

Rubicon Technology, Inc.  
Form 10-K  
March 13, 2014  
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**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**  
WASHINGTON, DC 20549

**FORM 10-K**

(Mark one)

**Annual report pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2013**

**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**  
(State or Other Jurisdiction of

**36-4419301**

**Incorporation or Organization)**

(I.R.S. Employer Identification No.)

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900 East Green Street

Bensenville, Illinois  
(Address of Principal Executive Offices)

60106  
(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

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See 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  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

As of June 30, 2013, there were 17,701,022 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 \$141,077,145.

The number of shares of the registrant's common stock outstanding as of the close of business on March 7, 2014 was 25,765,795.

**Documents incorporated by reference:**

Portions of the Registrant's Proxy Statement for its 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 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 as defined in the 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, and the like, and/or future-tense or conditional constructions such as will, may, could, and 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 and 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.

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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. The emergence of sapphire in commercial volumes at competitive prices has enabled the development of new technologies such as high brightness ( HB ) white, blue and green LEDs and highly-integrated radio frequency integrated circuits ( RFICs ). 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 reason sapphire was adopted for use on the home button on certain smartphones is 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. We apply our proprietary crystal growth technology to produce high-quality sapphire products efficiently to supply our end-markets, and we work closely with our customers to meet their quality and delivery needs.

We are a vertically-integrated manufacturer of high-quality sapphire substrates and optical windows that are used in a variety of high-growth, high-volume end-market applications. 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;

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 ) RFICs; 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 sell two to four-inch material primarily in core form and six and eight-inch material primarily in polished 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, we sell primarily six-inch wafers; our major customer in that market, however, is modifying its technology to produce its higher volume RFIC products on a substrate other than sapphire, a development which will likely significantly reduce the amount of sapphire demand from that market beginning in early 2014. Other non-LED semiconductor customers are using sapphire in research and development at this time.

We recently introduced a new product offering, patterned sapphire substrates or PSS . 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 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 enable us to maintain our high quality standards while controlling costs. We design, assemble and maintain our own proprietary crystal growth furnaces to grow high-

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purity, low-stress, ultra-low-defect-density sapphire crystals. In addition, we possess state-of-the-art capabilities in high-precision core drilling, wafer slicing, surface lapping, edge bevel grinding, polishing, patterning and wafer cleaning processes. 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 rapidly capture market growth.

We plan to leverage our technological advantage in efficiently producing high-quality, large-diameter sapphire products to maintain our leadership position and 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 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.

### **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 are expected to grow significantly over the next several years. The majority 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.

*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

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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 sporting arenas and electronic billboard displays.

*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 is expected to be one of the fastest growing applications for HB LEDs.

### **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.

### **Other semiconductor applications**

SoS integrated circuits consist of a thin layer of silicon grown on a sapphire substrate and are primarily used in advanced wireless and military applications, such as RFICs. In particular, SoS RFICs are currently used in mobile phones, broadband television set-top boxes, satellites and radiation-hardened applications for the defense industry.

Sapphire is also currently being experimented with as a substrate to produce certain power devices. If our customers are successful with their development efforts, this market could evolve into a growth opportunity for sapphire suppliers.

### **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. A great emphasis is placed on continuously improving yields and increasing production efficiency to drive costs lower to take advantage of emerging high-volume opportunities. Device manufacturers are seeking larger diameter sapphire wafers to allow them to gain efficiency in their production processes through higher throughput and reduced edge loss. Historical methods of sapphire crystal growth, which rely on lower-volume batch processes, are less able to meet the needs of leading end-market customers for high-quality crystals, demanding dimensional tolerances, high production volumes, cost efficiency and on-time delivery. Sapphire is the material on which the entire value chain is built.

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### **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 ES2 crystal growth technique 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 believe we can readily scale our ES2 technology in a production environment while maintaining high crystal quality even as crystal boule size is increased. As a result of our proprietary ES2 technology, we believe that we currently offer the most efficient method for manufacturing large form factor, high-quality sapphire in the market today.

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 CZ and 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 2013, 2012 and 2011, our R&D expenses totaled \$2.3 million, \$2.3 million and \$1.8 million, respectively. Our R&D is focused on three key areas:

large area sapphire growth and fabrication;

higher precision sapphire processing; and

cost-effective optical components for mobile devices.

Our technical staff possesses deep and broad expertise in materials science and engineering. We also develop and 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 in four general categories: core, as-cut, as-ground and polished. We currently offer two, three, four, six and eight-inch diameter wafers, in C, R, A, and M planar orientations. A sapphire crystal has multiple orientation planes resulting from its crystalline structure symmetry.



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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.

While we continue to offer all of the following products, our sales efforts are now focused on selling two through four-inch cores to our polishing customers and four, six and eight-inch polished wafers to our semiconductor device manufacturing customers.

Product	Size	Orientation	Applications
Core	2, 3, 4	C, R, A, M	LED Optical windows Blue laser diode
As-Cut	2, 3, 4, 6, 8	C, R, A, M	Wafers for LED Wafers for blue laser diodes Wafers for SOS RFICs
As-Ground	2, 3, 4, 6, 8	C, R, A, M	Wafers for LED Wafers for SOS RFICs Blanks for optical windows Wafer carriers
Polished	4, 6, 8	C, R, A	Epi-polished wafers for SOS RFICs Polished optical windows Double-side polished wafer carriers
Patterned Sapphire Substrate	4, 6	C	Epi-polished patterned wafers for RFICs

Our core product line consists of our sapphire cores drilled from sapphire boules with high-precision. In 2013, 2012 and 2011, sales of core accounted for 56%, 15% and 46% of our revenue, respectively. Revenue from sapphire cores increased through the first half of 2011, then declined due to excess inventory at polishers and LED manufacturers. Major suppliers of sapphire, including us, added capacity in 2010 and 2011, resulting in excess supply during 2012 which caused lower product prices. We chose to sell fewer sapphire cores in 2012 awaiting price improvement. Compared with historical pricing, core prices continued to be low in 2013, but prices steadily increased through most of 2013. We expect that pricing will continue to recover as LED production volumes increase.

**As-cut**

Our as-cut product line consists of sapphire cores sliced using a wire saw machine. We believe we are able to offer our customers one of the highest-precision cut sapphire wafers in the market. This is especially important to customers who require precise orientation planes for applications such as LEDs, SoS, RFICs and blue laser diodes. In each year ended December 31, 2013, 2012 and 2011, sales of as-cut wafers accounted for less than 10% of our revenue.

**As-ground**

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Our as-ground product line consists of cut sapphire wafers that undergo a double-sided lapping and edge grinding process. The lapping process ensures that the surface of the wafer is flat and smooth and has a high

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degree of parallelism. The grinding process bevels the edges of the wafers, making them more durable and less susceptible to chipping and cracking. In each year ended December 31, 2013, 2012 and 2011, sales of as-ground wafers accounted for less than 10% of our revenue.

### **Polished**

Our polished product line primarily consists of finely polished, ultra-clean, 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 2013, 2012 and 2011 sales of polished wafers accounted for 29%, 75% and 49% of our revenue, respectively. Sales of six-inch polished sapphire wafers increased in 2011 and 2012 with certain LED chip manufacturers migrating to a six-inch production platform and with the growth of the SoS RFIC market, which has subsequently decreased in size. The percentage of revenue coming from six-inch wafer sales in 2012 was particularly high due to reduced sales of sapphire core in that period. 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 are leveraging 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. During 2013, we shipped samples of four and six-inch wafers with a wide variety of pattern types, densities and heights. We believe this product line will generate increasing revenue in 2014. In 2013, sales of PSS wafers accounted for less than 10% of our revenue.

### **Other**

We also 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.

## **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.

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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.

## **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, especially at the senior management level. 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 and provides us with a competitive advantage when selling our products.

In order to increase brand recognition of our products and of Rubicon in general, we publish technical articles, advertise in trade journals, 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 2013 and 2012, our top two customers accounted for approximately 44% and 67% of our revenue, respectively. In 2011, our top three customers accounted for approximately 69%. 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 2013, sales to Peregrine Semiconductor Corporation and Nanjing J-crystal Photoelectric Technology Co. represented approximately 27% and 17% of our revenues, respectively. In 2012, sales to Peregrine Semiconductor Corporation and LG Innotek represented approximately 38% and 29% of our revenues, respectively. In 2011, sales to LG Innotek, Tera Xtal Technology Corp. and Crystalwise Technology represented approximately 38%, 19% and 12% of our revenues, respectively. No other customer accounted for 10% or more of our revenues during 2013, 2012, or 2011.

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. In 2012, 48% of our sales were made to customers in Asia, 19% of our sales were made to customers in Australia, 17% of our sales were made to customers in North America and 16% of our sales were made to customers in Europe. In 2011, 87% of our sales were made to customers in Asia, 9% 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.

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### **INTELLECTUAL PROPERTY**

Our ability to compete successfully depends upon our ability to protect our proprietary technologies and other confidential information. We rely primarily upon a combination of trade secret laws and non-disclosure agreements with employees, customers and potential customers to protect our intellectual property. We have five patents and twelve pending patent applications with the U.S. Patent and Trademark Office, 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 account for a significant percentage of the total market volume today, we face significant competition from other established providers of similar products as well as from new and potential entrants into our markets.

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, as-cut and as-ground products.

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

consistently producing high-quality products in the desired size, orientation and finish;

driving innovation through focused research and development efforts;

possessing sufficient supply capacity to meet end-market customer demands;

offering solutions through collaborative efforts with customers;

pricing; and

providing a low total cost-of-ownership for customers.

Although we face significant competition, we believe that our proprietary ES2 crystal growth technology, our fabrication and polishing capabilities and our business practices allow us to compete effectively on all of the above factors.

### **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.



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**EMPLOYEES**

As of December 31, 2013, we had 292 full-time employees, of which 264 work 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 Report 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](http://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.*

**Our results of operations, financial condition and business will be harmed if we are 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 six-inch sapphire 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 into the first half of 2014. There can be no assurance that such sudden market changes will not occur again in the future adversely affecting our profitability.

We plan to continue to expand our production capacity as demand for our products strengthens. Our 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 our new equipment and demands on management's time. If our business does not grow fast enough to utilize this 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. There can be no assurance that we will be able to successfully reach our production, timing and cost goals for our expansion.

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

We have incurred significant losses in prior periods. As of December 31, 2013, we had an accumulated deficit of \$127.6 million. While we had net income of \$38.1 million in 2011 and \$29.1 million in 2010, we incurred net losses of \$30.4 million, \$5.5 million, \$9.6 million and \$2.9 million in 2013, 2012, 2009 and 2007, respectively. There can be no assurance that we will have sufficient revenue growth to offset expenses or to achieve profitability in future periods.

**The average selling prices of products in the LED supply chain have historically been volatile.**

Historically, our industry has experienced volatility in product demand and pricing. 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. 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 and our results of operations and business may be harmed. In addition, rapid changes in market conditions have, at times, caused financial hardship for our customers, resulting in some write-offs of our accounts receivable. While we monitor the financial health of our customers, rapid changes in market conditions may result in additional accounts receivable write-offs in the future which could affect our results of operations.



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### **If LED lighting does not achieve greater market acceptance, or if alternative technologies are developed and gain market traction, prospects for our growth and profitability would be limited.**

Our future success largely depends on increased market acceptance of LED lighting. Approximately 59% and 49% of our revenue during 2013 and 2012, respectively, was from sales of our products for use in the manufacture of LED products. Potential customers for LED lighting systems may be reluctant to adopt LED lighting as an alternative to traditional lighting technology because of its higher initial cost and relatively low light output per unit in comparison with the most powerful traditional lighting devices. In addition, our potential customers may have substantial investments and know-how related to their existing lighting technologies, and may perceive risks relating to the novelty, complexity, reliability, quality, usefulness and cost-effectiveness of LED products compared to other lighting sources available in the market. If acceptance of LED lighting does not increase significantly, then opportunities to increase our revenues and operate profitably would be limited.

