RUDOLPH TECHNOLOGIES INC
Form 10-K
March 01, 2013
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(Mark One)

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended December 31, 2012

OR

o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission File No. 000-27965

RUDOLPH TECHNOLOGIES, INC.
(Exact name of registrant as specified in its charter)

Delaware	22-3531208
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

One Rudolph Road, P.O. Box 1000, Flanders, NJ 07836
(Address of principal executive offices) (Zip Code)
Registrant's telephone number, including area code: (973) 691-1300

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT:

Title of Each Class	Name of Exchange on Which Registered
Common Stock, $0.001 par value per share (including attached Series A Junior Participating Preferred Stock Purchase Rights)	The NASDAQ Stock Market LLC (NASDAQ Global Select Market)

SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE ACT:
None

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

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

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No o

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. o

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. (Check one):

Large accelerated filer o	Accelerated filer x	Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o

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

The aggregate market value of the voting stock held by non-affiliates of the registrant based on the closing price of the registrant's stock price on June 30, 2012 of $8.72 was approximately $265,244,637.

The registrant had 32,388,507 shares of Common Stock outstanding as of February 13, 2013.

DOCUMENTS INCORPORATED BY REFERENCE

The following document is incorporated by reference in Part III of this Annual Report on Form 10-K: Items 10, 11, 12, 13 and 14 of Part III incorporate by reference information from the definitive proxy statement for the registrant's annual meeting of stockholders to be held on May 22, 2013.

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FORWARD LOOKING STATEMENTS

Certain statements in this Annual Report on Form 10-K are forward-looking statements, including those concerning our business momentum and future growth, the benefit to customers and market acceptance of our products and customer service, our ability to deliver both products and services consistent with our customers' demands and expectations and strengthen our market position, our expectations of the semiconductor market outlook, future revenues, gross profits, research and development and engineering expenses, selling, general and administrative expenses, product introductions, technology development, manufacturing practices, cash requirements and anticipated trends and developments in and management plans for, our business and the markets in which we operate, our anticipated revenue as a result of recent acquisitions, and our ability to be successful in managing our cost structure and cash expenditures and results of litigation, including ongoing litigation with ITC. The statements contained in this Annual Report on Form 10-K that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 and within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements may be identified by the words such as, but not limited to, "anticipate," "believe," "expect," "intend," "plan," "should," "may," "could," "will" and wor phrases of similar meaning, as they relate to our management or us.

The forward-looking statements contained herein reflect our current expectations with respect to future events and are subject to certain risks, uncertainties and assumptions. The forward-looking statements reflect our position as of the date of this report and we undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. Actual results may differ materially from those projected in such forward-looking statements for a number of reasons including, but not limited to, the following: variations in the level of orders which can be affected by general economic conditions and growth rates in the semiconductor manufacturing industry and in the markets served by our customers, the global economic and political climates, difficulties or delays in product functionality or performance, the delivery performance of sole source vendors, the timing of future product releases, failure to respond adequately to either changes in technology or customer preferences, changes in pricing by us or our competitors, our ability to manage growth, risk of nonpayment of accounts receivable, changes in budgeted costs, our ability to leverage our resources to improve our position in our core markets, our ability to weather difficult economic environments, our ability to open new market opportunities and target high-margin markets, the strength/weakness of the back-end and /or front-end semiconductor market segments, our ability to successfully integrate recently acquired businesses, including Azores, into our business and fully realize, or realize within the expected time frame, the expected combination benefits from the acquisition, and the "Risk Factors" set forth in Item 1A. You should carefully review the cautionary statements contained in this Annual Report on Form 10-K. You should also review any additional disclosures and cautionary statements we make from time to time in our quarterly reports on Form 10-Q, current reports on Form 8-K and other filings we make with the Securities and Exchange Commission.

PART I

Item 1. Business.

General

Rudolph Technologies, Inc. is a worldwide leader in the design, development, and manufacture of high-performance process control defect inspection, advanced packaging lithography, metrology, and process control software systems used by microelectronics device manufacturers. We provide process and yield management solutions used in both wafer processing and final manufacturing through a family of standalone systems for macro-defect inspection, lithography, probe card test and analysis, and transparent and opaque thin film measurements. All Rudolph systems feature sophisticated software and production-worthy automation. In addition, our advanced process control software portfolio includes powerful solutions to enhance productivity and achieve significant cost savings. Rudolph systems are backed by worldwide customer service and applications support.

Two acquisitions in 2012 strengthened Rudolph's established presence in Integrated Circuit and Flat Panel Display (“FPD”) manufacturing by adding to its substantial intellectual property portfolio. In June, the Company acquired specific assets and liabilities of NanoPhotonics GmbH, Mainz, Germany (“NanoPhotonics acquisition”) and added unpatterned wafer inspection to its product offering. In December, the Company acquired Azores Corporation,

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Wilmington, Massachusetts, (“Azores acquisition”) and announced entry into the advanced packaging and FPD lithography markets. Previous to the acquisition, Rudolph partnered with Azores (a manufacturer of lithography steppers for the FPD industry) to design and build a lithography stepper for the semiconductor advanced packaging market. The first system shipped to a major Outsourced Assembly and Test (“OSAT”) customer in the fourth quarter of 2012.

Rudolph’s MetaPULSE® Systems, used mainly for fast and accurate measurements of metal interconnect in front-end wafer processing applications, have now been chosen by back-end manufacturers to perform system measurements in new process applications, driven by the need for on-product metrology as feature sizes decrease and pattern densities increase. In addition, the new MetaPULSE FP system was selected by a major manufacturer of flat panel displays to measure critical thickness of metal layers deposited during the manufacturing process.

Multiple Rudolph systems continue to support 450mm wafer processing research and development. Our latest-generation defect inspection and thin film metrology tools are designed to increase the value of inspection and metrology data to ensure improved process yields and profitability as the industry moves toward a full 450mm production ramp in the 2015 timeframe.

Advanced Packaging is a key technology that enables the miniaturization of electronic products. In electronics manufacturing, integrated circuit packaging is the final stage of semiconductor device fabrication, in which the tiny block of semiconducting material (die) is encased in a supporting package that provides an external electrical connection and prevents physical damage and corrosion. Packaging refers loosely to the conductors and other structures that interconnect the circuits, feed them with electric power, discharge their heat, and protect them from damage. Today, the drive to pack more functions into a small space and reduce their power requirements demands that chip packages do much more than ever before. Examples of advanced packaging are varied and include flip-chip bumping, pillar bumping, wafer-level chip scale packaging and 3D packaging.

With each new generation of portable consumer devices such as smart phones and laptops, greater functionality as well as enhanced performance is required over the previous generation. At the same time, the space available for electrical and electronic components is very limited.

One solution using advanced packaging is the 3D integration of semiconductors and other devices. The technology involves stacking individual die or wafers in one integrated housing. Through silicon vias (TSV, 3D stacking) allow communication among the individual components. This offers the advantages of shorter signal paths and reduced power consumption, enhanced bandwidths, integration of heterogeneous components such as sub-chips, smaller surface area and reduced expense. The processes required for 3D integration are still being optimized for yield, and to ensure the functioning of individual microchips.

