documents incorporated by reference:

Portions of the Registrant s Proxy Statement for its 2016 Annual Meeting of Stockholders are incorporated by reference into Part III of this Annual Report on Form 10-K provided, that if such Proxy Statement is not filed with the Commission within 120 days after the end of the fiscal year covered by this Form 10-K, an amendment to this Form 10-K shall be filed no later than the end of such 120-day period.

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PART I

All statements, other than statements of historical facts, included in this Annual Report on Form 10-K including statements regarding our estimates, expectations, beliefs, intentions, projections or strategies for the future, results of operations, financial position, net sales, projected costs, prospects and plans and objectives of management for future operations may be forward-looking statements within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. We have based these forward-looking statements on our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives and financial needs. These forward-looking statements can be identified by the use of terms and phrases such as believe, plan, intend, anticipate, target, estimate, expect, forecast, prospects, goals, potential, likely, an future-tense or conditional constructions such as will, may, could, should, etc. (or the negative thereof). Items contemplating or making assumptions about actual or potential future sales, market size and trends or operating results also constitute forward-looking statements.

Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. Before investing in our common stock, investors should be aware that the occurrence of the risks, uncertainties and events described in the section entitled Risk Factors and elsewhere in this Annual Report could have a material adverse effect on our business, results of operations and financial condition.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, forward-looking statements are inherently subject to known and unknown risks, including business, economic and other risks and uncertainties that may cause actual results to be materially different from those discussed in these forward-looking statements. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report. We assume no obligation to update any forward-looking statements in order to reflect any event or circumstance that may arise after the date of this Annual Report, other than as may be required by applicable law or regulation. If one or more of these risks or uncertainties materialize, or if the underlying assumptions prove incorrect, our actual results may vary materially from those expected or projected.

This Annual Report also contains statistical data and estimates, including those relating to market size and growth rates of the markets in which we participate, that we obtained from industry publications and reports generated by market research firms. These publications typically indicate that they have obtained their information from sources they believe to be reliable, but do not guarantee the accuracy and completeness of their information. Although we have assessed the information in such publications and found it to be reasonable and believe the publications and reports are reliable, we have not independently verified their data.

You should read this Annual Report and the documents that we reference in this Annual Report and have filed with the Securities and Exchange Commission (the SEC) as exhibits with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

Unless otherwise indicated, the terms Rubicon, the Company, we, us, and our refer to Rubicon Technology, Inc our consolidated subsidiaries.

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ITEM 1. BUSINESS

OVERVIEW

We are a vertically integrated, advanced electronic materials provider specializing in monocrystalline sapphire for applications in light-emitting diodes (LEDs), optical systems and specialty electronic devices. Sapphire is also used as an exterior component in mobile devices, specifically camera lens covers, dual flashes and home buttons on certain newer model smartphones and as the crystal covering the faces of certain smart watches. Sapphire was adopted for use on the home button on certain smartphones because of the scratch resistance and increased touch capacitance it offers, which are important characteristics to ensure the effectiveness of the fingerprint recognition security built into the device. We believe that the use of fingerprint recognition security and other biometrics could become more prevalent in the future, which could become a strong growth driver for sapphire. In addition, some consumer electronics original equipment manufacturers (OEMs) are using full sapphire faceplates for smartphones, in limited volume. If sapphire smartphone faceplates were widely adopted, this would become the world s largest application for sapphire. We apply our proprietary crystal growth technology to produce high-quality sapphire products to supply both high-volume and niche end-markets, and we work closely with our customers to meet their quality and delivery needs.

Our largest product lines are:

- sapphire cores, two to six inches in diameter, which our customers further process into wafers for use in LED applications and into components such as lens covers for mobile devices;

- four and six-inch sapphire wafers that are used as substrates for the manufacture of LED chips and to a lesser extent for other semiconductor applications such as Silicon-on-Sapphire (SoS) Radio Frequency Integrated Circuits (RFICs);

- four, six, and eight-inch patterned sapphire substrate (PSS) wafers which are polished wafers that undergo additional processes of photolithography and dry plasma etching to produce a patterned surface which enhances LED light extraction efficiency (LEE); and

- optical sapphire components in various shapes and sizes, including round and rectangular windows and blanks, domes, tubes and rods. These optical sapphire products are used in equipment for a wide variety of end markets, including defense and aerospace, medical devices, oil and gas drilling, semiconductor manufacturing and other markets.

For the LED market, we currently sell two to six-inch material in core form and four, six and eight-inch material in polished and PSS wafer form. Eight-inch wafers are sold primarily for customers research and development efforts at this time. We have the ability to produce cores and wafers of up to twelve inches in diameter to support production of chips for next-generation LED and other electronic applications. Larger sapphire also has current applications in the optical markets. In other semiconductor markets, sapphire is used in certain RFIC products.

We believe that LED production is following a similar path to that of production of integrated circuits on silicon substrates, which gradually migrated to production on increasingly larger substrates in order to reduce manufacturing costs. We feel that this migration to larger substrates and the related efficiency gains will help reduce the prices of

LED devices and thereby facilitate greater adoption of LED technology in the backlighting and general lighting markets.

Our vertically-integrated manufacturing capabilities are designed to enable us to maintain our high quality standards while controlling costs. We start with powdered aluminum oxide and densify and purify the powder with our proprietary process into a form used in our crystal growth furnaces. We design, assemble and maintain our own proprietary crystal growth furnaces to grow high-purity, low-stress, ultra-low-defect-density sapphire crystals. In addition, we possess capabilities in high-precision core drilling, wafer slicing, surface lapping, edge bevel grinding, polishing, patterning and wafer cleaning processes. We also have the ability to etch patterns onto our polished wafers for use in the LED market. We foster a strong sense of innovation and agility in our product development teams in an attempt to develop new products more effectively and to differentiate our product offering.

We plan to leverage our technological advantage in efficiently producing high-quality, large-diameter sapphire products to capitalize on future growth opportunities. To attain this goal, we are investing in research and development activities, continuing to enhance our operational capabilities, increasing our brand recognition and diversifying into new market segments.

We are a Delaware corporation incorporated on February 7, 2001. Our common stock is listed on the NASDAQ Global Market under the symbol RBCN.

INDUSTRY OVERVIEW

Integrated circuits and other semiconductor devices have traditionally been fabricated on silicon substrates. However, for certain advanced applications, new electronic materials have emerged as the substrates of choice due to evolving integration and performance considerations. For example, sapphire is the preferred substrate material for High Brightness (HB) white, blue and green LED applications due to its crystal lattice compatibility with the aluminum gallium nitride (AlGaN) epitaxial layers, thermal expansion properties, commercial availability and cost efficiency. Because of its hardness, transparency and other physical properties, sapphire has long been used for windows and lenses in harsh environments and is now being used as a component in consumer electronic devices and other non-LED applications.

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LED applications

Advancements in solid state lighting utilizing HB white, blue and green LEDs over the past decade represent a disruptive technology in the lighting industry, providing significant performance, environmental and economic improvements compared to traditional incandescent or fluorescent lighting. For example, traditional incandescent lamps are inefficient and costly, emitting over 90% of consumed power as heat and lasting only 1,500 to 2,000 hours. Fluorescent lamps produce light by passing electricity through toxic mercury vapor, which creates an environmental disposal problem. LEDs do not contain mercury or lead and are 4.0 to 6.6 times as efficient as traditional incandescent lamps, while providing 35,000 to 50,000 hours of light. These factors, along with their durability, small form factor, excellent color performance and decreasing costs, have led to growing demand for LEDs in applications such as small displays for mobile devices, flashes for digital cameras, backlighting units (BLUs) for displays used in notebook computers, desktop monitors, LCD televisions, public display signs, automotive lights, street lights, traffic signals and general and specialty lighting. Applications using LEDs have unit volumes in the billions and we believe are expected to grow significantly over the next several years. More than 95 percent of HB LEDs are produced on sapphire substrates. Therefore, as the HB LED market grows, we believe the sapphire substrate market will grow as well.

General illumination. LEDs are increasingly being used for outdoor and indoor commercial and public lighting, architectural lighting, street lights, traffic signals, retail displays, residential lighting, replacement lamps and off-grid lighting for developing countries. General illumination has recently become the largest application for HB LEDs and is still growing rapidly.

Mobile devices. LEDs are used in color displays for mobile phones and other portable electronics such as GPS systems, MP3 players and digital camera flashes. LEDs are well suited for mobile devices due to their low current drain which extends battery life and durability while generating less heat. For these reasons, the vast majority of mobile devices utilize LED lighting.

LED backlighting units for large displays. LED BLUs now frequently replace conventional fluorescent BLUs in LCD flat panel televisions, notebook computers and desktop monitors. Benefits of LED BLUs in these applications are reduced power consumption/extended battery life, thinner displays, quicker response time and better color rendition. Displays made with LED BLUs also have no toxic materials, which helps electronics manufacturers to comply with environmental regulations.

Automotive lighting. Automobile manufacturers are increasingly using LEDs in car and truck headlights, turning and tail light functions as well as interior lighting. Benefits include near-instant response time, reduced power usage and more stylish and effective designs. Increased LED usage in other transportation vehicles such as motorcycles and commercial jets offers additional growth potential.

Commercial signage/displays. LEDs are widely used as light sources on large signs, LED displays and outdoor displays, such as jumbo screens used in sports arenas and electronic billboard displays.

Optical applications

Sapphire is utilized for windows and optics for aerospace, sensor, medical and laser applications due to its wide-band transmission, superior strength, scratch resistance and high strength-to-weight ratio. Sapphire s physical properties make it very well suited for jet fighter targeting pod windows, forward-looking infrared windows for commercial and business jets as well as unmanned air vehicles or drones, rocket domes and transparent armor for military vehicles. Recently, sapphire has been adopted for use in several new applications in mobile devices, specifically camera lens covers, dual flashes and home buttons on certain newer model smartphones. The switch to sapphire for these mobile device applications is because sapphire is highly scratch resistant and offers improved touch capacitance, which are important characteristics to ensure the effectiveness of the fingerprint recognition security recently built into the home button functionality of one of the major brands of smartphones. Biometrics, such as fingerprint recognition, provides greater security than a password. Data security is becoming an increasing concern in society and we believe that the use of biometrics could increase in coming years, which could increase demand for sapphire.

Some consumer electronics OEMs have announced or introduced smart watches using sapphire crystals and a few OEMs have announced or introduced smart phones with the entire faceplate made of sapphire crystal. One factor delaying broader adoption is the relatively high fabrication costs to make a faceplate from bulk sapphire. We are working on developing alternative sapphire solutions for this market that could eliminate most of the customer s fabrication costs.

Other semiconductor applications

SoS integrated circuits consist of a thin layer of silicon grown on a sapphire substrate and are primarily used for RFICs in advanced wireless and military applications. In particular, SoS RFICs are currently used in mobile communication base stations, satellites and radiation-hardened applications for the defense industry.

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Sapphire substrate industry supply chain

The production process for sapphire substrates is substantially similar to that of silicon wafers. A typical process flow consists of crystal growth, fabrication, slicing, lapping and polishing steps. Output quality is measured in flatness, desired crystal planar orientation, etch pitch density and crystalline structure uniformity. We place a great emphasis on continuously improving yields and increasing production efficiency to drive costs lower to take advantage of emerging high-volume opportunities as they arise. Manufacturers are exploring the use of larger diameter sapphire wafers to allow them to gain efficiency in their production processes through higher throughput and reduced edge loss. In addition to high quality crystal, they require very precise dimensional tolerances, high production volumes, cost efficiency and on-time delivery. Sapphire is the material on which the entire HB LED value chain is built.

TECHNOLOGY

Rubicon, as a vertically integrated manufacturer, has developed proprietary advanced technology at every stage of production from raw material processing through crystal growth, fabrication, wafer finishing, patterning and cleaning.

Our proprietary crystal growth technique, which we refer to as ES2, produces high-quality sapphire crystals for use in our sapphire products. ES2 is derived from the standard Kyropoulos method of crystal growth. We developed this technique with the goal of establishing greater control over the crystal growth process while maintaining minimal temperature variations. Unlike other techniques, during the ES2 technique, the growing sapphire crystal exists in an unconstrained, low stress environment inside a closed growth chamber. The closed system allows for enhanced control of the melt, resulting in higher quality crystals. The temperature gradient between the melt and the crystal in the ES2 technique is significantly lower than in other crystal growth techniques. These aspects of the ES2 technique enable us to grow crystals that have a significantly lower dislocation density, higher crystal purity and greater uniformity than sapphire crystals grown using other techniques. The ES2 technique provides an inherent annealing process once the crystal is fully grown. This thermal annealing is an integral means of relieving stress in the crystal during the ES2 process. We have demonstrated the ability to readily scale our ES2 technology in a production environment while maintaining high crystal quality even as crystal boule size is increased.

We have automated the crystal growth process of our proprietary ES2 technique. Our furnace environments are controlled by closed-loop control systems and the overall crystal growth process is run with minimal operator intervention, which reduces the potential for human error. In addition, a single operator can supervise the control of multiple ES2 furnaces simultaneously, which reduces costs.

We believe our proprietary ES2 process provides significant advantages over other crystal growth methods such as Czochralski (CZ) and Edge-defined Film-fed Growth (EFG). Unlike the ES2 technique, the CZ and EFG methods grow crystals with much higher levels of stress. This stress can decrease the overall quality of the sapphire crystal and requires increased processing time to relieve this stress, which increases production costs and decreases throughput, especially in larger diameter crystals. During the EFG process, the crystal is grown in a sheet form by pulling it through a die directly from the melt; while in the CZ process, the crystal must be rotated and pulled as the aluminum oxide melt is consumed. These constrained growth environments with higher thermal gradients increase stress and decrease crystal quality.

Our research and development (R&D) activity plays a vital role in supporting our technology, product and revenue roadmaps. In 2015, 2014 and 2013, our R&D expenses totaled $2.2 million, $1.9 million and $2.3 million, respectively. These expenses do not include costs incurred in connection with our R&D activities under a government contract. Activities under the government contract are accounted for as revenue and cost of goods sold. Our R&D is focused on four key areas:

- large area sapphire growth and fabrication;
- higher precision sapphire processing;
- cost-effective optical components for mobile devices and;
- hard aluminum oxide coatings for diverse applications.

Our technical staff possesses deep and broad expertise in materials science and engineering. We also utilize sophisticated metrology equipment to perform material and process characterization.

PRODUCTS

We offer a wide variety of sapphire products designed to meet the stringent specifications of our customers. Using our proprietary ES2 technology, we grow high-quality sapphire boules. We fabricate our products from the boules and sell them as core, polished wafer, and patterned sapphire substrate (PSS) wafers. A sapphire crystal has multiple orientation planes resulting from its crystalline structure symmetry. Each orientation of the crystal structure is represented by a letter and differs in lattice structure. These variations result in different chemical, electrical and physical properties depending on the particular orientation plane. As a result, customers require different orientation planes depending on the intended application. For example, LED manufacturers typically request C plane crystals while SoS manufacturers typically request R plane crystals.

Our current sales efforts are now focused on selling two through four-inch cores to our polishing customers and four and six-inch polished and PSS wafers to our semiconductor device manufacturing customers. Eight-inch wafers are sold primarily for customers research and development at this time.

Product	Size	Orientation	Applications
Core	2, 3, 4, 6	C, R, A, M	LED Optical windows
Polished	4, 6, 8	C, R, A	Epi-polished wafers for LEDs and SoS RFICs Polished optical windows Double-side polished wafer carriers
Patterned Sapphire Substrate	4, 6	C	Epi-polished patterned wafers for LEDs

Core

Our core product line consists of our sapphire cores drilled from sapphire boules with high-precision. In 2015, 2014, and 2013, sales of core accounted for 48%, 65%, and 56%, of our revenue, respectively. Major suppliers of sapphire and new entrants have added capacity, resulting in excess supply which caused lower product prices. Core prices have trended lower over the last three years.

Polished

Our polished product line primarily consists of finely polished, ultra-clean, four, six and eight-inch sapphire wafers. Our polished wafers undergo two polishing phases, including both a mechanical and a chemical mechanical planarization phase. We believe we are currently one of a small number of fully vertically integrated firms offering six and eight-inch, high-quality C-plane and R-plane polished wafers. In 2015, 2014, and 2013 sales of polished wafers accounted for 15%, 18%, and 29% of our revenue, respectively. The proportion of revenue from polished wafers in the future will depend on a number of factors, including customer adoption of large-diameter sapphire wafers in the LED market, customer decisions to purchase patterned versus polished wafers and pricing for our various products, including cores.

Patterned sapphire substrates

Our patterned sapphire substrates (PSS) product line was introduced in 2013 and consists of finely polished, ultra-clean, four and six-inch patterned sapphire wafers. LED chip manufacturers etch a pattern onto the surface of the sapphire wafer in the early stages of their production process in order to improve light output. We have leveraged our capability in producing larger diameter sapphire wafers to offer pre-patterned, larger diameter (four-inch and six-inch) wafers to the LED market. We offer fully customizable, sub-micron patterning capability with dimensional tolerances within one tenth of a micron. We also offer the industry s smallest edge exclusion zone maximizing the usable wafer surface area yielding more chips per wafer. We believe we are the first vertically integrated sapphire producer to offer high volume four and six-inch patterned substrates. In 2015, sales of PSS wafers accounted for 13% of our revenue and in 2014 sales of PSS wafers accounted for less than 10% of our revenue.

Optical

We offer optically-polished windows and ground window blanks of sapphire. We provide sapphire and other crystal products in many sizes, shapes and product formats for specialty applications. We are focusing in 2016 on increasing our business and technological development efforts in optical markets for aerospace, defense and industrial applications, as well as in the consumer electronics market. For the years ended December 31, 2015, 2014 and 2013, sales of optical products accounted for 21%, 15% and 11%, respectively.

Research and Development

We record R&D revenue associated with a government contract as costs are incurred plus a fixed fee. We are focusing in 2016 on completing our R&D efforts which have resulted in successfully growing large rectangular slabs of sapphire for use in defense applications. For the years ended December 31, 2015, 2014 and 2013 revenue from R&D accounted for less than 10% of our revenue, respectively.

MANUFACTURING

The process of growing the crystal begins by heating the raw material, aluminum oxide, until it reaches an ideal temperature above its melting point. This ideal temperature is essential for our process because it allows us to produce high-purity crystals with very low defect rates. Following the heating, a seed rod is inserted in the melted material as the material is being cooled to crystallize into a boule. Following the growth process, each boule is rigorously inspected by using polarized lighting and magnification to find imperfections, such as bubbles, dislocations and granular deposits within the crystal.

We then drill the resulting boules into cylindrical cores using our custom high-precision crystal orientation equipment and proprietary processes. We use wire saws to slice each core into wafers of precise size and shape. These wafers are then pre-polished using precision lapping and edge-grinding equipment and then are ready to be polished into epitaxial wafers. All of these processes are performed in clean environments to reduce the chance of crystal contamination. Epi-polishing and wafer cleaning are performed in Class 10,000 and Class 100 clean-room environments, respectively. For PSS, we use photolithography and dry plasma etching to create customer determined micropatterns on polished wafers.

We are dedicated to quality assurance throughout our entire operation. We employ detailed material traceability from raw material to finished product. Our quality system is certified as ISO9001:2000, and we have in-house expertise at the Six Sigma Black Belt level.

All of our long-lived assets are located in the U.S. and Malaysia. For more information see Note 3- Segment Information to our Consolidated Financial Statements included in this Annual Report on Form 10-K.

SALES AND MARKETING

We market and sell our products through our direct sales force to customers in Asia, Australia, North America and Europe. Our direct sales force includes experienced and technically sophisticated sales professionals and engineers who are knowledgeable in the development, manufacturing and use of sapphire substrates, windows and other optical materials. Our sales staff works with customers during all stages of the substrate manufacturing process, from developing the precise composition of the substrate through manufacturing and processing the substrate to the customer s specifications.

A key component of our marketing strategy is developing and maintaining strong relationships with our customers. We achieve this by working closely with our customers to optimize our products for their production processes. In addition, we are able to develop long-term relationships with key customers by offering product specification assistance, providing direct access to enable them to evaluate and audit our operations, delivering high-quality products and providing superior customer service. We believe that maintaining close relationships with senior management and providing technical support improves customer satisfaction.

In order to increase brand recognition of our products and of Rubicon in general, we publish technical articles, distribute promotional materials and participate in industry trade shows and conferences.

CUSTOMERS

Our principal customers are semiconductor device manufacturers and wafer polishing companies. A substantial portion of our sales have been to a small number of customers. In 2015, 2014 and 2013, our top two customers accounted for approximately 31%, 36% and 44% of our revenue, respectively. Although we are attempting to diversify and expand our customer base, we expect our sales to continue to be concentrated among a small number of customers. However, we also expect that our significant customers may change from time to time. In 2015, sales to Zhejiang Crystal Optech Co. Ltd. and Osram Opto Semiconductors represented approximately 16% and 15% of our revenues, respectively. In 2014, sales to Zhejiang Crystal Optech Co. Ltd. and Tera Xtal Technology Corp. represented approximately 24% and 12% of our revenues, respectively. In 2013, sales to Peregrine Semiconductor Corporation and Nanjing J-crystal Photoelectric Technology Co. represented approximately 27% and 17% of our revenues, respectively. No other customer accounted for 10% or more of our revenues during 2015, 2014, or 2013.

In 2015, 54% of our sales were made to customers in Asia, 23% of our sales were made to customers in North America, 19% of our sales were made to customers in Europe and 4% of our sales were made to customers in Australia. In 2014, 79% of our sales were made to customers in Asia, 14% of our sales were made to customers in North America, 5% of our sales were made to customers in Europe and 2% of our sales were made to customers in Australia. In 2013, 60% of our sales were made to customers in Asia, 25% of our sales were made to customers in

Australia, 11% of our sales were made to customers in North America and 4% of our sales were made to customers in Europe. Our customer supply agreements tend to be for short periods of time, typically 90 days. Therefore, fluctuations in demand could cause our quarterly revenue to vary significantly. Our standard arrangement with most customers includes payment terms, which is customary in the industry.

INTELLECTUAL PROPERTY

Our ability to protect our proprietary technologies and other confidential information is a key factor in our ability to compete successfully. We rely primarily upon a combination of patent, trade secret laws and non-disclosure agreements with employees, customers and potential customers to protect our intellectual property. We have seven patents issued by the U.S. Patent and Trademark office and fifteen pending patent applications with the U.S. Patent and Trademark Office and various other foreign countries, mostly covering aspects of our core production, wafer grinding and lapping technologies. However, we believe that factors such as the technological and innovative abilities of our personnel, the success of our ongoing product development efforts and our efforts to maintain trade secret protection are more important than patents in maintaining our competitive position. We pursue the registration of certain of our trademarks in the U.S. and currently have three registered trademarks.

COMPETITION

The markets for high-quality sapphire products are very competitive and have been characterized by rapid technological change. The products we produce must meet certain demanding requirements to succeed in the marketplace. Although we are a well-established sapphire producer, we face significant competition from other established providers of similar products as well as from new and potential entrants into our markets.

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We have several competitors that compete directly with us. In recent years, certain companies that formerly competed with us only in sapphire cores have entered into wafer polishing and are trying to establish positions in the large-diameter wafer market. These companies tend to focus on providing core and as-cut products rather than offering polished products. There are a limited number of companies that are substantially larger than we are that compete with us in a relatively small segment of their overall business. These larger companies tend to focus on providing polished products to customers rather than providing core products.

We believe that the key competitive factors in our markets are:

- consistently producing high-quality products in the desired size, orientation and finish;
- pricing;
- providing a low total cost-of-ownership for customers;
- driving innovation through focused research and development efforts;
- offering solutions through collaborative efforts with customers; and
- possessing sufficient supply capacity to meet end-market customer demands.

ENVIRONMENTAL REGULATION

In our manufacturing process, we use water, oils, slurries, acids, adhesives and other industrial chemicals. We are subject to a variety of federal, state and local laws regulating the discharge of these materials into the environment or otherwise relating to the protection of the environment. These include statutory and regulatory provisions under which we are responsible for the management of hazardous materials we use and the disposition of hazardous wastes resulting from our manufacturing processes. Failure to comply with such provisions, whether intentional or inadvertent, could result in fines and other liabilities to the government or third parties, injunctions requiring us to suspend or curtail operations or other remedies, which could have a material adverse effect on our business.

EMPLOYEES

As of December 31, 2015, we had 244 full-time employees, of which 214 worked in technology and operations. None of our employees are represented by a labor union. We consider our employee relations to be good.