Moreover, if effective new sources of light other than LED devices are developed, our current products and technologies could become less competitive or obsolete. Any of these factors could have a material and adverse impact on our growth and profitability.

### **If the 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, such as our PSS product line, 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.

### **The technology used in the LED industry continues to change rapidly, and if we are unable to modify our products to adapt to future changes in the LED industry, we will be unable to attract or retain customers.**

We do not design or manufacture LEDs. Our ability to expand into new applications in the LED market depends on continued advancement in the design and manufacture of LEDs 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 assure you 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.



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### **If the development and acceptance of our products for the SoS RFIC market do not meet our expectations, our future operating results may be harmed.**

The level of market acceptance of our SoS RFIC products may impact our future operating results. Our success in the SoS RFIC market depends on a number of factors, including the success of our customers' products in current applications and the acceptance of SoS RFIC products for newly targeted applications.

In addition, it is possible that other solutions, such as silicon-on-insulator, may become preferred over SoS. We cannot assure you that the RFIC market will continue to require the performance attributes of SoS solutions. If our products are not accepted more broadly in the RFIC market, our results of operations and business may be harmed.

### **We depend on a few customers for a major portion of our sales and our results of operations would be adversely impacted if they reduced 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 2013 and 2012, our top two customers accounted for approximately 44% and 67% 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.

In addition, we generally sell our products on the basis of purchase orders. 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.

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

In 2013 and 2012, revenue from international sales was approximately 89% and 83%, 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 risks, including risks arising from:

trading restrictions, tariffs, trade barriers and taxes;

differing intellectual property laws;

economic and political risks, wars, acts of terrorism, political unrest, pandemics, such as a recurrence of the SARS outbreak or avian flu, 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;

import and export restrictions;

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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; 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.

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### **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 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.

### **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 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 as we grow;

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;

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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;

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the level and timing of capital spending of our customers;

additions or departures of key personnel;

potential seasonal fluctuations in our customers' business activities; 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.

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.

### **Our gross margins could decline 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. If our sales mix shifts to lower margin products in future periods, our overall gross margin levels and operating results would 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.

### **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 rather than seeking protection through 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 five issued patents covering our products and technologies and twelve 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.

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### **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.

### **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 dependent on the continued services and performance of our senior management, the loss of any of whom could adversely affect our business, operating results and financial condition.**

Our future success is dependent on the continued services and continuing contributions of our senior management who must work together effectively in order to design our products, expand our business, increase our revenues and improve our operating results. The loss of services of senior management, particularly Raja M. Parvez, our president and chief executive officer, and William F. Weissman, our chief financial officer, could significantly delay or prevent the achievement of our development and strategic objectives. In addition, key



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personnel may be distracted by activities unrelated to our business. The loss of the services, or distraction, of our senior management for any reason could adversely affect our business, operating results and financial condition.

### **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.

### **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 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 marketwide 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 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.

### **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

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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 nearby 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, such as a tornado or flood, act of terrorism, war 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.

### **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, 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.

### **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, 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 would proceed against the collateral securing the indebtedness, which includes substantially all of our personal property (other than intellectual property assets).

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**We may require additional capital to fund additional product research and development efforts and the introduction of new products. If we are unable to raise additional capital when needed, we may be forced to delay, reduce or eliminate our product research and development programs or delay the introduction of new products.**

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. 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, we may need to raise substantial additional capital in the future to complete the development and commercialization of our new products.

We may finance future cash needs for new product research and development or product introductions 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 additional 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.

Our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement and involves risks and uncertainties, and actual results could vary as a result of a number of factors, including the factors discussed elsewhere in this Risk Factors section, and under similar headings in this document. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect.

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

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.

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### **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.

### **RISKS RELATED TO OWNERSHIP OF OUR COMMON STOCK**

The price of our common stock has fluctuated substantially and may continue to do so.

From our initial public offering through March 7, 2014, the trading price of our common stock has ranged from a low of \$2.50 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;

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.

Fluctuations caused by factors such as these may negatively affect the market price of our common stock. In addition, the other risks described elsewhere in this document could adversely affect our stock price.

### **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. 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.

### **The concentration of our capital stock ownership with the affiliates of one of our directors will limit your ability to influence corporate matters.**

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One of our directors, together with affiliates he controls, owns in the aggregate approximately 21% of our outstanding capital stock and voting power. For the foreseeable future, they will have significant influence over our management and affairs and over all matters requiring stockholder approval, including the election of

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directors and significant corporate transactions, such as a merger or other sale of our company or our assets. Their ownership may limit your ability to influence corporate matters and, as a result, the market price of our common stock could be adversely affected.

### **We could be the subject of securities class action litigation due to future stock price volatility.**

The stock market in general, and market prices for the securities of companies like ours, has experienced extreme volatility that often has been unrelated to the operating performance of the underlying companies. These broad market and industry fluctuations may adversely affect the market price of our common stock, regardless of our operating performance. When the market price of a stock declines significantly, holders of that stock have sometimes instituted securities class action litigation against the company that issued the stock. If any of our stockholders brought a lawsuit against us, our defense of the lawsuit could be costly and divert the time and attention of our management.

### **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.

## **ITEM 1B. UNRESOLVED STAFF COMMENTS**

None.

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**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 102,600 square feet in seven buildings, which includes 30,000 square feet in our Bensenville, Illinois facility. The leases for these facilities terminate from July 2014 through July 2015. 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.

**ITEM 3. LEGAL PROCEEDINGS**

From time to time we may be named in claims arising in the ordinary course of business. Currently, there are no legal proceedings or claims pending against us or involving us that, in the opinion of our management, could reasonably be expected to have a material adverse effect on our business or financial condition.

**ITEM 4. MINE SAFETY DISCLOSURES**

Not applicable.



**Table of Contents****PART II****ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES****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:

	<b>High</b>	<b>Low</b>
<b>Fiscal year ended December 31, 2013</b>		
First Quarter	\$ 6.97	\$ 4.83
Second Quarter	\$ 9.05	\$ 5.91
Third Quarter	\$ 13.78	\$ 7.73
Fourth Quarter	\$ 11.82	\$ 8.38
	<b>High</b>	<b>Low</b>
<b>Fiscal year ended December 31, 2012</b>		
First Quarter	\$ 13.59	\$ 8.20
Second Quarter	\$ 10.92	\$ 8.46
Third Quarter	\$ 11.57	\$ 8.28
Fourth Quarter	\$ 9.96	\$ 5.82

 **Holders**

As of March 7, 2014, our common stock was held by approximately 27 stockholders of record and there were 25,765,795 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.

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**Performance Graph**

The graph below matches Rubicon Technology, Inc.'s cumulative 5-Year total shareholder return on common stock with the cumulative total returns of the NASDAQ Composite Index and the 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, 2008 to December 31, 2013.

	12/31/08	12/31/09	12/31/10	12/31/11	12/31/12	12/31/13
Rubicon Technology, Inc	100.00	476.76	494.84	220.42	143.43	233.57
NASDAQ Composite	100.00	144.88	170.58	202.69	199.99	283.39
RDG Technology Composite	100.00	160.94	181.64	220.06	208.18	274.77

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

**Recent Sales of Unregistered Securities**

None.

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**Issuer Purchases of Equity Securities**

In August 2011, we announced a repurchase plan approved by our Board of Directors authorizing the purchase of up to \$25.0 million of our outstanding common stock over a period of two years. The stock repurchase program authorized us to purchase shares of our common stock in the open market at times and prices considered appropriate by us depending upon prevailing market conditions and other corporate considerations. There were no purchases made during the year ended December 31, 2013. The plan expired in 2013.

**Table of Contents****ITEM 6. SELECTED FINANCIAL DATA**

The following selected consolidated financial data should be read in conjunction with 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, 2013 and 2012 and the consolidated statements of operations data for the years ended December 31, 2013, 2012 and 2011 are derived from our audited consolidated financial statements included elsewhere 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, 2011, 2010 and 2009 and the consolidated statements of operations data for the years ended December 31, 2010 and 2009 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,				
	2013	2012	2011	2010	2009
(In thousands, other than share and per share data)					
<b>Consolidated statements of operations data:</b>					
Revenue	\$ 41,513	\$ 67,243	\$ 134,000	\$ 77,362	\$ 19,808
Cost of goods sold	63,434	67,283	64,365	36,205	23,427
Gross (loss) profit	(21,921)	(40)	69,635	41,157	(3,619)
Operating expenses:					
General and administrative	8,629	9,018	11,336	9,883	4,811
Sales and marketing	1,521	1,685	1,658	1,267	1,137
Research and development	2,263	2,274	1,806	1,079	801
Loss on disposal of assets	550	19	84	234	
Total operating expenses	12,963	12,996	14,884	12,463	6,749
Income (loss) from operations	(34,884)	(13,036)	54,751	28,694	(10,368)
Other (expense) income, net	(627)	450	(118)	346	738
Income (loss) before income taxes	(35,511)	(12,586)	54,633	29,040	(9,630)
Income tax benefit (expense)	5,160	7,048	(16,574)	71	
Net (loss) income	\$ (30,351)	\$ (5,538)	\$ 38,059	\$ 29,111	\$ (9,630)
Net (loss) income per common share					
Basic	\$ (1.35)	\$ (0.25)	\$ 1.67	\$ 1.34	\$ (0.48)
Diluted	\$ (1.35)	\$ (0.25)	\$ 1.61	\$ 1.28	\$ (0.48)
Weighted average common shares outstanding used in computing net income (loss) per common share					
Basic	22,572,212	22,523,951	22,852,205	21,726,090	20,117,543
Diluted	22,572,212	22,523,951	23,596,162	22,790,896	20,117,543
	2013	2012	As of December 31, 2011	2010	2009
(In thousands)					
<b>Consolidated balance sheet data:</b>					
Cash and cash equivalents	\$ 21,071	\$ 19,573	\$ 4,290	\$ 16,073	\$ 3,860
Working capital	79,768	114,337	119,056	106,524	55,121
Total assets	202,695	248,096	259,952	206,742	101,186
Total stockholders' equity	195,791	225,386	228,231	192,094	97,440



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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. The emergence of sapphire in commercial volumes at competitive prices has enabled the development of new technologies such as high brightness ( HB ) white, blue and green LEDs and highly-integrated radio frequency integrated circuits ( RFICs ). 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 reason sapphire was adopted for use on the home button on certain smartphones is because of the scratch resistance and increased touch capacitance offered by sapphire, 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. We apply our proprietary crystal growth technology to produce high-quality sapphire products efficiently to supply our end-markets, and we work closely with our customers to meet their quality and delivery needs.

We are a vertically-integrated manufacturer of high-quality sapphire substrates and optical windows that are used in a variety of high-growth, high-volume end-market applications. 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;

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 ) RFICs; 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 sell two to four-inch material primarily in core form and six and eight-inch material primarily in polished 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, we sell primarily six-inch wafers; our major customer in that market, however, is modifying its technology to produce its higher volume RFIC products on a substrate other than sapphire, a development which will likely significantly reduce the amount of sapphire demand from that market beginning in early 2014. Other non-LED semiconductor customers are using sapphire in research and development at this time.

We recently introduced a new product offering, patterned sapphire substrates or PSS . 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.