The importance of advanced packaging. The ongoing popularity of smart mobile devices is driven by the designed-in capability. These are no longer single function devices, but instead, various devices have been combined to provide multiple functions. For example, smart phone users no longer need a GPS, digital camera and PDA. With the addition of a myriad of available “apps,” the potential uses seem endless. As a result, advancements in mobile products are driving semiconductor advanced packaging and display manufacturers to implement next-generation technologies to meet the resulting requirements. This technology shift has created multiple opportunities for Rudolph solutions.

Inspection Systems. Chip manufacturers deploy advanced macro defect inspection throughout the fab to monitor key process steps, gather process-enhancing information and ultimately, lower manufacturing costs. Field-established tools such as the F30™ and NSX® inspection systems are found in wafer processing (front-end) and final manufacturing (back-end) facilities around the world. These high-speed tools incorporate features such as waferless recipe creation, tool-to-tool correlation and multiple inspection resolutions. In addition to wafer frontside inspection, Rudolph's innovative Explorer Inspection Cluster incorporates wafer edge and backside inspection in one integrated platform to enhance productivity and continuously improve fab yield. New products added in 2012 include unpatterned wafer inspection and mask blank inspection. Using products such as Discover® and Genesis® yield management software, the vast amount of data gathered through automated inspection can be analyzed and classified to determine trends that ultimately affect yield.

Lithography Systems. In order to deal with increased Input/Output, enhanced functionality, power efficiency and higher frequency, Integrated Device Manufacturers and OSATS are moving to advanced packaging technologies such as Through Silicon Via (“TSV”) and 3D. However, the associated substrates and processes are significantly different than those used in front-end wafer processing. The added performance requires finer features, but the processes stress

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the substrates resulting in warped substrates. Since most packaging is an additive process, thick films are used to enable the creation of features. In order for equipment to effectively function in this environment, it must overcome these challenges. The Rudolph JetStep™ System has been specifically designed to meet these challenges head on. A large printable field combined with user-selectable wavelength options maximizes throughput while not limiting resolution when needed. High fidelity optics are able to image the fine features required while at the same time achieving superior depth of field to minimize non-flatness effects. On-the-fly auto focus and an innovative reticle management system improve yield and utilization. These unique features result in a revolutionary lithography system specifically designed to meet advanced packaging challenges.

In addition to advanced packaging, another critical aspect of any leading mobile device is the display. The display serves as the window to the user. Therefore, it must effectively present graphics such as detailed maps, high resolution photos and streaming video in order to meet user expectations. To accomplish this, the display transistor backplane, which is what controls the pixels, must operate at a high frequency and have high pixel resolution. As a result, the transistors must have high mobility and only use a small portion of the pixel aperture. The backplane is manufactured on a sheet of glass; like the packaging substrate, it is non-flat and tends to distort further during processing. Additionally, the displays are getting larger. Manufacturers are looking to utilize larger sheets of glass, making throughput a challenge for the lithography equipment. To overcome this, Rudolph's PanelPrinter™ 9200 uses high-fidelity optics and the largest printable stepper field available enabling more displays per shoot. This feature, combined with on-the-fly auto-focus and magnification compensation, maximizes throughput and yield. Finally, the innovative grid stage allows the system to be easily scaled to meet the customer desired substrate size.

The similarity of the systems for both of these applications allows Rudolph to utilize a simple supply chain improving reliability and margins. More importantly, as a feature is designed for a specific system, it adds to an archive of technology that can be leveraged to continue to meet the customer demands as they arise.

Metrology Systems. Rudolph's patented transparent film technology uses up to four lasers operating simultaneously at multiple angles and multiple wavelengths, providing powerful analysis and measurement capabilities. Unlike the white-light sources used in spectroscopic ellipsometers, laser light sources make our metrology tools inherently stable, increase measurement speed and accuracy, and reduce maintenance costs by minimizing the time required to re-qualify a light source when it is replaced. Rudolph's S3000™ System employs a proprietary reflectometer technology that allows the characterization of films and film stacks that cannot be performed using conventional reflectometry or ellipsometry alone.

For opaque film characterization, the MetaPULSE® System gives customers the ability to simultaneously measure the thickness and other properties of up to six metal or other opaque film layers in a non-contact manner on product wafers. PULSE™ Technology uses an ultra-fast laser to generate sound waves that pass down through a stack of opaque films such as those used in copper or aluminum interconnect processes, sending back to the surface an echo that indicates film thickness, density, and other process critical parameters. We believe we are a leader in providing systems that can non-destructively measure opaque thin-film stacks with the speed and accuracy semiconductor device manufacturers demand in order to achieve high yields with the latest fabrication processes. The technology is ideal for characterizing copper interconnect structures and the majority of all systems sold have been for copper applications.

Data Analysis & Review Software. Rudolph has a comprehensive offering of process control software solutions for semiconductor, solar and LED manufacturing. We provide a wide range of advanced process control solutions, all designed to improve factory profitability, including run-to-run control, fault detection, classification and tool automation. Rudolph is a leading provider of Process Control Software in the semiconductor industry.

Technology

We believe that our expertise in engineering and our continued investment in research and development enable us to rapidly develop new technologies and products in response to emerging industry trends. The breadth of our technology enables us to offer a diverse combination of measurement technologies that provide process control for the majority of thin films used in semiconductor manufacturing. Unique features have been designed into our lithography

systems to meet our customers changing process requirements. Our defect detection and classification technologies allow us to provide yield enhancement for critical front-end processes such as photolithography, diffusion, etch, CMP and outgoing quality control. Information learned through post-fab inspection is critical. Advanced macro defect

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inspection within the final manufacturing (back-end) process provides our customers with critical quality assurance and process information. Defects may be created during probing, bumping, dicing or general handling, and can have a major impact on device and process quality.

Automated Defect Detection and Classification. Automating the defect detection and classification process is best done by a system that can mimic, or even extend, the response of the human eye, but at a much higher speed, with high resolution and more consistency. To do this, our systems capture full-color whole wafer images using simultaneous dark and bright field illumination. The resulting bright and dark field images are compared to those from an “ideal” wafer having no defects. When a difference is detected, its image is broken down into mathematical vectors that allow rapid and accurate comparison with a library of known classified defects stored in the tool's database. Patented and proprietary enhancements of this approach enable very fast and highly repeatable image classification. The system is pre-programmed with an extensive library of default local, global, and color defects and can also absorb a virtually unlimited amount of new defect classes. This allows customers to define defects based on their existing defect classification system, provides more reliable automated rework decisions, and enables more accurate statistical process control data.

All-surface Inspection. All-surface refers to inspection of the wafer frontside, edge, and backside as well as post-fab die. The edge inspection process focuses on the area near the wafer edge, an area that poses difficulty for traditional wafer frontside inspection technology due to its varied topography and process variation. Edge bevel inspection looks for defects on the side edge of a wafer. The edge bead removal and edge exclusion metrology involve a topside surface measurement required exclusively in the photolithography process, primarily to determine if wafers have been properly aligned for the edge exclusion region. The primary reason for wafer backside inspection is to determine if contamination has been created that may spread throughout the fab. For instance, it is critical that the wafer backside be free of defects prior to the photolithography process to prevent focus and exposure problems on the wafer front-side.