OTHER INFORMATION

You may access, free of charge, our reports filed with the SEC (for example, our Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K and any amendments to those forms) indirectly through our Internet website (www.rubicontechnology.com). Reports filed with or furnished to the SEC will be available as soon as reasonably practicable after they are filed with or furnished to the SEC. Alternatively, if you would like a paper copy of any such SEC report (without exhibits) or document, write to Investor Relations, Rubicon Technology, Inc., 900 East Green Street, Bensenville, Illinois 60106, and a copy of such requested document will be provided to you, free of charge. The information found on our website is not part of this or any other report filed with or furnished to the SEC.

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ITEM 1A. RISK FACTORS

You should carefully read the risk factors set forth below, together with the financial statements, related notes and other information contained in this Annual Report on Form 10-K. Our business is subject to a number of important risks and uncertainties, some of which are described below. The risks described below, however, are not the only risks that we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial may also impair our business operations. Any of these risks may have a material adverse effect on our business, financial condition, results of operations and cash flows. Please refer to the discussion of forward-looking statements on page one of this Annual Report on Form 10-K in connection with your consideration of the risk factors and other important factors that may affect future results described below.

We have incurred significant losses in prior periods and may incur losses in the future.

We have incurred significant losses in prior periods and may continue to incur significant losses for the foreseeable future. These losses may have an adverse effect on our ability to attract new customers or retain existing customers. As of December 31, 2015, we had an accumulated deficit of $249.4 million. While we had net income of $38.1 million in 2011 and $29.1 million in 2010, we incurred net losses of $77.8 million, $44.0 million, $30.4 million and $5.5 million in 2015, 2014, 2013 and 2012, respectively. There can be no assurance that we will have sufficient revenue growth to achieve profitability in future periods.

The average selling prices of products in the LED supply chain have historically been volatile and in recent years sapphire product prices have been increasingly depressed.

Historically, our industry has experienced volatility in product demand and pricing. However, in the last three years, the sales prices for our sapphire products have trended downward. We experienced a significant drop in pricing in 2015 and continuing into 2016 largely due to an over-supply of products in the market. This has had a significant adverse impact on our profitability and our results of operations. Moreover, changes in average selling prices of our products as a result of competitive pricing pressures increased sales discounts and new product introductions by our competitors could have a significant impact on our profitability. In addition, our customers have experienced periods of excess inventory levels and seasonality which has impacted sales volume and pricing. Although we attempt to optimize our product mix, introduce new products, reduce manufacturing costs and pass along certain increases in costs to our customers in order to lessen the effect of decreases in selling prices, we may not be able to successfully do so in a timely manner or at all, and our results of operations and business may be harmed.

An excess of supply over demand for sapphire depresses the price and could have a material adverse effect on our operating results.

We experienced a significant drop in product pricing in 2015 due to an over-supply of sapphire products in the market, which has continued into 2016. Prices remain depressed as a result of excess supply and limited demand. Excess supply can be caused by various factors, including new competitors that emerge in the sapphire industry or existing competitors that lose a key customer or go out of business. In some countries, government programs support sapphire producers who would otherwise be unprofitable; in such circumstances, sapphire may be sold at prices below cost for an extended period of time, depressing market prices, to the detriment of our gross margins. In addition, there are a large number of sapphire furnaces, owned by various companies, which are currently idle. To the extent these furnaces are capable of producing sapphire of sufficient quality to satisfy the needs of customers in the LED industry and the consumer electronics market, and are brought on line, the supply of sapphire would be further increased. In the absence of a sufficient increase in demand for sapphire, this would likely be detrimental to sapphire pricing and to our gross margins. Any of these competitive threats resulting in lower prices could have a material adverse effect on our business, operating results or financial condition.

Our gross margins could fluctuate as a result of changes in our product mix and other factors, which may adversely impact our operating results.

We anticipate that our gross margins will fluctuate from period to period as a result of the mix of products that we sell in any given period. We have sold many of our products at prices below cost in 2014 and 2015. We are working to increase sales of higher margin products, introduce new differentiated products and lower our costs. There can be no assurance that we will be successful in improving our gross margin mix. If we are not successful, our overall gross margin levels and operating results in future periods would continue to be adversely impacted. Increased competition and the adoption of alternatives to our products, more complex engineering requirements, lower demand and other factors may lead to a further downward shift in our product margins, leading to price erosion and lower revenues for us in the future.

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We may require additional capital to fund operations, capital expenditures, additional product research and development efforts, and the introduction of new products. If we are unable to raise additional capital when needed, we may not be able to execute our business plan and may be forced to delay, reduce or eliminate our product research and development programs or delay the introduction of new products.

Our cash needs include cash required to fund our operations and the capital needed to fund any expansions in the U.S. and Asia and investments in new product development. We may finance future cash needs through public or private equity offerings, debt financings or corporate collaborations and licensing arrangements. Additional funds may not be available when we need them on terms that are acceptable to us, or at all. If adequate funds are not available, we may be required to delay, reduce the scope of or eliminate one or more of our product research and development programs. To the extent that we raise additional funds by issuing equity securities, our stockholders may experience dilution, and debt financing, if available, may involve restrictive covenants. To the extent that we raise additional funds through corporate collaborations and licensing arrangements, it may be necessary to relinquish some rights to our technologies or our new products or grant licenses on terms that may not be favorable to us. We may seek to access the public or private capital markets whenever conditions are favorable, even if we do not have an immediate need for additional capital at that time.

Developing advanced electronic materials and related products and introducing new products to the market can be expensive. We expect our research and development expenses to increase in connection with our ongoing product research and development plans. If we are required to conduct additional studies beyond those that we currently expect, our expenses could increase beyond what we currently anticipate and the timing of the release of any new products may be delayed. In addition, introducing newly developed products to the market often requires investment before revenue is generated from those products. We currently have no commitments or arrangements for any additional financing to fund our product research and development programs other than through our loan facility. However, we may need to raise substantial additional capital in the future to complete the development and commercialization of our new products.

We believe our existing cash, cash equivalents and short-term investments and interest thereon, will be sufficient to fund our projected operating requirements for at least the next twelve months. However, if we are not able to reduce our use of cash in the next twelve months, we may not have enough funds available to continue operating at our current level in future periods. A limitation of funds available may raise concerns about our ability to continue to operate. Such concerns may limit our ability to obtain financing and some customers may not be willing to do business with us.

Our future funding requirements, both near and long-term, will depend on many factors, including, but not limited to:

- the amount and growth rate of our revenues and ability to be operational cash flow positive;
- the level of capital expenditures required to maintain or expand our operations;
- the initiation, progress, timing, costs and results of studies and trials required for our new products;
- the number and characteristics of new products that we pursue;

- the terms and timing of any future collaboration, licensing or other arrangements that we may establish;
- the cost of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights;
- the effect of competing technological and market developments;
- the cost of establishing sales, marketing and distribution capabilities for any new products; and
- the extent to which we acquire or invest in businesses, products or technologies.

If the market acceptance of newly developed products does not meet our expectations, or our efforts to enhance existing products are not successful, our future operating results may be harmed.

The development of new products may require substantial investment in development efforts and equipment. If our newly developed products do not achieve market acceptance, we may be unable to generate anticipated revenue and our operating results could be harmed.

Our continuing efforts to enhance our current products and to develop new products involve several risks, including:

- our ability to anticipate and respond in a timely manner to changes in customer requirements;
- the significant research and development and equipment investment that we may be required to make before market acceptance of a particular new or enhanced product;
- the possibility that the industry may not accept our new or enhanced products after we have invested a significant amount of resources in development; and
- competition from new technologies, processes and products introduced by our current and/or future competitors.

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We depend on a few customers for a major portion of our sales and our results of operations would be adversely impacted if they reduce their order volumes.

Historically, we have earned, and believe that in the future we will continue to earn, a substantial portion of our revenue from a small number of customers. In 2015 and 2014, our top two customers accounted for approximately 31% and 36% of our revenue, respectively. If we were to lose one of our major customers or have a major customer significantly reduce its volume of business with us, our revenues and profitability would be materially reduced unless we are able to replace such demand with other orders promptly. We expect to continue to be dependent on our significant customers, the number and identity of which may change from period to period.

We generally sell our products on the basis of purchase orders. Thus, most of our customers could cease purchasing our products with little or no notice and without significant penalties. In addition, delays in product orders could cause our quarterly revenue to vary significantly. A number of factors could cause our customers to cancel or defer orders, including interruptions to their operations due to a downturn in their industries, natural disasters, delays in manufacturing their own product offerings into which our products are incorporated, securing other sources for the products that we manufacture or developing such products internally.

Our results of operations, financial condition and business will be harmed if we are underutilizing our manufacturing facilities or if we are otherwise unable to effectively match our capacity with customer demand.

The markets we serve are emerging markets. As a result, there can be significant fluctuations in demand for our products, which may result in our manufacturing facilities being underutilized from time to time, which can negatively impact our gross margins and overall business. Currently, there is limited demand for sapphire cores and wafers. As a result, we currently are not fully utilizing our manufacturing facilities. We expect this underutilization of some of our manufacturing facilities to continue at least into the first half of 2016. There can be no assurance that such market changes will not occur again in the future adversely affecting our profitability.

From time to time we have expanded our production capacity as demand for our products strengthened. Capacity expansion involves significant risks, including the availability of capital equipment and the timing of its installation, availability and timing of required electric power, management of expansion costs, timing of production ramp-up, qualification of new equipment and demands on management s time. If our business does not grow fast enough to utilize the new capacity effectively, our business and financial results could be adversely affected. Conversely, delays in expanding our manufacturing capacity could impact our ability to meet future demand for our products. As a result, we might not be able to fulfill customer orders in a timely manner, which could adversely affect our customer relationships and operating results. Moreover, our efforts to increase our production capacity may not succeed in enabling us to manufacture the required quantities of our products in a timely manner or at the gross margins that we achieved in the past.

Our future operating results may fluctuate significantly, which makes our future results difficult to predict and could cause our operating results for particular periods to fall below expectations.

Our revenues and operating results have fluctuated in the past and are likely to fluctuate in the future. These fluctuations are due to a number of factors, many of which are beyond our control. These factors may include, among others:

- timing of orders from and shipments to major customers;

the gain or loss of significant customers;

fluctuations in gross margins as a result of changes in capacity utilization, product mix or other factors;

market acceptance of our products and our customers products;

our ability to develop, introduce and market new products and technologies on a timely basis;

the need to pay higher labor costs;

announcements of technological innovations, new products or upgrades to existing products by us or our competitors;

competitive market conditions, including pricing actions by our competitors and our customers competitors;

developments in trade secrets, patent or other proprietary rights by us or our competitors;

announcements by us or our competitors of significant acquisitions, strategic partnerships or divestitures;

interruption of operations at our manufacturing facilities or the facilities of our suppliers;

the level and timing of capital spending of our customers;

additions or departures of key personnel;

rapid changes in market conditions that result in financial hardship for some or all of our customers, resulting in reduced orders and/or additional accounts receivable write-offs in the future;

potential seasonal fluctuations in our customers business activities;

general economic conditions in the markets we serve; and

natural disasters, such as floods, hurricanes and earthquakes, as well as interruptions in power supply resulting from such events or due to other causes.

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The foregoing factors are difficult to forecast, and these, as well as other factors, could materially adversely affect our quarterly or annual operating results. If our revenues or operating results fall below the expectations of investors or any securities analysts that may publish research on our company, the price of our common stock would likely decline.

The technology used in the LED and SoS industries changes rapidly, and if we are unable to modify our products to adapt to future changes in these industries, we will be unable to attract or retain customers.

We do not design or manufacture LEDs or SOS chips. Our ability to increase our revenue into these markets depends on continued advancement in the design and manufacture of LEDs and SoS chips by others.

The LED industry has been characterized by a rapid rate of development of new technologies and manufacturing processes, rapid changes in customer requirements, frequent product introductions and ongoing demands for greater functionality. Our future success will depend on our ability to develop new products for use in LED applications and to adjust our product specifications, such as our previous development of larger diameter wafers, in response to these developments in a timely manner. If our development efforts are not successful or are delayed, or if our newly developed products, such as PSS, do not achieve market acceptance, we may be unable to attract or retain customers and our operating results could be harmed.

In addition, although sapphire is currently the preferred substrate material for HB white, blue and green LED applications, we cannot provide assurance that the LED market will continue to demand the performance attributes of sapphire. Silicon carbide is another substrate material currently used for certain LED applications, including some that also use sapphire substrates. Other substrates being investigated and used in research and development for certain LED applications are silicon, aluminum nitride, zinc oxide and bulk gallium nitride. If sapphire is displaced as the substrate of choice for certain LED applications, our financial condition and results of operations would be materially and adversely affected unless we were able to successfully offer the competing substrate material.

Our products must meet exacting specifications and undetected defects may cause customers to return or stop buying our products.

Our customers establish demanding specifications for quality, performance and reliability that our products must meet. While we inspect our products before shipment, they still may contain undetected defects. If defects occur in our products, we could experience lost revenue, increased costs, delays in, or cancellations or rescheduling of orders or shipments, product returns or discounts, or damage to our reputation, any of which would harm our operating results and our business.

The markets in which we operate are very competitive, and many of our competitors and potential competitors are larger, more established and better capitalized than we are.

The markets for selling high-quality sapphire products are very competitive and have been characterized by rapid technological change. This competition could result in increased pricing pressure, reduced profit margins, increased sales and marketing expenses, and failure to increase, or the loss of, market share or expected market share, any of which would likely seriously harm our business, operating results and financial condition.

Some of our competitors and potential competitors are substantially larger and have greater financial, technical, marketing and other resources than we do. Given their capital resources, the large companies with which we compete, or may compete in the future, are in a better position to substantially increase their manufacturing capacity and research and development efforts or to withstand any significant reduction in orders by customers in our markets.

Such larger companies typically have broader product lines and market focus and thus are not as susceptible to downturns in a particular market. In addition, some of our competitors have been in operation much longer than we have and therefore may have more long-standing and established relationships with our current and potential domestic and foreign customers.

We would be at a competitive disadvantage if our competitors bring their products to market earlier, if their products are more technologically capable than ours, or if any of our competitors products or technologies becomes preferred in the industry. Moreover, we cannot assure you that existing or potential customers will not develop their own products, or acquire companies with products that are competitive with our products. Any of these competitive threats could have a material adverse effect on our business, operating results or financial condition.

We are subject to risks from international sales that may harm our operating results.

In 2015 and 2014, revenue from international sales was approximately 77% and 86%, respectively, of our total revenue. We expect that revenue from international sales will continue to constitute a significant portion of our total revenue for the foreseeable future. Our international sales are subject to a variety of additional risks, including risks arising from:

- sales variability as a result of transacting our foreign sales in U.S. dollars as prices for our products become less competitive in countries with currencies that are low or are declining in value against the U.S. dollar and more competitive in countries with currencies that are high or increasing in value against the U.S. dollar;

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- trading restrictions, tariffs, trade barriers and taxes;
- differing intellectual property laws;
- economic and political risks, wars, acts of terrorism, political unrest, pandemics, boycotts, curtailments of trade and other business restrictions;
- the difficulty of enforcing contracts and collecting receivables through some foreign legal systems;
- unexpected changes in regulatory requirements and other governmental approvals, permits and licenses; and
- periodic foreign economic downturns.

Our future success will depend on our ability to anticipate and effectively manage these and other risks associated with our international sales. Our failure to manage any of these risks could harm our operating results.

We may acquire other businesses, products or technologies; if we do, we may be unable to integrate them with our business effectively or at all, which may adversely affect our business, financial condition and operating results.

If we find appropriate opportunities and have adequate funding, we may acquire complementary businesses, product lines or technologies. However, if we acquire a business, product line or technology, the process of integration may produce unforeseen operating difficulties and expenditures and may absorb significant attention of our management that would otherwise be available for the ongoing development of our business. Further, the acquisition of a business may result in the assumption of unknown liabilities or create risks with respect to our existing relationships with suppliers and customers. If we make acquisitions, we may issue shares of stock that dilute other stockholders, expend cash, incur debt, assume contingent liabilities or create additional expenses related to amortizing intangible assets, any of which may adversely affect our business, financial condition or operating results.

If we are unable to attract or retain qualified personnel, our business and product development efforts could be harmed.

Our success depends on our continued ability to identify, attract, hire, train, retain and motivate highly skilled technical, managerial, manufacturing, administrative and sales and marketing personnel. Competition for these individuals is intense, and we may not be able to successfully recruit, assimilate or retain sufficiently qualified personnel. In particular, we may encounter difficulties in recruiting and retaining a sufficient number of qualified technical personnel. The inability to attract and retain necessary technical, managerial, manufacturing, administrative and sales and marketing personnel could harm our ability to obtain new customers and develop new products and could adversely affect our business and operating results. In addition, the loss of the services, or distraction, of our senior management for any reason could adversely affect our business, operating results and financial condition.

Our manufacturing processes may be interrupted or our production may be delayed if we cannot maintain sufficient electrical supply, which could adversely affect our business, financial condition and operating results.

Our manufacturing process requires a stable source of electricity. From time to time, we have experienced limited disruptions in our supply of electricity. Such disruptions, depending upon their duration, could result in a significant drop in throughput and yield of in-process crystal boules and create delays in our production. Although we use generators and other back-up sources of electricity, these replacement sources of electricity are only capable of providing effective back-up for limited periods of time. We cannot assure you that we will be successful in avoiding future disruptions in power or in mitigating the effects of such disruptions. Any material disruption in electrical supply could delay our production and could adversely affect our business, financial condition and operating results.

Our gross margins and profitability may be adversely affected by energy costs.

Most of our power consumption takes place in our crystal growth facilities in the U.S. Electricity prices could increase due to overall changes to the price of energy due to conditions in the Middle East, natural gas shortages in the U.S. and other economic conditions and uncertainties regarding the outcome and implications of such events. Once our current purchase agreements expire, if electricity prices increase significantly, we may not be able to pass these price increases through to our customers on a timely basis, if at all, which could adversely affect our gross margins and results of operations.

Our contracts for electricity require us to purchase certain minimum amounts in order to retain the pricing under the contract. If the amount we use is less than the required minimum, the difference is resold at the then prevailing market price and, if the resale price is lower than our contract price, we will experience a loss on that resale, which could adversely affect our gross margins and operating results.

We rely on a limited number of suppliers for raw materials and key components.

We depend on a small number of suppliers for certain raw materials, components, services and equipment used in manufacturing our products, including key materials such as aluminum oxide powder and certain furnace components. We generally purchase these items with purchase orders, and we have no guaranteed supply arrangements with such suppliers. We are subject to variations in the cost of raw materials and consumables from period to period. We do not control the time and resources that these suppliers devote to our business, and we cannot be sure that these suppliers will perform their obligations to us or do so on a timely basis. In addition, some of these suppliers are located in regions of the world that may experience periods of political or economic instability, which could inhibit their ability to supply necessary materials to us.

Any significant delay in product delivery or other interruption or variation in supply from our key suppliers could prevent us from meeting demand for our products and from obtaining future business. If we were to lose key suppliers or our key suppliers were unable to support our demand, our manufacturing operations could be interrupted and we could be required to attempt to establish supply arrangements with other suppliers. In addition, the inability of our suppliers to support our demand could be indicative of a market wide scarcity of the materials, which could result in even longer interruptions. Any such delay or interruption would impair our ability to meet our customers needs and, therefore, could damage our customer relationships and have a material adverse effect on our business and operating results.

Our proprietary intellectual property rights may not adequately protect our products and technologies, and the failure to protect such rights could harm our competitive position and adversely affect our operating results.

To protect our technology, we have chosen to rely primarily on trade secrets and to a lesser extent publicly filed patents. Trade secrets are inherently difficult to protect. While we believe we use reasonable efforts to protect our trade secrets, our directors, employees, consultants or contractors may unintentionally or willfully disclose our information to competitors, whether during or after the termination of their services to our company. If we were to seek to enforce a claim that a third party had illegally obtained and was using our trade secrets, it would be expensive and time consuming, and the outcome would be unpredictable.

In addition, courts outside the U.S. are sometimes less willing to protect trade secrets than U.S. courts. Moreover, if our competitors independently develop equivalent knowledge, methods and know-how, it will be more difficult for us to protect our intellectual property and our business could be harmed.

We have seven issued patents covering our products and technologies and fifteen patent applications pending. There can be no assurance that our pending patents will be issued or that any patents issued will be of significant value to our business. Our commercial success will depend on obtaining and maintaining trade secret, patent and other intellectual property protection of our products and technologies. We will only be able to protect products and technologies from unauthorized use by third parties to the extent that valid, protectable and enforceable trade secrets, patents or other intellectual property rights cover them.

If we are not able to defend the trade secret or patent protection positions of our products and technologies, then we may not be able to successfully compete with competitors developing or marketing competing products and we may not generate enough revenue from product sales to justify the cost of development of our products and to achieve or maintain profitability.

The protection of our intellectual property rights and the defense of claims of infringement against us by third parties may subject us to costly litigation.

Other companies might allege that we are infringing certain of their patents or other rights. If we are unable to resolve these matters satisfactorily, or to obtain licenses on acceptable terms, we may face litigation. Any litigation to enforce patents issued to us, to protect trade secrets or know-how possessed by us or to defend us or indemnify others against claimed infringement of the rights of others could have a material adverse effect on our financial condition and operating results. Regardless of the validity or successful outcome of any such intellectual property claims, we may need to expend significant time and expense to protect our intellectual property rights or to defend against claims of infringement by third parties, which could have a material adverse effect on us. If we lose any such litigation where we are alleged to infringe the rights of others, we may be required to:

- pay substantial damages;
- seek licenses from others; or
- change, or stop manufacturing or selling, some or all of our products.

Any of these outcomes could have an adverse effect on our business, results of operations or financial condition.

We may be subject to confidential information theft or misuse, which could harm our business and results of operations.

We face attempts by others to gain unauthorized access to our information technology systems on which we maintain proprietary and other confidential information. Our security measures may be breached as the result of industrial or other espionage actions of outside parties, employee error, malfeasance or otherwise, and as a result, an unauthorized party may obtain access to our systems. Additionally, outside parties may attempt to access our confidential information through other means, for example by fraudulently inducing our employees to disclose confidential information. We actively seek to prevent, detect and investigate any unauthorized access, which sometimes occurs. We might be unaware of any such access or unable to determine its magnitude and effects. The theft and/or unauthorized use or publication of our trade secrets and other confidential business information as a result of such an incident could adversely affect our competitive position and the value of our investment in research and development could be reduced. Our business could be subject to significant disruption and we could suffer monetary or other losses.

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We are subject to numerous environmental laws and regulations, which could expose us to environmental liabilities, increase our manufacturing and related compliance costs or otherwise adversely affect our business and operating results.

In our manufacturing process, we use water, oils, slurries, acids, adhesives and other industrial chemicals. We are subject to a variety of foreign, federal, state and local laws and regulations governing the protection of the environment. These environmental laws and regulations include those relating to the use, storage, handling, discharge, emission, disposal and reporting of toxic, volatile or otherwise hazardous materials used in our manufacturing processes. These materials may have been or could be released into the environment at properties currently or previously operated by us, at other locations during the transport of the materials, or at properties to which we send substances for treatment or disposal. If we were to violate or become liable under environmental laws and regulations or become non-compliant with permits required at some of our facilities, we could be held financially responsible and incur substantial costs, including investigation and cleanup costs, fines and civil or criminal sanctions, third-party property damages or personal injury claims. In addition, new laws and regulations or stricter enforcement of existing laws and regulations could give rise to additional compliance costs and liabilities.

Our operations are concentrated in a small number of facilities, and the unavailability of one or more of these facilities could harm our business.

Our manufacturing, research and development, sales and marketing, and administrative activities are concentrated in three facilities in the Chicago metropolitan area and one facility in Penang, Malaysia. Should a natural disaster, act of terrorism or outbreak of disease severely affect the Chicago area, our operations could be significantly impacted. We may not be able to replicate the manufacturing capacity and other operations of our Chicago facilities in our Malaysian facility or elsewhere, or such replication could take significant time and resources to accomplish. The disruption from such an event could adversely affect or interrupt entirely our ability to conduct our business. Similarly, should a disruption from such an event occur at our Malaysia facility, the disruption could adversely affect or interrupt our ability to conduct our business.

Our ability to comply with the required payments and financial covenant in our loan agreement depends primarily on our ability to generate sufficient operating cash flow.