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We sell our products on a global basis. The Asian, Australian, North American and European markets accounted for 60%, 25%, 11% and 4%, respectively, of our revenue for the year ended December 31, 2013 and 48%, 19%, 17% and 16%, respectively, of our revenue for the year ended December 31, 2012. The Asian, North American and European markets accounted for and 87%, 9% and 4%, respectively, of our revenue for the year ended December 31, 2011. Demand from the LED market was strong through mid-year 2011, particularly in Asia where there is a high concentration of LED customers. Demand for our products from the LED market slowed in the second half of 2011 due to a slowdown in LED chip sales that resulted in a build-up of inventory in the LED supply chain, which continued throughout 2012. We experienced increased demand for our core products throughout 2013 with stronger demand from the LED general lighting market and the adoption of sapphire in newer applications like the lens cover, dual flash and home button on certain smartphones, however, improvements in pricing has been gradual. Demand for our six-inch polished wafers sold into the SoS market increased significantly in 2012, partially offsetting the decrease in sales of polished wafers sold into the LED market. However, the manufacturer of the majority of SoS chips will be introducing new products that will be produced on a substrate other than sapphire which reduced demand in the second half of 2013 and will likely significantly reduce the amount of sapphire demand from that market beginning in early 2014. We expect pricing for sapphire cores to continue to increase gradually as excess sapphire capacity in the market is absorbed by growing demand from the LED and other markets. However, we believe six-inch polished wafer prices may decline further in the near-term. We experienced limited demand for LED polished wafers in 2013, but expect increased adoption of six-inch wafers in the LED market. While we expect demand for LED chips to continue to strengthen throughout 2014 with increased adoption of LED lighting, it is difficult to predict how quickly the excess capacity will be absorbed and when the pricing environment will improve.

We currently depend on a small number of suppliers for certain raw materials, components, services and equipment, including key materials such as aluminum oxide 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 237,000 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 production and can produce production volumes of polished wafers. In March 2012, we acquired additional land in Batavia, Illinois to expand our crystal growth capacity. We have not yet determined when we will begin construction on this facility.

### **Financial operations**

*Revenue.* Our revenue consists of sales of sapphire materials sold in core, as-cut, as-ground and polished 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.

We have focused on increasing sales of larger diameter substrates, which we define as three inch or greater in diameter, as they generally yield higher gross margins. For the year ended December 31, 2011, we experienced a significant increase in revenue in large diameter polished product lines as one of our key customers was the first LED chip maker to move to a larger diameter (6 ) platform in high-volume production. In addition, increased pricing for our core products resulted in higher revenue from these products for the year ended

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December 31, 2011. However, in the fourth quarter of 2011, the LED market began softening considerably with the maturing of the LED backlighting markets, and the demand and pricing experienced a significant decrease across most product lines. The weak market conditions continued throughout 2012 and for the year ended December 31, 2012, we experienced a significant decrease in revenue from our core products on decreasing pricing as well as decreased demand for our large diameter polished product lines for the LED market. The decrease in our large diameter product lines for the LED market was partially offset by a strong SoS market. Throughout 2013, we experienced limited demand for our large diameter substrates and gradually improved pricing for our smaller diameter core products. While we expect demand for the LED chips to continue to strengthen throughout 2014 with increased adoption of LED lighting, it is difficult to predict how quickly the excess capacity will be absorbed and when the pricing environment will improve.

Historically, a substantial portion of our revenue has been derived from sales to a small number of customers. For the year ended December 31, 2013, our top two customers accounted for approximately 44% of our revenue. For the year ended December 31, 2012 our top two customers accounted for approximately 67% of our revenue and for the year ended December 31, 2011, our top three customers accounted for approximately 69% of our revenue. 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 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.



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*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. Our most recent analysis of ownership changes that limit the utilization of the NOLs shows no ownership change. We believe that an updated analysis will not likely indicate an ownership change that would limit the utilization of our net operating losses and tax credits as of December 31, 2013. We will be updating our analysis in 2014 and the results of that analysis may, because of the primary stock offering in January 2014 indicate an ownership change. If an ownership change is determined, the utilization of the net operating losses and the tax credits may be limited.

A full valuation allowance is provided and no tax benefit is recorded until we can conclude that it is more likely than not that our deferred tax assets will be realized. Due to the losses in the fourth quarter of 2013, we are in a cumulative loss position for the past three years, which is considered significant negative evidence by the accounting standards that is difficult to overcome on a more likely than not standard through objectively verifiable data. As of December 31, 2013, a valuation allowance of \$9.5 million 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 valuation allowance on net deferred tax assets related to future U.S. tax benefits and will no longer accrue tax benefits or tax expense. During the twelve months ended December 31, 2011, we concluded at that time that based on the then current level of sustainable profitability that generates taxable income, it was more likely than not that our deferred tax assets will be realizable. We recognized a tax benefit of \$3.3 million to record current and long-term deferred tax assets during the twelve months ended December 31, 2011.

The Illinois State Legislature has suspended the full use of net operating loss carryforwards for taxable years ended after December 31, 2010 and before December 31, 2011, and has limited the net operation loss deduction to \$100,000 for the years ended December 31, 2012 through December 31, 2013. Our effective tax rate could fluctuate significantly on a quarterly basis and could be adversely affected to the extent earnings are lower than anticipated.

*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, 2013, 2012 and 2011, our stock-based compensation expense was \$1.6 million, \$2.0 million and \$2.5 million, respectively.

**Table of Contents****RESULTS OF OPERATIONS**

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

	2013	Year ended December 31, 2012 (in millions)	2011
Revenue	\$ 41.5	\$ 67.2	\$ 134.0
Cost of goods sold	63.4	67.3	64.4
<b>Gross (loss) profit</b>	<b>(21.9)</b>	<b>(0.1)</b>	<b>69.6</b>
Operating expenses:			
General and administrative	8.6	9.0	11.3
Sales and marketing	1.5	1.7	1.7
Research and development	2.3	2.3	1.8
Loss on disposal of assets	0.6		0.1
<b>Total operating expenses</b>	<b>13.0</b>	<b>13.0</b>	<b>14.9</b>
Income (loss) from operations	(34.9)	(13.1)	54.7
Other (expense) income	(0.6)	0.5	(0.1)
Income (loss) before income taxes	(35.5)	(12.6)	54.6
Income tax benefit (expense)	5.1	7.1	(16.5)
<b>Net (loss) income</b>	<b>\$ (30.4)</b>	<b>\$ (5.5)</b>	<b>\$ 38.1</b>

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

	2013	Year ended December 31, 2012 (percentage of total)	2011
Revenue	100%	100%	100%
Cost of goods sold	153	100	48
<b>Gross (loss) profit</b>	<b>(53)</b>		<b>52</b>
Operating expenses:			
General and administrative	21	13	8
Sales and marketing	4	3	1
Research and development	5	3	2
Loss on disposal of assets	1		
<b>Total operating expenses</b>	<b>31</b>	<b>19</b>	<b>11</b>
Income (loss) from operations	(84)	(19)	41
Other (expense) income	(1)		

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Income (loss) before income taxes	(85)	(19)	41
Income tax benefit (expense)	12	11	(13)
Net (loss) income	(73%)	(8%)	28%

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**Comparison of years ended December 31, 2013 and 2012**

*Revenue.* Revenue was \$41.5 million for the year ended December 31, 2013 and \$67.2 million for the year ended December 31, 2012, a decrease of \$25.7 million. In 2013, we experienced higher revenue from the sale of sapphire cores, which are sold into the LED market, of \$13.5 million, of which \$16.3 million was attributed to higher volume partially offset by a decrease of \$2.8 million that was attributed to lower pricing. We experienced a decrease in revenue from our wafer products sold to the LED and SoS markets. Revenue from sales of our polished wafers decreased by \$38.3 million, which was the result of \$21.7 million lower sales of polished wafers to the LED market as well as a \$16.6 million decrease in polished wafers sold to the SoS market. Of the \$38.3 million reduction in revenue from polished wafers, \$1.0 million was attributable to lower prices and \$37.2 million was attributable to lower volume. We also experienced lower optical revenue of \$1.2 million due to the decrease in sales for sensor and instrumentation applications. We experienced an increase in research and development revenue of \$234,000 on our contract with the Air Force Research Laboratory. Revenue with respect to this contract was recorded as costs were incurred as well as a portion of the fixed fee for the year ended December 31, 2013 and 2012. The contract will continue for a duration of three years and the total value of the contract is \$4.7 million.

Demand for our core products increased throughout 2013 with stronger demand from the LED general lighting market and the adoption of sapphire in newer applications like the lens cover, dual flash and home button on certain smartphones. As a result, pricing gradually increased for our core products in the second half of 2013. We expect pricing for sapphire cores to remain steady in the first quarter of 2014 and then begin to slowly increase as excess sapphire capacity in the market continues to be absorbed by growing demand from the LED and other markets. We continued to experience limited demand for LED polished wafers during 2013 but expect increased adoption of six-inch wafers in the LED market. We have also recently begun offering four-inch polished wafers and four and six-inch patterned wafers which we expect to generate additional wafer revenue in 2014. The manufacturer of the majority of SoS chips will be introducing new products that will be produced on a substrate other than sapphire starting early 2014, therefore the amount of wafers sold into that market will be significantly reduced beginning in 2014. We operate in an extremely volatile market, so the amount of price or volume change is difficult to predict.

*Gross loss.* Gross loss was \$21.9 million and \$40,000 for the years ended December 31, 2013 and 2012, respectively, an increased loss of \$21.9 million. The increase in gross loss is primarily due to a reduction in revenue, which in turn is attributable to decreased demand of our higher margin wafer sales as well as lower utilization of our production facilities. For the years ended December 31, 2013 and 2012, we determined we were not operating at capacity and recorded costs associated with the lower utilization of equipment and staff of \$13.2 million and \$1.9 million, respectively.

*General and administrative expenses.* G&A expenses were \$8.6 million for the year ended December 31, 2013 and \$9.0 million for the year ended December 31, 2012, a decrease of \$389,000. In 2013, we experienced lower consulting fees of \$430,000 and lower travel expenses of \$93,000, partially offset by an increase in legal expenses of \$103,000.

*Sales and marketing expenses.* Sales and marketing expenses were \$1.5 million and \$1.7 million for the years ended December 31, 2013 and 2012, a decrease of \$164,000. The decrease is attributable to a decrease in employee compensation.

*Research and development expenses.* R&D expenses were \$2.3 million for the years ended December 31, 2013 and 2012, a decrease of \$11,000. We experienced a decrease in employee compensation costs offset by an increase in spending on certain R&D projects.

*Other income (expense).* Other expense was \$627,000 for the year ended December 31, 2013 and other income was \$450,000 for the year ended December 31, 2012, an increase in other expense of \$1.1 million. The increase was primarily due to an increase of \$932,000 from realized losses on foreign currency translation and an increase in interest expense of \$95,000.

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*Income tax benefit.* Income tax benefit was \$5.1 million and \$7.1 million for the year ended December 31, 2013 and 2012, respectively. 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. Due to the losses in the fourth quarter of 2013, we are in a cumulative loss position for the past three years which is considered significant negative evidence by the accounting standards that is difficult to overcome on a more likely than not standard through objectively verifiable data. While our financial outlook remains positive, the accounting standards attribute greater weight to objective negative evidence than to subjective positive evidence, such as our projections for future growth. Based on this evaluation, as of December 31, 2013, a valuation allowance of \$9.5 million 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 valuation allowance on net deferred tax assets related to future U.S. tax benefits and will no longer accrue tax benefits or tax expense on our Consolidated Statement of Operations. 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.

We are evaluating the impact of the recent regulations concerning amounts paid to acquire, produce, or improve tangible property and recovery of basis upon disposition. Given that Revenue Procedures were issued in late January 2014, we are determining whether or not any changes in an accounting method are required. Presently, we do not anticipate a material impact to our financial statements.

**Comparison of years ended December 31, 2012 and 2011**

*Revenue.* Revenue was \$67.2 million for the year ended December 31, 2012 and \$134.0 million for the year ended December 31, 2011, a decrease of \$66.8 million. In 2012, we experienced a decrease in revenue from our products sold to the LED market. Revenue from the sale of sapphire cores, which are sold into the LED market, for the year ended December 31, 2012 decreased by \$52.6 million, of which \$42.3 million was attributed to lower pricing and \$10.3 million was attributed to lower volume. We also experienced lower revenue from sales of our polished wafers by \$14.4 million, which was the result of \$36.9 million lower sales of polished wafers to the LED market offset in part by a \$22.5 million increase in polished wafers sold to the SoS market. Of the \$14.4 million reduction in revenue from polished wafers, \$16.9 million was attributable to lower prices offset in part by an increase in volume of \$2.5 million. We experienced an increase in R&D revenue of \$1.2 million as we were awarded a contract with the Air Force Research Laboratory in July 2012 to produce large area sapphire slabs. Revenue with respect to this contract was recorded as costs were incurred as well as a portion of the fixed fee for the year ended December 31, 2012. The contract will continue for a duration of three years and the total value of the contract is \$4.7 million. We also experienced in 2012, lower optical revenue of \$1.0 million due to the decrease in sales for sensor and instrumentation applications.