In addition to the wafer processing floor, Rudolph's automated inspection systems are used in several post-fab processes such as bump inspection, wafer probe, wafer saw and quality control and in new process technologies such as TSV.

Classification. Classifying defects off-line enables automated inspection systems to maintain their high throughput. Using defect image files captured by automated inspection systems, operators are able to view high-resolution defect images to determine defects that cause catastrophic failure of a device, or killer defects. Classifying defects enables faster analysis by grouping defects found together as one larger defect, a scratch for example, and defects of similar types across a wafer lot to be grouped based on size, repeating defects and other user-defined specifications. Automatically classifying defects provides far greater yield learning than human classification.

Yield Analysis. Using wafer maps, charts and graphs, the vast amounts of data gathered through automated inspection can be analyzed to determine trends across bumps, die, wafers and lots. This analysis may determine where in the process an inconsistency is being introduced, allowing for enhancements to be made and yields improved. Defect data analysis is performed to identify, analyze and locate the source of defects and other manufacturing process excursions. Using either a single wafer map or a composite map created from multiple wafer maps, this analysis enables identification of defect patterns and distribution. When combined with inspection data from strategically-placed inspection points, this analysis may pinpoint the source of the defects so corrective action can be taken.

Probe Card Test and Analysis. The combination of Fast 3D-OCM® (optical comparative metrology) Technology with improved testing accuracy and repeatability is designed to reduce total test time for even the most advanced large area probe cards. 3-D capabilities enable users to analyze probe marks and probe tips in a rapid and information-rich format.

Advanced Packaging Lithography (Step and Repeat Technology). Rudolph steppers use projection optics to expose circuit patterns from a mask or reticle onto a substrate to achieve images with the optimal fidelity required for advanced packaging technologies. These systems employ light from a mercury arc lamp that is transmitted through a mask or reticle containing display circuit patterns. Substrates are aligned on the system and the mask is imaged

through a projection lens in photoresist material coated on the substrate. The substrate is then moved, or “stepped,” to a second position to expose an adjacent area. Images can be “stitched” together precisely to form larger circuit patterns without any noticeable change in circuit performance. The system repeats the step and exposure process until the entire substrate is patterned. Once the exposure process has been completed, the substrate is developed with an alkali solution, such as

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Tetramethylammonium Hydroxide (“TMAH”) or sodium hydroxide (“NaOH”), to reveal the underlying material. The imaged photoresist serves as a barrier that allows for processing the underlying metal or insulating layers. The substrates then continue through the etching, stripping, and deposition processes until multi-layer circuits are completed.

Optical Acoustics. Optical acoustic metrology involves the use of ultra-fast laser induced sonar for metal and opaque thin film measurement. This technology sends ultrasonic waves into multi-layer opaque films and then analyzes the resulting echoes to simultaneously determine the thickness of each individual layer in complex multi-layer metal film stacks. The echo's amplitude and phase can be used to detect film properties, missing layers, and interlayer problems. Since different phenomena affect amplitude and phase uniquely, a variety of process critical interlayer problems can be detected in a single measurement.

The use of optical acoustics to measure multi-layer metal and opaque films was pioneered by scientists at Brown University (“Brown”) in collaboration with engineers at Rudolph. The proprietary optical acoustic technology in our PULSE Technology systems measures the thickness of single or multi-layer opaque films ranging from less than 40 Angstroms to greater than five microns. It provides these measurements at a rate of up to 70 wafers per hour within one to two percent accuracy and typically less than one percent repeatability. This range of thicknesses covers the majority of thick and thin metal films projected by the International Roadmap for Semiconductors to be used through the end of this decade. Our non-contact, non-destructive optical acoustic technology and small spot size enable our PULSE Technology systems to measure film properties directly on product wafers.

Ellipsometry. Ellipsometry is a non-contact, non-destructive optical technique for transparent thin film measurement. We have been an industry leader in ellipsometry technology for the last three decades. We hold patents on several ellipsometry technologies, including our proprietary technique that uses four lasers for multiple-angle of incidence, multiple wavelength ellipsometry. Laser ellipsometry technology enables our transparent film systems to continue to provide the increasingly higher level of accuracy needed as thinner films and newer materials are introduced for future generations of semiconductor devices. We extended this same optical technology to characterize the scatterometry signal from patterned surfaces, allowing measurement of critical dimensions.

Reflectometry. For applications requiring broader spectral coverage, some of our ellipsometry tools are also equipped with a reflectometer. Reflectometry uses a white or ultraviolet light source to determine the properties of transparent thin films by analyzing the wavelength and intensity of light reflected from the surface of a wafer. This optical information is processed with software algorithms to determine film thickness and other material properties. By combining data from both the laser ellipsometer and broad spectrum reflectometer, it is possible to characterize films and film stacks that cannot be adequately analyzed by either method individually.

Process Control. Advanced Process Control (“APC”) employs software to automatically detect or predict tool failure (fault detection) as well as calculate recipe settings for a process that will drive the process output to target despite variations in the incoming material and disturbances within the process equipment. Process control software enables the factory to increase capacity and yield and to decrease rework and scrap. It enables reduced production costs by lowering consumables, process engineering time and manufacturing cycle time.

Products

Rudolph markets and sells products to major logic, memory, data storage, flat panel and application-specific integrated circuit (“ASIC”) device manufacturers. Our customers rely on us for versatile inspection, lithography, and metrology systems as well as process control software solutions. These systems are designed for high-volume production facilities and offer automated wafer handling for 200, 300 and 450mm configurations. Our systems operate at high throughput with ultra-clean operation and high reliability.

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INSPECTION & TEST SYSTEMS

Product	First Introduced	Functionality	Type of Fab: Wafer Processing	Type of Fab: Final Manufacturing
AXi™ Inspection Module	2003	— Advanced detection of defects >0.5 micron — Inspection of patterned and unpatterned wafers — In line, high-speed, 100% inspection	X	
F30™ Inspection Module	2011	— 5-objective turret enables resolution throughput flexibility — Speeds up to 150wph — Multiple resolutions; TSV sensor capability — Waferless recipe creation — Tool matching	X	
E30™ Inspection Module	2003	— 2D defect detection of the wafer's edge — Metrology of edge feature — Incorporated into the Explorer Cluster	X	X
B30™ Inspection Module	2003	— 2D defect detection of the wafer's backside — Darkfield, brightfield and color imaging		
Explorer® Inspection Cluster	2009	— 2D defect detection of the wafer's backside — A family of multi surface inspection tools, using one or more inspection modules — Automated handling platform — Intelligent wafer scheduling	X	
NSX® Inspection System	1997	— Fully automated defect detection >0.5 micron — 2D wafer, die & bump inspection — In line, high-speed, 100% inspection		X
Wafer Scanner™ Inspection System	1999	— 2D/3D bump dimensional inspection — 2D bump/surface defect inspection — In line, high-speed, 100% inspection		X
PrecisionWoRx® System	2008	— Probe card test & analysis — Configurable channels — High load forces		X
ProbeWoRx® System	2003	— Probe card production metrology — 3D Optical Comparative Metrology — High-speed test times — Automated, one-touch measurements		X
WaferWoRx® System	2006	— Probing process analysis — 3D probe tip analysis — Proprietary, advanced software		X
AWX™ Series	2011	— All-surface, unpatterned wafer inspection — Modular platform; wafer transfer and sorting capability — Includes automatic defect classification — 450mm ready	X	