Our ability to comply with the financial covenant under our loan agreement with Silicon Valley Bank will depend primarily on our success in generating sufficient operating cash flow and receivables. Under the loan agreement, we are required to maintain a specified ratio of (i) unrestricted cash plus net billed accounts receivable to (ii) obligations under the loan agreement plus current liabilities, which ratio is tested on a quarterly basis. Industry conditions and financial, business and other factors, including those we identify as risk factors in this and our other reports filed with the SEC, will affect our ability to generate the cash flows and receivables we need to meet those requirements. Our failure to meet the requirements could result in a default and acceleration of repayment of the indebtedness under the credit facility. In such event, the bank would be entitled to stop extending credit to us, which will hinder our ability to operate, and could proceed against the collateral securing the indebtedness, which includes substantially all of our personal property (other than intellectual property assets).

Our U.S. net operating loss carryforwards could be substantially limited if we experience an ownership change as defined in the Internal Revenue Code.

We have significant U.S. net operating loss carryforwards (the Tax Attributes). Under federal tax laws, we can carry forward and use our Tax Attributes to reduce our future U.S. taxable income and tax liabilities until such Tax Attributes expire in accordance with the Internal Revenue Code of 1986, as amended (the IRC). Section 382 and

Section 383 of the IRC provide an annual limitation on our ability to utilize our Tax Attributes, as well as certain built-in-losses, against future U.S. taxable income in the event of a change in ownership, as defined under the IRC. We may experience a change in ownership in the future as a result of changes in our stock ownership that are beyond our control, and any such subsequent changes in ownership for purposes of the IRC could further limit our ability to use our Tax Attributes. Accordingly, any such occurrences could adversely affect our financial condition, operating results and cash flows.

Global economic conditions could negatively impact on our business, financial condition and results of operations.

The global financial crisis that began in late 2007 caused extreme disruption in the financial markets. Although the disruption in the financial markets moderated thereafter, the global financial markets continue to reflect uncertainty about a sustained economic recovery. Uncertainty about global economic conditions could result in slow economic activity, concerns about inflation and energy costs, decreased business and consumer confidence, reduced capital spending and adverse business conditions, as well as diminished liquidity and credit availability in many financial markets. In addition, these economic and business conditions could cause reduced spending in our target markets and make it difficult for our customers and us to accurately forecast and plan future business activities. Continued weak economic conditions and further adverse trends in general economic conditions, consumer confidence, employment

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levels, business conditions, interest rates, availability of credit, inflation and taxation have in the past and may again in the future cause consumer spending to decline further, reduce demand for and prices of our products and our customers products, affect the prices and availability of raw materials, and limit our ability to obtain financing for our operations. Furthermore, our customers may be unable to access capital efficiently, or at all, which could adversely affect our financial condition by resulting in product delays, increased defaults in accounts receivables and increased inventory exposures. Any unfavorable economic or market conditions could have a material adverse effect on our business, financial condition and results of operations.

RISKS RELATED TO OWNERSHIP OF OUR COMMON STOCK

We may not meet the continued listing standards of The NASDAQ Global Market, which requires a minimum closing bid price of $1.00 per share, which could result in our delisting and 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 Market. NASDAQ provides various continued listing requirements that a company must meet in order for its stock to continue trading on the NASDAQ Global Market. Among these requirements is the requirement that the Company s stock trades at a minimum bid price of $1.00 per share. Our stock price first traded at below $1.00 in the fourth quarter of 2015 and closed at a price less than $1.00 for a total of 19 trading days in that quarter. Trading of our stock at prices under $1.00 has continued off and on into 2016 including closing at bid prices below $1.00 per share for 16 consecutive trading days in February 2016. If our stock price closes with a bid price below $1.00 per share for 30 consecutive trading days, we would expect to receive a notice from NASDAQ providing us with 180 calendar days to regain compliance with the rule. After this 180 day period is up, if we still do not comply with the minimum $1.00 bid price we may be eligible for an additional 180 day period to regain compliance. However, if we fail to comply with the minimum stock price of $1.00 per share or any other continued listing standards of NASDAQ, our common stock may be delisted. If that were to occur, our stock would be subject to rules that impose additional sales practice requirements on broker-dealers who sell our securities. The additional burdens imposed upon broker-dealers by these requirements could discourage broker-dealers from effecting transactions in our common stock. This would significantly affect the ability of investors to trade our securities and would significantly negatively affect the value and liquidity of our common stock. These factors could contribute to lower prices and larger spreads in the bid and ask prices for our common stock. Also, if we seek to implement a reverse stock split in order to remain listed on The NASDAQ Global Market, the announcement and/or implementation of a reverse stock split could significantly negatively affect the price of our common stock.

The trading price of our common stock has been and will likely continue to be volatile due to various factors, some of which are beyond our control, and each of which could adversely affect our stockholders value.

From our initial public offering through March 9, 2016, the trading price of our common stock has ranged from a low of $0.76 to a high of $35.90.

Factors related to our company and our business, as well as broad market and industry factors, may adversely affect the market price of our common stock, regardless of our actual operating performance. Factors that could cause fluctuations in our stock price include, among other things:

- changes in market valuations of other companies in our industry;

changes in financial guidance or estimates by us, by investors or by any financial analysts who might cover our stock or our industry;

our ability to meet the performance expectations of financial analysts or investors;

our ability to develop and market new and enhanced products on a timely basis;

credit conditions;

announcements by us or our competitors of significant products, contracts, acquisitions or strategic partnerships;

general market and economic conditions; and

the size of the public float of our stock.

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Our certificate of incorporation, bylaws and Delaware law may discourage takeovers and business combinations that our stockholders might consider in their best interests.

A number of provisions in our certificate of incorporation and bylaws, as well as anti-takeover provisions of Delaware law, may have the effect of delaying, deterring, preventing or rendering more difficult a change in control of Rubicon that our stockholders might consider in their best interests. These provisions include:

- establishment of a classified Board of Directors;
- granting to the Board of Directors sole power to set the number of directors and to fill any vacancy on the Board of Directors, whether such vacancy occurs as a result of an increase in the number of directors or otherwise;
- limitations on the ability of stockholders to remove directors;
- the ability of our Board of Directors to designate and issue one or more series of preferred stock without stockholder approval, the terms of which may be determined at the sole discretion of the Board of Directors;
- prohibition on stockholders from calling special meetings of stockholders;
- prohibition on stockholders from acting by written consent; and
- establishment of advance notice requirements for stockholder proposals and nominations for election to the Board of Directors at stockholder meetings.

These provisions may prevent our stockholders from receiving the benefit from any premium to the market price of our common stock offered by a bidder in a takeover context. Even in the absence of a takeover attempt, the existence of these provisions may adversely affect the prevailing market price of our common stock if they are viewed as discouraging takeover attempts in the future.

The foregoing provisions of our certificate of incorporation and bylaws may also make it difficult for stockholders to replace or remove our management. These provisions may facilitate management entrenchment that may delay, deter, render more difficult or prevent a change in our control, which may not be in the best interests of our stockholders.

We are subject to litigation risks, including securities class action litigation, which may be costly to defend.

All industries, including ours, are subject to legal claims, including securities litigation. When the market price of a stock declines significantly, due to factors such as trends in the stock market in general, broad market and industry fluctuations or operating performance, holders of that stock have sometimes instituted securities class action litigation against the company that issued the stock. This sort of litigation can be particularly costly and may divert the attention of our management and our resources in general. In 2015, one of our stockholders instituted securities class action litigation following a decline in our stock price. See Item 3 Legal Proceedings of this report for more information on our legal proceedings. Due to the inherent uncertainty of the litigation process, the resolution of any particular legal claim or proceeding (including by settlement) could have a material effect on our business, financial condition, results of operations or cash flows. Further, uncertainties resulting from the initiation and continuation of securities or other litigation could harm our ability to obtain credit and financing for our operations and to compete in the marketplace.

Our Board of Directors does not intend to declare or pay any dividends to our stockholders in the foreseeable future.

The declaration, payment and amount of any future dividends will be made at the discretion of our Board of Directors and will depend upon, among other things, the results of our operations, cash flows and financial condition, operating and capital requirements, and other factors the Board of Directors considers relevant. The payment of dividends is prohibited pursuant to the terms of our existing credit facility without the lender s consent. There is no plan to pay dividends in the foreseeable future, and if dividends are paid, there can be no assurance with respect to the amount of any such dividend.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our executive, research and development and manufacturing functions are located on properties that we lease or own. We lease properties in Franklin Park, Illinois and Bensenville, Illinois. These facilities total approximately 62,000 square feet in three buildings, which includes 30,000 square feet in our Bensenville, Illinois facility. The leases for these facilities terminate in July 2018 and June 2019. We own a 134,400 square foot facility in Batavia, Illinois. We also own a 65,000 square foot facility in Penang, Malaysia, which processes sapphire grown by us in our Illinois facilities into finished cores and wafers.

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ITEM 3. LEGAL PROCEEDINGS

From time to time, we, our subsidiaries and/or our directors and officers may be named in claims arising in the ordinary course of business. Management believes that there are no pending legal proceedings involving us or any of our subsidiaries that will, individually or in the aggregate, have a material adverse effect, other than as set forth below, on our consolidated results of operations or financial condition.

On April 30, 2015, Firerock Global Opportunity Fund LP filed a complaint in the Northern District of Illinois asserting federal securities claims against the Company, certain officers, its directors and the underwriters in the Company s March 2014 stock offering. The complaint sought as a remedy either money damages or rescission of the March offering, plus attorneys fees. On October 29, 2015, after mediation and subsequent discussions, the parties reached a settlement agreement in principle. On January 27, 2016 the United States District Court for the Northern District of Illinois granted a motion for preliminary approval of the agreement. The settlement agreement includes a release of all defendants, and dismissal of the case against all defendants with prejudice. The Company recorded for the twelve months ended December 31, 2015 an expense of $1.1 million of which $900,000 is the amount the Company contributed to the settlement and paid on February 17, 2016. The remaining costs of the settlement are expected to be covered by insurance.

On November 19, 2015, the Carolyn Piper Smithhisler Living Trust, derivatively on behalf of Rubicon Technology Inc., filed a complaint in the Eighteenth Judicial District of Illinois against the Company s Board of Directors and certain senior officers seeking to remedy alleged breaches of fiduciary duties and other violations of the law, failure to implement an effective system of internal controls, and failure to oversee the public statements made by the Company and certain individual defendants. The complaint seeks as a remedy to recover damages against the individual defendants for the benefit of the Company and to require the Company to reform and improve its corporate governance and internal procedures plus attorneys fees. The Company intends to vigorously defend this lawsuit. Due to the preliminary nature of the lawsuit, at this time, the Company cannot predict an outcome, nor is it reasonably possible to estimate the amount or range of loss, if any, that would be associated with an adverse decision.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

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PART II

ITEM 5. MARKET FOR REGISTRANT S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information

Our common stock began trading on the NASDAQ Global Market under the symbol RBCN on November 16, 2007. The following table sets forth the high and low sales prices for our common stock as reported on the NASDAQ Global Market for the periods indicated:

	High	Low
Fiscal year ended December 31, 2015		
First Quarter	$ 4.90	$ 3.80
Second Quarter	$ 4.11	$ 2.33
Third Quarter	$ 2.44	$ 1.00
Fourth Quarter	$ 1.34	$ 0.83

	High	Low
Fiscal year ended December 31, 2014		
First Quarter	$ 14.67	$ 9.85
Second Quarter	$ 13.20	$ 6.93
Third Quarter	$ 9.70	$ 4.23
Fourth Quarter	$ 5.95	$ 3.56

Holders

As of March 9, 2016, our common stock was held by approximately 27 stockholders of record and there were 26,722,958 shares of our common stock outstanding.

Dividend Policy

We have never declared or paid cash dividends on our common stock. We currently intend to retain future earnings to finance the growth and development of our business, and we do not anticipate declaring or paying any cash dividends in the foreseeable future. The declaration, payment and amount of any future dividends will be made at the discretion of our Board of Directors. We are also subject to certain restrictions on the payment of dividends, as described under Item 7 Management s Discussion and Analysis of Financial Condition and Results of Operations Liquidity and Capital Resources.

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Performance Graph

The graph below matches the Company s cumulative 5-Year total stockholder return on its common stock with the cumulative total returns of the NASDAQ Composite Index and the Research Data Group (RDG) Technology Composite Index. The graph tracks the performance of a $100 investment in our common stock and in each index (with the reinvestment of all dividends) from December 31, 2010 to December 31, 2015.

	12/31/10	12/31/11	12/31/12	12/31/13	12/31/14	12/31/15
Rubicon Technology, Inc.	100.00	44.54	28.98	47.20	21.68	5.41
NASDAQ Composite	100.00	100.53	116.92	166.19	188.78	199.95
RDG Technology Composite	100.00	100.56	115.30	152.75	177.73	181.32

The stock price performance reflected in this graph is not necessarily indicative of future stock price performance.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

None.

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ITEM 6. SELECTED FINANCIAL DATA

The following selected consolidated financial data should be read in conjunction with Item 7 Management s Discussion and Analysis of Financial Condition and Results of Operations and our consolidated financial statements and the related notes included elsewhere herein. The consolidated balance sheet data as of December 31, 2015 and 2014 and the consolidated statements of operations data for the years ended December 31, 2015, 2014 and 2013 are derived from our audited consolidated financial statements following the signature page in this Form 10-K, which have been prepared in accordance with generally accepted accounting principles in the U.S. The consolidated balance sheet data as of December 31, 2013, 2012 and 2011 and the consolidated statements of operations data for the years ended December 31, 2012 and 2011 have been derived from our audited consolidated financial statements, which are not included in this Form 10-K.

SELECTED CONSOLIDATED FINANCIAL DATA

	Year ended December 31,				
	2015	2014	2013	2012	2011
	(In thousands, other than share and per share data)				
Consolidated statements of operations data:					
Revenue	$ 23,818	$ 45,685	$ 41,513	$ 67,243	$ 134,000
Cost of goods sold	46,961	75,372	63,434	67,283	64,365
Gross (loss) profit	(23,143)	(29,687)	(21,921)	(40)	69,635
Operating expenses:					
General and administrative	9,589	9,863	8,629	9,018	11,336
Sales and marketing	1,363	1,468	1,521	1,685	1,658
Research and development	2,210	1,861	2,263	2,274	1,806
Loss on disposal of assets	47	734	550	19	84
Impairment expense	39,597				
Total operating expenses	52,806	13,926	12,963	12,996	14,884
Income (loss) from operations	(75,949)	(43,613)	(34,884)	(13,036)	54,751
Other (expense) income, net	(1,907)	(302)	(627)	450	(118)
Income (loss) before income taxes	(77,856)	(43,915)	(35,511)	(12,586)	54,633
Income tax benefit (expense)	26	(78)	5,160	7,048	(16,574)
Net (loss) income	$ (77,830)	$ (43,993)	$ (30,351)	$ (5,538)	$ 38,059
Net (loss) income per common share					
Basic	$ (2.98)	$ (1.70)	$ (1.35)	$ (0.25)	$ 1.67
Diluted	$ (2.98)	$ (1.70)	$ (1.35)	$ (0.25)	$ 1.61

Weighted average common shares outstanding used in computing net (loss) income per common share					
Basic	26,156,170	25,815,405	22,572,212	22,523,951	22,852,205
Diluted	26,156,170	25,815,405	22,572,212	22,523,951	23,596,162

	As of December 31,				
	2015	**2014**	**2013**	**2012**	**2011**
			(In thousands)		
Consolidated balance sheet data:					
Cash and cash equivalents	$ 21,216	$ 24,353	$ 21,071	$ 19,573	$ 4,290
Working capital	53,555	79,650	79,768	114,337	119,056
Total assets	119,242	194,906	202,695	248,096	259,952
Total stockholders equity	111,986	188,560	195,791	225,386	228,231

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ITEM 7. MANAGEMENT S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read together with our financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K. This discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. You should review the Risk Factors section of this Annual Report for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements described in the following discussion and analysis.

OVERVIEW

We are a vertically integrated, advanced electronic materials provider specializing in monocrystalline sapphire for applications in light-emitting diodes (LEDs), optical systems and specialty electronic devices. Sapphire is also used as an exterior component in mobile devices, specifically camera lens covers, dual flashes and home buttons on certain newer model smartphones and as the crystal covering the faces of certain smart watches. Sapphire was adopted for use on the home button on certain smartphones because of the scratch resistance and increased touch capacitance it offers, which are important characteristics to ensure the effectiveness of the fingerprint recognition security built into the device. We believe that the use of fingerprint recognition security and other biometrics could become more prevalent in the future, which could become a strong growth driver for sapphire. In addition, some consumer electronics original equipment manufacturers (OEMs) are using full sapphire faceplates for smartphones, in limited volume. If sapphire smartphone faceplates were widely adopted, this would become the world s largest application for sapphire. We apply our proprietary crystal growth technology to produce high-quality sapphire products efficiently to supply both high-volume and niche end-markets, and we work closely with our customers to meet their quality and delivery needs.

Our largest product lines are:

- sapphire cores, two to six inches in diameter, which our customers further process into wafers for use in LED applications and into components such as lens covers for mobile devices;

- four and six-inch sapphire wafers that are used as substrates for the manufacture of LED chips and to a lesser extent for other semiconductor applications such as Silicon-on-Sapphire (SoS) Radio Frequency Integrated Circuits (RFICs);

- four, six, and eight-inch patterned sapphire wafers (PSS) which are polished wafers that undergo additional processes of photolithography and dry plasma etching to produce a patterned surface which enhances LED light extraction efficiency (LEE); and

- optical sapphire components in various shapes and sizes, including round and rectangular windows and blanks, domes, tubes and rods. These optical sapphire products are used in equipment for a wide variety of end markets, including defense and aerospace, medical devices, oil and gas drilling, semiconductor manufacturing and other markets.

The adoption of sapphire in mobile devices has expanded with the introduction of new products such as the Apple watch, which has sapphire content, as do at least two other smart watches manufactured by others already in the market. In addition, Kyocera has introduced a new smartphone with a sapphire faceplate and a Chinese smartphone manufacturer has announced plans to do the same. However, the industry expectation was that at least one version of the iPhone 6 introduced in the third quarter of 2014 would have a sapphire faceplate. That did not happen and the subsequent bankruptcy filing by GT Advanced Technologies Inc. (GTAT) has raised considerable speculation on how the mobile device segment of the sapphire market will continue to evolve. It is difficult to determine the future impact of the GTAT bankruptcy on sapphire supply and demand as it is unknown what will be the disposition of their furnaces and sapphire inventory. Largely because of the potential for expanded use of sapphire in mobile devices, significant sapphire capacity has been added in the industry resulting in more sapphire capacity than is needed for the current applications.

Currently, the LED market remains the largest consumer of sapphire. For the LED market, we sell core material primarily in two to four-inch diameters and polished and patterned wafers primarily in four, six and eight-inch diameters. Eight-inch wafers are sold primarily for customers research and development efforts at this time. We have the ability to produce cores and wafers of up to twelve inches in diameter to support production of chips for next-generation LED and other electronic applications. Larger sapphire also has current applications in the optical markets. In other semiconductor markets, we sell primarily six-inch wafers used in certain RFIC products

We have been focusing our efforts on patterned sapphire substrates or PSS . High brightness (HB) LED chip manufacturers etch a pattern onto the surface of the sapphire wafer in the early stages of their production process in order to improve light output. We have leveraged our capability in producing larger diameter sapphire wafers to offer pre-patterned, larger diameter (four-inch and six-inch) wafers to the LED market.

We sell our products on a global basis. The Asian, North American, European, and Australian markets accounted for 54%, 23%, 19% and 4%, respectively, of our revenue for the year ended December 31, 2015, 79%, 14%, 5% and 2%, respectively, of our revenue for the year ended December 31, 2014 and 60%, 11%, 4% and 24%, respectively, of our revenue for the year ended December 31, 2013. For more information about our revenues by country, see Note 2 Segment Information of our Consolidated Financial Statements included in this Annual Report on Form 10-K. For a discussion of risks associated with our international sales see the risk factor captioned *We are subject to risks from international sales that may harm our operating results* under Item 1A Risk Factors .

The LED market continues to grow and applications for sapphire continue to expand beyond LED lighting. However, the sapphire market remained challenging throughout 2014 and 2015, with continued pricing pressure and fluctuations in demand. We have historically experienced volatile pricing but we experienced a significant drop in pricing in 2015 continuing into 2016. This is largely due to an over-supply in the market. While we believe some of that supply is slowly being used, pricing remains extremely low and we expect this to continue into 2016. We have been focusing our efforts on continuing to qualify more customers for our PSS wafers and expect volumes to improve throughout 2016. In addition, we continue to focus on diversifying our product offerings into new technologies and applications. However, this will take time to develop as we move from R&D into production. We expect the sapphire market to continue to be challenging in 2016.

There are several new applications for sapphire in various stages of development that have the potential to become large consumers of sapphire and help to reduce the current market imbalance of supply and demand. However, the viability and timing of these new applications is uncertain.

We currently depend on a small number of suppliers for certain raw materials, components, services and equipment, including key materials such as aluminum oxide powder and certain furnace components. If the supply of these components were to be disrupted or terminated, or if these suppliers were unable to supply the quantities of raw materials required, we may have difficulty in finding, or may be unable to find, alternative sources for these items. As a result, we may be unable to meet the demand for our products, which could have a material adverse impact on our business.

We manage direct sales primarily from our Bensenville, Illinois offices. Substantially all of our revenue is generated by our direct sales force and we expect this to continue in the future.

We manufacture and ship our products from our facilities in the Chicago metropolitan area and from our facility in Penang, Malaysia. We have approximately 226,400 square feet of manufacturing and office space in Batavia, Franklin Park and Bensenville, Illinois and a 65,000 square foot facility in Penang, Malaysia, which processes sapphire grown by us in our Illinois facilities into finished cores and wafers. Our Malaysia facility currently finishes the majority of our core, wafer and PSS production. In March 2012, we acquired additional land in Batavia, Illinois to expand our crystal growth capacity.

Financial operations

Revenue. Our revenue consists of sales of sapphire materials sold in core, polished and patterned substrate forms in two, three, four, six and eight-inch diameters as well as optical materials sold as blanks or polished windows. Products are made to varying specifications, such as crystal planar orientations and thicknesses. We recognize research and development revenue in the period during which the related costs are incurred.

Historically, a substantial portion of our revenue has been derived from sales to a small number of customers. For the years ended December 31, 2015, 2014 and 2013 our top two customers accounted for approximately 31%, 36% and

44% of our revenue, respectively. Other than as discussed above, none of our customers accounted for more than 10% of our revenue for such periods. Although we are attempting to diversify and expand our customer base, we expect our revenue to continue to be concentrated among a small number of customers. We expect that our significant customers may change from period to period.

We recognize revenue based upon shipping terms with our customers and from our government contract as costs and fees are incurred. Delays in product orders or changes to the timing of shipments could cause our quarterly revenue to vary significantly. We derive a significant portion of our revenue from customers outside of the U.S. In most periods, the majority of our sales are to the Asian market and we expect that region to continue to be a major source of revenue for us. All of our revenue and corresponding accounts receivable are denominated in U.S. dollars.

Cost of goods sold. Our cost of goods sold consists primarily of manufacturing materials, labor, manufacturing-related overhead such as utilities, depreciation and rent, provisions for excess and obsolete inventory reserves, idle plant, freight and warranties. We manufacture our products at our Illinois and Malaysia manufacturing facilities based on customer orders. We purchase materials and supplies to support such current and future demand. We are subject to variations in the cost of raw materials and consumables from period to period because we do not have long-term fixed-price agreements with most of our suppliers. We mitigate the potential impact of fluctuations in energy costs by entering into long-term purchase agreements. Once our current agreements expire, if electricity prices increase significantly, we may not be able to pass these price increases through to our customers on a timely basis, if at all, which could adversely affect our gross margins and results of operations. We determine our normal operating capacity and, if necessary, record as idle plant expense the costs attributable to lower utilization of equipment and staff.

Gross profit. Our gross profit has been and will continue to be affected by a variety of factors, including average sales prices of our products, product mix, our ability to reduce manufacturing costs, idle plant charges and fluctuations in the cost of electricity, raw materials and other supplies.

General and administrative expenses. General and administrative expenses (G&A) consist primarily of salaries and associated costs for employees in finance, human resources, information technology and administrative activities, as well as charges for outside accounting, legal and insurance fees and stock-based compensation.

Sales and marketing expenses. Sales and marketing expenses consist primarily of salaries and associated costs for employees engaged in sales activities, product samples, charges for participation in trade shows and travel.

Research and development expenses. Research and development (R&D) expenses include costs related to engineering personnel, materials and other product development related costs. R&D is expensed as incurred. We believe our R&D expenses will generally increase as we continue to develop new products.

Other income (expense). Other income (expense) consists of interest income and expense and gains and losses on investments and currency translation.