*Gross (loss) profit.* Gross loss was \$40,000 for the year ended December 31, 2012 as compared to a gross profit of \$69.6 million for the year ended December 31, 2011, a decrease of \$69.6 million. The decrease in gross profit is primarily due to the reduction in revenue, which in turn is attributable to decreased pricing for our products as well as lower utilization of our production facilities attributable to the reduced demand from the LED market due to the buildup of excess inventory in the supply chain. Due to changes in customers' product specifications an excess and obsolete inventory reserve adjustment of \$719,000 was recorded for the year ended December 31, 2012, which reduced inventory and increased cost of goods sold as various items in stock were no longer in demand. In addition, pricing for our small diameter core products declined throughout 2012 and in the fourth quarter of 2012 market prices fell below our carrying cost in inventory. As a result, we recorded a lower of cost or market adjustment which reduced inventory and increased cost of goods sold by a net of \$1.5 million for the year ended December 31, 2012. In addition, given the relative strength of the six-inch market, we wanted to make sure our boule inventory was capable of producing high-yield six-inch material. Consequently, we decided

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to recycle some boules from inventory that might have produced lower than normal six-inch yield. This added approximately \$927,000 to cost of goods sold for the year ended December 31, 2012.

*General and administrative expenses.* G&A expenses were \$9.0 million for the year ended December 31, 2012 and \$11.3 million for the year ended December 31, 2011, a decrease of \$2.3 million. Our bad debt expense decreased by \$1.9 million as we made accommodations for the year ended December 31, 2011 to certain key customers of our small diameter cores by agreeing to write off a portion of their accounts receivable balances that did not re-occur in 2012. We also experienced a decrease of employee compensation costs of \$385,000, resulting from a lower performance based bonus expense. In 2012, we also experienced higher legal expenses of \$488,000, offset partially by lower consulting expenses of \$268,000 and lower recruiting expenses of \$102,000.

*Sales and marketing expenses.* Sales and marketing expenses were \$1.7 million for the years ended December 31, 2012 and 2011. A slight increase of \$27,000 in sales and marketing expenses is attributable to additional employee compensation costs, primarily due to annual salary increases and employee stock options expense.

*Research and development expenses.* R&D expenses were \$2.3 million for the year ended December 31, 2012 and \$1.8 million for the year ended December 31, 2011, an increase of \$468,000. The increase is attributable to higher employee compensation costs of \$204,000 related to increased headcount and salary increases, an increase in spending on research projects of \$186,000 and an increase in travel of \$77,000.

*Other income (expense).* Other income was \$450,000 for the year ended December 31, 2012 and other expense was \$118,000 for the year ended December 31, 2011, an increase in other income of \$568,000. The increase was primarily due to an increase of \$719,000 from realized gains on foreign currency translation partially offset by a \$159,000 decrease in interest income on lower investment balances.

*Income tax benefit (expense).* Income tax benefit was \$7.1 million for the year ended December 31, 2012 as compared to an income tax expense of \$16.5 million for the year ended December 31, 2011. Our projected effective tax rate, while in a profit operating mode, is 30% to 35%; however, the rate of tax benefit accrued while in a loss mode will typically be higher and will vary based on the distribution of activity between our U.S. and Malaysia operations.

**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 \$25.0 million. The agreement provides for us to borrow up to 80% of eligible accounts receivable and up to 35% for 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. Unused revolving line facility fee is 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 only pay dividends or repurchase capital stock with the bank's consent during the three year term. As of December 31, 2013 we have not yet borrowed against our debt facility.

As of December 31, 2013, we had cash and short term investments totaling \$34.6 million, including cash of \$5.5 million held in deposits at major banks, \$15.5 million invested in money market funds and \$13.6 million of short term investments including commercial paper, corporate notes and bonds, U.S. treasury securities, FDIC guaranteed certificates of deposit and common stock.

**Table of Contents****Cash flows from operating activities**

	Year ended December 31,		
	2013	2012	2011
	(in millions)		
Net (loss) income	\$ (30.4)	\$ (5.5)	\$ 38.1
<b>Non-cash items:</b>			
Depreciation and amortization	12.7	12.0	9.7
Stock based compensation and other, net	2.1	2.0	2.5
Deferred taxes	(5.2)	(6.3)	13.5
Excess tax benefits from stock based compensation	0.1	(0.2)	(1.4)
<b>Total non-cash items:</b>	9.7	7.5	24.3
<b>Working capital:</b>			
Accounts receivable	9.1	20.0	(14.0)
Accounts payable	(4.4)	(4.0)	3.7
Other accruals	(1.1)	(0.4)	(1.6)
Inventories	13.0	(24.2)	(12.0)
Prepaid expenses and other assets	4.5	3.9	(13.9)
<b>Total working capital items:</b>	21.1	(4.7)	(37.8)
<b>Net cash provided by (used in) operating activities</b>	<b>\$ 0.4</b>	<b>\$ (2.7)</b>	<b>\$ 24.6</b>

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 net working capital of \$21.1 million. The net working capital change was comprised of a decrease in accounts receivable of \$9.1 million due to an overall decreased accounts receivables balance on lower revenues, a decrease in inventory of \$13.0 million as we used a significant portion of our sapphire boules stock and a decrease in accounts payable of \$4.4 million due to timing of payments. We also experienced 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.

Cash used in operating activities was \$2.7 million for the year ended December 31, 2012. During such period, we generated a net loss of \$5.5 million, which included non-cash charges of \$7.5 million, and a decrease in net working capital of \$4.7 million. The net working capital change was comprised of a decrease in accounts receivable of \$20.0 million due to significant collections from several key customers and an overall decreased accounts receivables balance on lower revenues, an increase in inventory of \$24.2 million primarily due to an increase in our stock of raw materials and sapphire boules and a decrease in accounts payable of \$4.0 million due to timing of payments. We also experienced a decrease in other prepaid assets of \$3.9 million, primarily related to a decrease in the purchase of furnace construction and replacement parts and items used in the polishing of wafers.

Cash provided by operating activities was \$24.6 million for the year ended December 31, 2011. During such period, we generated net income of \$38.1 million, which included non-cash charges of \$24.3 million, and a decrease in net working capital of \$37.8 million. The decrease in net working capital was comprised of an increase in accounts receivable of \$14.0 million due to timing of collections, a decrease in other accruals of \$1.6 million consisting primarily of a decrease in deposits of \$1.1 million from customer prepayments, an increase in prepaid expenses and other current assets of \$13.9 million due to an increase in purchases of furnace construction and replacement parts for both the Illinois and Malaysia facilities, an increase in inventory of \$12.0 million, which was attributed to an increase in raw materials inventory as we continued to grow our safety stock, as well as an increase in work-in-progress and finished goods inventory due to lower demand of the two and four-inch core products in the fourth quarter. This was offset by an increase in accounts payable of \$3.7 million due to timing of payments.

**Table of Contents****Cash flows provided by (used in) investing activities**

The following table represents the major components of our cash flows from investing activities for the years ended December 31, 2013, 2012 and 2011:

	Year ended December 31,		
	2013	2012	2011
	(in millions)		
Purchases of property and equipment:			
Machinery and equipment for crystal growth	(0.9)	(5.1)	(28.0)
Land and building improvements		(2.4)	(5.9)
Increase capacity in other areas	(7.8)	(3.5)	(14.3)
Proceeds from disposal of assets	0.1		
<b>Total purchases of property and equipment, net of proceeds from disposal of assets</b>	<b>(8.6)</b>	<b>(11.0)</b>	<b>(48.2)</b>
Proceeds from sale of investments, net of purchases	9.4	29.0	15.5
<b>Net cash provided by (used in) investing activities</b>	<b>\$ 0.8</b>	<b>\$ 18.0</b>	<b>\$ (32.7)</b>

Net cash provided by investing activities was \$770,000 and \$18.0 million for the years ended December 31, 2013 and 2012, respectively, and net cash used in investing activities was \$32.7 million for the year ended December 31, 2011. In 2013, we used approximately \$7.8 million for machinery and equipment that allows us to produce patterned polished substrates at our Malaysia facility, as well as to enhance our current polishing platform in Malaysia. This was offset by proceeds from the sale of investments of \$9.4 million. In 2012, we used approximately \$7.5 million to continue to complete and equip our crystal growth facility in Batavia, Illinois and approximately \$3.5 million to increase capacity in other areas. This was offset by sales of investments (net of purchases of investments of \$5.3 million) of \$29.0 million. In 2011, we used approximately \$33.9 million on expansion activities for building and equipment for our crystal growth facility in Batavia, Illinois. We used approximately \$14.3 million to increase capacity for post crystal growth operations, of which \$10.0 million was used for continued equipment installation in our facility in Penang, Malaysia. This was partially offset by sales of investments of \$25.0 million used to fund operations, capital spending and to repurchase some of our capital stock. We purchased additional investments of \$9.5 million using investment earnings proceeds.

We anticipate capital expenditures in 2014 to be between \$10.0 million and \$15.0 million and to primarily be focused on investment in equipment to produce patterned sapphire substrates and enhance our polishing platform.

**Cash flows provided by (used in) financing activities**

Net cash provided by financing activities was \$32,000 and \$250,000 for the years ended December 31, 2013, and 2012 respectively and net cash used in financing activities was \$4.0 million for the year ended December 31, 2011. 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. Net cash provided by financing activities in 2012 was primarily the result of excess tax benefits related to stock based compensation of \$160,000 and proceeds from the exercise of stock options of \$72,000. Net cash used in financing activities for 2011 reflects stock repurchases of \$6.5 million, partially offset by excess tax benefits related to stock based compensation of \$1.4 million and proceeds from the exercise of options of \$742,000.

**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



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twelve months. In addition, on January 13, 2014, we 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, which resulted in our raising a total of \$32.5 million in gross proceeds from the offering. Our cash needs include cash required to fund our operations, and the capital needed to fund our planned expansions 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. If we obtain additional debt financing or draw 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 on terms favorable to us, we may be unable to successfully execute our business plan.

**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, 2013. 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, 2013:

	Total	Payments due in			
		Less than 1 year	1-3 years (in millions)	3-5 years	More than 5 years
Operating lease obligations	\$ 1.5	\$ 1.1	\$ 0.4	\$	\$
Purchase obligations	4.0	3.4	0.6		
<b>Total contractual obligations</b>	<b>\$ 5.5</b>	<b>\$ 4.5</b>	<b>\$ 1.0</b>	<b>\$</b>	<b>\$</b>

**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, investment grade commercial paper, FDIC guaranteed certificates of deposits, common stock, corporate notes and government securities. 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

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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.

### **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'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 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;

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*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, exchanges or refunds; 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. Our current contract will be over a period of three years.

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, 2013 and 2012, we determined we had inventory that was excess or obsolete and recorded an adjustment which reduced inventory and increased costs of goods sold by \$604,000 and \$719,000, respectively. We also sold our smaller diameter core material at prices lower than our cost. Based on those sales prices, we recorded at December 31, 2013 and 2012 a lower of cost or market adjustment which reduced inventory and increased cost of goods sold by \$421,000 and \$1.5 million, respectively. As of December 31, 2013, prices for our small diameter core products were higher than cost. 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.

There is a high degree of volatility in the markets we serve with demand for our products constantly changing. During the year ended December 31, 2012, due to the current demand of products, we decided to recycle some boules from inventory. Historically, boules put through a second growth cycle typically result in a very high-grade crystal which may result in higher yield of large diameter wafers. The recycling of boules reduced inventory and increased cost of goods sold for the year ended December 31, 2012 by \$927,000.