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INSPECTION & TEST SYSTEMS (continued)

Product	First Introduced	Functionality	Type of Fab: Wafer Processing	Type of Fab: Final Manufacturing
Reflex TT™	2000	- Manual load bare wafer inspection - Detects particles, scratches, area defects - 50mm up to 450mm substrates	X	
AMX™ 6000 Series	2011	- Automated mask blank inspection - High throughput; 45 mask blanks per hour - Particle sensitivity down to 90nm LSE	X	
Reflex TT™ MBI	2004	- Manual load mask inspection - Ideal for R&D, process and tool development labs - Laser darkfield technology	X	

LITHOGRAPHY SYSTEMS

Product	First Introduced		Type of Fab: Flat Panel Display	Type of Fab: Final Manufacturing
JetStep™ Lithography System	2012	- Designed to meet advanced packaging requirements - High throughput, diverse product mix, and tighter overlay - Finer resolution with superior depth of focus		X
Panel Printer™ 6700 FPD Photolithography Stepper	2006	- Optimal throughput and resolution in Gen 3.5 configuration - High resolution imaging, 5um - 2.0um - Real-time auto focus measurement	X	
PanelPrinter 9200™ FPD Photolithography Stepper	2007	- Step and repeat printer for Gen 4.5 substrates - Automated substrate alignment - Largest printable field high fidelity projection lens and illumination system	X	

METROLOGY SYSTEMS

Product	First Introduced	Functionality	Type of Fab: Wafer Processing	Type of Fab: Final Manufacturing
MetaPULSE® System	1997	— Non-contact system for thin opaque films — Patented Picosecond Ultrasonic Laser Sonar Technology (PULSE™) — Designed for advanced copper and non-copper applications — Improved throughput and repeatability	X	X
S3000™ System	2006	— Superior accuracy for transparent film measurements — Incorporates ellipsometry technology for transparent film application — Optimized price/performance for fabwide applications		

— Available with pattern recognition software	
— Enhanced data review mode	X

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DATA ANALYSIS & REVIEW SOFTWARE

Product	First Introduced	Functionality	Type of Fab: Wafer Processing	Type of Fab: Final Manufacturing
ARTIST® Software	2003	— Real-time monitoring software — Enables development of human-readable models — Frees users from manual monitoring — Minimize scrap and rework	X	X
AutoShell® Software	1998	— Equipment automation software that interfaces to both tools and external resources	X	X
ControlWORKS® Software	1994	— Designed to control process equipment — Minimizes the expense and time-to-market associated with developing control applications	X	
Discover® Software	2007	— Fabwide software for archival and retrieval of process related data — Facilitates root cause analysis, yield enhancement and yield learning	X	X
Discover® Enterprise Software	2005	— In line, all surface defect analysis and data management — Trend analysis and visualization tools — Wafer maps visualize all-surface defects — Identifies root cause of defects and process excursions	X	X
Discover Solar™ Software	2008	— Helps photovoltaic (PV) cell manufacturers reduce manufacturing costs and increase average cell efficiencies — Designed for high volume c-Si cell and thin film production — Controls and optimizes the performance of the line	X	X
GateWay™ Software	2003	— Intercepts message traffic between the equipment and the host — Preserves value of existing automation investments — Increases reliability and function with zero development time — Diagnostic tool for solving communication problems — Connects applications to tools	X	X

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DATA ANALYSIS & REVIEW SOFTWARE (continued)

Product	First Introduced	Functionality	Type of Fab Wafer Processing	Type of Fab Final Manufacturing
HarmonyASR™ Software	2005	— Off line defect review and classification — Defects displayed in real time — Rapid classification of unknown defects; review of previously-classified defects	X	X
Process Sentinel™ Software	2006	— Fabwide spatial process control system — Traces patterns back to yield-killing process issues — Combined defect and sort solution — Quickly isolates systemic faults — Advanced segmentation and wafer stacking capability	X	
ProcessWORKS® Software	1998	— Advanced process control software deployed in CMOS, high-mix ASIC, memory and disk head fabs — Proven in all major process areas — Reduces impact on tool time	X	
RecipeWORKS™ Software	1998	— Stores recipes in a central repository — Enables engineers to manage recipes remotely — Allows users to setup security — Accepts settings from any run-to-run control application	X	X
TrackWORKS® Software	1998	— Configures and schedules preventive maintenance — View factory entities using operator-defined parameters	X	
TrueADC™ Enterprise Software	2007	— Serving the entire fab — Defect classification with a high level of accuracy — Ensures database lookup, classification and timely response to the tool — Minimum impact to throughput	X	X
Yield Optimizer™ Software	2006	— Builds predictive models — Optimizes yield and reduces excursions — Identifies the most critical metrology measurements for controlling yield	X	
Genesis® Software	1997	— Data acquisition and integration — Data mining — Parametric analysis	X	

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Customers

Over 100 microelectronic device manufacturers have purchased Rudolph tools and software for installation at multiple sites. We support a diverse customer base in terms of both geographic location and type of device manufactured. Our customers are located in 20 countries. See Note 14 to our consolidated financial statements in this Annual Report on Form 10-K for information concerning our geographic information.

We depend on a relatively small number of customers and end users for a large percentage of our revenues. In the years 2010, 2011 and 2012, sales to end user customers that individually represented at least five percent of our revenues accounted for 44.4%, 43.6% and 50.9% of our revenues, respectively. In 2010, sales to Taiwan Semiconductor Manufacturing Co. and Samsung Semiconductor Inc. accounted for 13.9% and 11.2% of our revenues, respectively. In 2011, sales to Infineon Technologies and Samsung Semiconductor Inc. accounted for 13.5% and 12.1% of our revenues, respectively. In 2012, sales to Samsung Semiconductor Inc. and Advanced Semiconductor Engineering, Inc. accounted for 10.4% and 10.1% of our revenues, respectively. No other individual end user customer accounted for more than 10% of our revenues in 2010, 2011 and 2012. We do not have purchase contracts with any of our customers that obligate them to continue to purchase our products.

Research and Development

The markets for equipment and systems for manufacturing semiconductor devices and for performing macro-defect inspection and thin film transparent and opaque process control metrology are characterized by continuous technological development and product innovations. We believe that the rapid and ongoing development of new products and enhancements to existing products is critical to our success. Accordingly, we devote a significant portion of our technical, management and financial resources to research and development programs.

The core competencies of our research and development team include metrology systems for high volume manufacturing, ellipsometry, ultra-fast optics, picosecond acoustic and optical design, advanced metrology application development and algorithm development. To leverage our internal research and development capabilities, we maintain close relationships with leading research institutions in the metrology field, including Brown University. Our relationship with Brown University has resulted in the development of the optical acoustic technology underlying our MetaPULSE product line. We have been granted exclusive licenses from Brown University Research Foundation, subject to rights retained by Brown and the United States government for their own non-commercial uses for several patents relating to this technology.