Provision for income tax. We account for income taxes under the asset and liability method whereby the expected future tax consequences of temporary differences between the book value and the tax basis of assets and liabilities are recognized as deferred tax assets and liabilities, using enacted tax rates in effect for the year in which the differences are expected to be recognized. We completed an analysis of the utilization of net operating losses subject to limits based upon certain ownership changes as of March 31, 2014. The results of this analysis indicated no ownership change limiting the utilization of net operating losses and tax credits. We believe that an updated analysis will not likely indicate an ownership change that would limit the utilization of net operating losses and tax credits at December 31, 2015.

In accordance with ASC740 Accounting for Income Taxes (ASC740), we evaluate our deferred income tax assets quarterly to determine if valuation allowances are required or should be adjusted. ASC740 requires that companies assess whether valuation allowances should be established against their deferred tax assets based on consideration of all available evidence, both positive and negative, using a more likely than not standard. We are in a cumulative loss position for the past three years which is considered significant negative evidence that is difficult to overcome on a more likely than not standard through objectively verifiable data. Based on an evaluation in accordance with the accounting standards, as of December 31, 2015 and 2014, a valuation allowance of $52.3 million and $27.2 million, respectively, has been recorded against the net U.S. deferred tax assets in order to measure only the portion of the deferred tax assets that are more likely than not to be realized based on the weight of all the available evidence. Until an appropriate level of profitability is attained, we expect to maintain a full valuation allowance on our U.S. net deferred tax assets. Any U.S. tax benefits or tax expense recorded on the Consolidated Statement of Operations will be offset with a corresponding valuation allowance until such time that we change our determination related to the realization of deferred tax assets. In the event that we change our determination as to the amount of deferred tax assets that can be realized, we will adjust our valuation allowance with a corresponding impact to the provision for income taxes in the period in which such determination is made.

Stock-based compensation. The majority of our stock-based compensation relates primarily to administrative personnel and is accounted for as a G&A expense. For the years ended December 31, 2015, 2014 and 2013, our stock-based compensation expense was $1.3 million, $1.4 million and $1.6 million, respectively.

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RESULTS OF OPERATIONS

The following table sets forth our statements of operations for the periods indicated:

	Year ended December 31,		
	2015	**2014**	**2013**
		(in millions)	
Revenue	$ 23.8	$ 45.7	$ 41.5
Cost of goods sold	46.9	75.4	63.4
Gross loss	(23.1)	(29.7)	(21.9)
Operating expenses:			
General and administrative	9.6	9.9	8.6
Sales and marketing	1.4	1.4	1.5
Research and development	2.2	1.9	2.3
Long-lived asset impairment charge	39.6		
Loss on disposal of assets		0.7	0.6
Total operating expenses	52.8	13.9	13.0
Loss from operations	(75.9)	(43.6)	(34.9)
Other (expense) income	(1.9)	(0.3)	(0.6)
Loss before income taxes	(77.8)	(43.9)	(35.5)
Income tax (expense) benefit		(0.1)	5.1
Net loss	$ (77.8)	$ (44.0)	$ (30.4)

The following table sets forth our statements of operations as a percentage of revenue for the periods indicated:

	Year ended December 31,		
	2015	**2014**	**2013**
		(percentage of total)	
Revenue	100%	100%	100%
Cost of goods sold	197	165	153
Gross loss	(97)	(65)	(53)
Operating expenses:			
General and administrative	40	22	21
Sales and marketing	6	3	4

Research and development	10	4	5
Long-lived asset impairment charge	166		
Loss on disposal of assets		1	1
Total operating expenses	222	30	31
Loss from operations	(319)	(95)	(84)
Other (expense) income	(8)	(1)	(1)
Loss before income taxes	(327)	(96)	(85)
Income tax (expense) benefit			12
Net loss	(327%)	(96%)	(73%)

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Comparison of years ended December 31, 2015 and 2014

Revenue. Revenue was $23.8 million for the year ended December 31, 2015 and $45.7 million for the year ended December 31, 2014, a decrease of $21.9 million. We experienced decreased revenue from sales of our core products by $18.4 million, of which $12.4 million was attributable to a decrease in volume and $6.0 million was attributable to a decrease in pricing. Demand for our core products deteriorated throughout the year and most significantly into the fourth quarter 2015, due to decreased demand from the LED market and mobile device market. Pricing for our sapphire cores decreased to historically low levels in the fourth quarter 2015 for both two-inch and four-inch. We experienced a decrease in revenue from sales of our wafer products of $1.5 million, which was comprised of a decrease in revenue from products sold into the LED market of $2.2 million partially offset by an increase in revenue from our products sold into the SoS market of $796,000. Of the $2.2 million decrease in wafer sales to the LED market, polished wafer sales decreased by $4.2 million while PSS wafer sales increased by $2.0 million. We also had decreased revenue of $2.0 million from optical products due to a softening in the sales of sapphire for sensor and instrumentation applications.

We anticipate pricing to remain challenging for at least the next several quarters. We have continued to focus our sales of wafer products on PSS wafers where we believe there is greater margin opportunity. In addition to pursuing our PSS potential, we are working on building our optical business by expanding our product offerings and growing our customer base in order to diversify our product offerings. We operate in an extremely volatile market, so the amount of price or volume change is difficult to predict.

Gross loss. Gross loss was $23.1 million and $29.7 million for the years ended December 31, 2015 and 2014, respectively, a decrease in loss of $6.6 million. The decrease in gross loss is primarily due to lower production costs of $7.6 million. For the years ended December 31, 2015 and 2014, we were not operating at capacity and recorded costs associated with the lower utilization of equipment and staff of $8.1 million and $7.8 million, respectively. For the years ended December 31, 2015 and 2014, we determined we had inventory that was excess and obsolete and recorded an adjustment that decreased inventory and increased costs of goods sold by $204,000 and $2.4 million, respectively. For the years ended December 31, 2015 and 2014, we accepted orders for our core and wafer products at prices lower than cost and recorded an adjustment that decreased inventory and increased costs of goods sold by $3.9 million and $1.7 million, respectively.

For the three months ended December 31, 2015, a significant sequential decrease in pricing resulted in a lower of cost or market adjustment of $2.8 million that decreased inventory and increased costs of goods sold. The significant decrease in pricing triggered a reassessment of the valuation of our raw material to net realizable value. We utilized the current cost to produce as the replacement cost for the assessment, which is based on the current outlook of volume and pricing. As a result of this assessment for the year ended December 31, 2015, we recorded an adjustment which reduced our raw material inventory and increased our costs of goods sold by $2.2 million. Additionally, during the year ended December 31, 2014, we began to move towards a new polishing platform, which made certain supplies obsolete, resulting in an adjustment that decreased other inventory supplies and increased costs of goods sold by $1.9 million.

General and administrative expenses. G&A expenses were $9.6 million and $9.9 million for the years ended December 31, 2015 and 2014, respectively, a decrease of $274,000. The decrease is comprised of a decrease in employee compensation costs, of $882,000, as costs in 2014 included $704,000 in compensation expense related to the restructuring of the management team and these costs were not incurred in 2015, a decrease in travel expenses of $267,000, a decrease in corporate franchise taxes of $151,000, a decrease in investor relations expenses of $134,000 and a decrease in audit and tax consulting expenses of $99,000. These were partially offset by a legal settlement expense of $900,000, an increase in legal fees of $156,000 and an increase in recruitment costs of $188,000.

Sales and marketing expenses. Sales and marketing expenses were $1.4 million for each of the years ended December 31, 2015 and 2014.

Research and development expenses. R&D expenses were $2.2 million and $1.9 million for the years ended December 31, 2015 and 2014, respectively, an increase of $349,000. The increase was primarily attributable to increased employee compensation costs of $335,000 due to an increased headcount.

Long-lived asset impairment charges. For the year ended December 31, 2015, we recorded an asset impairment charge on machinery, equipment and facilities of $39.6 million. The overall outlook for the sapphire market continued to be depressed as industry analysts reported significant worldwide over capacity and pricing of sapphire products reached historical lows. Based upon our quarterly assessment using our most recent projections, impairment to these assets was indicated as of September 30, 2015, as the recoverable amount of undiscounted cash flows did not exceed the carrying amount of these assets. We reviewed the current fair market value as of December 31, 2015 and concluded no additional adjustments were needed. We will continue to reassess our long-lived assets to ensure the carrying amount of these assets is still appropriate given any changes in the marketplace and other factors used in determining the current fair market value. There was no long-lived asset impairment charge for the year ended December 31, 2014.

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Other income (expense). Other expense was $1.9 million and $302,000 for the years ended December 31, 2015 and 2014, respectively, an increase in other expense of $1.6 million. The increase is primarily attributable to an increase in the realized loss on foreign currency translation due to a weakening of the Malaysian Ringgit against the U.S. Dollar.

Income tax (expense) benefit. Income tax benefit was $26,000 for the year ended December 31, 2015 and income tax expense was $78,000 for the year ended December 31, 2014. In accordance with ASC740 Accounting for Income Taxes (ASC740), we evaluate our deferred income tax assets quarterly to determine if valuation allowances are required or should be adjusted. ASC740 requires that companies assess whether valuation allowances should be established against their deferred tax assets based on consideration of all available evidence, both positive and negative, using a more likely than not standard. We are in a cumulative loss position for the past three years which is considered significant negative evidence that is difficult to overcome on a more likely than not standard through objectively verifiable data. Based on an evaluation in accordance with the accounting standards, as of December 31, 2015 and 2014, a valuation allowance of $52.3 million and $27.2 million, respectively has been recorded against the net U.S. deferred tax assets in order to measure only the portion of the deferred tax assets that are more likely than not to be realized based on the weight of all the available evidence. Until an appropriate level of profitability is attained, we expect to maintain a full valuation allowance on our U.S. net deferred tax assets. Any U.S. tax benefits or tax expense recorded on the Consolidated Statement of Operations will be offset with a corresponding valuation allowance until such time that we change our determination related to the realization of deferred tax assets. In the event that we change our determination as to the amount of deferred tax assets that can be realized, we will adjust our valuation allowance with a corresponding impact to the provision for income taxes in the period in which such determination is made.

Comparison of years ended December 31, 2014 and 2013

Revenue. Revenue was $45.7 million for the year ended December 31, 2014 and $41.5 million for the year ended December 31, 2013, an increase of $4.2 million. We experienced increased revenue from sales of our core products by $6.6 million, of which $5.0 million was attributable to an increase in volume and $1.6 million was attributed to slightly higher pricing, primarily related to our four-inch core products. We experienced a decrease in revenue from sales of our polished wafers of $4.2 million which was comprised of an increase in revenue from products sold into the LED market of $6.0 million offset by a decrease in revenue from our products sold into the SoS market of $10.2 million. In early 2014, the manufacturer of the majority of SoS chips introduced new products that are produced on a substrate other than sapphire which significantly reduced the amount of sapphire wafers we sold into this market. Revenue from polished wafers increased by $2.9 million from higher volume and decreased by $7.1 million due to lower pricing. We had increased revenue of $2.5 million from optical products due to an increase in the sales of sapphire for sensor and instrumentation applications and had decreased R&D revenue of $768,000 as a result of timing of costs incurred.

Gross loss. Gross loss was $29.7 million and $21.9 million for the years ended December 31, 2014 and 2013, respectively, an increased loss of $7.8 million. The increase in gross loss is primarily due to pricing of our polished wafer products at below cost. For the years ended December 31, 2014 and 2013, we determined we were not operating at capacity and recorded costs associated with the lower utilization of equipment and staff of $7.8 million and $13.2 million, respectively. For the years ended December 31 2014 and 2013, we determined we had inventory that was excess and obsolete and recorded an adjustment that decreased inventory and increased costs of goods sold by $2.4 million and $1.8 million, respectively. At times throughout 2014, we accepted orders for our core and wafer products at prices lower than cost and recorded an adjustment that decreased inventory and increased costs of goods sold by $1.7 million. During 2013, we accepted orders for our core products at prices lower than cost and recorded an adjustment that decreased inventory and increased costs of goods sold by $421,000. Additionally, during the year ended December 31, 2014, we began to move towards a new polishing platform, resulting in an adjustment that decreased other inventory supplies and increased costs of goods sold by $1.9 million.

General and administrative expenses. G&A expenses were $9.9 million for the year ended December 31, 2014 and $8.6 million for the year ended December 31, 2013, an increase of $1.3 million. The increase is primarily attributable to an increase in employee compensation costs of $815,000, of which $704,000 is attributable to the restructuring of the management team. We also experienced an increase in financing and consulting fees of $363,000 in 2014.

Sales and marketing expenses. Sales and marketing expenses were $1.4 million and $1.5 million for the years ended December 31, 2014 and 2013, a decrease of $53,000. The decrease is primarily attributable to a decrease in employee compensation.

Research and development expenses. R&D expenses were $1.9 million for the year ended December 31, 2014 and $2.3 million for the year ended December 31, 2013, a decrease of $402,000. The decrease is primarily related to moving our PSS project from R&D into production.

Other income (expense). Other expense was $302,000 and $627,000 for the years ended December 31, 2014 and 2013, respectively, a decrease of $325,000. The decrease in other expense is primarily attributable to an increase in realized gains on investments of $258,000.

Income tax (expense) benefit. Income tax expense was $78,000 for the year ended December 31, 2014 and income tax benefit was $5.1 million for the year ended December 31, 2013. In accordance with ASC740 Accounting for Income Taxes (ASC740), we evaluate our deferred income tax assets quarterly to determine if valuation allowances are required or should be adjusted. ASC740 requires that companies assess whether valuation allowances should be established against their deferred tax assets based on consideration of all available evidence, both positive and negative, using a more likely than not standard. We are in a cumulative loss position for the past three years which is considered significant negative evidence that is difficult to overcome on a more likely than not standard through objectively verifiable data. Based on an evaluation in accordance with the accounting standards, as of December 31, 2014 and 2013, a valuation allowance of $27.2 million and $9.5 million, respectively has been recorded against the net U.S. deferred tax assets in order to measure only the portion of the deferred tax assets that are more likely than not to be realized based on the weight of all the available evidence. Until an appropriate level of profitability is attained, we expect to maintain a full valuation allowance on our U.S. net deferred tax assets. Any U.S. tax benefits or tax expense recorded on the Consolidated Statement of Operations will be offset with a corresponding valuation allowance until such time that we change our determination related to the realization of deferred tax assets. In the event that we change our determination as to the amount of deferred tax assets that can be realized, we will adjust our valuation allowance with a corresponding impact to the provision for income taxes in the period in which such determination is made.

LIQUIDITY AND CAPITAL RESOURCES

We have historically funded our operations using a combination of issuances of common stock and cash generated from our operations. On January 2, 2013, we entered into a three-year term agreement with a bank to provide us with a senior secured credit facility of up to $25.0 million. The agreement provides for us to borrow up to 80% of eligible accounts receivable and up to 35% of domestically held raw material and finished goods inventory. Advances against inventory are limited to 40% of the aggregate outstanding on the revolving line of credit and $10.0 million in aggregate. We have the option to borrow at an interest rate of LIBOR plus 2.75% or the Wall Street Journal prime rate plus 0.50%. If we maintain liquidity of $20.0 million or greater with the lending institution, then the borrowing interest rate options are LIBOR plus 2.25% or the Wall Street Journal prime rate. There is an unused revolving line facility fee of 0.375% per annum. The facility is secured by a first priority interest in substantially all of our personal property, excluding intellectual property. We are required to maintain an adjusted quick ratio of 1.40 to 1.00, maintain operating and other deposit accounts with the bank or bank s affiliates of 25% of our total worldwide cash, securities and investments, and we can pay dividends or repurchase capital stock only with the bank s consent during the three year term. In August 2015, we entered into an amendment agreement with the bank to extend the senior secured facility through January 2, 2018. Under the amended agreement, advances against inventory are limited to the lesser of 45% of the aggregate outstanding principal on the revolving line of credit and $10.0 million and the rate on facility fee on the unused portion of the revolving line was adjusted to 0.50% per annum. All other terms and conditions remain the same. As of December 31, 2015 we had available borrowing capacity of $2.3 million under this facility. At December 31, 2015, we borrowed $1.5 million against this facility electing a borrowing rate of LIBOR plus 2.25%. The agreement contains a subjective acceleration clause and requires us to maintain a lockbox. As a result, we have classified the debt as a current liability on our balance sheet. For year ended December 31, 2015 we recorded interest expense of $109,000 which includes $107,000 of interest expense charged on the unused portion of the facility. For years ended December 31, 2014 and 2013, we did not draw on this facility and we recorded $95,000, for each of the two years, of interest expense charged on the unused portion of the facility.

As of December 31, 2015, we had cash and short term investments totaling $30.1 million, including cash of $3.5 million held in deposits at major banks, $17.7 million invested in money market funds and $8.9 million of short term investments including corporate notes and bonds and FDIC guaranteed certificates of deposit.

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Cash flows from operating activities

The following table represents the major components of our cash flows from operating activities for the years ended December 31, 2015, 2014 and 2013:

	Year ended December 31,		
	2015	2014	2013
		(in millions)	
Net loss	$ (77.8)	$ (44.0)	$ (30.4)
Non-cash items:			
Depreciation and amortization	11.4	13.6	12.7
Stock based compensation and other, net	1.3	1.9	2.1
Long-lived asset impairment charges	39.6		
Deferred taxes	(0.1)	0.1	(5.2)
Excess tax benefits from stock based compensation			0.1
Total non-cash items:	52.2	15.6	9.7
Changes in working capital:			
Accounts receivable	6.6	(4.8)	9.1
Accounts payable	(0.2)	(0.6)	(4.4)
Other accruals		(0.1)	(1.1)
Inventories	0.1	11.3	13.0
Prepaid expenses and other assets	2.4	3.4	4.5
Total working capital items:	8.9	9.2	21.1
Net cash (used in) provided by operating activities	$ (16.7)	$ (19.2)	$ 0.4

Cash used in operating activities was $16.7 million for the year ended December 31, 2015. During such period, we generated a net loss of $77.8 million, which included non-cash charges of $52.2 million, and an increase in cash from net working capital of $8.9 million. The net cash from working capital was driven by a decrease in accounts receivable of $6.6 million on lower revenue for the year, a decrease in other inventory supplies of $2.2 million as we decreased our furnace component materials on hand, offset by a slight decrease in accounts payable of $247,000 due to timing of payments.

Cash used in operating activities was $19.2 million for the year ended December 31, 2014. During such period, we generated a net loss of $44.0 million, which included non-cash charges of $15.6 million, and an increase in cash from net working capital of $9.2 million. The net cash from working capital was driven by a decrease in inventory of $11.3 million, as we decreased our inventory levels of raw materials, work in process, and finished goods, and a decrease in other prepaid assets, primarily related to a decrease in the other inventory supplies used in the polishing process as we moved to a new polishing platform. These working capital increases were partially offset by an increase in accounts receivable of $4.8 million as we extended terms to some customers previously with prepay terms and a decrease in accounts payable of $637,000 due to timing of payments.

Cash provided by operating activities was $412,000 for the year ended December 31, 2013. During such period, we generated a net loss of $30.4 million, which included non-cash charges of $9.7 million, and an increase in cash from net working capital of $21.1 million. The net cash from working capital was driven by a decrease in inventory of $13.0 million as we used a significant portion of our sapphire boules stock, a decrease in accounts receivable of $9.1 million due to an overall decreased accounts receivables balance on lower revenues and a decrease in other prepaid assets of $4.5 million, primarily related to a decrease in the purchase of furnace construction and replacement parts and items used in the polishing of wafers. These working capital decreases were partially offset by a decrease in accounts payable of $4.4 million due to timing of payments.

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Cash flows from investing activities

The following table represents the major components of our cash flows from investing activities for the years ended December 31, 2015, 2014 and 2013:

	Year ended December 31,		
	2015	2014	2013
		(in millions)	
Purchases of property and equipment:			
Machinery and equipment for crystal growth	$	$ (1.2)	$ (0.9)
Land and building improvements			
Increase capacity in other areas	(1.0)	(5.6)	(7.8)
Proceeds from disposal of assets			0.1
Total purchases of property and equipment, net of proceeds from disposal of assets	(1.0)	(6.8)	(8.6)
Purchases of investments	(2.3)	(28.8)	(2.0)
Proceeds from sale of investments	14.0	22.7	11.4
Net cash provided by (used in) investing activities	$ 10.7	$ (12.9)	$ 0.8

Net cash provided by investing activities was $10.7 million and $770,000 for the years ended December 31, 2015 and 2013, respectively and net cash used in investing activities was $12.9 million for the year ended December 31, 2014. In 2015, we used approximately $941,000 to invest in PSS related equipment and other required upgrades. We used $14.0 million from the sale of investments to fund our operations, offset by $2.3 million in the purchase of investments. In 2014, we used approximately $5.6 million for machinery and equipment to begin upgrading our polishing platform as well as add capacity to our patterned polished substrate platform. We used proceeds from our common stock offerings of approximately $28.8 million to purchase investment securities partially offset by the sale of investments of $22.7 million which were used to fund operations and capital spending. In 2013, we used approximately $7.8 million for machinery and equipment for our patterned polished substrate production at our Malaysia facility, as well as to enhance our current polishing platform in Malaysia. This was offset by proceeds (net of purchases of investments of $2.0 million) from the sale of investments of $9.4 million.

We anticipate capital expenditures in 2016 to be kept to a minimum. We have a commitment to purchase a new tool that will result in a capital expenditure of approximately $1.2 million, and have no other material capital commitments planned for 2016 at this time.

Cash flows from financing activities

Net cash provided by financing activities was $1.5 million, $35.1 million and $32,000 for the years ended December 31, 2015, 2014 and 2013 respectively. Net cash provided by financing activities in 2015 represents $1.5 million borrowed from our credit facility to fund operations. Net cash provided by financing activities in 2014 was primarily the result of $35.0 million in proceeds from the issuance of common stock, net of issuance costs, and $256,000 in net proceeds from the exercise of stock options. Net cash provided by financing activities in 2013 was primarily the result of proceeds from the exercise of stock options of $140,000 offset by a change in the tax benefits related to stock based compensation of $114,000.

Future liquidity requirements

We believe that our existing cash, cash equivalents, investments, anticipated cash flows from operating activities and secured credit facility will be sufficient to meet our anticipated cash needs for at least the next twelve months. However, if we are not able to reduce our use of cash in the next twelve months, we may not have enough funds available to continue operating at our current level in future periods. Our cash needs include cash required to fund our operations, and the capital needed to fund any future expansion in the U.S. and Asia and investments in new product development. If the assumptions underlying our business plan regarding future revenues and expenses change, or if unexpected opportunities or needs arise, we may seek to raise additional cash by selling equity or convertible debt securities. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our stockholders could be significantly diluted, and these newly-issued securities may have rights, preferences or privileges senior to those of existing stockholders. Our stock price has traded below $1.00 per share. If we continue to trade below $1.00 per share for 30 consecutive trading days, we will fail to comply with the minimum stock price of $1.00 per share set forth by NASDAQ and may be delisted. If our common stock were to be delisted, this would significantly impact our ability to raise funds through the issuance of equity. If we obtain additional debt financing or draw further on our credit facility, a substantial portion of our operating cash flow may be dedicated to the payment of principal and interest on such indebtedness, and the terms of the debt securities issued could impose significant restrictions on our operations. If we are unable to obtain financing, we may be unable to successfully execute our business plan.

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Contractual obligations

The contractual obligations presented in the table below represent our estimates of future payments under fixed contractual obligations and commitments at December 31, 2015. Changes in our business needs as well as actions by third parties and other factors may cause these estimates to change. Because these estimates are complex and necessarily subjective, our actual payments in future periods are likely to vary from those presented in the table. The following table sets forth information relating to our contractual obligations at December 31, 2015:

	Payments due in				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
	(in millions)				
Operating lease obligations	$ 1.8	$ 0.6	$ 1.1	$ 0.1	$
Purchase obligations	6.1	4.1	2.0		
Total contractual obligations	$ 7.9	$ 4.7	$ 3.1	$ 0.1	$

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of financial statements in accordance with accounting principles generally accepted in the U.S. requires us to make estimates, assumptions and judgments that affect the amounts reported in our financial statements and the accompanying notes. We base our estimates on historical experience and various other assumptions that we believe to be reasonable. Although these estimates are based on our present best knowledge of the future impact on the company of current events and actions, actual results may differ from these estimates, assumptions and judgments.

We consider to be critical those accounting policies that require our most subjective or complex judgments, which often result from a need to make estimates about the effect of matters that are inherently uncertain, and that are among the most important of our accounting policies in the portrayal of our financial condition and results of operations. We believe the following to be our critical accounting policies, including the more significant estimates and assumptions used in preparation of our financial statements.