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, 2013 and 2012, we determined we were not operating at capacity and recorded costs associated with the lower utilization of equipment and staff of \$13.2 million and \$1.9 million, respectively. Our crystal growth operation is now operating at full capacity. The utilization of our polishing operation will also improve as we ramp up production on PSS and as we gain market share in four and six-inch polished wafers. However, until the ramp up occurs, we will incur additional adjustments for lower utilization of our polishing equipment and staff in the first half of 2014.

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.

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*Investments.* We invest available cash primarily in investment grade commercial paper, FDIC guaranteed certificates of deposits, 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 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, 2013, 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 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.

*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, a review of a peer group of companies, and expected exercise behavior. Until November 2007, we were operating as a private company, and as a result, we were unable to use our actual price volatility data. Therefore, we estimated the volatility of our common stock based on volatility of similar entities over the expected term of our stock options for the years ended December 31, 2012 and 2011. In 2013, we determined we had enough historical data to use our own stock price as the basis for calculating the volatility rate. As such, we used a three year historical stock price to calculate the volatility rate used for stock options granted in the year ended December 31, 2013. 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 19.18% was based on our past history of forfeitures.

All option grants made during 2013 and 2012 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

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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, 2013 and 2012, there was no aggregate intrinsic value for options outstanding and exercisable.

During 2013, 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 25% 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 \$1.6 million in stock-based compensation expense during the year ended December 31, 2013. 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. Due to the losses in the fourth quarter of 2013, we are in a cumulative loss position for the past three years which is considered significant negative evidence by the accounting standards that is difficult to overcome on a more likely than not standard through objectively verifiable data. While we believe our financial outlook remains positive, under the accounting standards objective 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, 2013, a valuation allowance of \$9.5 million 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. During the year ended December 31, 2011, management concluded at that time that based on the current level of sustainable profitability that generates taxable income, that it is more likely than not that our deferred tax assets will be realizable. With the release of the valuation allowance, federal and certain state and non-U.S. income taxes attributable to the fiscal year's pre-tax income were provided for in the period. The reversal of the valuation allowance favorably impacted our effective tax rate.

*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. For the years ended December 31, 2012 and 2011, we recorded a liability of \$1.0 million and \$363,000, respectively for uncertain tax positions. We recognize interest and/or penalties related to income tax matters in income tax expense.

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**RECENT ACCOUNTING PRONOUNCEMENT**

In July 2013, the FASB issued Accounting Standards Update No. 2013-11 ( ASU 2013-11 ), *Income Taxes (Topic 740): Presentation of an Unrecognized Tax Benefit When a Net Operating Loss Carryforward, a Similar Tax Loss, or a Tax Credit Carryforward Exists*. ASU No. 2013-11 clarifies that an unrecognized tax benefit, or a portion of an unrecognized tax benefit, should be presented in the financial statements as a reduction to a deferred tax asset for a net operating loss carryforward, a similar tax loss, or a tax credit carryforward, except as follows. To the extent a net operating loss carryforward, a similar tax loss, or a tax credit carryforward is not available at the reporting date under the tax law of the applicable jurisdiction to settle any additional income taxes that would result from the disallowance of a tax position or the tax law of the applicable jurisdiction does not require the entity to use, and the entity does not intend to use, the deferred tax asset for such purpose, the unrecognized tax benefit should be presented in the financial statements as a liability and should not be combined with deferred tax assets. The assessment of whether a deferred tax asset is available is based on the unrecognized tax benefit and deferred tax asset that exist at the reporting date and should be made presuming disallowance of the tax position at the reporting date. This ASU is effective for fiscal years, and interim periods within those years, beginning after December 15, 2013. The adoption of ASU 2013-11 is not expected to have a material impact on our consolidated financial statements.

**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.

**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 instructions for Form 10-K, 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, 2013.

**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 controls over financial reporting were effective as of December 31, 2013. As required under this Item 9A, the management's report titled

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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 on 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, 2013 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.

**Table of Contents****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 Officers, Section 16(a) Beneficial Ownership Reporting Compliance and Audit Committee in our proxy statement for our 2014 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](http://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 2014 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 Compensation Committee Interlocks and Insider Participation and Compensation Committee Report in our proxy statement for our 2014 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, 2013.

**Equity Compensation Plan Information**

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuances Under the Equity Compensation Plans (Excluding Securities Reflected in Column(a)) (c)
Equity compensation plans approved by security holders(1)	1,972,011	\$ 12.38	2,240,103

(1) Approved before our initial public offering.



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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 Shareholder Matters" in our proxy statement for our 2014 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 Person Transactions" in our proxy statement for our 2014 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 2014 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 2014 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>Page</b>
<u>Management's Report on Internal Control over Financial Reporting</u>	F-2
<u>Report of Independent Registered Public Accounting Firm on Internal Control over Financial Reporting</u>	F-3
<u>Report of Independent Registered Public Accounting Firm</u>	F-4
<u>Consolidated Balance Sheets as of December 31, 2013 and 2012</u>	F-5
<u>Consolidated Statements of Operations for each of the three years in the period ended December 31, 2013</u>	F-6
<u>Consolidated Statements of Comprehensive Income for each of the three years in the period ended December 31, 2013</u>	F-7
<u>Consolidated Statements Stockholders' Equity for each of the three years in the period ended December 31, 2013</u>	F-8
<u>Consolidated Statements of Cash Flows for each of the three years in the period ended December 31, 2013</u>	F-9
<u>Notes to Consolidated Financial Statements</u>	F-10

(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 13, 2014.

Rubicon Technology, Inc.

By /s/ Raja M. Parvez  
Raja M. Parvez

President and Chief Executive Officer

KNOWN BY ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Raja M. Parvez and William F. Weissman, 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 13, 2014.

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

**Table of Contents****EXHIBIT INDEX**

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

<b>Exhibit No.</b>	<b>Description</b>	<b>Incorporation by Reference</b>
3.1	Eighth Amended and Restated Certificate of Incorporation of Rubicon Technology, Inc.	Filed as Exhibit 3.1 to Amendment No. 2, filed on November 1, 2007, to the registrant's Registration Statement on Form S-1 (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 Amendment No. 2, filed on November 1, 2007, to the registrant's Registration Statement on Form S-1 (File No. 333-145880)
4.1	Specimen Common Stock Certificate	Filed as Exhibit 4.1 to Amendment No. 3, filed on November 13, 2007, to the registrant's Registration Statement on Form S-1 (File No. 333-145880)
4.2	Warrant to Purchase Shares of Series B preferred stock between Rubicon Technology, Inc. and GATX Ventures, Inc., dated July 10, 2002 (1)	Filed as Exhibit 4.8 to the registrant's Registration Statement on Form S-1, filed on October 11, 2007 (File No. 333-145880)
4.3	Warrant to Purchase Shares of Series B preferred stock between Rubicon Technology, Inc. and GATX Ventures, Inc., dated July 10, 2002 (2)	Filed as Exhibit 4.9 to the registrant's Registration Statement on Form S-1, filed on October 11, 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 October 11, 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 October 11, 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 October 11, 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 October 11, 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 October 11, 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 October 11, 2007 (File No. 333-145880)

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<b>Exhibit No.</b>	<b>Description</b>	<b>Incorporation by Reference</b>
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 October 11, 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 October 11, 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 October 11, 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 October 11, 2007 (File No. 333-145880)
10.2*	Rubicon Technology, Inc. 2007 Stock Incentive Plan, as amended and restated on March 23, 2011	
10.3*	Rubicon Technology, Inc. Management Incentive Bonus Plan, dated as of February 28, 2007	Filed as Exhibit 10.4 to the registrant's Registration Statement on Form S-1, filed on October 11, 2007 (File No. 333-145880)
10.4*	Amendment No. 1 to Rubicon Technology, Inc. Management Incentive Bonus Plan, dated as of August 29, 2007	Filed as Exhibit 10.4(a) to the registrant's Registration Statement on Form S-1, filed on October 11, 2007 (File No. 333-145880)
10.5*	Executive Employment Agreement, dated as of dated January 29, 2009, by and between Rubicon Technology, Inc. and Raja M. Parvez Executive Employment Agreement	Filed as Exhibit 10.5(b) to the registrant's Current Report on Form 8-K filed on December 3, 2009 (File No. 1-33834)
10.6*	Executive Employment Agreement, dated as of July 30, 2007, by and between Rubicon Technology, Inc. and William F. Weissman	Filed as Exhibit 10.8 to the registrant's Registration Statement on Form S-1, filed on October 11, 2007 (File No. 333-145880)
10.7*	First Amendment to Executive Employment Agreement, dated as of January 29, 2009, by and between Rubicon Technology, Inc. and William F. Weissman	Filed as Exhibit 10.8(a) to the registrant's Current Report on Form 8-K filed on December 3, 2009 (File No. 1-33834)
10.8*	Form of Post-IPO Change of Control Severance Agreement	Filed as Exhibit 10.10 to the registrant's Registration Statement on Form S-1, filed on October 11, 2007 (File No. 333-145880)
10.9*	Form of Indemnification Agreement	Filed as Exhibit 10.11 to the registrant's Registration Statement on Form S-1, filed on October 11, 2007 (File No. 333-145880)
10.10	Commercial Lease, dated as of December 23, 2004, by and between Rubicon Technology, Inc. and Bartmanns, Perales & Dolter, LLC	Filed as Exhibit 10.12 to the registrant's Registration Statement on Form S-1, filed on October 11, 2007 (File No. 333-145880)
10.11	Amendment to Commercial Lease, dated as of May 6, 2005, by and between Rubicon Technology, Inc. and Bartmanns, Perales & Dolter, LLC	Filed as Exhibit 10.12(a) to the registrant's Registration Statement on Form S-1, filed on October 11, 2007 (File No. 333-145880)

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<b>Exhibit No.</b>	<b>Description</b>	<b>Incorporation by Reference</b>
10.12	Industrial Building Lease, dated as of July 18, 2007, by and between Rubicon Technology, Inc. and Phillip J. Latoria, Jr.	Filed as Exhibit 10.14 to the registrant's Registration Statement on Form S-1, filed on October 11, 2007 (File No. 333-145880)
10.13+	Master Purchase Agreement dated as of February 3, 2012 by and between Rubicon Technology, Inc. and LG Innotek Co., Ltd.	Filed as Exhibit 10.1 to the registrant's Quarterly Report on Form 10-Q/A, filed on August 23, 2012 (File No. 1-33834)
10.14	Loan and Security Agreement by and between Rubicon Technology, Inc. and Silicon Valley Bank, dated as of January 2, 2013	Filed as Exhibit 10-K to the registrant's Current Report on Form 8-K, filed on January 3, 2013 (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)	
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 Report on Form 10-K

+ Confidential treatment has been requested and granted for certain provisions of this Exhibit pursuant to Rule 24b-2 promulgated under the Exchange Act.

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**Rubicon Technology, Inc.**

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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, 2013. In making this assessment, management used the criteria set forth in *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, 2013, 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, 2013, 2012 and 2011 and the Company's internal control over financial reporting as of December 31, 2013. Their reports are presented on the following pages.

Rubicon Technology, Inc.

March 13, 2014

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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, 2013, based on criteria established in the 1992 *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, 2013, based on criteria established in the 1992 *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, 2013, and our report dated March 13, 2014 expressed an unqualified opinion on those financial statements.

/s/ GRANT THORNTON LLP

Chicago, Illinois

March 13, 2014

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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, 2013 and 2012, and the related consolidated statements of operations, comprehensive income, changes in shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2013. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these 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 financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the 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, 2013 and 2012, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2013 in conformity with accounting principles generally accepted in the United States of America.

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, 2013, based on criteria established in the 1992 *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated March 13, 2014 expressed an unqualified opinion.