Our research and development expenditures in 2010, 2011 and 2012 were $33.4 million, $36.3 million and $39.3 million, respectively. We plan to continue our strong commitment to new product development in the future, and we expect that our level of research and development expenses will increase in absolute dollar terms in future periods.

Sales, Customer Service and Application Support

We maintain an extensive network of direct sales, customer service and application support offices in several locations throughout the world. We maintain sales, service or applications offices in locations including, but not limited to the United States, Scotland, Germany, South Korea, Singapore, Taiwan, China and Japan.

We provide our customers with comprehensive support before, during and after the delivery of our products. For example, in order to facilitate the smooth integration of our tools into our customers' operations, we often assign dedicated, site-specific field service and applications engineers to provide long-term support at selected customer sites. We also provide comprehensive service and applications training for customers at our training facilities in Bloomington, Minnesota and Budd Lake, New Jersey and at customer locations. In addition, we maintain a group of highly skilled applications scientists at strategically located facilities throughout the world and at selected customer locations.

Manufacturing

Our principal manufacturing activities include assembly, final test and calibration. These activities are conducted in our manufacturing facility in Minnesota. Our core manufacturing competencies include electrical, optical and

mechanical assembly and testing, as well as the management of new product transitions. While we use standard components and subassemblies wherever possible, most mechanical parts, metal fabrications and critical components

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used in our products are engineered and manufactured to our specifications. We expect to rely increasingly on subcontractors and turnkey suppliers to fabricate components, build assemblies and perform other non-core activities in a cost-effective manner.

We rely on a number of limited source suppliers for certain parts and subassemblies. This reliance creates a potential inability to obtain an adequate supply of required components, and reduced control over pricing and time of delivery of components. An inability to obtain adequate supplies would require us to seek alternative sources of supply or might require us to redesign our systems to accommodate different components or subassemblies. To date, we have not experienced any significant delivery delays. However, if we were forced to seek alternative sources of supply, manufacture such components or subassemblies internally, or redesign our products, this could prevent us from shipping our products to our customers on a timely basis, which could have a material adverse effect on our operations.

Intellectual Property

We have a policy of seeking patents on inventions governing new products or technologies as part of our ongoing research, development, and manufacturing activities. As of December 31, 2012, we have been granted, or hold exclusive licenses to, 243 U.S. and foreign patents. The patents we own, jointly own or exclusively license have expiration dates ranging from 2013 to 2031. We also have 101 pending regular and provisional applications in the U.S. and other countries. Our patents and applications principally cover various aspects of macro-defect detection and classification, transparent thin film measurement and altered material characterization.

We have been granted exclusive licenses from Brown University Research Foundation, subject to rights retained by Brown and the United States government for their own non-commercial uses, for several patents relating to the optical acoustic technology underlying our MetaPULSE product family. The terms of these exclusive licenses are equal to the lives of the patents. We pay royalties to Brown based upon a percentage of our revenues from the sale of systems that incorporate technology covered by the Brown patents. We also have the right to support patent activity with respect to new ultra-fast acoustic technology developed by Brown scientists, and to acquire exclusive licenses to this technology. Brown may terminate the licenses if we fail to pay royalties to Brown or if we materially breach our license agreement with Brown.

Our pending patents may never be issued, and even if they are, these patents, our existing patents and the patents we license may not provide sufficiently broad protection to protect our proprietary rights, or they may prove to be unenforceable. To protect our proprietary rights, we also rely on a combination of copyrights, trademarks, trade secret laws, contractual provisions and licenses. There can be no assurance that any patents issued to or licensed by us will not be challenged, invalidated or circumvented or that the rights granted thereunder will provide us with a competitive advantage.

The laws of some foreign countries do not protect our proprietary rights to the same degree as do the laws of the United States, and many U.S. companies have encountered substantial infringement problems in protecting their proprietary rights against infringement in such countries, some of which are countries in which we have sold and continue to sell products. There is a risk that our means of protecting our proprietary rights may not be adequate. For example, our competitors may independently develop similar technology or duplicate our products. If we fail to adequately protect our intellectual property, it would be easier for our competitors to sell competing products.

Competition

The market for semiconductor capital equipment is highly competitive. We face substantial competition from established companies in each of the markets that we serve. We principally compete with KLA-Tencor, Camtek and Ultratech. We compete to a lesser extent with companies such as Nanometrics and Nikon. Each of our products also competes with products that use different metrology techniques. Some of our competitors have greater financial, engineering, manufacturing and marketing resources, broader product offerings and service capabilities and larger installed customer bases than we do.

Significant competitive factors in the market for inspection and metrology systems include system performance, ease of use, reliability, cost of ownership, technical support and customer relationships. We believe that, while price and delivery are important competitive factors, the customers' overriding requirement is for a product that meets their

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technical capabilities. To remain competitive, we believe we will need to maintain a high level of investment in research and development and process applications. No assurances can be given that we will continue to be competitive in the future.

Backlog

We schedule production of our systems based upon order backlog and informal customer forecasts. We include in backlog only those orders to which the customer has assigned a purchase order number and for which delivery is anticipated within 12 months. Because shipment dates may be changed and customers may cancel or delay orders with little or no penalty, our backlog as of any particular date may not be a reliable indicator of actual sales for any succeeding period. At December 31, 2012, we had a backlog of approximately $27.2 million compared with a backlog of approximately $53.2 million at December 31, 2011.

Employees

As of December 31, 2012, we had 651 employees. Our employees are not represented by any collective bargaining agreements, and we have never experienced a work stoppage. We believe our employee relations are good.

Available Information

We were incorporated in New Jersey in 1958 and reincorporated in Delaware in 1999. The Internet website address of Rudolph Technologies, Inc. is http://www.rudolphtech.com. The information on our website is not incorporated into this Annual Report. The Company's Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K (and any amendments to those reports) are made available free of charge, on or through our Internet website, as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission, or SEC. All reports we file with the SEC are also available free of charge via EDGAR through the SEC's website at http://www.sec.gov.

We also make available, free of charge, through the investors page on our corporate website, Rudolph Technologies' corporate summary, Code of Business Conduct and Ethics and Financial Code of Ethics, charters of the committees of our Board of Directors, as well as other information and materials, including information about how to contact our Board of Directors, its committees and their members. To find this information and obtain copies, visit our website at http://www.rudolphtech.com.

Item 1A. Risk Factors.

Risks Related to Rudolph

Our operating results have varied, and will likely continue to vary significantly, from quarter to quarter in the future, causing volatility in our stock price

Our quarterly operating results have varied in the past and will likely continue to vary significantly from quarter to quarter in the future, causing volatility in our stock price. Some of the factors that may influence our operating results and subject our stock to extreme price and volume fluctuations include:

- changes in customer demand for our systems, which is influenced by economic conditions in the semiconductor device industry, demand for products that use semiconductors, market acceptance of our systems and products of our customers and changes in our product offerings;
- seasonal variations in customer demand, including the tendency of European sales to slow significantly in the third quarter of each year;
- the timing, cancellation or delay of customer orders, shipments and acceptance;
- a significant portion of our revenue may be derived from the sale of a relatively small number of systems and accordingly, a small change in the number of systems we sell may cause significant changes in our operating results;

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- product development costs, including increased research, development, engineering and marketing expenses associated with our introduction of new products and product enhancements; and
- the levels of our fixed expenses, including research and development costs associated with product development, relative to our revenue levels.