Foreign currency translation and transactions. Rubicon Worldwide LLC, Rubicon Technology Hong Kong and Rubicon Technology Korea Yuhan Hosea s assets and liabilities are translated into U.S. dollars at exchange rates existing at the respective balance sheet dates and capital accounts at historical exchange rates. The results of operations are translated into U.S. dollars at the average exchange rates during the respective period. Translation adjustments resulting from fluctuations in exchange rates for Rubicon Worldwide LLC, Rubicon Technology Hong Kong and Rubicon Technology Korea Yuhan Hosea are recorded as a separate component of accumulated other comprehensive income (loss) within stockholders equity.

We have determined that the functional currency of Rubicon Sapphire Technology (Malaysia) SDN BHD is the U.S. dollar. Rubicon Sapphire Technology (Malaysia) SDN BHD s assets and liabilities are translated into U.S. dollars using the remeasurement method. Non-monetary assets are translated at historical exchange rates and monetary assets are translated at exchange rates existing at the respective balance sheet dates. Translation adjustments for Rubicon Sapphire Technology (Malaysia) SDN BHD are included in determining net income (loss) for the period. The results of operations are translated into U.S. dollars at the average exchange rates during the respective period. We record these gains and losses in other income (expense).

Foreign currency transaction gains and losses are generated from the effects of exchange rate changes on transactions denominated in a currency other than our functional currency, which is the U.S. dollar. Gains and losses on foreign currency transactions are generally required to be recognized in the determination of net income (loss) for the period. We record these gains and losses in other income (expense).

Revenue recognition. We recognize revenue from sales of products and billings for costs and fees from government contracts. We recognize revenue from sales of products when:

Persuasive evidence of an arrangement exists. We require evidence of a purchase order with the customer specifying the terms and specifications of the product to be delivered, typically in the form of a signed quotation or purchase order from the customer;

Title has passed and the product has been delivered. Title passage and product delivery generally occur when the product is delivered to a common carrier or per terms of a consignment agreement;

The price is fixed or determinable. All terms are fixed in the signed quotation or purchase order received from the customer. The purchase orders do not contain rights of cancellation, return, exchange or refund; and

Collection of the resulting receivable is reasonably assured. Our standard arrangement with customers includes payment terms. Customers are subject to a credit review process that evaluates each customer s financial position and its ability to pay. We determine collectability by considering the length of time the customer has been in business and our history of collections with that customer. If we determine that collection is not probable, no product is shipped and no revenue is recognized unless cash is received in advance.

In July 2012, we signed a contract with the Air Force Research Laboratory to produce large-area sapphire windows on a cost plus fixed fee basis. We recognize revenue from this contract in the period during which the related costs are incurred over the contractually defined period. We expect to complete our contract in 2017.

All of our revenue is denominated in U.S. dollars.

Inventory. We value our inventory at the lower of cost or market. Market is determined based on net realizable value. Costs for raw materials are based on actual costs on a first-in, first-out basis and costs for work in process and finished goods are based on a weighted average cost basis. We establish inventory reserves when conditions exist that suggest inventory may be in excess of anticipated demand or is obsolete based on customer required specifications. We evaluate the ability to realize the value of our inventory based on a combination of factors, including forecasted sales, estimated current and future market value and changes in customers product specifications. For the years ended December 31, 2015 and 2014, we determined we had inventory that was excess or obsolete and recorded an adjustment which reduced inventory and increased costs of goods sold by $202,000 and $2.4 million, respectively. We also sold our core material and polished wafers at prices lower than our cost. Based on those sales prices, we recorded at December 31, 2015 and 2014 a lower of cost or market adjustment which reduced inventory and increased cost of goods sold by $3.9 million and $1.7 million, respectively.

For the three months ended December 31, 2015, prices for our core and wafer products dropped significantly below cost, resulting in a lower of cost or market adjustment which reduced inventory and increased costs of goods sold by $2.8 million. The significant decrease in pricing triggered a reassessment of the valuation of our raw material to net realizable value. We utilized the current cost to produce as the replacement cost for the assessment, which is based on the current outlook of volume and pricing. As a result of this assessment for the year ended December 31, 2015, we recorded an adjustment which reduced our raw material inventory and increased our costs of goods sold by $2.2 million.

Our method of estimating excess and obsolete inventory has remained consistent for all periods presented. However, if our recognition of excess or obsolete inventory is, or if our estimates of our inventory s potential utility become, less favorable than currently expected, additional inventory reserves may be required.

We determine our normal operating capacity and record as expenses costs attributable to lower utilization of equipment and staff. For the years ended December 31, 2015 and 2014, we determined we were not operating at capacity and recorded costs associated with the lower utilization of equipment and staff of $8.1 million and $7.8 million, respectively. The sapphire market continues to be challenging as a result of over-supply in the market. It is likely will incur additional adjustments for lower utilization of our equipment and staff in 2016.

We value our other inventory supplies at cost, based on the purchase prices on a first- in, first out-basis. Other inventory supplies include consumable items used in the manufacturing process as well as repair and maintenance items for our machinery and equipment. As part of moving toward a new polishing platform in 2014, we identified certain other inventory supplies that will no longer be used and recorded an adjustment that reduced other inventory supplies and increased costs of goods sold by $1.9 million.

Investments. We invest available cash primarily in investment grade commercial paper, FDIC guaranteed certificates of deposits, corporate notes and government securities. Investments classified as available-for-sale securities are carried at fair market value with unrealized gains and losses recorded in accumulated other comprehensive income (loss). Investments in trading securities are reported at fair value, with both realized and unrealized gains and losses recorded in other income (expense), in the Consolidated Statements of Operations. Investments in which we have the ability and intent, if necessary, to liquidate in order to support our current operations are classified as short-term.

We review our available-for-sale securities investments at the end of each quarter for other-than-temporary declines in fair value based on the specific identification method. We consider various factors in determining whether an impairment is other-than-temporary, including the severity and duration of the impairment, changes in underlying credit ratings, forecasted recovery, our ability and intent to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value and the probability that the scheduled cash payments will continue to be made. When we conclude that an other-than-temporary impairment has resulted, the difference between the fair value and carrying value is written off and recorded as a charge on the Consolidated Statement of Operations. As of December 31, 2015, no impairment was recorded.

Allowance for doubtful accounts. We estimate the allowance for doubtful accounts based on an assessment of the collectability of specific customer accounts. The determination of risk for collection is assessed on a customer-by-customer basis considering our historical experience and expected future orders with the customer, changes in payment patterns and recent information we have about the current status of our accounts receivable balances. If we determine that a specific customer is a risk for collection, we provide a specific allowance for credit losses to reduce the net recognized receivable to the amount we reasonably believe will be collected. If a receivable is deemed uncollectible, and the account balance differs from the allowance provided, the specific amount is written off to bad debt expense. We believe that based on the customers to whom we sell and the nature of our agreements with them, our estimates are reasonable. Our method of estimating collectability has remained consistent for all periods presented and with past collections experience.

Long-Lived assets. We review property and equipment for impairment whenever events or circumstances indicate that carrying amounts may not be recoverable. If such events or changes in circumstances occur, we will recognize an impairment loss if the undiscounted future cash flows expected to be generated by the assets are less than the carrying value of the related asset. The impairment loss would adjust the asset to its fair value.

In evaluating the recoverability of long-lived assets, we must make assumptions regarding estimated future cash flows and other factors to determine the fair value of such assets. If our fair value estimates or related assumptions change in the future, we may be required to record impairment charges related to property and equipment. Asset recoverability is first measured by comparing the assets carrying amount to their expected future undiscounted net cash flows to determine if the assets are impaired. If such assets are considered to be impaired, the impairment recognized is measured based on the amount by which the carrying amount of the assets exceeds the fair value.

In response to our current period operating losses combined with our history of continuing operating losses, we evaluated the recoverability of certain property and equipment. In the third quarter of 2015, the overall outlook for the sapphire market continued to be volatile as industry analysts reported significant worldwide over capacity and pricing of sapphire products reached historical lows. Based on our quarterly assessment using the most recent projections, impairment to these assets was indicated as of September 30, 2015, as the recoverable amount of undiscounted cash flows did not exceed the carrying amount of these assets. We recorded an asset impairment charge on machinery, equipment and facilities of $39.6 million. At December 31, 2015, we reviewed the current fair market value and concluded no additional adjustments were needed. We will continue to assess our long-lived assets to ensure the carrying amount of these assets is still appropriate given any changes in the marketplace and other factors used in determining the current fair market value.

Stock-based compensation. We grant stock-based compensation in the form of stock options, restricted stock units (RSUs) and restricted stock. We expense stock-based compensation based upon the fair market value on the date of grant. We use the Black-Scholes option pricing model to determine the fair value of stock options. The determination of the fair value of stock-based payment awards on the date of grant using an option-pricing model will be affected by assumptions regarding a number of complex and subjective variables. These variables include our expected stock volatility over the term of the awards, actual and projected employee stock option exercise behaviors, risk-free interest rates, forfeitures and expected dividends.

The expected term represents the weighted-average period that our stock options are expected to be outstanding and is based upon the vesting term of our options, historical expected lives of our stock options, a review of a peer group of companies, and expected exercise behavior. Our volatility rate is calculated using historical stock prices for stock options granted. We base the risk-free interest rate that we use in the option pricing model on U.S. Treasury zero-coupon issues with remaining terms similar to the expected term on the options. We do not anticipate paying any cash dividends in the foreseeable future and, therefore, use an expected dividend yield of zero in the option pricing model. We are required to estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates. The current forfeiture rate of 18.56% was based on our past history of forfeitures.

All option grants made during the years ended December 31, 2015, 2014 and 2013 were granted at an exercise price per share equal to the closing market price of our common stock on the day before the date of the grant. Therefore, there is no intrinsic value because the exercise price per share of each option was equal to the fair value of the common stock on the date of grant. Based on the fair market value of the common stock at December 31, 2015 and 2014, there was no aggregate intrinsic value for options outstanding and exercisable.

We granted RSUs to certain key employees. The fair value of each RSU is the market price on the date of grant and is being recorded as compensation expense ratably over the vesting terms. Each RSU granted will vest according to a specified vesting schedule at each anniversary of grant date and settle in common stock (on a one-for-one basis). The RSUs are forfeited by a participant upon termination for any reason and there is no proportionate or partial vesting in the periods between the vesting dates.

We allocate stock based compensation costs using a straight-line method which amortizes the fair value of each option on a straight-line basis over the service period. Based on the variables affecting the valuation of our common stock and the method used for allocating compensation costs, we recognized $1.3 million in stock-based compensation expense during the year ended December 31, 2015. For more information on stock-based compensation, see Note 7 Stock Incentive Plans to our Consolidated Financial Statements included in this Annual Report on Form 10-K.

Income tax valuation allowance. Evaluating the need for and amount of a valuation allowance for deferred tax assets often requires significant judgment and extensive analysis of all the positive and negative evidence available to determine whether all or some portion of the deferred tax assets will not be realized. A valuation allowance must be established for deferred tax assets when it is more likely than not (a probability level of more than 50 percent) that they will not be realized. In general, realization refers to the incremental benefit achieved through the reduction in future taxes payable or an increase in future taxes refundable from the deferred tax assets, assuming that the underlying deductible differences and carryforwards are the last items to enter into the determination of future taxable income. In determining our valuation allowance, we consider the source of taxable income including taxable income in prior carryback years, future reversals of existing temporary differences, the required use of tax planning strategies, and future taxable income exclusive of reversing temporary differences and carryforwards. We are in a cumulative loss position for the past three years which is considered significant negative evidence that is difficult to overcome on a more likely than not standard through objectively verifiable data. Under the accounting standards verifiable evidence will have greater weight than subjective evidence such as our projections for future growth. Based on an evaluation in accordance with the accounting standards, as of December 31, 2015 and 2014, a valuation allowance of $52.3 million and $27.2 million, respectively has been recorded against the net U.S. deferred tax assets in order to measure only the portion of the deferred tax assets that are more likely than not to be realized based on the weight of all the available evidence. Until an appropriate level of profitability is attained, we expect to maintain a full valuation allowance on our U.S. net deferred tax assets. Any U.S. tax benefits or tax expense recorded on the Consolidated Statement of Operations will be offset with a corresponding valuation allowance until such time that we change our determination related to the realization of deferred tax assets. In the event that we change our determination as to the amount of deferred tax assets that can be realized, we will adjust our valuation allowance with a corresponding impact to the provision for income taxes in the period in which such determination is made.

Accounting for uncertainty in income taxes. We recognize the tax benefit from an uncertain tax position only if it is more likely than not the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such positions are then measured based on the largest benefit that has a greater than 50% likelihood of being realized upon settlement. At December 31, 2015 and 2014, we had unrecognized tax benefits taken or expected to be taken in a tax return that have been recorded on our financial statements of $1.1 million that are related to tax positions taken in 2012. We recognize interest and/or penalties related to income tax matters in income tax expense.

RECENT ACCOUNTING PRONOUNCEMENTS

In May 2014, the FASB issued ASU No. 2014-09 (ASU 2014-09), *Revenue from Contracts with Customers*, which supersedes most of the current revenue recognition requirements. The underlying principle is that an entity will recognize revenue to depict the transfer of goods or services to customers at an amount that the entity expects to be entitled to in exchange for those goods or services. The guidance provides a five-step analysis of transactions to determine when and how revenue is recognized. Other major provisions include capitalization of certain contract costs, consideration of time value of money in the transaction price, and allowing estimates of variable consideration to be recognized before contingencies are resolved in certain circumstances. The guidance also requires enhanced disclosures regarding the nature, amount, timing and uncertainty of revenue and cash flows arising from an entity s contracts with customers. The guidance is effective for the interim and annual periods beginning on or after December 15, 2017 (early adoption is not permitted). The guidance permits the use of either a retrospective or cumulative effect transition method. The adoption of ASU 2014-09 is not expected to have a material impact on our consolidated financial statements.

In June 2014, the FASB issued ASU No. 2014-12 (ASU 2014-12), *Compensation Stock Compensation (Topic 718): Accounting for Share-Based Payments When the Terms of an Award Provide That a Performance Target Could Be*

Achieved after the Requisite Service Period related to stock compensation. The new standard requires that a performance target that affects vesting, and that could be achieved after the requisite service period, be treated as a performance condition. As such, the performance target should not be reflected in estimating the grant date fair value of the award. This update further clarifies that compensation cost should be recognized in the period in which it becomes probable that the performance target will be achieved and should represent the compensation cost attributable to the periods for which the requisite service has already been rendered. The new standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2015 and can be applied either prospectively or retrospectively to all awards outstanding as of the beginning of the earliest annual period presented as an adjustment to opening retained earnings. Early adoption is permitted. We have evaluated the applicable guidance and do not believe the adoption will significantly impact the presentation of our financial condition, results of operations and disclosures. In August 2014, the FASB issued ASU 2014-15 (ASU 2014-15), *Presentation of Financial Statements Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity s Ability to Continue as a Going Concern*. The standard requires management to evaluate whether there is substantial doubt about an entity s ability to continue as a going concern and to provide related footnote disclosures. Management must evaluate whether it is probable that known conditions or events, considered in the aggregate, would raise substantial doubt about the entity s ability to continue as a going concern within one year after the date that the financial statements are issued. If such conditions or events are identified, the standard requires management s mitigation plans to alleviate the doubt or a statement of the substantial doubt about the entity s ability to continue as a going concern to be disclosed in the financial statements. The standard is effective for fiscal years and interim periods beginning after December 15, 2016, with early adoption permitted. We are evaluating the impact, if any, of adopting ASU 2014-15 on our financial statements.

In April 2015, the FASB issued ASU 2015-03 (ASU 2015-03), *Simplifying the Presentation of Debt Issuance Costs* which requires entities to present debt issuance costs related to a debt liability as a direct deduction from the carrying amount of that debt liability on the balance sheet. ASU 2015-03 does not contain guidance for debt issuance costs related to line-of-credit arrangements. Consequently, in August 2015 the FASB issued ASU 2015 -15 *Presentation and Subsequent Measurement of Debt Issuance Costs Associated with Line-of-Credit Arrangements* to add paragraphs indicating that the Securities Exchange Commission would not object

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to an entity deferring and presenting debt issuance costs related to line-of-credit arrangements as an asset and subsequently amortizing the deferred debt issuance costs ratable over the term of the line-of-credit arrangement regardless of whether there are any outstanding borrowings on the line-of-credit arrangement. The standard is effective for fiscal years and interim periods beginning after December 15, 2015, with early adoption permitted. We have evaluated the applicable guidance and do not believe the adoption will significantly impact the presentation of our financial condition, results of operations and disclosures.

In July 2015, the FASB issued ASU No. 2015-11 (ASU 2015-11), Inventory (Topic 330): *Simplifying the Measurement of Inventory.* The amendments in this ASU require an entity to measure in-scope inventory at the lower of cost and net realizable value, further clarifying consideration for net realizable value as estimated selling prices in the ordinary course of business less reasonably predictable costs of completion, disposal and transportation. This ASU more closely aligns the measurement of inventory in GAAP with the measurement of inventory in International Financial Reporting Standards (IFRS). For public business entities, ASU 2015-11 is effective for annual periods and interim periods beginning after December 15, 2016. The amendment in this ASU is prospectively applied with earlier adoption permitted. We are currently evaluating this guidance and do not believe the adoption will significantly impact the presentation of our financial condition, results of operations and disclosures.

In November 2015, the FASB issued ASU 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes*. This standard requires entities to classify deferred tax liabilities and assets as noncurrent in a classified statement of financial position. The standard is effective for interim and annual periods beginning after December 15, 2016, and may be applied either prospectively to all deferred tax liabilities and assets or retrospectively to all periods presented. As permitted, we elected to early adopt this standard effective December 31, 2015, and applied the standard prospectively. The adoption of this standard did not have a significant impact on our financial statements, other than the prospective classification of deferred tax liabilities and assets as long-term in accordance with the new presentation requirements. For more information on income taxes, see Note 8 Income Taxes to our Consolidated Financial Statements included in this Annual Report on Form 10-K.

In January 2016, the FASB issued ASU 2016-01 (ASU 2016-01), *Financial Instruments Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities.* The standard requires equity investments (except those accounted for under the equity method of accounting, or those that result in consolidation of the investee) to be measured at fair value with changes in fair value recognized in net income, requires public business entities to use the exit price notion when measuring the fair value of financial instruments for disclosure purposes, requires separate presentation of financial assets and financial liabilities by measurement category and form of financial asset, and eliminates the requirement for public business entities to disclose the

method(s) and significant assumptions used to estimate the fair value that is required to be disclosed for financial instruments measured at amortized cost. These changes become effective for fiscal years beginning after December 15, 2017. We are evaluating the impact, if any, of adopting ASU 2016-01 on our financial statements.

OFF-BALANCE SHEET ARRANGEMENTS

None.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

Market risk is the risk of loss related to changes in market prices, including interest rates, of financial instruments that may adversely impact our financial position, results of operations or cash flows.

Foreign currency exchange risk. As a result of our global operations, we are exposed to changes in foreign currency exchange rates which may adversely affect our results and financial position. Primary exposures are related to the U.S. Dollar versus the Malaysian Ringgit. While we continue to monitor this exchange risk, we are not currently entered into any foreign currency hedging transactions.

Interest rate risk. We do not have any long-term borrowings. Our investments consist of cash, cash equivalents, FDIC guaranteed certificates of deposits, and corporate notes. The primary objective of our investment activities is to preserve principal while maximizing income without significantly increasing risk. We do not enter into investments for speculative purposes. Our investments are exposed to market risk due to a fluctuation in interest rates, which may affect our interest income and the fair market value of our investments. Due to the short-term nature of our investment portfolio, we do not believe an immediate 10% increase or decrease in interest rates would have a material effect on the fair market value of our portfolio, and therefore, we do not expect our operating results or cash flows to be materially affected by a sudden change in market interest rates.

Inflation. Our operations have not been, and we do not expect them to be, materially affected by inflation. However, historically, the prices we charge our customers are market driven, and therefore, we may not be able to increase our prices to offset any increase in our material or labor costs. Our inability or failure to do so could harm our business, financial condition and results of operations.

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ITEM 8. CONSOLIDATED FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our Consolidated Financial Statements, together with the related notes and the report of independent registered public accounting firm, are set forth on the pages indicated in Item 15 of this Annual Report on Form 10-K and are incorporated by reference herein.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES.

None.

ITEM 9A. CONTROLS AND PROCEDURES

Management s Evaluation of Disclosure Controls and Procedures.

An evaluation was performed under the supervision and with the participation of our management, including our chief executive officer and chief financial officer (together, our certifying officers), of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act) as of the end of the year covered by this report. Disclosure controls and procedures are controls and other procedures designed to ensure that information required to be disclosed by us in our periodic reports filed with the SEC is recorded, processed, summarized and reported within the time periods specified by the SEC s rules and forms, and that the information is accumulated and communicated to our management, including the chief executive officer and chief financial officer, as appropriate to allow timely decisions regarding required disclosure. Based on their evaluation, our certifying officers concluded that these disclosure controls and procedures were effective as of December 31, 2015.

Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Our internal control system was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the consolidated financial statements for external purposes in accordance with generally accepted accounting principles. Based on its evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2015. As required under this Item 9A, the management s report titled Management s Assessment of Control Over Financial Reporting is set forth in Item 8 Consolidated Financial Statements and Supplementary Data and is incorporated herein by reference.

Attestation Report of the Registered Public Accounting Firm

As required under this Item 9A, the auditor s attestation report titled Report of Independent Registered Public Accounting Firm relating to internal control over financial reporting is set forth in Item 8 Consolidated Financial Statements and Supplementary Data and is incorporated herein by reference.

Changes in Internal Controls over Financial Reporting

There have been no changes in our internal controls over financial reporting that occurred during the quarter ended December 31, 2015 that our certifying officers concluded materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

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PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The Information required by Items 401, 405, 407(d)(4) and 407(d)(5) of Regulation S-K will be included under the captions Election of Directors, Executive Compensation Executive Officers, Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters Section 16(a) Beneficial Ownership Reporting Compliance and Corporate Governance Committees of the Board of Directors and Meetings Audit Committee in our proxy statement for our 2016 Annual Meeting of Stockholders and is incorporated by reference herein. If such proxy statement is not filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K, an amendment to this Form 10-K shall be filed not later than the end of such 120-day period.

We have adopted a Code of Ethics that applies to all of our employees, officers and directors. A copy of the Code of Ethics is available on our website at www.rubicontechnology.com, and any waiver from the Code of Ethics will be timely disclosed on the Company s website as will any amendments to the Code of Ethics.

ITEM 11. EXECUTIVE COMPENSATION

The information required by Item 402 of Regulation S-K will be included under the captions Executive Compensation and Director Compensation in our proxy statement for our 2016 Annual Meeting of Stockholders and is incorporated by reference herein. The information required by Item 407(e)(4) and 407(e)(5) of Regulation S-K will be included under the captions Corporate Governance Compensation Committee Interlocks and Insider Participation and Executive Compensation Compensation Committee Report in our proxy statement for our 2016 Annual Meeting of Stockholders and is incorporated by reference herein. If such proxy statement is not filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K, an amendment to this Form 10-K shall be filed not later than the end of such 120-day period.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Securities Authorized for Issuance under Equity Compensation Plans

The following table represents securities authorized for issuance under our 2001 Equity Plan and our 2007 Stock Incentive Plan as of December 31, 2015.

Equity Compensation Plan Information

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	Number of Securities Remaining Available for Future Issuances Under the

	Rights		Equity Compensation Plans (Excluding Securities Reflected in Column(a))
	(a)	**(b)**	**(c)**
Equity compensation plans approved by security holders(1)	2,851,568	$ 7.07	732,270

(1) Approved before our initial public offering.

The information required by Item 403 of Regulation S-K will be included under the caption Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters in our proxy statement for our 2016 Annual Meeting of Stockholders and is incorporated by reference herein. If such proxy statement is not filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K, an amendment to this Form 10-K shall be filed not later than the end of such 120-day period.

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ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by Item 404 of Regulation S-K will be included under the caption Certain Relationships and Related Party Transactions in our proxy statement for our 2016 Annual Meeting of Stockholders and is incorporated by reference herein. The information required by Item 407(a) of Regulation S-K will be included under the caption Director Independence in our proxy statement for our 2016 Annual Meeting of Stockholders and is incorporated by reference herein. If such proxy statement is not filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K, an amendment to this Form 10-K shall be filed not later than the end of such 120-day period.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item will be included under the caption Ratification of Selection of Independent Registered Public Accounting Firm in our proxy statement for our 2016 Annual Meeting of Stockholders and is incorporated by reference herein. If such proxy statement is not filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K, an amendment to this Form 10-K shall be filed not later than the end of such 120-day period.