/s/ GRANT THORNTON LLP

Chicago, Illinois

March 13, 2014

**Table of Contents****Rubicon Technology, Inc.****Consolidated Balance Sheets**

	As of December 31, 2013                      2012 (in thousands, other than share data)	
<b>Assets</b>		
Cash and cash equivalents	\$ 21,071	\$ 19,573
Restricted cash	165	171
Short-term investments	13,567	24,361
Accounts receivable, net	3,571	10,992
Accounts receivable - related parties		1,677
Inventories	34,312	47,354
Other inventory supplies	12,533	15,813
Prepaid expenses and other current assets	1,186	2,353
Deferred tax assets		4,427
<b>Total current assets</b>	<b>86,405</b>	<b>126,721</b>
Property and equipment, net	115,220	119,850
Other assets	1,070	1,525
<b>Total assets</b>	<b>\$ 202,695</b>	<b>\$ 248,096</b>
<b>Liabilities and stockholders' equity</b>		
Accounts payable	\$ 4,465	\$ 8,954
Accrued payroll	369	1,006
Accrued and other current liabilities	867	1,139
Corporate income and franchise taxes	192	216
Accrued real estate taxes	336	297
Advance payments	408	772
<b>Total current liabilities</b>	<b>6,637</b>	<b>12,384</b>
Deferred tax liability	267	10,326
<b>Total liabilities</b>	<b>6,904</b>	<b>22,710</b>
Commitments and contingencies		
<b>Stockholders' equity</b>		
Preferred stock, \$0.001 par value, 5,000,000 undesignated shares authorized, no shares issued or outstanding		
Common stock, \$0.001 par value, 45,000,000 shares authorized; 24,433,523 and 24,327,140 shares issued; 22,658,679 and 22,552,296 shares outstanding	25	25
Additional paid-in capital	335,935	334,314
Treasury stock, at cost, 1,774,844	(12,148)	(12,148)
Accumulated other comprehensive (loss) income	(418)	447
Accumulated deficit	(127,603)	(97,252)
<b>Total stockholders' equity</b>	<b>195,791</b>	<b>225,386</b>
<b>Total liabilities and stockholders' equity</b>	<b>\$ 202,695</b>	<b>\$ 248,096</b>

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



**Table of Contents****Rubicon Technology, Inc.****Consolidated Statements of Operations**

	2013	Year ended December 31, 2012	2011
	(in thousands, other than share and per share data)		
Revenue	\$ 41,513	\$ 67,243	\$ 134,000
Cost of goods sold	63,434	67,283	64,365
Gross (loss) profit	(21,921)	(40)	69,635
Operating expenses:			
General and administrative	8,629	9,018	11,336
Sales and marketing	1,521	1,685	1,658
Research and development	2,263	2,274	1,806
Loss on disposal of assets	550	19	84
Income (loss) from operations	(34,884)	(13,036)	54,751
Other income (expense):			
Interest income	51	93	252
Interest expense	(95)		
Realized (loss) gain on foreign currency translation	(583)	349	(370)
Realized gain on investments		8	
Total other (expense) income	(627)	450	(118)
Income (loss) before income taxes	(35,511)	(12,586)	54,633
Income tax benefit (expense)	5,160	7,048	(16,574)
Net (loss) income	\$ (30,351)	\$ (5,538)	\$ 38,059
Net (loss) income per common share			
Basic	\$ (1.35)	\$ (0.25)	\$ 1.67
Diluted	\$ (1.35)	\$ (0.25)	\$ 1.61
Weighted average common shares outstanding used in computing net (loss) income per common share			
Basic	22,572,212	22,523,951	22,852,205
Diluted	22,572,212	22,523,951	23,596,162

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

**Table of Contents****Rubicon Technology, Inc.****Consolidated Statements of Comprehensive Income**

	Year ended December 31,		
	2013	2012	2011
	(in thousands)		
Net (loss) income	\$ (30,351)	\$ (5,538)	\$ 38,059
Other comprehensive (loss) income:			
Unrealized (loss) gain on investments, net of taxes	(863)	505	(42)
Unrealized (loss) gain on currency translation	(2)	(8)	2
Other comprehensive (loss) income	(865)	497	(40)
Comprehensive (loss) income	\$ (31,216)	\$ (5,041)	\$ 38,019

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

**Table of Contents****Rubicon Technology, Inc.****Consolidated Statements of Stockholders' Equity**

	Common stock		Treasury Stock		Additional paid-in capital	Stockholders' equity		
	Shares	Amount	Shares	Amount		Accum Other Comp Inc.	Accum deficit	Total stockholders equity
	(in thousands other than share data)							
Balance at January 1, 2011	24,210,644	\$ 23	(1,249,975)	\$ (5,661)	\$ 327,515	\$ (10)	\$ (129,773)	\$ 192,094
Exercise of stock options	71,355	1			741			742
Stock-based compensation					2,297			2,297
Excess tax benefit of stock based compensation					1,404			1,404
Stock issued to Board of Directors	7,724				162			162
Purchase of treasury stock, at cost			(524,869)	(6,487)				(6,487)
Foreign currency translation adjustments						2		2
Unrealized loss on investments, net of tax						(42)		(42)
Net income							38,059	38,059
Balance at December 31, 2011	24,289,723	24	(1,774,844)	(12,148)	332,119	(50)	(91,714)	228,231
Exercise of stock options	17,884	1			72			73
Net exercise of stock warrants	2,188							
Stock-based compensation					1,801			1,801
Stock issued to Board of Directors	17,345				162			162
Excess tax benefit of stock based compensation					160			160
Foreign currency translation adjustments						(8)		(8)
Unrealized gain on investments, net of tax						505		505
Net loss							(5,538)	(5,538)
Balance at December 31, 2012	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	73,709				292			292
Stock issued to Board of Directors	4,744				57			57
Excess tax benefit of stock based compensation					(114)			(114)
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

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



**Table of Contents****Rubicon Technology, Inc.****Consolidated Statements of Cash Flows**

	Year ended December 31,		
	2013	2012	2011
	(in thousands)		
<b>Cash flows from operating activities</b>			
Net (loss) income	\$ (30,351)	\$ (5,538)	\$ 38,059
Adjustments to reconcile net (loss) income to net cash provided by (used in) operating activities			
Depreciation and amortization	12,660	12,027	9,724
Net loss on disposal of assets	550	19	84
Stock-based compensation	1,375	1,801	2,297
Stock issued to Board of Directors	220	162	162
Realized gain on investments		(8)	
Deferred taxes	(5,166)	(6,324)	13,447
Excess tax benefits from stock-based compensation	114	(160)	(1,404)
Changes in operating assets and liabilities:			
Accounts receivable	9,098	19,975	(13,968)
Inventories	12,979	(24,258)	(11,948)
Other inventory supplies	2,976	1,948	(9,929)
Prepaid expenses and other assets	1,571	1,981	(3,993)
Accounts payable	(4,472)	(4,004)	3,683
Accrued payroll	(510)	(581)	(951)
Corporate income and franchise taxes	(25)	(391)	212
Accrued real estate taxes	39	22	49
Advance payments	(364)	763	(1,094)
Accrued and other current liabilities	(282)	(172)	182
Net cash provided by (used in) operating activities	412	(2,738)	24,612
<b>Cash flows from investing activities</b>			
Purchases of property and equipment	(8,721)	(10,975)	(48,228)
Proceeds from disposal of assets	141	10	
Purchase of investments	(2,040)	(5,281)	(9,439)
Proceeds from sale of investments	11,390	34,300	25,000
Net cash provided by (used in) investing activities	770	18,054	(32,667)
<b>Cash flows from financing activities</b>			
Proceeds from exercise of options	140	72	742
Restricted cash	6	18	344
Purchase of treasury stock			(6,487)
Excess tax benefits from stock-based compensation	(114)	160	1,404
Net cash provided by (used in) financing activities	32	250	(3,997)
Net effect of currency translation	284	(283)	269
Net increase (decrease) in cash and cash equivalents	1,498	15,283	(11,783)
Cash and cash equivalents, beginning of year	19,573	4,290	16,073
Cash and cash equivalents, end of year	\$ 21,071	\$ 19,573	\$ 4,290
<b>Supplemental disclosure of cash flow information</b>			
Cash paid for income taxes	\$	\$	\$ 6,050
Cash paid for interest	\$ 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, blue laser diodes, 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 and Rubicon Sapphire Technology (Malaysia) SDN BHD. 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**

At December 31, 2013 and 2012, in connection with certain credit agreements, the Company is required to maintain \$5,000 of restricted certificates of deposit. At December 31, 2013 and 2012, the Company held \$7,800 and \$2,600, respectively, of employee funds as part of a flexible spending program. At December 31, 2013 and 2012, the Company held \$152,300 and \$163,500, respectively, as a fixed deposit pledged to a bank as a security for a bank guarantee facility granted to the Company.

**Foreign currency translation and transactions**

Rubicon Worldwide LLC'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 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, 2013 and 2012, 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 LED and Silicon-on-Sapphire (SoS) 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 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 become uncollectible, and payments subsequently received on such receivables are recorded as a reduction to bad debt expense.

**Table of Contents****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,	
	2013	2012
	(in thousands)	
Beginning balance	\$ 286	\$ 378
Charges to costs and expenses	24	(54)
Accounts charged off, less recoveries	(260)	(38)
Ending balance	\$ 50	\$ 286

**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,	
	2013	2012
	(in thousands)	
Raw materials	\$ 18,651	\$ 21,267
Work in progress	10,337	20,787
Finished goods	5,324	5,300
	\$ 34,312	\$ 47,354

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, 2013 and 2012, 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 \$604,000 and \$719,000, respectively. The Company had accepted sales orders for smaller diameter core products at prices lower than cost during 2013 and 2012. Based on these sales prices, the Company recorded at December 31, 2013 and 2012, a lower of cost or market adjustment which reduced inventory and increased cost of goods sold by \$421,000 and \$1.5 million, respectively. During the year ended December 31, 2012, the Company recycled some boules from inventory. Historically, boules put through a second growth cycle typically result in a very high-grade crystal which may result in higher yield of large diameter wafers. The recycling of boules reduced inventory and increased cost of goods sold for the year ended December 31, 2012 by \$927,000. The Company's method of estimating excess and obsolete inventory has remained consistent for all periods presented.

**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)****Property and equipment**

Property and equipment consisted of the following:

	As of December 31,	
	2013	2012
	(in thousands)	
Land and land improvements	\$ 4,133	\$ 4,133
Buildings	32,269	30,364
Machinery, equipment and tooling	121,313	103,477
Leasehold improvements	7,696	7,696
Furniture and fixtures	949	941
Information systems	1,077	1,070
Construction in progress	5,221	17,712
Total cost	172,658	165,393
Accumulated depreciation and amortization	(57,438)	(45,543)
Property and equipment, net	\$ 115,220	\$ 119,850

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 \$12.7 million, \$12.0 million and \$9.7 million for the years ended December 31, 2013, 2012 and 2011, 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

**Impairment of long-lived assets**

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. There were no impairment losses on long lived assets for the years ended December 31, 2013, 2012 and 2011.

**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)****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.

**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,	
	2013	2012
	(in thousands)	
Balance, beginning of period	\$ 101	\$ 253
Charged to cost of sales	102	(37)
Actual product warranty expenditures	(62)	(115)
Balance, end of period	\$ 141	\$ 101

**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, 2013 and 2012.

**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, 2013 and 2012, the Company had \$4.8 million and \$6.9 million, respectively, on deposit at a financial institution in excess of amounts insured by the Federal Deposit Insurance Corporation. The Company performs periodic evaluation of this institution 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 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 5.





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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;

*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 will record revenue on a gross basis as costs are incurred plus a portion of the fixed fee. For the years ended December 31, 2013 and 2012, \$2.7 million and \$1.2 million, respectively of revenue were recorded. The contract will continue for duration of three years 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.



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**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 \$2.3 million, \$2.3 million and \$1.8 million for the years ended December 31, 2013, 2012 and 2011, 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. For the year ended December 31, 2011, the Company accrued \$11,000 for potential penalties related to income taxes. 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, 2013 and 2012.

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 ten year period beginning in 2009. Due to the existence of net operating loss carryforwards, tax years ended December 31, 2002 thru 2006 and 2008 thru 2013 are open to examination by tax authorities. All tax years in Malaysia are open to examination by tax authorities.