In light of these factors and the cyclical nature of the semiconductor industry, we expect to continue to experience significant fluctuations in quarterly and annual operating results. Moreover, many of our expenses are fixed in the short-term which, together with the need for continued investment in research and development, marketing and customer support, limits our ability to reduce expenses quickly. As a result, declines in net sales could harm our business and the price of our common stock could substantially decline.

Our largest customers account for a significant portion of our revenues, and our revenues and cash flows could significantly decline if one or more of these customers were to purchase significantly fewer of our systems or they delayed or canceled a large order

Sales to end user customers that individually represent at least five percent of our revenues typically account for, in the aggregate, a considerable amount of our revenues. We operate in the highly concentrated, capital-intensive semiconductor device manufacturing industry. Historically, a significant portion of our revenues in each quarter and year has been derived from sales to relatively few customers, and this trend is expected to continue. If any of our key customers were to purchase significantly fewer of our systems in the future, or if a large order were delayed or canceled, our revenues and cash flows could significantly decline. We expect that we will continue to depend on a small number of large customers for a significant portion of our revenues. In addition, as large semiconductor device manufacturers seek to establish closer relationships with their suppliers, we expect that our customer base will become even more concentrated.

Our customers may be unable to pay us for our products and services

Our customers include some companies that may from time to time encounter financial difficulties, especially in light of the current economic environment and the turmoil in the credit markets. If a customer’s financial difficulties become severe, the customer may be unwilling or unable to pay our invoices in the ordinary course of business, which could adversely affect collections of both our accounts receivable and unbilled services. The bankruptcy of a customer with a substantial account receivable could have a material adverse effect on our financial condition and results of operations. In addition, if a customer declares bankruptcy after paying us certain invoices, a court may determine that we are not properly entitled to that payment and may require repayment of some or all of the amount we received, which could adversely affect our financial condition and results of operations.

Variations in the amount of time it takes for us to sell our systems may cause fluctuations in our operating results, which could cause our stock price to decline

Variations in the length of our sales cycles could cause our revenues and cash flows, and consequently, our business, financial condition, operating results and cash flows, to fluctuate widely from period to period. This variation could cause our stock price to decline. Our customers generally take a long time to evaluate our inspection and/or film metrology systems and many people are involved in the evaluation process. We expend significant resources educating and providing information to our prospective customers regarding the uses and benefits of our systems in the semiconductor fabrication process. The length of time it takes for us to make a sale depends upon many factors including, but not limited to:

- the efforts of our sales force;
- the complexity of the customer’s fabrication processes;
- the internal technical capabilities and sophistication of the customer;
- the customer’s budgetary constraints; and
- the quality and sophistication of the customer’s current metrology and/or inspection equipment.

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Because of the number of factors influencing the sales process, the period between our initial contact with a customer and the time when we recognize revenue from that customer and receive payment, if ever, varies widely in length. Our sales cycles, including the time it takes for us to build a product to customer specifications after receiving an order to the time we recognize revenue, typically range from six to 15 months. Sometimes our sales cycles can be much longer, particularly with customers in Japan. During these cycles, we commit substantial resources to our sales efforts in advance of receiving any revenue, and we may never receive any revenue from a customer despite our sales efforts. If we do make a sale, our customers often purchase only one of our systems, and then evaluate its performance for a lengthy period before purchasing any more of our systems. The number of additional products a customer purchases, if any, depends on many factors, including the customer's capacity requirements. The period between a customer's initial purchase and any subsequent purchases can vary from six months to a year or longer, and variations in the length of this period could cause further fluctuations in our operating results and possibly in our stock price.

Most of our revenues have been derived from customers outside of the United States subjecting us to operational, financial and political risks, such as unexpected changes in regulatory requirements, tariffs, political and economic instability, outbreaks of hostilities, and difficulties in managing foreign sales representatives and foreign branch operations

Due to the significant level of our international sales, we are subject to a number of material risks, including:

Compliance with foreign laws. Our business is subject to risks inherent in doing business internationally, including compliance with, inconsistencies among, and unexpected changes in, a wide variety of foreign laws and regulatory environments with which we are not familiar, including, among other issues, with respect to employees, protection of our intellectual property, and a wide variety of operational regulations and trade and export controls under domestic, foreign, and international law.

Unexpected changes in regulatory requirements including tariffs and other market barriers. The semiconductor device industry is a high-visibility industry in many of the European and Asian countries in which we sell our products. Because the governments of these countries have provided extensive financial support to our semiconductor device manufacturing customers in these countries, we believe that our customers could be disproportionately affected by any trade embargoes, excise taxes or other restrictions imposed by their governments on trade with United States companies such as ourselves. Any restrictions of these types could result in a reduction in our sales to customers in these countries.

Political and economic instability. We are subject to various global risks related to political and economic instabilities in countries in which we derive sales. If terrorist activities, armed conflict, civil or military unrest or political instability occurs outside of the U.S., these events may result in reduced demand for our products. There is considerable political instability in Taiwan related to its disputes with China and in South Korea related to its disputes with North Korea. In addition, several Asian countries, particularly Japan, have experienced significant economic instability. An outbreak of hostilities or other political upheaval in China, Taiwan or South Korea, or an economic downturn in Japan or other countries, would likely harm the operations of our customers in these countries. The effect of these types of events on our revenues and cash flows could be material because we derive substantial revenues from sales to semiconductor device foundries in Taiwan such as Taiwan Semiconductor Manufacturing Company Ltd., from memory chip manufacturers in South Korea such as Samsung, and from semiconductor device manufacturers in Japan such as Toshiba.

Difficulties in staffing and managing foreign branch operations. During periods of tension between the governments of the United States and certain other countries, it is often difficult for United States companies such as ourselves to staff and manage operations in such countries. Language and other cultural differences may also inhibit our sales and marketing efforts and create internal communication problems among our U.S. and foreign research and development teams, increasing the difficulty of managing multiple, remote locations performing various development, quality assurance, and yield ramp analysis projects.

Currency fluctuations as compared to the U.S. Dollar. A substantial portion of our international sales are denominated in U.S. dollars. As a result, if the dollar rises in value in relation to foreign currencies, our systems will become more expensive to customers outside the United States and less competitive with systems produced by competitors outside

the United States. These conditions could negatively impact our international sales. Foreign sales

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also expose us to collection risk in the event it becomes more expensive for our foreign customers to convert their local currencies into U.S. dollars. Additionally, in the event a larger portion of our revenue becomes denominated in foreign currencies, we would be subject to a potentially significant exchange rate risk.