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PART IV

ITEM 15. EXHIBITS AND CONSOLIDATED FINANCIAL STATEMENT SCHEDULES

(a) Financial statements. The following consolidated financial statements are filed as part of this Annual Report on Form 10-K.

(b) Exhibits. The exhibits filed or incorporated by reference as a part of this report are listed in the Index to Exhibits which appears following the signature page to this Annual Report on Form 10-K and are incorporated by reference.

(c) Financial statement schedules not listed above have been omitted because they are inapplicable, are not required under applicable provisions of Regulation S-X, or the information that would otherwise be included in such schedules is contained in the registrant s financial statements or accompanying notes.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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 on March 14, 2016.

Rubicon Technology, Inc.

By /s/ William F. Weissman
William F. Weissman

President and Chief Executive Officer

KNOWN BY ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints William F. Weissman and Mardel A. Graffy, jointly and severally, his or her attorney-in-fact, with the power of substitution, for him or her in any and all capacities, to sign any amendments to this Annual Report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his or her substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on March 14, 2016.

Signature	Title
/s/ William F. Weissman William F. Weissman	Director, President and Chief Executive Officer (Principal Executive Officer)
/s/ Mardel A. Graffy Mardel A. Graffy	Chief Financial Officer (Principal Financial and Accounting Officer)
/s/ Don N. Aquilano Don N. Aquilano	Chairman of the Board of Directors
/s/ Donald R. Caldwell Donald R. Caldwell	Director
/s/ Michael E. Mikolajczyk Michael E. Mikolajczyk	Director
/s/ Raymond J. Spencer	Director

Raymond J. Spencer

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EXHIBIT INDEX

The Exhibits listed below are filed or incorporated by reference as part of this Annual Report on Form 10-K.

Exhibit No.	Description	Incorporation by Reference
3.1	Eighth Amended and Restated Certificate of Incorporation of Rubicon Technology, Inc.	Filed as Exhibit 3.1 to the registrant s Registration Statement on Form S-1/A, filed on November 1, 2007 (File No. 333-145880)
3.2	Amendment No. 1 to Eighth Amended and Restated Certificate of Incorporation of Rubicon Technology, Inc.	Filed as Appendix A to the registrant s Definitive Proxy Statement on Schedule 14A, filed on April 29, 2011 (File No. 1-33834)
3.3	Amended and Restated Bylaws of Rubicon Technology, Inc.	Filed as Exhibit 3.2 to the registrant s Registration Statement on Form S-1/A, filed on November 1, 2007 (File No. 333-145880)
4.1	Specimen Common Stock Certificate	Filed as Exhibit 4.1 to the registrant s Registration Statement on Form S-1/A, filed on November 13, 2007 (File No. 333-145880)
4.4	Form of Investor Warrant to Purchase Shares of Series E preferred stock	Filed as Exhibit 4.14 to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.1*	Rubicon Technology, Inc. 2001 Equity Plan, dated as of August 2, 2001	Filed as Exhibit 10.1 to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.1(a)*	Amendment No. 1 to the Rubicon Technology, Inc. 2001 Equity Plan, dated as of November 6, 2001	Filed as Exhibit 10.1(a) to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.1(b)*	Amendment No. 2 to the Rubicon Technology, Inc. 2001 Equity Plan, dated as of May 21, 2002	Filed as Exhibit 10.1(b) to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.1(c)*	Amendment No. 3 to the Rubicon Technology, Inc. 2001 Equity Plan, dated as of May 28, 2004	Filed as Exhibit 10.1(c) to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.1(d)*	Amendment No. 4 to the Rubicon Technology, Inc. 2001 Equity Plan, dated as of December 6, 2004	Filed as Exhibit 10.1(d) to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.1(e)*	Amendment No. 5 to the Rubicon Technology, Inc. 2001 Equity Plan, dated as of June 28, 2005	Filed as Exhibit 10.1(e) to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)

10.1(f)*	Amendment No. 6 to the Rubicon Technology, Inc. 2001 Equity Plan, dated as of November 30, 2005	Filed as Exhibit 10.1(f) to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.1(g)*	Amendment No. 7 to the Rubicon Technology, Inc. 2001 Equity Plan, dated as of July 26, 2006	Filed as Exhibit 10.1(g) to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.1(h)*	Rubicon Technology, Inc. 2001 Equity Plan Form of Notice of Stock Option Grant and Stock Option Agreement	Filed as Exhibit 10.1(h) to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.2*	Rubicon Technology, Inc. 2007 Stock Incentive Plan, as amended and restated, effective March 23, 2011	Filed as Exhibit 10.2 to the registrant s Annual Report on Form 10-K, filed on March 13, 2014 (File No. 1-33834)

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Exhibit

No.	Description	Incorporation by Reference
10.3*	Form of Indemnification Agreement for Directors and Officers	Filed as Exhibit 10.11 to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.4*	Form of Indemnification Agreement for Directors and Executive Officers	Filed as Exhibit 10.1 to the registrant s Quarterly Report on Form 10-Q, filed on May 8, 2015 (File No. 1-33834)
10.5*	Separation and General Release Agreement by and between Rubicon Technology, Inc. and Raja M. Parvez, dated as of September 17, 2014	Filed as Exhibit 10.1 to the registrant s Quarterly Report on Form 10-Q, filed on November 7, 2014 (File No. 1-33834)
10.6*	Executive Employment Agreement by and between Rubicon Technology, Inc. and William F. Weissman, dated as of February 18, 2015	Filed as Exhibit 10.1 to the registrant s Current Report on Form 8-K, filed on February 19, 2015 (File No. 1-33834)
10.7*	First Amendment to Executive Employment Agreement by and between Rubicon Technology, Inc. and William F. Weissman, dated as of December 1, 2015	Filed as Exhibit 10.1 to the registrant s Current Report on 8-K, filed on December 4, 2015 (File No. 1-33834)
10.8*	Executive Employment Agreement by and between Rubicon Technology, Inc. and Mardel A. Graffy, dated as of February 18, 2015	Filed as Exhibit 10.2 to the registrant s Current Report on Form 8-K, filed on February 19, 2015 (File No. 1-33834)
10.9*	Letter of Appointment by and between Rubicon Sapphire Technology (Malaysia) Sdn. Bhd and Hany Tamim, dated as of October 31, 2015	Filed as Exhibit 10.1 to the registrant s Current Report on 8-K/A, filed on November 5, 2015 (File No. 1-33834)
10.10	Commercial Lease by and between Rubicon Technology, Inc. and Bartmanns, Perales & Dolter, LLC, dated as of December 23, 2004	Filed as Exhibit 10.12(a) to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.11	Amendment to Commercial Lease by and between Rubicon Technology, Inc. and Bartmanns, Perales & Dolter, LLC, dated as of May 6, 2005	Filed as Exhibit 10.12 to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.12	Second Amendment to Commercial Lease by and between Rubicon Technology, Inc. and Bartmanns, Perales & Dolter, LLC, dated as of December 23, 2014	Filed as Exhibit 10.11 to the registrant s Annual Report on Form 10-K, filed on March 13, 2015 (File No. 1-33834)
10.13	Industrial Building Lease by and between Rubicon Technology, Inc. and Phillip J. Latoria, Jr., dated as of July 18, 2007	Filed as Exhibit 10.14 to the registrant s Registration Statement on Form S-1, filed on September 5, 2007 (File No. 333-145880)
10.14	Second Amendment to Industrial Building Lease by and between Rubicon Technology, Inc. and Phillip J. Latoria, Jr., dated as of July 17, 2014	Filed as Exhibit 10.13 to the registrant s Annual Report on Form 10-K, filed on March 13, 2015 (File No. 1-33834)

10.15	Loan and Security Agreement by and between Rubicon Technology, Inc. and Silicon Valley Bank, dated as of January 2, 2013	Filed as Exhibit 10.1 to the registrant s Current Report on Form 8-K , filed on January 3, 2013 (File No. 1-33834)
10.16	First Amendment Agreement by and between Rubicon Technology, Inc. and Silicon Valley Bank, dated as of August 6, 2015	Filed as Exhibit 10.1 to the registrant s Quarterly Report on Form 10-Q, filed on November 9, 2015 (File No. 1-33834)
21.1**	Subsidiaries of the Company	
23.1**	Consent of Independent Registered Public Accounting Firm	
24.1**	Power of Attorney (incorporated by reference to the signature page of this Annual Report on Form 10-K)	

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Exhibit No.	Description	Incorporation by Reference
31.1**	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2003	
31.2**	Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2003	
32.1**	Certifications of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2003	
101.INS**	XBRL Instance Document	
101.SCH**	XBRL Taxonomy Extension Schema Document	
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document	
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document	
101.PRE**	XBRL Taxonomy Extension Presentation Document	
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document	

* Management contract or compensatory plan or arrangement of the Company.
** Submitted electronically with this Annual Report on Form 10-K.

Rubicon Technology, Inc.

INDEX TO FINANCIAL STATEMENTS

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MANAGEMENT S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The financial statements were prepared by management, which is responsible for their integrity and objectivity and for establishing and maintaining adequate internal controls over financial reporting.

The Company s internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. The Company s internal control over financial reporting includes those policies and procedures that:

i. pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and disposition of the assets of the Company;

ii. provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and

iii. provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company s assets that could have a material effect on the consolidated financial statements.

There are inherent limitations in the effectiveness of any internal control, including the possibility of human error and the circumvention or overriding of controls. Accordingly, even effective internal controls can provide only reasonable assurance with respect to the financial statement preparation. Further, because of changes in conditions, the effectiveness of internal controls may vary over time.

Management assessed the design and effectiveness of the Company s internal control over financial reporting as of December 31, 2015. In making this assessment, management used the criteria set forth in 2013 *Internal Control Integrated Framework* by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Based on management s assessment using those criteria, as of December 31, 2015, management concluded that the Company s internal controls over financial reporting were effective.

Grant Thornton LLP, independent registered public accounting firm, has audited the consolidated financial statements of the Company for the fiscal years ended December 31, 2015, 2014 and 2013 and the Company s internal control over financial reporting as of December 31, 2015. Their reports are presented on the following pages.

Rubicon Technology, Inc.

March 14, 2016

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders

Rubicon Technology, Inc.

We have audited the internal control over financial reporting of Rubicon Technology, Inc. (a Delaware corporation) and subsidiaries (the Company) as of December 31, 2015, based on criteria established in the 2013 *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management s Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company s internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company s assets that could have a material effect on the financial statements.

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

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on criteria established in the 2013 *Internal Control Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements of the Company as of and for the year ended December 31, 2015, and our report dated March 14, 2016 expressed an unqualified opinion on those financial statements.

/s/ GRANT THORNTON LLP

Chicago, Illinois

March 14, 2016

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders

Rubicon Technology, Inc.

We have audited the accompanying consolidated balance sheets of Rubicon Technology, Inc. (a Delaware corporation) and subsidiaries (the Company) as of December 31, 2015 and 2014, and the related consolidated statements of operations, comprehensive income (loss), changes in stockholders equity, and cash flows for each of the three years in the period ended December 31, 2015. These consolidated financial statements are the responsibility of the Company s management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Rubicon Technology, Inc. and subsidiaries as of December 31, 2015 and 2014, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2015, in conformity with accounting principles generally accepted in the United States of America.

As discussed in Note 1 to the consolidated financial statements, the Company adopted new accounting guidance in 2015, related to the presentation of deferred income taxes.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company s internal control over financial reporting as of December 31, 2015, based on criteria established in the 2013 *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated March 14, 2016 expressed an unqualified opinion.

/s/ GRANT THORNTON LLP

Chicago, Illinois

March 14, 2016

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Rubicon Technology, Inc.

Consolidated Balance Sheets

	As of December 31, 2015	2014
	(in thousands, other than share data)	
Assets		
Cash and cash equivalents	$ 21,216	$ 24,353
Restricted cash	170	183
Short-term investments	8,895	20,562
Accounts receivable, net	1,738	8,323
Inventories	21,333	22,739
Other inventory supplies	5,717	8,208
Prepaid expenses and other current assets	1,188	1,035
Total current assets	60,257	85,403
Property and equipment, net	57,569	107,676
Other assets	1,416	1,827
Total assets	$ 119,242	$ 194,906
Liabilities and stockholders equity		
Accounts payable	$ 3,256	$ 3,754
Accrued payroll	164	514
Accrued and other current liabilities	1,328	925
Corporate income and franchise taxes	207	270
Accrued real estate taxes	238	280
Short-term loan payable	1,500	
Advance payments	9	10
Total current liabilities	6,702	5,753
Deferred tax liability	554	593
Total liabilities	7,256	6,346
Commitments and contingencies		
Stockholders equity		
Preferred stock, $0.001 par value, 5,000,000 undesignated shares authorized, no shares issued or outstanding		
Common stock, $0.001 par value, 40,000,000 shares authorized; 28,007,811 and 27,913,788 shares issued; 26,232,967 and 26,138,944 shares outstanding	28	28
Additional paid-in capital	373,565	372,319
Treasury stock, at cost, 1,774,844 shares	(12,148)	(12,148)
Accumulated other comprehensive loss	(33)	(43)
Accumulated deficit	(249,426)	(171,596)

Total stockholders equity	111,986	188,560
Total liabilities and stockholders equity	$ 119,242	$ 194,906

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

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Rubicon Technology, Inc.

Consolidated Statements of Operations

	Year ended December 31, 2015	2014	2013
	(in thousands, other than share and per share data)		
Revenue	$ 23,818	$ 45,685	$ 41,513
Cost of goods sold	46,961	75,372	63,434
Gross loss	(23,143)	(29,687)	(21,921)
Operating expenses:			
General and administrative	9,589	9,863	8,629
Sales and marketing	1,363	1,468	1,521
Research and development	2,210	1,861	2,263
Long-lived asset impairment charge	39,597		
Loss on disposal of assets	47	734	550
Loss from operations	(75,949)	(43,613)	(34,884)
Other income (expense):			
Interest income	71	86	51
Interest expense	(109)	(95)	(95)
Realized loss on foreign currency translation	(1,869)	(551)	(583)
Realized gain on investments		258	
Total other expense	(1,907)	(302)	(627)
Loss before income taxes	(77,856)	(43,915)	(35,511)
Income tax (expense) benefit	26	(78)	5,160
Net loss	$ (77,830)	$ (43,993)	$ (30,351)
Net loss per common share			
Basic	$ (2.98)	$ (1.70)	$ (1.35)
Diluted	$ (2.98)	$ (1.70)	$ (1.35)
Weighted average common shares outstanding used in computing net loss per common share			
Basic	26,156,170	25,815,405	22,572,212
Diluted	26,156,170	25,815,405	22,572,212

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

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Rubicon Technology, Inc.

Consolidated Statements of Comprehensive Income (Loss)

	Year ended December 31,		
	2015	**2014**	**2013**
		(in thousands)	
Net loss	$ (77,830)	$ (43,993)	$ (30,351)
Other comprehensive income (loss):			
Unrealized gain (loss) on investments, net of taxes	10	(9)	(863)
Unrealized loss on currency translation		(4)	(2)
Reclassification of unrealized gain included in net loss		388	
Other comprehensive income (loss)	10	375	(865)
Comprehensive loss	$ (77,820)	$ (43,618)	$ (31,216)

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

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Rubicon Technology, Inc.

Consolidated Statements of Stockholders Equity

	Common stock		Treasury Stock			Stockholders equity		
	Shares	Amount	Shares	Amount	Additional paid-in capital	Accum Other Comp Inc.	Accum deficit	Total stockholders equity
	(in thousands other than share data)							
Balance at January 1, 2013	24,327,140	$ 25	(1,774,844)	$ (12,148)	$ 334,314	$ 447	$ (97,252)	$ 225,386
Exercise of stock options	27,930				140			140
Stock-based compensation					1,246			1,246
Restricted stock issued	73,707				292			292
Excess tax benefit of stock based compensation					(114)			(114)
Stock issued to Board of Directors	4,746				57			57
Foreign currency translation adjustments						(2)		(2)
Unrealized loss on investments, net of tax						(863)		(863)
Net loss							(30,351)	(30,351)
Balance at December 31, 2013	24,433,523	25	(1,774,844)	(12,148)	335,935	(418)	(127,603)	195,791
Exercise of stock options	47,654				256			256
Stock-based compensation					960			960
Restricted stock issued, net of unvested restricted stock cancelled	7,013				448			448
Common stock issued, net of shares withheld for	3,098				(55)			(55)

employee taxes								
Common stock issued, net of issuance costs	3,422,500	3			34,775			34,778
Reclassification of unrealized gain included in net loss						388		388
Foreign currency translation adjustments						(4)		(4)
Unrealized loss on investments, net of tax						(9)		(9)
Net loss							(43,993)	(43,993)
Balance at December 31, 2014	27,913,788	28	(1,774,844)	(12,148)	372,319	(43)	(171,596)	188,560
Exercise of stock options	5,692				4			4
Stock-based compensation					731			731
Restricted stock issued, net of restricted shares withheld for employee taxes	58,899				287			287
Common stock issued, net of shares withheld for employee taxes	29,432				224			224
Unrealized gain on investments, net of tax						10		10
Net loss							(77,830)	(77,830)
Balance at December 31, 2015	28,007,811	$ 28	(1,774,844)	$ (12,148)	$ 373,565	$ (33)	$ (249,426)	$ 111,986

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

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Rubicon Technology, Inc.

Consolidated Statements of Cash Flows

	Year ended December 31,		
	2015	2014	2013
	(in thousands)		
Cash flows from operating activities			
Net loss	$ (77,830)	$ (43,993)	$ (30,351)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities			
Depreciation and amortization	11,404	13,637	12,660
Net loss on disposal of assets	47	734	550
Stock-based compensation	1,250	1,408	1,595
Long-lived asset impairment charge	39,597		
Realized gain on investments		(258)	
Deferred taxes	(39)	72	(5,166)
Excess tax benefits from stock-based compensation			114
Changes in operating assets and liabilities:			
Accounts receivable	6,585	(4,752)	9,098
Inventories	73	11,312	12,979
Other inventory supplies	2,166	4,203	2,976
Prepaid expenses and other assets	275	(794)	1,571
Accounts payable	(247)	(637)	(4,472)
Accrued payroll	(323)	153	(510)
Corporate income and franchise taxes	(63)	80	(25)
Accrued real estate taxes	(41)	(56)	39
Advance payments	(1)	(398)	(364)
Accrued and other current liabilities	431	67	(282)
Net cash (used in) provided by operating activities	(16,716)	(19,222)	412
Cash flows from investing activities			
Purchases of property and equipment	(941)	(6,842)	(8,721)
Proceeds from disposal of assets		15	141
Purchase of investments	(2,322)	(28,805)	(2,040)
Proceeds from sale of investments	14,000	22,700	11,390
Net cash provided by (used in) investing activities	10,737	(12,932)	770
Cash flows from financing activities			
Proceeds from exercise of options	4	256	140
Restricted cash	13	(18)	6
Net change in short-term borrowings	1,500		
Proceeds from public offering, net of issuance costs		34,957	
Taxes paid related to net share settlement of equity awards	(8)	(55)	

Excess tax benefits from stock-based compensation			(114)
Net cash provided by financing activities	1,509	35,140	32
Net effect of currency translation	1,333	296	284
Net (decrease) increase in cash and cash equivalents	(3,137)	3,282	1,498
Cash and cash equivalents, beginning of year	24,353	21,071	19,573
Cash and cash equivalents, end of year	$ 21,216	$ 24,353	$ 21,071
Supplemental disclosure of cash flow information			
Cash paid for interest	$ 109	$ 95	$ 87

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

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Description of business

Rubicon Technology, Inc., a Delaware corporation (the Company), is an electronic materials provider that develops, manufactures and sells monocrystalline sapphire and other innovative crystalline products for LEDs, RFICs, optoelectronics and other optical applications. The Company sells its products on a global basis to customers in Asia, Australia, North America and Europe. The Company maintains its operating facilities in the Chicago metropolitan area and in Penang, Malaysia.

Principles of consolidation

The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries, Rubicon Worldwide LLC, Rubicon Sapphire Technology (Malaysia) SDN BHD, Rubicon Technology Hong Kong Limited and Rubicon Technology Korea Yuhan Hosea. All intercompany transactions and balances have been eliminated in consolidation.

A summary of the Company s significant accounting policies applied in the preparation of the accompanying consolidated financial statements follows.

Cash and cash equivalents

The Company considers all unrestricted highly liquid investments immediately available to be cash equivalents. Cash equivalents primarily consist of time deposits with banks, unsettled trades and brokerage money market accounts.

Restricted cash

A summary of the Company s restricted cash at December 31, 2015 and 2014 is as follows:

	As of December 31,	
	2015	2014
	(in thousands)	
Certificates of deposit	$ 5	$ 5
Flexible spending funds	2	4
Fixed deposit pledge	163	174
	$ 170	$ 183

Foreign currency translation and transactions

Rubicon Worldwide LLC, Rubicon Technology Hong Kong Limited and Rubicon Technology Korea Yuhan Hosea s assets and liabilities are translated into U.S. dollars at exchange rates existing at the respective balance sheet dates and capital accounts at historical exchange rates. The results of operations are translated into U.S. dollars at the average exchange rates during the respective period. Translation adjustments resulting from fluctuations in exchange rates for Rubicon Worldwide LLC, Rubicon Technology Hong Kong Limited and Rubicon Technology Korea Yuhan Hosea are recorded as a separate component of accumulated other comprehensive income (loss) within stockholders equity.

The Company has determined that the functional currency of Rubicon Sapphire Technology (Malaysia) SDN BHD is the U.S. dollar. Rubicon Sapphire Technology (Malaysia) SDN BHD s assets and liabilities are translated into U.S. dollars using the remeasurement method. Non-monetary assets are translated at historical exchange rates and monetary assets are translated at exchange rates existing at the respective balance sheet dates. Translation adjustments for Rubicon Sapphire Technology (Malaysia) SDN BHD are included in determining net income (loss) for the period. The results of operations are translated into U.S. dollars at the average exchange rates during the respective period. The Company records these gains and losses in other income (expense).

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

Foreign currency transaction gains and losses are generated from the effects of exchange rate changes on transactions denominated in a currency other than the functional currency of the Company, which is the U.S. dollar. Gains and losses on foreign currency transactions are generally required to be recognized in the determination of net income (loss) for the period. The Company records these gains and losses in other income (expense).

Investments

The Company invests available cash primarily in investment grade commercial paper, FDIC guaranteed certificates of deposit, common stock, corporate notes and government securities. Investments classified as available-for-sale securities are carried at fair market value with unrealized gains and losses recorded in accumulated other comprehensive income (loss). Investments in trading securities are reported at fair value, with both realized and unrealized gains and losses recorded in other income (expense), in the consolidated statements of operations. Investments in which the Company has the ability and intent, if necessary, to liquidate in order to support its current operations, are classified as short-term.

The Company reviews its available-for-sale securities investments at the end of each quarter for other-than-temporary declines in fair value based on the specific identification method. The Company considers various factors in determining whether an impairment is other-than-temporary, including the severity and duration of the impairment, changes in underlying credit ratings, forecasted recovery, its ability and intent to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value and the probability that the scheduled cash payments will continue to be made. When the Company concludes that an other-than-temporary impairment has resulted, the difference between the fair value and carrying value is written off and recorded as a charge on the consolidated statements of operations. As of December 31, 2015 and 2014, no impairment was recorded.

Treasury Stock

The Company records treasury stock purchases under the cost method whereby the entire cost of the acquired stock is recorded as treasury stock.

Accounts receivable

The majority of the Company s accounts receivable is due from manufacturers serving the light-emitting diodes (LED) and optical systems and specialty devices industries. Credit is extended based on an evaluation of the customer s financial condition. Accounts receivable are due based on contract terms and at stated amounts due from customers, net of an allowance for doubtful accounts.

Accounts outstanding longer than the contractual payment terms are considered past due. The Company determines its allowance by considering a number of factors, including the length of time a customer s account is past due, the customer s current ability to pay and the condition of the general economy and industry as a whole. The Company writes off accounts receivable when they are deemed uncollectible and such write-offs, net of payments received, are recorded as a reduction to bad debt expense.

Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

The following table shows the activity of the allowance for doubtful accounts:

	Year ended December 31,	
	2015	2014
	(in thousands)	
Beginning balance	$ 140	$ 50
Charges to costs and expenses	235	105
Accounts charged off, less recoveries	14	(15)
Ending balance	$ 389	$ 140

Inventories

Inventories are valued at the lower of cost or market. Raw materials cost is determined using the first-in, first-out method, and work-in-process and finished goods costs are determined on a weighted-average cost basis which includes materials, labor and overhead. The Company reduces the carrying value of its inventories for differences between the cost and the estimated net realizable value, taking into account usage, expected demand, technological obsolescence and other information. Inventories are composed of the following:

	As of December 31,	
	2015	2014
	(in thousands)	
Raw materials	$ 7,346	$ 14,503
Work in progress	9,920	6,357
Finished goods	4,067	1,879
	$ 21,333	$ 22,739

The Company establishes inventory reserves when conditions exist that suggest inventory may be in excess of anticipated demand or is obsolete based on customer required specifications. The Company evaluates the ability to realize the value of our inventory based on a combination of factors, including forecasted sales, estimated current and future market value and changes in customers product specifications. For the years ended December 31, 2015, 2014 and 2013, the Company determined it had inventory that was excess or obsolete and recorded an adjustment which reduced inventory and increased costs of goods sold by $202,000, $2.4 million and $604,000, respectively. The Company has accepted sales orders for core and wafer products at prices lower than cost during 2015, 2014 and 2013. Based on these sales prices, the Company recorded during the years ended December 31, 2015, 2014 and 2013, a lower of cost or market adjustment which reduced inventory and increased cost of goods sold by $3.9 million, $1.7 million and $421,000, respectively. For the three months ended December 31, 2015, a significant sequential decrease in pricing resulted in a lower of cost or market adjustment of $2.8 million that decreased inventory and increased costs of goods sold for the period. This significant pricing decline in the fourth quarter 2015 triggered the Company to review its raw material inventory valuation. Based on the Company s review of the current outlook of volume and pricing, the Company determined its current cost to produce its own raw material best reflected the replacement cost. As a result of this assessment for the year ended December 31, 2015, the Company recorded an adjustment which reduced its raw material inventory and increased its costs of goods sold by $2.2 million.

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

Property and equipment

Property and equipment consisted of the following:

	As of December 31, 2015	2014
	(in thousands)	
Land and land improvements	$ 4,133	$ 4,133
Buildings	26,097	32,482
Machinery, equipment and tooling	50,364	127,158
Leasehold improvements	7,141	7,640
Furniture and fixtures	816	961
Information systems	1,105	1,140
Construction in progress	1,327	3,734
Total cost	90,983	177,248
Accumulated depreciation and amortization	(33,414)	(69,572)
Property and equipment, net	$ 57,569	$ 107,676

Property and equipment are carried at cost and depreciated over their estimated useful lives using the straight-line method. The cost of maintenance and repairs is charged to expense as incurred. Significant renewals and improvements are capitalized. Depreciation and amortization expense associated with property and equipment was $11.4 million, $13.6 million and $12.7 million for the years ended December 31, 2015, 2014 and 2013, respectively.

Construction in progress includes costs associated with the construction of furnaces and deposits made on equipment purchases.

The estimated useful lives are as follows:

Asset description	Life
Buildings	39 years
Machinery, equipment and tooling	3-10 years
Leasehold improvements	Lesser of life of lease or economic life
Furniture and fixtures	7 years
Information systems	3 years

Other assets

The Company s other assets include overhaul costs that are accounted for using the deferral method. These overhaul costs are recorded at cost on the balance sheet as other assets and are amortized over terms in accordance with their respectful useful lives.

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

Warranty cost

The Company s sales terms include a warranty that its products will meet certain specifications. The Company records a current liability for the expected cost of warranty-related claims at the time of sale. The warranty reserve is included in accrued and other current liabilities on the consolidated balance sheets.

The following table presents changes in the Company s product warranty liability:

	Year ended December 31, 2015	2014
	(in thousands)	
Balance, beginning of period	$ 97	$ 141
Charged to cost of sales	90	407
Actual product warranty expenditures	(114)	(451)
Balance, end of period	$ 73	$ 97

Fair value of financial instruments

The Company s financial instruments consist primarily of cash and cash equivalents, short-term investments, accounts receivable, and accounts payable. The carrying values of these assets and liabilities approximate their fair values due to the short-term nature of these instruments at December 31, 2015 and 2014.

Concentration of credit risks and other risks and uncertainties

Financial instruments that could potentially subject the Company to concentrations of credit risk consist principally of cash and cash equivalents and accounts receivable. At December 31, 2015 and 2014, the Company had $2.9 million and $1.5 million, respectively, on deposit at financial institutions in excess of amounts insured by the Federal Deposit Insurance Corporation and other foreign governmental insurance agencies. The Company performs a periodic evaluation of these institutions for relative credit standing. The Company has not experienced any losses in such accounts and management believes it is not exposed to any significant risk of loss on these balances.

The Company currently depends on a small number of suppliers for certain raw materials, components, services and equipment, including key materials such as aluminum oxide powder and certain furnace components. If the supply of these components were to be disrupted or terminated, or if these suppliers were unable to supply the quantities of raw materials required, the Company may have difficulty in finding, or may be unable to find, alternative sources for these items. As a result, the Company may be unable to meet the demand for its products, which could have a material adverse impact on the Company.

Concentration of credit risk related to revenue and accounts receivable is discussed in Note 4.

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

Revenue recognition

Revenues recognized include product sales and billings for costs and fees for government contracts.

Product Sales

The Company recognizes revenue from product sales when earned. Revenue is recognized when, and if, evidence of an arrangement is obtained and the other criteria to support revenue recognition are met, including:

Persuasive evidence of an arrangement exists. The Company requires evidence of a purchase order with the customer specifying the terms and specifications of the product to be delivered, typically in the form of a signed quotation or purchase order from the customer;

Title has passed and the product has been delivered. Title passage and product delivery generally occur when the product is delivered to a common carrier or per terms of a consignment agreement;

The price is fixed or determinable. All terms are fixed in the signed quotation or purchase order received from the customer. The purchase orders do not contain rights of cancellation, return, exchange or refund; and

Collection of the resulting receivable is reasonably assured. The Company s standard arrangement with customers includes payment terms. Customers are subject to a credit review process that evaluates each customer s financial position and its ability to pay. Collectability is determined by considering the length of time the customer has been in business and history of collections. If it is determined that collection is not probable, no product is shipped and no revenue is recognized unless cash is received in advance.

Government Contracts

The Company recognizes research and development revenue in the period during which the related costs are incurred over the contractually defined period. In July 2012, the Company signed a contract with the Air Force Research Laboratory to produce large-area sapphire windows on a cost plus fixed fee basis. The Company records revenue on a gross basis as costs are incurred plus a portion of the fixed fee. For the years ended December 31, 2015, 2014, and 2013, $661,000, $689,000 and $1.4 million, respectively of revenue were recorded. To date, the Company has recorded $4.0 million in revenue and the total value of the contract is $4.7 million.

The Company does not provide maintenance or other services and it does not have sales that involve multiple elements or deliverables.

Shipping and handling costs

The Company records costs incurred in connection with shipping and handling of products as cost of goods sold. Amounts billed to customers in connection with these costs are included in revenue and are not material for any of the periods presented in the accompanying financial statements.

Sales tax

The Company collects and remits sales taxes on products sold to customers and reports such amounts under the net method in its consolidated statements of operations and records a liability until remitted to the respective tax authority.

Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

Stock-based compensation

The Company requires all share-based payments to employees, including grants of employee stock options to be measured at fair value and expensed in the consolidated statements of operations over the service period (generally the vesting period) of the grant. Expense is recognized in the consolidated statements of operations for these share-based payments.

Research and development

Research and development costs are expensed as incurred. Research and development expense was $2.2 million, $1.9 million and $2.3 million for the years ended December 31, 2015, 2014 and 2013, respectively.

Accounting for uncertainty in income taxes

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such positions are then measured based on the largest benefit that has a greater than 50% likelihood of being realized upon settlement. The Company recognizes interest and/or penalties related to income tax matters in income tax expense. There were no interest or penalties related to income taxes that have been accrued or recognized as of and for the years ended December 31, 2015 and 2014.

The Company is subject to taxation in the U.S., Japan and in a state jurisdiction. The Company is exempt from Malaysian income tax for a five year period beginning in 2009 with a five year renewal. Due to the existence of net operating loss carryforwards, tax years ended December 31, 2001 through 2006, 2008, 2009 and 2011 through 2014 are open to examination by tax authorities for Federal purposes. Due to net operating loss carryforwards at the State level, tax years ended 2004 through 2006 and 2008 through 2014 are open to examination by state tax authorities. Tax years 2013 and 2014 are open to examination by tax authorities in Malaysia.

Income taxes

Deferred tax assets and liabilities are provided for temporary differences between financial reporting and income tax bases of assets and liabilities, and are measured using the enacted tax rates and laws expected to be in effect when the differences will reverse. Deferred income taxes also arise from the future benefits of net operating loss carryforwards. Valuation allowances are established when necessary to reduce deferred tax assets to the amounts expected to be realized. Full valuation allowances on net deferred tax assets are maintained until an appropriate level of profitability that generates taxable income is deemed sustainable or until a tax strategy is developed that would enable the Company to conclude that it is more likely than not that a portion of the deferred tax assets will be realizable. Based on an evaluation in accordance with the accounting standards, as of December 31, 2015 and 2014, a valuation allowance has been recorded against the net U.S. deferred tax assets in order to measure only the portion of the deferred tax assets that are more likely than not to be realized based on the weight of all the available evidence.

Use of estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

Other comprehensive loss

Comprehensive loss is defined as the change in equity of a business enterprise from transactions and other events from non-owner sources. Comprehensive loss includes net loss and other non-owner changes in equity that bypass the statement of operations and are reported in a separate component of equity. A summary of the components of comprehensive loss for the years ended December 31, 2015 and 2014 follows:

	Year Ended December 31, 2015	2014
	(in thousands)	
Reclassification of unrealized gain included in net loss	$	$ 388
Unrealized loss on investments, net of tax	(17)	(415)
Unrealized loss on currency translation	(16)	(16)
Ending Balance	$ (33)	$ (43)

Net income (loss) per common share

Basic net income (loss) per share is computed by dividing net income (loss) by the weighted average number of common shares outstanding during the period. Diluted net income (loss) per common share is computed by dividing net income (loss) by the weighted average number of diluted common shares outstanding during the period. Diluted shares outstanding are calculated by adding to the weighted shares outstanding any common stock equivalents, outstanding stock options and warrants based on the treasury stock method.

Diluted net loss per common share is the same as basic net loss per common share for the years ended December 31, 2015 and 2014, because the effects of potentially dilutive securities are anti-dilutive.

As of December 31, 2015, diluted shares outstanding were the same as basic shares outstanding.

The number of anti-dilutive shares excluded from the calculation of diluted net loss per share is as follows as of December 31, 2014:

	2014
Warrants	46,290
Stock options	4,146
	50,436

Recent accounting pronouncements

In May 2014, the FASB issued ASU No. 2014-09 (ASU 2014-09), *Revenue from Contracts with Customers*, which supersedes most of the current revenue recognition requirements. The underlying principle is that an entity will recognize revenue to depict the transfer of goods or services to customers at an amount that the entity expects to be entitled to in exchange for those goods or services. The guidance provides a five-step analysis of transactions to determine when and how revenue is recognized. Other major provisions include capitalization of certain contract costs, consideration of time value of money in the transaction price, and allowing estimates of variable consideration to be recognized before contingencies are resolved in certain circumstances. The guidance also requires enhanced disclosures regarding the nature, amount, timing and uncertainty of revenue and cash flows arising from an entity s contracts with customers. The guidance is effective for the interim and annual periods beginning on or after December 15, 2016 (early adoption is not permitted). The guidance permits the use of either a retrospective or cumulative effect transition method. The adoption of ASU 2014-09 is not expected to have a material impact on the Company s consolidated financial statements.

In June 2014, the FASB issued ASU No. 2014-12 (ASU 2014-12), *Compensation Stock Compensation (Topic 718): Accounting for Share-Based Payments When the Terms of an Award Provide That a Performance Target Could Be Achieved after the Requisite Service Period* related to stock compensation. The new standard requires that a performance target that affects vesting, and that could be achieved after the requisite service period, be treated as a performance condition. As such, the performance target should not be reflected in estimating the grant date fair value of the award. This update further clarifies that compensation cost should be recognized in the period in which it becomes probable that the performance target will be achieved and should represent the compensation cost attributable to the periods for which the requisite service has already been rendered. The new standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2015 and can be applied either prospectively or retrospectively to all awards outstanding as of the beginning of the earliest annual period presented as an adjustment to opening retained earnings. The Company has evaluated the applicable guidance and does not believe the adoption will significantly impact the presentation of its financial condition, results of operations and disclosures.

Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

In August 2014, the FASB issued ASU 2014-15 (ASU 2014-15), *Presentation of Financial Statements Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity s Ability to Continue as a Going Concern*. The standard requires management to evaluate whether there is substantial doubt about an entity s ability to continue as a going concern and to provide related footnote disclosures. Management must evaluate whether it is probable that known conditions or events, considered in the aggregate, would raise substantial doubt about the entity s ability to continue as a going concern within one year after the date that the financial statements are issued. If such conditions or events are identified, the standard requires management s mitigation plans to alleviate the doubt or a statement of the substantial doubt about the entity s ability to continue as a going concern to be disclosed in the financial statements. The standard is effective for fiscal years and interim periods beginning after December 15, 2016, with early adoption permitted. The Company is evaluating the impact, if any, of adopting ASU 2014-15 on its financial statements.

In April 2015, the FASB issued ASU 2015-03 (ASU 2015-03), *Simplifying the Presentation of Debt Issuance Costs* which requires entities to present debt issuance costs related to a debt liability as a direct deduction from the carrying amount of that debt liability on the balance sheet. ASU 2015-03 does not contain guidance for debt issuance costs related to line-of-credit arrangements. Consequently, in August 2015 the FASB issued ASU 2015 -15 *Presentation and Subsequent Measurement of Debt Issuance Costs Associated with Line-of-Credit Arrangements* to add paragraphs indicating that the Securities Exchange Commission would not object to an entity deferring and presenting debt issuance costs related to line-of-credit arrangements as an asset and subsequently amortizing the deferred debt issuance costs ratable over the term of the line-of-credit arrangement regardless of whether there are any outstanding borrowings on the line-of-credit arrangement. The standard is effective for fiscal years and interim periods beginning after December 15, 2015, with early adoption permitted. The Company has evaluated the applicable guidance and does not believe the adoption will significantly impact the presentation of its financial condition, results of operations and disclosures.

In July 2015, the FASB issued ASU No. 2015-11 (ASU 2015-11), Inventory (Topic 330): *Simplifying the Measurement of Inventory.* The amendments in this ASU require an entity to measure in-scope inventory at the lower of cost and net realizable value, further clarifying consideration for net realizable value as estimated selling prices in the ordinary course of business less reasonably predictable costs of completion, disposal and transportation. This ASU more closely aligns the measurement of inventory in GAAP with the measurement of inventory in International Financial Reporting Standards (IFRS). For public business entities, ASU 2015-11 is effective for annual periods and interim periods beginning after December 15, 2016. The amendment in this ASU is prospectively applied with earlier adoption permitted. The Company is currently evaluating this guidance and does not believe the adoption will significantly impact the presentation of its financial condition, results of operations and disclosures.

In November 2015, the FASB issued ASU 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes*. This standard requires entities to classify deferred tax liabilities and assets as noncurrent in a classified statement of financial position. The standard is effective for interim and annual periods beginning after December 15, 2016, and may be applied either prospectively to all deferred tax liabilities and assets or retrospectively to all periods presented. As permitted, the Company elected to early adopt this standard effective December 31, 2015, and has applied the standard prospectively. The adoption of this standard did not have a significant impact on the Company s financial statements, other than the prospective classification of deferred tax liabilities and assets as long-term in accordance with the new presentation requirements. For more information on income taxes, see Note 8

Income Taxes.

In January 2016, the FASB issued ASU 2016-01 (ASU 2016-01), *Financial Instruments Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities.* The standard requires equity investments (except those accounted for under the equity method of accounting, or those that result in consolidation of the investee) to be measured at fair value with changes in fair value recognized in net income, requires public business entities to use the exit price notion when measuring the fair value of financial instruments for disclosure purposes, requires separate presentation of financial assets and financial liabilities by measurement category and form of financial asset, and eliminates the requirement for public business entities to disclose the

method(s) and significant assumptions used to estimate the fair value that is required to be disclosed for financial instruments measured at amortized cost. These changes become effective for fiscal years beginning after December 15, 2017. The Company is evaluating the impact, if any, of adopting ASU 2016-01 on its financial statements.

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

2. SEGMENT INFORMATION

The Company has determined that it operates in only one segment as it only reports profit and loss information on an aggregate basis to its chief operating decision maker.

Revenue is attributed by geographic region based on ship-to location of the Company s customers. The following table summarizes revenue by geographic region:

	Year Ended December 31,		
	2015	2014	2013
		(in thousands)	
China	$ 5,499	$ 19,857	$ 14,844
United States	4,894	5,452	4,444
Germany	3,718	925	436
Korea	3,646	5,001	2,214
Taiwan	3,490	9,843	7,361
Australia	913	716	10,368
Israel	785	1,169	455
Canada	522	976	337
Japan	342	1,517	309
Other	9	229	745
Revenue	$ 23,818	$ 45,685	$ 41,513

The following table summarizes sales by product type:

	Year Ended December 31,		
	2015	2014	2013
		(in thousands)	
Core	$ 11,444	$ 29,862	$ 23,294
Wafer	6,627	8,077	12,239
Optical	5,086	7,057	4,523
Research & Development	661	689	1,457
Revenue	$ 23,818	$ 45,685	$ 41,513

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

The following table summarizes assets by geographic region:

	As of December 31, 2015	2014
	(in thousands)	
United States	$ 88,916	$ 156,105
Malaysia	30,276	38,765
Other	50	36
Total Assets	$ 119,242	$ 194,906

3. INVESTMENTS

The Company invests available cash primarily in FDIC guaranteed certificates of deposits and corporate notes. The Company s short-term investments balance of $8.9 million as of December 31, 2015 is comprised of corporate notes and bonds of $7.0 million and FDIC guaranteed certificates of deposit of $1.9 million. The Company s investments are classified as available-for-sale securities and are carried at fair market value with unrealized gains and losses recorded in accumulated other comprehensive income (loss).

The following table presents the amortized cost, and gross unrealized gains and losses on all securities at December 31, 2015:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(in thousands)			
Short-term Investments:				
FDIC Guaranteed certificates of deposit	$ 1,920	$	$	$ 1,920
Corporate Notes/Bonds	6,980		5	6,975
Total short-term investments	$ 8,900	$	$ 5	$ 8,895

The following table presents the amortized cost, and gross unrealized gains and losses on all securities at December 31, 2014:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
		(in thousands)		
Short-term Investments:				
FDIC Guaranteed certificates of deposit	$ 2,120	$	$ 2	$ 2,118
Corporate Notes/Bonds	18,458		14	18,444
Total short-term investments	$ 20,578	$	$ 16	$ 20,562

Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

The Company values its investments at fair value, defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value which are the following:

Level 1 Quoted prices in active markets for identical assets or liabilities.

Level 2 Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The Company s fixed income available-for-sale securities consist of high-quality, investment grade commercial paper, FDIC guaranteed certificates of deposits, corporate notes and government securities. The Company values these securities based on pricing from pricing vendors, who may use quoted prices in active markets for identical assets (Level 1 inputs) or inputs other than quoted prices that are observable either directly or indirectly (Level 2 inputs) in determining fair value. The valuation techniques used to measure the fair value of the Company s financial instruments having Level 2 inputs were derived from non-binding market consensus prices that are corroborated by observable market data, quoted market prices for similar instruments, or pricing models, such as discounted cash flow techniques.

The following table summarizes the Company s financial assets measured at fair value on a recurring basis as of December 31, 2015:

	Level 1	Level 2	Level 3	Total
Cash Equivalents:				
Money market funds	$ 17,702	$	$	$ 17,702
Investments:				
Available-for-sales securities current:				
FDIC Guaranteed certificates of deposit		1,920		1,920
Corporate notes/bonds		6,975		6,975
Total	$ 17,702	$ 8,895	$	$ 26,597

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

The following table summarizes the Company s financial assets measured at fair value on a recurring basis as of December 31, 2014:

	Level 1	Level 2	Level 3	Total
Cash Equivalents:				
Money market funds	$ 21,963	$	$	$ 21,963
Investments:				
Available-for-sales securities current:				
FDIC Guaranteed certificates of deposit		2,118		2,118
Corporate notes/bonds		18,444		18,444
Total	$ 21,963	$ 20,562	$	$ 42,525

There are no terms or conditions restricting the Company from redeeming any of its investments.

In addition to the debt securities noted above, the Company had approximately $3.5 million and $2.4 million of time deposits included in cash and cash equivalents as of December 31, 2015 and 2014, respectively.

4. SIGNIFICANT CUSTOMERS

For the year ended December 31, 2015, the Company had two customers that accounted for approximately 16% and 15% of its revenue. For the year ended December 31, 2014, the Company had two customers that accounted for approximately 24% and 12% of its revenue. For the year ended December 31, 2013, the Company had two customers that accounted for approximately 27% and 17% of its revenue.

Customers individually representing more than 10% of trade receivables accounted for approximately 48% and 50% of accounts receivable as of December 31, 2015 and 2014, respectively. The Company grants credit to customers based on an evaluation of their financial condition. Losses from credit sales are provided for in the financial statements.

Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

5. ASSET IMPAIRMENT CHARGES

When circumstances, such as adverse market conditions, indicate that the carrying value of a long-lived asset may be impaired, the Company performs an analysis to review the recoverability of the asset s carrying value. The Company makes estimates of the undiscounted cash flows (excluding interest charges) from the expected future operations of the asset. These estimates consider factors such as expected future operating income, operating trends and prospects, as well as the effects of demand, competition and other factors. If the analysis indicates that the carrying value is not recoverable from future cash flows, an impairment loss is recognized to the extent that the carrying value exceeds the estimated fair value. Any impairment losses are recorded as operating expenses, which reduce net income. In response to the Company s current period operating losses combined with its history of continuing operating losses, the Company evaluated the recoverability of certain property and equipment. In the third quarter of 2015, the overall outlook for the sapphire market continued to be depressed as industry analysts reported significant worldwide over capacity and pricing of sapphire products reached historical lows. Based upon the Company s quarterly assessment using its most recent projections, impairment to these assets was indicated as of September 30, 2015, as the recoverable amount of undiscounted cash flows did not exceed the carrying amount of these assets. The Company recorded an asset impairment charge on machinery, equipment and facilities of $39.6 million. The Company evaluated its long-lived assets and has written down the assets using a cost and market approach to determine the current fair market value. In using the fair market value approach, valuation inputs used to measure the fair value follow a hierarchy based on three levels of inputs. Level 1, being the most observable, relies upon quoted prices in active markets for identical assets, Level 2 which includes other inputs that are observable or can be corroborated by observable market data and Level 3, the least observable, that is supported by little or no market activity and are significant to the fair value of the assets. Based on the fair market value approach used by the Company to measure its long-lived assets, the Company determined the assets to be measured at fair value using Level 3 inputs. At December 31, 2015, the Company reviewed the current fair market value and concluded no additional adjustments were needed. The Company will continue to reassess its long-lived assets to ensure the carrying amount of these assets is still appropriate given any changes in the marketplace and other factors used in determining the current fair market value.

6. STOCKHOLDERS EQUITY

Common Stock

As of December 31, 2015 the Company had reserved 3,305,589 shares of common stock for issuance upon the exercise of outstanding common stock options and vesting of restricted stock units. Also, 732,270 shares of the Company s common stock were reserved for future grants of stock options and restricted stock units (or other similar equity instruments) under the Company s 2007 Stock Incentive Plan (the 2007 Plan) as of December 31, 2015. In addition, 24,380 shares of the Company s common stock were reserved for future exercise of outstanding warrants as of December 31, 2015.

On January 13, 2014, the Company completed a public offering of common stock in which a total of 3,047,500 shares were sold, including 397,500 shares pursuant to the full exercise of the underwriter s over-allotment option, at a price of $10.65 per share. The Company raised a total of $32.5 million in gross proceeds from the offering, or approximately $30.3 million in net proceeds after deducting the underwriting discount and expenses of $2.3 million.

On March 20, 2014, certain stockholders of the Company completed a public offering of 2,875,000 shares of common stock and the Company sold 375,000 shares pursuant to the full exercise of the underwriter s over-allotment option each at a price of $13.00 per share. The Company raised a total of $4.9 million in gross proceeds from the offering, or approximately $4.4 million in net proceeds after deducting the underwriting discount and expenses of $319,000 and estimated costs of $148,000.