**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, 2013, 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.

**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)****Other comprehensive income (loss)**

Comprehensive income (loss) is defined as the change in equity of a business enterprise from transactions and other events from non-owner sources. Comprehensive income (loss) includes net earnings (loss) and other non-owner changes in equity that bypass the statement of operations and are reported in a separate component of equity. For the years ended December 31, 2013 and 2012 other comprehensive income (loss) includes the unrealized gain (loss) on investments and foreign currency translation adjustments. A summary of the components of comprehensive income (loss) for the years ended December 31, 2013 and 2012 follows:

	Year Ended December 31,	
	2013	2012
	(in thousands)	
Unrealized (loss) gain on investments, net of tax	\$ (406)	\$ 457
Unrealized loss on currency translation	(12)	(10)
Ending Balance	\$ (418)	\$ 447

**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, 2013 and 2012, because the effects of potentially dilutive securities are anti-dilutive.

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

	2013	2012
Warrants	179,252	143,291
Stock options	56,892	266,020
	236,144	409,311

**Recent accounting pronouncement**

In July 2013, the FASB issued Accounting Standards Update No. 2013-11 ( ASU 2013-11 ), *Income Taxes (Topic 740): Presentation of an Unrecognized Tax Benefit When a Net Operating Loss Carryforward, a Similar Tax Loss, or a Tax Credit Carryforward Exists*. ASU No. 2013-11 clarifies that an unrecognized tax benefit, or a portion of an unrecognized tax benefit, should be presented in the financial statements as a reduction to a deferred tax asset for a net operating loss carryforward, a similar tax loss, or a tax credit carryforward, except as follows. To the extent a net operating loss carryforward, a similar tax loss, or a tax credit carryforward is not available at the reporting date under the tax law of the applicable jurisdiction to settle any additional income taxes that would result from the disallowance of a tax position or the tax law of the applicable jurisdiction does not require the entity to use, and the entity does not intend to use, the deferred tax asset for such purpose, the unrecognized tax benefit should be presented in the financial statements as a liability and should not be combined with deferred tax assets. The assessment of whether a deferred tax asset is available is based on the unrecognized



**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)**

tax benefit and deferred tax asset that exist at the reporting date and should be made presuming disallowance of the tax position at the reporting date. This ASU is effective for fiscal years, and interim periods within those years, beginning after December 15, 2013. The adoption of ASU 2013-11 is not expected to have a material impact on the Company's consolidated financial statements.

**Reclassifications**

Certain prior period amounts on the balance sheet have been reclassified to conform to the current period presentation.

**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,		
	2013	2012	2011
	(in thousands)		
China	\$ 14,844	\$ 3,893	\$ 3,877
Australia	10,368	12,494	14
Taiwan	7,361	5,663	50,006
United States	4,444	11,104	12,253
Korea	2,214	19,862	51,461
France	122	8,482	359
Japan	309	2,999	11,362
Other	1,851	2,746	4,668
Revenue	\$ 41,513	\$ 67,243	\$ 134,000

The following table summarizes sales by product type:

	Year Ended December 31,		
	2013	2012	2011
	(in thousands)		
Core	\$ 23,294	\$ 9,755	\$ 61,734
Polished	12,201	50,474	65,468
Optical	4,523	5,723	6,752
Research & Development	1,457	1,223	15
Other	38	68	31
Revenue	\$ 41,513	\$ 67,243	\$ 134,000



**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)**

The following table summarizes assets by geographic region:

	As of December 31,	
	2013	2012
	(in thousands)	
United States	\$ 157,572	\$ 210,781
Malaysia	45,086	37,280
Other	37	35
 Total Assets	 \$ 202,695	 \$ 248,096

**3. INVESTMENTS**

The Company invests available cash primarily in investment grade commercial paper, FDIC guaranteed certificates of deposits, common stock, corporate notes and government securities. The Company's short-term investments balance of \$13.6 million as of December 31, 2013 is comprised corporate notes and bonds of \$3.0 million, commercial paper of \$3.0 million, FDIC guaranteed certificates of deposit of \$6.2 million and common stock of \$1.4 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, 2013:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(in thousands)			
Short-term Investments:				
FDIC Guaranteed certificates of deposit	\$ 6,160	\$	\$ 6	\$ 6,154
Common stock	2,000		642	1,358
Corporate Notes/Bonds	3,058		1	3,057
Commercial Paper	2,998			2,998
 Total short-term investments	 \$ 14,216	 \$	 \$ 649	 \$ 13,567

The following table presents the amortized cost, and gross unrealized gains and losses on all securities at December 31, 2012:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(in thousands)			
Short-term Investments:				
U.S. Treasury securities and agency	\$ 3,509	\$	\$	\$ 3,509
FDIC Guaranteed certificates of deposit	6,453		6	6,447
Common stock	2,000	806		2,806
Corporate Notes/Bonds	4,606		4	4,602



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Commercial Paper	6,999		2	6,997
Total short-term investments	\$ 23,567	\$ 806	\$ 12	\$ 24,361

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**Table of Contents****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, common stock, 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, 2013:

	Level 1	Level 2	Level 3	Total
Cash Equivalents:				
Money market funds	\$ 15,541	\$	\$	\$ 15,541
Investments:				
Available-for-sales securities - current:				
FDIC Guaranteed certificates of deposit		6,154		6,154
Common stock	1,358			1,358
Corporate notes/bonds		3,057		3,057
Commercial paper		2,998		2,998
Total	\$ 16,899	\$ 12,209	\$	\$ 29,108

**Table of Contents****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, 2012:

	Level 1	Level 2	Level 3	Total
<b>Cash Equivalents:</b>				
Money market funds	\$ 11,644	\$	\$	\$ 11,644
<b>Investments:</b>				
Available-for-sales securities - current:				
U.S. Treasury securities and agency		3,509		3,509
FDIC Guaranteed certificates of deposit		6,447		6,447
Common stock	2,806			2,806
Corporate notes/bonds		4,602		4,602
Commercial paper		6,997		6,997
<b>Total</b>	<b>\$ 14,450</b>	<b>\$ 21,555</b>	<b>\$</b>	<b>\$ 36,005</b>

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 \$5.5 million and \$7.9 million of time deposits included in cash and cash equivalents as of December 31, 2013 and 2012, respectively.

**4. RELATED PARTY TRANSACTIONS**

In November 2008, the Company purchased 1,345,444 shares of Peregrine Series D-1 Preferred shares for a total of \$2.0 million, which represented less than 1% of shares outstanding. The terms and stock price of the purchase were the same as for the other investors who participated. Peregrine is a customer of the Company. On August 8, 2012, Peregrine completed its initial public offering, which resulted in a conversion of the preferred shares to common stock at a ratio of 7.34:1, or 183,303 shares of common stock. There was a lock out period until February, 2013 during which the Company could not sell these shares. For the years ended December 31, 2013 and 2012, the Company recorded an unrealized loss on investments of \$1.4 million and an unrealized gain on investments of \$806,000, respectively. For years ended December 31, 2013, 2012 and 2011, revenue from Peregrine was \$11.0 million, \$25.2 million and \$5.2 million, respectively. As of December 31, 2013 there was no accounts receivable from Peregrine and as of December 31, 2012, accounts receivable from Peregrine was \$1.7 million. The pricing terms and conditions of the sales to Peregrine are similar to those available to the Company's other non-related customers.

**5. SIGNIFICANT CUSTOMERS**

For the year ended December 31, 2013, the Company had two customers that accounted for approximately 27% and 17% of its revenue. For the year ended December 31, 2012, the Company had two customers that accounted for approximately 38% and 29% of its revenue. For the year ended December 31, 2011, the Company had three customers that accounted for approximately 38%, 19% and 12% of its revenue.

Customers individually representing more than 10% of trade receivables accounted for approximately 47% and 93% of accounts receivable as of December 31, 2013 and 2012, 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.

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**Rubicon Technology, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**6. STOCKHOLDERS' EQUITY**

**Common Stock**

As of December 31, 2013 the Company had reserved 1,972,011 shares of common stock for issuance upon the exercise of outstanding common stock options and vesting of restricted stock units. Also, 2,240,103 shares of the Company's common stock were reserved for future grants of stock options (or other similar equity instruments) under the Company's 2007 Stock Incentive Plan (the "2007 Plan") as of December 31, 2013. In addition, 267,826 shares of the Company's common stock were reserved for future exercise of outstanding warrants as of December 31, 2013.

**Warrants**

At December 31, 2013 and 2012, the Company had outstanding 267,826 warrants 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.

At December 31, 2011 the Company had outstanding 13,735 warrants to purchase shares of common stock at an exercise price of \$7.28 per share. The warrants were issued in 2002 in conjunction with the procurement of loans. The warrants were immediately exercisable and expire 10 years from the date of issuance. During 2012, these warrants were exercised on a "net exercise" basis, resulting in the issuance of 2,188 shares of common stock to the warrant holders.

**Treasury Stock**

On August 4, 2011, the Company authorized a stock repurchase program to purchase up to \$25.0 million of its common stock over a period of two years. The stock repurchase program authorizes the Company to repurchase its shares of common stock in the open market at times and prices considered appropriate by the Company depending upon prevailing market conditions and other corporate considerations. 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, 2013 and 2012. The stock repurchase plan expired in 2013.

**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

**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)**

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, 2011	643,850	1,830,397	\$ 12.98	34,863	
Authorized	2,100,000				
Granted	(389,774)	382,050	16.02	7,724	
Exercised		(73,428)	10.78		
Expired	(139,988)				
Canceled/forfeited	45,911	(45,911)	20.15		
Outstanding at December 31, 2011	2,259,999	2,093,108	13.45	42,587	
Granted	(106,395)	89,050	9.72	17,345	
Exercised		(17,885)	4.01		
Canceled/forfeited	47,000	(47,163)	15.13		
Outstanding at December 31, 2012	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

The following table sets forth option grants made during 2013, 2012 and 2011 with intrinsic value calculated based on grant date fair value.

Date of Grant	Number of options granted	Exercise price	Intrinsic value per share
January 2011	26,000	\$ 18.80 - \$21.64	
March - April 2011	73,500	\$ 25.61 - \$27.63	
May 2011	51,650	\$ 22.92	
July 2011	12,500	\$ 16.86	
October 2011	75,400	\$ 10.81 - \$10.93	
December 2011	143,000	\$ 10.19	
January 2012	8,500	\$ 9.39	
April-May 2012	36,750	\$ 9.45 - \$10.43	
July 2012	7,000	\$ 10.20	
September - October 2012	36,800	\$ 9.41 - \$9.58	
January - July 2013	82,815	\$ 6.60 - \$7.97	
October 2013	14,450	\$ 12.11	



**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)**

At December 31, 2013, the exercise prices of outstanding options units were as follows:

<b>Exercise Price</b>	<b>Number of options outstanding</b>	<b>Average remaining contractual life (years)</b>	<b>Number of options exercisable</b>
\$0.78 - \$4.94	533,365	4.05	533,365
\$6.11 - \$9.58	385,054	6.84	274,089
\$10.02 - \$14.00	374,867	7.93	250,417
\$15.00 - \$18.80	66,979	5.71	61,854
\$19.21 - \$22.92	375,150	6.76	353,625
\$24.95 - \$32.67	190,655	6.70	126,155
	1,926,070	6.36	1,599,505

The weighted average fair value of the options that became vested in the years ended 2013, 2012 and 2011 was \$4.8 million, \$8.0 million and \$3.9 million, respectively.