If we deliver systems with defects, our credibility will be harmed and the sales and market acceptance of our systems will decrease

Our systems are complex and have occasionally contained errors, defects and bugs when introduced. Defects may be created during probing, bumping, dicing or general handling, and can have a major impact on device and process quality. When this occurs, our credibility and the market acceptance and sales of our systems could be harmed. Further, if our systems contain errors, defects or bugs, computer viruses or malicious code as a result of cyber attacks to our computer networks, we may be required to expend significant capital and resources to alleviate these problems. Defects could also lead to product liability as a result of product liability lawsuits against us or against our customers. We have agreed to indemnify our customers under certain circumstances against liability arising from defects in our systems. Our product liability policy currently provides $2.0 million of aggregate coverage, with an overall umbrella limit of $14.0 million. In the event of a successful product liability claim, we could be obligated to pay damages significantly in excess of our product liability insurance limits.

If we are not successful in developing new and enhanced products for the semiconductor device manufacturing industry, we will lose market share to our competitors

We operate in an industry that is highly competitive and subject to evolving industry standards, rapid technological changes, rapid changes in consumer demands and the rapid introduction of new, higher performance systems with shorter product life cycles. To be competitive in our demanding market, we must continually design, develop and introduce in a timely manner new inspection, lithography and film metrology systems that meet the performance and price demands of semiconductor device manufacturers. We must also continue to refine our current systems so that they remain competitive. We expect to continue to make significant investments in our research and development activities. We may experience difficulties or delays in our development efforts with respect to new systems, and we may not ultimately be successful in our product enhancement efforts to improve and advance products or in responding effectively to technological change, as not all research and development activities result in viable commercial products. In addition, we cannot provide assurance that we will be able to develop new products for the most opportunistic new markets and applications. Any significant delay in releasing new systems could cause our products to become obsolete, adversely affect our reputation, give a competitor a first-to-market advantage or cause a competitor to achieve greater market share. In addition, new product offerings that are highly complex in terms of software or hardware may require application or service work such as bug fixing prior to acceptance, thereby delaying revenue recognition.

If new products developed by us do not gain general market acceptance, we will be unable to generate revenues and recover our research and development costs

Inspection, lithography and metrology product development is inherently risky because it is difficult to foresee developments in semiconductor device manufacturing technology, coordinate technical personnel, and identify and eliminate system design flaws. Further, our products are complex and often the applications to our customers' businesses are unique. Any new systems we introduce may not achieve or sustain a significant degree of market acceptance and sales.

We expect to spend a significant amount of time and resources developing new systems and refining our existing systems. In light of the long product development cycles inherent in our industry, these expenditures will be made well in advance of the prospect of deriving revenue from the sale of those systems. Our ability to commercially introduce and successfully market new systems are subject to a wide variety of challenges during the development cycle, including start-up bugs, design defects, and other matters that could delay introduction of these systems. In addition, since our customers are not obligated by long-term contracts to purchase our systems, our anticipated product orders may not materialize, or orders that are placed may be canceled. As a result, if we do not achieve market acceptance of new products, we may be unable to generate sufficient revenues and cash flows to recover our research and development costs and our market share, revenue, operating results or stock price would be negatively impacted.

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Even if we are able to develop new products that gain market acceptance, sales of these new products could impair our ability to sell existing products

Competition from our new systems could have a negative effect on sales of our existing systems and the prices that we could charge for these systems. We may also divert sales and marketing resources from our current systems in order to successfully launch and promote our new or next generation systems. This diversion of resources could have a further negative effect on sales of our current systems and the value of inventory.

If our relationships with our large customers deteriorate, our product development activities could be adversely affected

The success of our product development efforts depends on our ability to anticipate market trends and the price, performance and functionality requirements of semiconductor device manufacturers. In order to anticipate these trends and ensure that critical development projects proceed in a coordinated manner, we must continue to collaborate closely with our largest customers. Our relationships with these and other customers provide us with access to valuable information regarding trends in the semiconductor device industry, which enables us to better plan our product development activities. If our current relationships with our large customers are impaired, or if we are unable to develop similar collaborative relationships with important customers in the future, our product development activities could be adversely affected.

Our ability to reduce costs is limited by our ongoing need to invest in research and development and to provide customer support activities

Our industry is characterized by the need for continual investment in research and development as well as customer service and support. As a result, our operating results could be materially affected if operating costs associated with our research and development as well as customer support activities increase in the future or we are unable to reduce those activities.

We may fail to adequately protect our intellectual property and, therefore, lose our competitive advantage

Our future success and competitive position depend in part upon our ability to obtain and maintain proprietary technology for our principal product families, and we rely, in part, on patent and trade secret law and confidentiality agreements to protect that technology. If we fail to adequately protect our intellectual property, it will give our competitors a significant advantage. We own or have licensed a number of patents relating to our transparent and opaque thin film metrology, lithography and macro-defect inspection systems, and have filed applications for additional patents. Any of our pending patent applications may be rejected, and we may be unable to develop additional proprietary technology that is patentable in the future.

In addition, the patents that we do own or that have been issued or licensed to us may not provide us with competitive advantages and may be challenged by third parties. Further, third parties may also design around these patents. In addition to patent protection, we rely upon trade secret protection for our confidential and proprietary information and technology. We routinely enter into confidentiality agreements with our employees and other third parties. Even though these agreements are in place there can be no assurances that trade secrets and proprietary information will not be disclosed, that others will not independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets, or that we can fully protect our trade secrets and proprietary information. Violations by others of our confidentiality agreements and the loss of employees who have specialized knowledge and expertise could harm our competitive position and cause our sales and operating results to decline as a result of increased competition. Costly and time-consuming litigation might be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection might adversely affect our ability to continue our research or bring products to market.

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Protection of our intellectual property rights, or the efforts of third parties to enforce their own intellectual property rights against us, may result in costly and time-consuming litigation, substantial damages, lost product sales and/or the loss of important intellectual property rights

We may be required to initiate litigation in order to enforce any patents issued to or licensed by us, or to determine the scope or validity of a third party's patent or other proprietary rights. Any litigation, regardless of outcome, could be expensive and time consuming, and could subject us to significant liabilities or require us to re-engineer our products or obtain expensive licenses from third parties. There can be no assurance that any patents issued to or licensed by us will not be challenged, invalidated or circumvented or that the rights granted thereunder will provide us with a competitive advantage.

In addition, our commercial success depends in part on our ability to avoid infringing or misappropriating patents or other proprietary rights owned by third parties. From time to time, we may receive communications from third parties asserting that our products or systems infringe, or may infringe, the proprietary rights of these third parties. These claims of infringement may lead to protracted and costly litigation, which could require us to pay substantial damages or have the sale of our products or systems stopped by an injunction. Infringement claims could also cause product or system delays or require us to redesign our products or systems, and these delays could result in the loss of substantial revenues. We may also be required to obtain a license from the third party or cease activities utilizing the third party's proprietary rights. We may not be able to enter into such a license or such a license may not be available on commercially reasonable terms. Accordingly, the loss of important intellectual property rights could hinder our ability to sell our systems, or make the sale of these systems more expensive. For additional information regarding recent patent litigation, see Item 3. ("Legal Proceedings").