Warrants

At December 31, 2015 and 2014, the Company had outstanding 24,380 and 267,826 warrants, respectively, to purchase shares of common stock at an exercise price of $3.65 per share. The warrants were issued in conjunction with the issuance of convertible promissory notes issued by the Company to investors from August 2005 through October 2005. The warrants are immediately exercisable and expire 10 years from the date of issuance. For the year ended December 31, 2015, 243,336 warrants expired.

Treasury Stock

The treasury shares are accounted for using the cost method whereby the entire cost of the acquired stock is recorded as treasury stock. The Company did not repurchase any shares for the twelve months ended December 31, 2015 and 2014.

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

7. STOCK INCENTIVE PLANS

The Company sponsored a stock option plan, the 2001 Equity Plan (the 2001 Plan), which allowed for the granting of incentive and nonqualified stock options for the purchase of common stock. The maximum number of shares which could be awarded or sold under the 2001 Plan was 1,449,667 shares. Each option entitles the holder to purchase one share of common stock at the specified option exercise price. The exercise price of each incentive stock option granted must not be less than the fair market value on the grant date. At the discretion of management and with the approval of the Board of Directors, the Company granted options under the 2001 Plan. Management and the Board of Directors determined vesting periods and expiration dates at the time of the grant. On August 2, 2011, the plan expired.

In August 2007, the Company adopted the 2007 Plan, which allows for the grant of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock, restricted stock units, performance awards and bonus shares. On June 22, 2011, the stockholders of the Company approved an amendment to the 2007 Plan to increase the maximum number of shares that may be awarded or sold under the 2007 Plan by 2,100,000 from 2,307,692 to 4,407,692 shares. The Board of Directors has appointed a committee to administer the plan. The plan committee determines the type of award to be granted, the fair market value, the number of shares covered by the award, and the time when the award vests and may be exercised.

The following table summarizes the activity of the stock incentive and equity plans:

	Shares available for grant	Number of options outstanding	Weighted-average option exercise price	Number of restricted stock shares issued	Number of restricted stock units outstanding
Outstanding at January 1, 2013	2,200,604	2,117,110	$ 13.32	59,932	
Granted	(216,913)	97,265	8.43	73,707	45,941
Exercised		(27,930)	5.02		
Canceled/forfeited	256,412	(260,375)	18.31		
Outstanding at December 31, 2013	2,240,103	1,926,070	12.46	133,639	45,941
Granted	(706,056)	574,950	5.04	27,925	103,181
Exercised		(47,654)	5.37		(10,525)
Canceled/forfeited	238,482	(215,080)	16.72	(20,911)	(3,866)
Outstanding at December 31, 2014	1,772,529	2,238,286	10.31	140,653	134,731
Granted	(1,457,826)	992,684	1.40	60,802	404,340
Exercised/issued		(5,692)	0.78		(29,432)
Canceled/forfeited	417,567	(373,710)	10.02		(55,618)

Outstanding at December 31, 2015	732,270	2,851,568	$	7.07	201,455	454,021

The following table sets forth option grants made during 2015, 2014 and 2013 with intrinsic value calculated based on grant date fair value.

Date of Grant	**Number of options granted**	**Exercise price**	**Intrinsic value per share**
January July 2013	82,815	$6.60 - $7.97	
October 2013	14,450	$12.11	
January July 2014	39,300	$7.69 - $11.29	
September 2014	300,000	$4.30 - $5.20	
October December 2014	235,650	$4.25 - $4.41	
March July 2015	92,600	$2.43 - $4.04	
September December 2015	900,084	$1.00 - $1.35	

There is no intrinsic value because the exercise price per share of each option was equal to the fair value of the common stock on the date of grant.

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

At December 31, 2015, the exercise prices of outstanding options were as follows:

Exercise Price	Number of options outstanding	Average remaining contractual life (years)	Number of options exercisable
$0.78 - $4.94	1,617,436	7.83	488,681
$5.12 - $9.95	554,684	5.29	439,526
$10.02 - $14.00	238,542	3.95	230,494
$15.00 - $18.80	29,776	2.98	29,776
$19.21 - $22.92	356,475	4.03	356,475
$24.95 - $32.67	54,655	4.51	54,655
	2,851,568	6.42	1,599,607

The weighted average fair value of the options that became vested in the years ended 2015, 2014 and 2013 was $1.3 million, $2.9 million and $4.8 million, respectively.

The following table summarizes the activity of non-vested options:

	Non-vested options	Weighted-Average Option Exercise price
Non-vested at January 1, 2013	821,002	$ 15.24
Granted	97,265	8.43
Vested	(380,413)	12.50
Cancelled	(211,288)	18.55
Non-vested at December 31, 2013	326,566	13.57
Granted	574,950	5.04
Vested	(169,361)	14.84
Cancelled	(103,422)	12.74
Non-vested at December 31, 2014	628,733	5.93
Granted	992,684	1.40
Vested	(200,402)	6.64
Cancelled	(169,054)	5.86

Non-vested at December 31, 2015	1,251,961	$	2.23

The Company s aggregate intrinsic value is calculated as the difference between the exercise price of the underlying stock options and the fair value of the Company s common stock. Based on the fair market value of the common stock at December 31, 2015 and 2014, there was no aggregate intrinsic value for options outstanding and exercisable.

For the years ended December 31, 2015, 2014 and 2013, the Company used historical stock prices as the basis for its volatility assumptions. The assumed risk-free rates were based on U.S. Treasury rates in effect at the time of grant with a term consistent with the expected option lives. The expected term for the year ended December 31, 2015 is based upon the Company s median average life of its options and in the years ended December 31, 2014 and 2013, is based upon the vesting term of the Company s options, a review of a peer group of companies, and expected exercise behavior. The forfeiture rate is based on past history of forfeited options. The expense is being allocated using the straight-line method. For the years ended December 31, 2015, 2014 and 2013, the Company recorded $731,000, $840,000 and $1.2 million, respectively, of stock option compensation expense. As of December 31, 2015, the Company has $1.4 million of total unrecognized compensation cost related to non-vested options granted under the Company s stock-based plans that it expects to recognize over a weighted-average period of 2.84 years.

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015, 2014 and 2013, the assumptions used for the estimated fair value at the date of option grant using the Black-Scholes option-pricing model were as follows:

	2015	2014	2013
Weighted average fair value per share of option	$1.40	$5.04	$8.49
Expected term	5.5 years	5.3 years	5.3 years
Risk free interest rate	1.41% -1.70%	1.66% -1.83%	0.76% -1.42%
Volatility	65%	77%	77%
Dividend yield	None	None	None
Forfeiture rate	18.56%	25.56%	19.18%

The Company continues to account for options issued prior to January 1, 2006 under the intrinsic value method.

A summary of the Company s restricted stock units (RSUs) is as follows:

	RSUs outstanding	Weighted average price at time of grant	Aggregate intrinsic value
Non-vested restricted stock units as of January 1, 2013		$	
Granted	45,941	8.60	
Non-vested restricted stock units as of December 31, 2013	45,941	8.60	
Granted	103,181	4.43	
Vested	(10,525)	8.60	
Cancelled	(3,866)	8.60	
Non-vested restricted stock units as of December 31, 2014	134,731	5.41	
Granted	404,340	1.48	
Vested	(29,432)	5.44	
Cancelled	(55,618)	5.37	
Non-vested at December 31, 2015	454,021	$ 1.92	$ 517,584

The fair value of each RSU is the market price on the date of grant and is being recorded as compensation expense ratably over the vesting terms. For the years ended December 31, 2015, 2014 and 2013, the Company recorded $224,000, $120,000 and $25,000 of RSU expense, respectively. The RSUs are forfeited by a participant upon termination for any reason and there is no proportionate or partial vesting in the periods between the vesting dates. As of December 31, 2015, there was $661,000 of unrecognized compensation cost related to the non-vested restricted stock units. This cost is expected to be recognized over a weighted-average period of 2.24 years.

An analysis of restricted stock issued is as follows:

Non-vested restricted stock as of January 1, 2013	4,336
Granted	73,707
Vested	(24,329)
Non-vested restricted stock as of December 31, 2013	53,714
Granted	27,925
Vested	(48,521)
Cancelled	(20,911)
Non-vested restricted stock as of December 31, 2014	12,207
Granted	60,802
Vested	(57,809)
Non-vested restricted stock as of December 31, 2015	15,200

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015, 2014 and 2013, the Company recorded $295,000, $448,000 and $292,000, respectively, of stock compensation expense related to restricted stock.

In 2013, the Board of Directors awarded 47,050 shares of restricted stock and 70,365 stock options to key executives at a price of $7.97, the closing price of the shares on the date of the grant. Vesting of the shares was subject to achievement of specified targets by December 31, 2013 and March 31, 2014. All of the milestones were achieved by the specified dates. As of December 31, 2014, 20,911 restricted shares and 31,274 stock options were cancelled. As of December 31, 2015, the remaining restricted shares were vested.

8. INCOME TAXES

Components of income before income taxes and the income tax provision are as follows:

Income (loss) before income taxes

	Year ended December 31,		
	2015	2014	2013
		(in thousands)	
U.S.	$ (67,254)	$ (46,562)	$ (38,114)
Foreign	(10,602)	2,647	2,603
Total	$ (77,856)	$ (43,915)	$ (35,511)

Income taxes

	Year ended December 31,		
	2015	2014	2013
		(in thousands)	
Current			
U.S.	$	$	$
State			
Foreign	13	6	6
Total current income tax expense	13	6	6
Deferred			
U.S.		(218)	(5,863)
State		(36)	691

Foreign	(39)	326	6
Total deferred income tax expense (benefit)	(39)	72	(5,166)
Total income tax expense (benefit)	$ (26)	$ 78	$ (5,160)

The reconciliation of income tax computed at the federal statutory rate to income before taxes is as follows:

	Year ended December 31,		
	2015	**2014**	**2013**
U.S. Federal statutory rate	(34.0)%	(34.0)%	(34.0)%
State taxes net of federal benefit	(4.4)	(5.7)	(5.5)
Foreign rate differential and transactional tax	1.2	(0.5)	(0.7)
Impact of foreign tax holiday	3.4	(1.5)	(1.8)
Valuation allowance	33.3	41.8	26.9
Other	0.5	0.1	0.6
	%	0.2%	(14.5)%

Deferred income taxes reflect the net tax effects of the temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes.

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

Significant components of the Company s net deferred income taxes are as follows at December 31:

	2015	2014
	(in thousands)	
Deferred tax assets:		
Allowance for doubtful accounts	$ 152	$ 55
Inventory reserves	3,289	918
Accrued liabilities	382	57
Warrant interest expense	269	269
Stock compensation expense	2,478	2,689
State net operating loss net of tax	7,456	5,923
Net operating loss carryforward	40,417	31,658
Tax credits	671	581
Valuation allowance	(52,286)	(27,151)
Total deferred tax assets	2,828	14,999
Deferred tax liability:		
Depreciation	(3,320)	(15,423)
Prepaid expenses	(62)	(169)
Net deferred tax liability	$ (554)	$ (593)

In November 2015, the FASB issued ASU No. 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes*, which requires that all deferred tax assets and liabilities, along with any related valuation allowance, be classified as noncurrent in the balance sheet. As a result, each jurisdiction will now only have one net noncurrent deferred tax asset or liability. However, the new guidance does not change the existing requirement that only permits offsetting within a jurisdiction. Companies are still prohibited from offsetting deferred tax liabilities from one jurisdiction against deferred tax assets of another jurisdiction. The amendments in this accounting standard are effective for public companies for interim and annual reporting periods beginning after December 15, 2016, with early application permitted. The Company has applied the change in accounting as of December 31, 2015. As such, the amounts previously reported as current deferred tax assets and noncurrent deferred tax liabilities were decreased by $1.3 million and $1.3 million, respectively, in the Consolidated Balance Sheet as of December 31, 2014. The change in accounting principle does not have an impact on the Company s results of operations, cash flows or stockholders equity.

In accordance with ASC740 Accounting for Income Taxes (ASC740), the Company evaluates its deferred income tax assets quarterly to determine if valuation allowances are required or should be adjusted. ASC740 requires that companies assess whether valuation allowances should be established against their deferred tax assets based on consideration of all available evidence, both positive and negative, using a more likely than not standard. The Company is in a cumulative loss position for the past three years which is considered significant negative evidence that is difficult to overcome on a more likely than not standard through objectively verifiable data. Based on an evaluation in accordance with the accounting standards, as of December 31, 2015 and 2014, a valuation allowance of $52.3 million and $27.2 million, respectively has been recorded against the net U.S. deferred tax assets in order to measure only the portion of the deferred tax assets that are more likely than not to be realized based on the weight of all the available evidence. Until an appropriate level of profitability is attained, the Company expects to maintain a full valuation allowance on its U.S. net deferred tax assets. Any U.S. tax benefits or tax expense recorded on the Company s Consolidated Statement of Operations will be offset with a corresponding valuation allowance until such time that the Company changes its determination related to the realization of deferred tax assets. In the event that the

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Rubicon Technology, Inc.

Notes to Consolidated Financial Statements (Continued)

Company changes its determination as to the amount of deferred tax assets that can be realized, the Company will adjust its valuation allowance with a corresponding impact to the provision for income taxes in the period in which such determination is made. Although the Company is in a full tax valuation allowance position, at December 31, 2014 the Company recorded, as a result of the allocation of income tax between continuing and other comprehensive income, a tax benefit of $254,000 in continuing operations. The net deferred tax liabilities at December 31, 2015 and 2014 are related to tax liabilities that will reverse after the expiration of the Malaysia tax holiday as discussed below.

At December 31, 2015, the Company had separate Federal and Illinois net operating loss carryforwards (NOL) of $143.5 million and $174.8 million, respectively, which begin to expire in 2021 and 2019, respectively. The Company has not recorded a deferred tax asset for NOL s, included in the aforementioned amounts, attributable to stock option exercises in the amount of $21.7 million for federal purposes and $26.4 million for state purposes because the Company cannot record these excess tax benefit stock option deductions until the benefit has been realized by actually reducing taxes payable. Last, the Company has recorded an uncertain tax position of $2.6 million that further reduces the net operating loss deferred tax assets reported in the financial statements. In addition, at December 31, 2015, the Company had Federal and Illinois research and development credits and investment tax credits of $525,000, $173,000 and $68,600, respectively which begin to expire in 2017. Tax credits are accounted for using the flow through method and therefore are taken in the year earned.

The Company completed an analysis of the utilization of net operating losses subject to limits based upon certain ownership changes as of March 31, 2014. The results of this analysis indicated no ownership change limiting the utilization of net operating losses and tax credits. The Company believes that an updated analysis will not likely indicate an ownership change that would limit the utilization of net operating losses and tax credits at December 31, 2015.

The Company prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken, or expected to be taken, in a tax return. At December 31, 2015 and 2014, the Company had unrecognized tax benefits taken or expected to be taken in a tax return that have been recorded on the Company s financial statements of $1.1 million that are related to tax positions taken in 2012.

There were no interest or penalties related to income taxes that have been accrued or recognized as of and for the years ended December 31, 2015, 2014 and 2013. Included in the balance of total unrecognized tax benefits at December 31, 2015, are potential benefits of $1.0 million that if recognized, would affect the effective tax rate in the year recognized.

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Notes to Consolidated Financial Statements (Continued)

The Company files income tax returns in the United States federal jurisdiction and in a state jurisdiction. During 2009, the Company began foreign operations in Malaysia and Japan and is subject to local income taxes in both jurisdictions. The Company is exempt from Malaysian income tax for a five-year period beginning in 2009 with a five year renewal. The impact of this tax holiday decreased foreign taxes for the years ended December 31, 2015, 2014 and 2013 by approximately $147,000, $335,000, and $651,000, respectively. The benefit of the tax holiday on net income per share (diluted) for the years ended December 31, 2015, 2014 and 2013 was $0.01, $0.01 and $0.03, respectively. The Company s Malaysia tax returns for the periods ended December 31, 2010 through 2012 have audited by the Malaysia Inland Revenue Board with no changes made to the taxable income for those years. All other tax years in Malaysia are open to examination by tax authorities.

The Company s federal tax returns for the periods ended December 31, 2010, 2008 and 2007 have been audited by the Internal Revenue Service (IRS) with no changes made to the Company s taxable losses for those years. The Company s state tax returns for the periods ended December 31, 2009 through 2012 have been audited by the Illinois Department of Revenue with no changes made to the Company s taxable losses for those years. Due to the existence of net operating loss carryforwards, tax years ended December 31, 2001 through 2006, 2008, 2009 and 2011 through 2014 are open to examination by tax authorities for Federal purposes. Due to net operating loss carryforwards at the State level, tax years ended 2004 through 2006 and 2008 through 2014 are open to examination by state tax authorities.

U.S. income and foreign withholding taxes have not been provided on approximately $11.0 million of cumulative undistributed earnings of foreign subsidiaries. We intend to reinvest these earnings for the foreseeable future. If these amounts were distributed to the U.S., in the form of a dividend, at December 31, 2015 there would have been no impact to the provision of income taxes. Due to the U.S. NOL s and the full valuation allowance recorded any additional income from the dividends would have been offset by the NOL s and a corresponding adjustment to the valuation allowance. At December 31, 2015, dividends per the Malaysia statute are not subject to withholding. Determination of the amount of unrecognized deferred income tax liabilities that may be due in the future on these earnings is not practicable because such liability, if any, is dependent on circumstances existing, if and when remittance occurs.

9. CREDIT FACILITY

On January 2, 2013, the Company entered into a three-year term agreement with a bank to provide the Company with a senior secured credit facility of up to $25.0 million. The agreement provides for the Company to borrow up to 80% of eligible accounts receivable and up to 35% of domestically held raw material and finished goods inventory. Advances against inventory are limited to 40% of the aggregate outstanding on the revolving line of credit and $10.0 million in aggregate. The Company has the option to borrow at an interest rate of LIBOR plus 2.75% or the Wall Street Journal prime rate plus 0.50%. If the Company maintains liquidity of $20.0 million or greater with the lending institution, then the borrowing interest rate options are LIBOR plus 2.25% or the Wall Street Journal prime rate. There is an unused revolving line facility fee of 0.375% per annum. The facility is secured by a first priority interest in substantially all of the Company s personal property, excluding intellectual property. The Company is required to maintain an adjusted quick ratio of 1.40 to 1.00, maintain operating and other deposit accounts with the bank or bank s affiliates of 25% of the Company s total worldwide cash, securities and investments, and the Company can pay dividends or repurchase capital stock only with the bank s consent during the three year term. In August 2015, the

Company entered into an amendment agreement with the bank to extend the senior secured facility through January 2, 2018. Under the amended agreement, advances against inventory are limited to the lesser of 45% of the aggregate outstanding principal on the revolving line of credit and $10.0 million and the rate on facility fee on the unused portion of the revolving line was adjusted to 0.50% per annum. All other terms and conditions remain the same. As of December 31, 2015 the Company had available borrowing capacity of $2.3 million under this facility. At December 31, 2015, the Company had borrowed $1.5 million against this facility electing a borrowing rate of LIBOR plus 2.25%. The agreement contains a subjective acceleration clause and requires the Company to maintain a lockbox. As a result, the Company has classified the debt as a current liability on its balance sheet. For year ended December 31, 2015 the Company recorded interest expense of $109,000 which includes $107,000 of interest expense charged on the unused portion of the facility. For years ended December 31, 2014 and 2013, the Company did not draw on this facility and the Company recorded $95,000, for each of the two years, of interest expense charged on the unused portion of the facility.

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Notes to Consolidated Financial Statements (Continued)

10. COMMITMENTS AND CONTINGENCIES

Operating Leases

The Company leases buildings used for manufacturing and offices. The leases provide for payment of the Company s proportionate share of operating expenses and real estate taxes.

Net rent expense under operating leases in 2015, 2014 and 2013 amounted to $653,400, $1.0 million and $1.1 million respectively.

Future minimum payments under all leases are as follows:

Year ending December 31,	Operating leases (in thousands)
2016	$ 599
2017	592
2018	468
2019	145
Balance at December 31, 2015	$ 1,804

Purchase Commitments

The Company has entered into agreements for electricity and to purchase equipment and components to construct furnaces. These agreements will result in the Company purchasing electricity, equipment or components for a total cost of approximately $6.1 million with deliveries occurring through December 2017.

Litigation

From time to time, the Company experiences routine litigation in the normal course of its business. The management of the Company does not believe any pending litigation will have a material adverse effect, other than as set forth below, on the financial condition or results of operations of the Company.

On April 30, 2015, Firerock Global Opportunity Fund LP filed a complaint in the Northern District of Illinois asserting federal securities claims against the Company, certain officers, its directors and the underwriters in the Company s March 2014 stock offering. The complaint sought as a remedy either money damages or rescission of the March offering, plus attorneys fees. On October 29, 2015, after mediation and subsequent discussions, the parties reached a settlement agreement in principle. On January 27, 2016 the United States District Court for the Northern District of Illinois granted a motion for preliminary approval of the agreement. The settlement agreement includes a release of all defendants, and dismissal of the case against all defendants with prejudice. The Company recorded for the twelve months ended December 31, 2015 an expense of $1.1 million of which $900,000 is the amount the Company contributed to the settlement and paid on February 17, 2016. The remaining costs of the settlement are expected to be covered by insurance.

On November 19, 2015, the Carolyn Piper Smithhisler Living Trust, derivatively on behalf of Rubicon Technology Inc., filed a complaint in the Eighteenth Judicial District of Illinois against the Company s Board of Directors and certain senior officers seeking to remedy alleged breaches of fiduciary duties and other violations of the law, failure to implement an effective system of internal controls, and failure to oversee the public statements made by the Company and certain individual defendants. The complaint seeks as a remedy to recover damages against the individual defendants for the benefit of the Company and to require the Company to reform and improve its corporate governance and internal procedures plus attorneys fees. The Company intends to vigorously defend this lawsuit. Due to the preliminary nature of the lawsuit, at this time, the Company cannot predict an outcome, nor is it reasonably possible to estimate the amount or range of loss, if any, that would be associated with an adverse decision.

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11. BENEFIT PLAN

The Company sponsors a 401(k) savings plan (the Plan). Employees are eligible to participate in the Plan upon reaching 18 years of age. Employees make contributions to the Plan through payroll deferrals and employer matching contributions are discretionary. There were no employer matching contributions for the years ended December 31, 2015, 2014 and 2013.

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12. QUARTERLY FINANCIAL DATA (Unaudited)

Quarterly Financial Data (Unaudited)

Summary quarterly results for the two years ended December 31, 2015 are as follows (in thousands, other than share and per share data):

	Three Months Ended				
2015	**March 31**	**June 30**	**September 30**	**December 31**	**Full Year**
Revenue	$ 8,910	$ 7,106	$ 5,346	$ 2,456	$ 23,818
Gross loss	$ (5,109)	$ (5,155)	$ (3,891)	$ (8,988)	$ (23,143)
Loss from operations	$ (7,948)	$ (8,322)	$ (47,370)	$ (12,309)	$ (75,949)
Loss before income taxes	$ (8,312)	$ (8,529)	$ (48,859)	$ (12,156)	$ (77,856)
Net loss	$ (8,348)	$ (8,580)	$ (48,196)	$ (12,706)	$ (77,830)
Basic and diluted loss per common share	$ (0.32)	$ (0.33)	$ (1.84)	$ (0.49)	$ (2.98)
Weighted average common shares outstanding used in computing net loss per common share, basic and diluted:	26,129,276	26,142,261	26,160,308	26,192,838	26,156,170

	Three Months Ended				
2014	**March 31**	**June 30**	**September 30**	**December 31**	**Full Year**
Revenue	$ 14,268	$ 14,469	$ 8,036	$ 8,912	$ 45,685
Gross loss	$ (7,494)	$ (7,274)	$ (9,460)	$ (5,459)	$ (29,687)
Loss from operations	$ (10,925)	$ (10,179)	$ (13,872)	$ (8,637)	$ (43,613)
Loss before income taxes	$ (10,888)	$ (9,984)	$ (14,011)	$ (9,032)	$ (43,915)
Net loss	$ (10,894)	$ (9,984)	$ (13,713)	$ (9,402)	$ (43,993)
Basic and diluted loss per common share	$ (0.43)	$ (0.39)	$ (0.53)	$ (0.36)	$ (1.70)
Weighted average common shares outstanding used in computing net loss per common share, basic and diluted:	25,317,147	25,706,797	26,110,651	26,127,026	25,815,405