The following table summarizes the activity of non-vested options and restricted stock units as follows:

	<b>Non-vested options</b>	<b>Weighted-Average Option Exercise price</b>
Non-vested at January 1, 2011	1,339,386	\$ 14.12
Granted	382,050	16.02
Vested	(366,484)	10.72
Cancelled	(41,775)	20.39
Non-vested at December 31, 2011	1,313,177	13.58
Granted	89,050	9.72
Vested	(540,050)	14.77
Cancelled	(41,175)	15.38
Non-vested at December 31, 2012	821,002	15.24
Granted	143,206	8.49
Vested	(380,413)	12.50
Cancelled	(211,288)	18.55
Non-vested at December 31, 2013	372,507	\$ 13.57

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, 2013 and 2012, there was no aggregate intrinsic value for options outstanding and exercisable. For the year ended December 31, 2013, the Company used historical stock prices over the past three years as the basis for its volatility assumptions. Prior to 2013, the Company used a review of peer group companies to determine the volatility rate used for its stock option grants. The assumed risk-free rates were based on U.S. Treasury rates in effect at the time

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of grant with a term consistent with the expected option lives. The expected term 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, 2013, 2012 and 2011, the Company recorded \$1.2 million, \$1.8 million and \$2.3 million, respectively of stock option compensation

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**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)**

expense. As of December 31, 2013, the Company has \$3.1 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 1.98 years.

For the years ended December 31, 2013, 2012 and 2011, the assumptions used for the estimated fair value at the date of option grant using the Black-Scholes option-pricing model were as follows:

	2013	2012	2011
Weighted average fair value per share of option	\$8.49	\$9.72	\$16.02
Expected term	5.3 years	5.3 years	5.0 years
Risk free interest rate	0.76% - 1.42%	0.62% - 1.04%	0.85% - 2.24%
Volatility	77%	52%	51%
Dividend yield	None	None	None
Forfeiture rate	19.18%	16.59%	24.53%

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

In October 2013, the Company granted 45,941 restricted stock units ( RSUs ) to certain key employees at a market price of \$8.60. 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. The intrinsic value at date of grant was \$395,000. During 2013, the Company recorded \$25,000 of RSU expense. Each RSU granted will vest 25% 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. As of December 31, 2013, there was \$370,000 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 3.75 years. At December 31, 2013 the intrinsic value of these RSUs was \$556,000.

An analysis of restricted stock issued is as follows:

Non-vested restricted stock as of January 1, 2012	1,931
Granted	17,345
Vested	(14,940)
Non-vested restricted stock as of December 31, 2012	4,336
Granted	73,707
Vested	(24,329)
Non-vested restricted stock as of December 31, 2013	53,714

For the years ended December 31, 2013, 2012 and 2011, the Company recorded \$292,000, \$162,000 and \$165,000, 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 is subject to achievement of specified targets by December 31, 2013 and March 31, 2014. The Company is recording stock compensation expense related to these shares based on the probability of achieving the targets. At December 31, 2013 two of these milestones were achieved and expense was recorded.



**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)****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,		
	2013	2012	2011
	(in thousands)		
U.S.	\$ (38,114)	\$ (17,849)	\$ 51,618
Foreign	2,603	5,263	3,015
<b>Total</b>	<b>\$ (35,511)</b>	<b>\$ (12,586)</b>	<b>\$ 54,633</b>

Income taxes

	Year ended December 31,		
	2013	2012	2011
	(in thousands)		
<i>Current</i>			
U.S.	\$	\$ (204)	\$ 177
State		(357)	2,777
Foreign	6	(163)	173
<b>Total current income tax expense (benefit)</b>	<b>6</b>	<b>(724)</b>	<b>3,127</b>
<i>Deferred</i>			
U.S.	(5,863)	(5,536)	13,223
State	691	(1,049)	224
Foreign	6	261	
<b>Total deferred income tax expense</b>	<b>(5,166)</b>	<b>(6,324)</b>	<b>13,447</b>
<b>Total income tax expense (benefit)</b>	<b>\$ (5,160)</b>	<b>\$ (7,048)</b>	<b>\$ 16,574</b>

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

	Year ended December 31,		
	2013	2012	2011
U.S. Federal statutory rate	(34.0)%	(34.0)%	35.0%
State taxes net of federal benefit	(5.5)	(8.9)	5.2
Permanent differences			(0.6)
Foreign rate differential and transactional tax	(0.7)	(3.8)	(1.4)

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Impact of foreign tax holiday	(1.8)	(10.4)	
Valuation allowance	26.9		(5.9)
Other	0.6	1.1	(2.0)
	(14.5)%	(56.0)%	30.3%

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.

**Table of Contents****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:

	2013	2012
	(in thousands)	
Deferred tax assets:		
Allowance for doubtful accounts	\$ 20	\$ 115
Inventory reserves	1,340	1,697
Accrued liabilities	76	316
Warrant interest expense	277	277
Stock compensation expense	2,850	2,503
State net operating loss net of tax	3,500	1,524
Net operating loss carryforward	16,206	4,537
Unrealized loss on securities held for sale	240	
Tax credits	514	297
Valuation allowance	(9,547)	
Total deferred tax assets	15,476	11,266
Deferred tax liability:		
Depreciation	(15,620)	(16,685)
Unrealized gain on securities held for sale		(340)
Prepaid expenses	(123)	(140)
Net deferred tax liability	\$ (267)	\$ (5,899)

The Company's deferred income tax assets and liabilities were reported on the consolidated balance sheets as follows.

	2013	2012
	(in thousands)	
Current deferred income tax assets	\$	\$ 4,427
Long term deferred income tax liabilities	(267)	(10,326)
Net deferred tax liability	\$ (267)	\$ (5,899)

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. Due to the losses in the fourth quarter of 2013, 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. While the Company believes its financial outlook remains positive, under the accounting standards objective verifiable evidence will have greater weight than subjective evidence such as the Company's projections for future growth. Based on an evaluation in accordance with the accounting standards, as of December 31, 2013, a valuation allowance of \$9.5 million 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



**Table of Contents****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.

At December 31, 2013, the Company had separate federal and Illinois net operating loss carryforwards of \$72.5 million and \$97.3 million, respectively, which begin to expire in 2026 and 2019, respectively. The Illinois State Legislature has suspended the full use of net operating loss carryforwards for taxable years ending after December 31, 2010 and before December 31, 2011, and has limited the net operation loss deduction to \$100,000 for the years ending December 31, 2012 through December 31, 2013. In addition, at December 31, 2013, the Company had Illinois investment tax credits and research and development credits of \$155,000 and \$54,000, 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 December 31, 2012. 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, 2013. The Company will be updating its analysis in 2014 and the results of that analysis may because of the stock offering in January 2014 indicate an ownership change. If an ownership change is determined, the utilization of the net operating losses and the tax credits may be limited. Additionally, the Company has not recorded a deferred tax asset NOL attributable to stock option exercises in the amount of \$21.8 million for federal purposes and \$26.2 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.

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. The following is a reconciliation of the unrecognized tax benefits taken or expected to be taken in a tax return that have been recorded on the Company's financial statements for the years ended December 31, 2013.

	(in thousands)
Balance at January 1, 2012	\$ 363
Decrease related to prior year	(363)
Tax positions related to current year	1,140
Balance at December 31, 2012	1,140
Tax positions related to prior year	
Tax positions related to current year	
Balance at December 31, 2013	\$ 1,140

The Company is evaluating the impact of the recent regulations concerning amounts paid to acquire, produce, or improve tangible property and recovery of basis upon disposition. Given that Revenue Procedures were issued in late January 2014, the Company is determining whether or not any changes in an accounting method are required. Presently, the Company does not anticipate a material impact to its financial statements.

For the year ended December 31, 2011 the Company accrued \$11,000 for potential penalties related to income taxes. 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, 2013 and 2012. Included in the balance of total unrecognized tax benefits at December 31, 2013, are potential benefits of \$1.0 million that if recognized, would affect the effective tax rate in the year recognized.

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**Rubicon Technology, Inc.**

**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 ten-year period beginning in 2009. The impact of this tax holiday decreased foreign taxes for the years ended December 31, 2013, 2012 and 2011 by approximately \$651,000, \$1.3 million, and \$535,000, respectively. The benefit of the tax holiday on net income per share (diluted) for the years ended December 31, 2013, 2012 and 2011 was \$0.03, \$0.06 and \$0.02, respectively. All tax years in Malaysia are open to examination by tax authorities.

The Company's federal tax return 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, 2010 and 2009 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, 2002 thru 2006 and 2008 thru 2013 are open to examination by tax authorities.

U.S. income and foreign withholding taxes have not been provided on approximately \$11.1 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, 2013 there would have been no impact to the provision of income taxes. Due to the U.S. NOLs and the full valuation allowance recorded any additional income from the dividends would have been offset by the NOLs and a corresponding adjustment to the valuation allowance. At December 31, 2013 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 \$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. For year ended December 31, 2013, the Company did not draw on this facility and the Company recorded \$95,000 of interest expense charged on the unused portion of the facility.



**Table of Contents****Rubicon Technology, Inc.****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 2013, 2012 and 2011 amounted to \$1.1 million, \$1.4 million and \$1.1 million respectively.

Future minimum payments under all leases are as follows:

Year ending December 31,	Operating leases (in thousands)
2014	\$ 1,104
2015	402
2016	4
Balance at December 31, 2013	\$ 1,510

**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 \$4.0 million with deliveries occurring through December 2015.

**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 on the financial condition or results of operations of the Company.

**11. BENEFIT PLAN**

The Company sponsors a 401(k) savings plan (the "Plan"). Employees are eligible to participate in the Plan upon reaching 21 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, 2013, 2012 and 2011.

**12. SUBSEQUENT EVENT**

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 \$1.9 million and estimated other offering costs of approximately \$425,000.



**Table of Contents****Rubicon Technology, Inc.****Notes to Consolidated Financial Statements (Continued)****13. QUARTERLY FINANCIAL DATA (Unaudited)****Quarterly Financial Data (Unaudited)**

Summary quarterly results for the two years ended December 31, 2013 are as follows (in thousands, other than share and per share data):

2013	Three Months Ended					Full Year
	March 31	June 30	September 30	December 31		
Revenue	\$ 8,307	\$ 10,555	\$ 11,115	\$ 11,536	\$ 41,513	
Gross loss	\$ (3,375)	\$ (6,417)	\$ (6,318)	\$ (5,811)	\$ (21,921)	
Loss from operations	\$ (6,296)	\$ (9,968)	\$ (9,595)	\$ (9,025)	\$ (34,884)	
Loss before income taxes	\$ (6,418)	\$ (10,173)	\$ (9,814)	\$ (9,106)	\$ (35,511)	
Net loss	\$ (3,376)	\$ (5,894)	\$ (5,840)	\$ (15,241)	\$ (30,351)	
Basic loss per common share	\$ (0.15)	\$ (0.26)	\$ (0.26)	\$ (0.67)	\$ (1.35)	
Diluted loss per common share	\$ (0.15)	\$ (0.26)	\$ (0.26)	\$ (0.67)	\$ (1.35)	
Weighted average common shares outstanding used in computing net loss per common share, basic and diluted:	22,550,378	22,560,603	22,578,608	22,599,258	22,572,212	

2012	Three Months Ended					Full Year
	March 31	June 30	September 30	December 31		
Revenue	\$ 10,207	\$ 17,003	\$ 19,942	\$ 20,091	\$ 67,243	
Gross profit (loss)	\$ (3,408)	\$ 11	\$ 2,445	\$ 912	\$ (40)	
Income (loss) from operations	\$ (6,646)	\$ (3,098)	\$ (1,141)	\$ (2,151)	\$ (13,036)	
Income (loss) before income taxes	\$ (6,271)	\$ (3,386)	\$ (844)	\$ (2,085)	\$ (12,586)	
Net income (loss)	\$ (3,367)	\$ (1,312)	\$ 272	\$ (1,131)	\$ (5,538)	
Basic income (loss) per common share	\$ (0.15)	\$ (0.06)	\$ 0.01	\$ (0.05)	\$ (0.25)	
Diluted income (loss) per common share	\$ (0.15)	\$ (0.06)	\$ 0.01	\$ (0.05)	\$ (0.25)	
Weighted average common shares outstanding used in computing net income (loss) per common share:						
Basic	22,514,539	22,518,364	22,524,611	22,538,292	22,523,951	
Diluted	22,514,539	22,518,364	23,050,618	22,538,292	22,523,951	