Our efforts to protect our intellectual property may be less effective in certain foreign countries, where intellectual property rights are not as well protected as in the United States

The laws of some foreign countries do not protect our proprietary rights to as great an extent as do the laws of the United States, and many U.S. companies have encountered substantial problems in protecting their proprietary rights against infringement abroad. For example, Taiwan is not a signatory of the Patent Cooperation Treaty, which is designed to specify rules and methods for defending intellectual property internationally. The publication of a patent in Taiwan prior to the filing of a patent in Taiwan would invalidate the ability of a company to obtain a patent in Taiwan. Similarly, in contrast to the United States where the contents of patents remain confidential during the patent application process, in Taiwan the contents of a patent are published upon filing which provides competitors an advance view of the contents of a patent application prior to the establishment of patent rights. Consequently, there is a risk that we may be unable to adequately protect our proprietary rights in certain foreign countries. If this occurs, it would be easier for our competitors to develop and sell competing products in these countries.

Some of our current and potential competitors have significantly greater resources than we do, and increased competition could impair sales of our products or cause us to reduce our prices

The market for semiconductor capital equipment is highly competitive. We face substantial competition from established companies in each of the markets we serve. We principally compete with KLA-Tencor, Camtek and Ultratech. We compete to a lesser extent with companies such as Nanometrics and Nikon. Each of our products also competes with products that use different metrology or inspection techniques. Some of our competitors have greater financial, engineering, manufacturing and marketing resources, broader product offerings and service capabilities and larger installed customer bases than we do. As a result, these competitors may be able to respond more quickly to new or emerging technologies or market developments by devoting greater resources to the development, promotion and sale of products, which, in turn, could impair sales of our products. Further, there may be significant merger and acquisition activity among our competitors and potential competitors, which, in turn, may provide them with a competitive advantage over us by enabling them to rapidly expand their product offerings and service capabilities to meet a broader range of customer needs.

Many of our customers and potential customers in the semiconductor device manufacturing industry are large companies that require global support and service for their semiconductor capital equipment. We believe that our global support and service infrastructure is sufficient to meet the needs of our customers and potential customers.

However, some of our competitors have more extensive infrastructures than we do, which could place us at a disadvantage when

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competing for the business of global semiconductor device manufacturers. Many of our competitors are investing heavily in the development of new systems that will compete directly with our systems. We have from time to time selectively reduced prices on our systems in order to protect our market share, and competitive pressures may necessitate further price reductions. We expect our competitors in each product area to continue to improve the design and performance of their products and to introduce new products with competitive prices and performance characteristics. These product introductions would likely require us to decrease the prices of our systems and increase the level of discounts that we grant our customers. Price reductions or lost sales as a result of these competitive pressures would reduce our total revenues and could adversely impact our financial results.

Because of the high cost of switching equipment vendors in our markets, it is sometimes difficult for us to win customers from our competitors even if our systems are superior to theirs

We believe that once a semiconductor device manufacturer has selected one vendor's capital equipment for a production-line application, the manufacturer generally relies upon that capital equipment and, to the extent possible, subsequent generations of the same vendor's equipment, for the life of the application. Once a vendor's equipment has been installed in a production line application, a semiconductor device manufacturer must often make substantial technical modifications and may experience production-line downtime in order to switch to another vendor's equipment. Accordingly, unless our systems offer performance or cost advantages that outweigh a customer's expense of switching to our systems, it will be difficult for us to achieve significant sales to that customer once it has selected another vendor's capital equipment for an application.

We must attract and retain key personnel with knowledge of semiconductor device manufacturing and inspection and/or metrology equipment to help support our future growth, and competition for such personnel in our industry is high

Our success depends to a significant degree upon the continued contributions of our key management, engineering, sales and marketing, customer support, finance and manufacturing personnel. The loss of any of these key personnel, each of whom would be extremely difficult to replace, could harm our business and operating results. Although we have employment and noncompetition agreements with key members of our senior management team, including Messrs. McLaughlin and Roth, these individuals or other key employees may still leave us, which could have a material adverse effect on our business. We do not have key person life insurance on any of our executives. In addition, to support our future growth, we will need to attract and retain additional qualified employees. Competition for such personnel in our industry is intense, and we may not be successful in attracting and retaining qualified employees.

We obtain some of the components and subassemblies included in our systems from a limited group of suppliers, and the partial or complete loss of one of these suppliers could cause production delays and a substantial loss of revenues

We obtain some of the components and subassemblies included in our systems from a limited group of suppliers and do not have long-term contracts with many of our suppliers. Our dependence on limited source suppliers of components and our lack of long-term contracts with many of our suppliers exposes us to several risks, including a potential inability to obtain an adequate supply of components, price increases, late deliveries and poor component quality. Disruption or termination of the supply of these components could delay shipments of our systems, damage our customer relationships and reduce our sales. From time to time in the past, we have experienced temporary difficulties in receiving shipments from our suppliers. The lead-time required for shipments of some of our components can be as long as four months. In addition, the lead time required to qualify new suppliers for lasers could be as long as a year, and the lead time required to qualify new suppliers of other components could be as long as nine months. If we are unable to accurately predict our component needs, or if our component supply is disrupted, we may miss market opportunities by not being able to meet the demand for our systems. Further, a significant increase in the price of one or more of these components or subassemblies could seriously harm our results of operations and cash flows.

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Any prolonged disruption in the operations of our manufacturing facility could have a material adverse effect on our revenues

Our manufacturing processes are highly complex and require sophisticated and costly equipment and a specially designed facility. As a result, any prolonged disruption in the operations of our manufacturing facility, whether due to technical or labor difficulties, or destruction of or damage as a result of a fire or any other reason, could seriously harm our ability to satisfy our customer order deadlines. If we cannot timely deliver our systems, our results from operations and cash flows could be materially and adversely affected.

Failure to adjust our orders for parts and subcomponents in an accurate and timely manner in response to changing market conditions or customer acceptance of our products could adversely affect our financial position and results of operations

Our earnings could be negatively affected and our inventory levels could materially increase if we are unable to predict our inventory needs in an accurate and timely manner and adjust our orders for parts and subcomponents should our needs increase or decrease materially due to unexpected increases or decreases in demand for our products. Any material increase in our inventories could result in an adverse effect on our financial position, while any material decrease in our ability to procure needed inventories could result in an inability to supply customer demand for our products, thus adversely affecting our revenues.

Our ability to fulfill our backlog may have an effect on our long term ability to procure contracts and fulfill current contracts

Our ability to fulfill our backlog may be limited by our ability to devote sufficient financial and human capital resources and limited by available material supplies. If we do not fulfill our backlog in a timely manner, we may experience delays in product delivery which would postpone receipt of revenue from those delayed deliveries. Additionally, if we are consistently unable to fulfill our backlog, this may be a disincentive to customers to award large contracts to us in the future until they are comfortable that we can effectively manage our backlog.

We may choose to acquire new and complementary businesses, products or technologies instead of developing them ourselves, and may be unable to complete these acquisitions or may not be able to successfully integrate an acquired business in a cost-effective and non-disruptive manner

Our success depends on our ability to continually enhance and broaden our product offerings in response to changing technologies, customer demands and competitive pressures. To this end, we have, from time to time, engaged in the process of identifying, analyzing and negotiating possible acquisition transactions and we expect to continue to do so in the future. We may choose to acquire new and complementary businesses, products, technologies and/or services instead of developing them ourselves. We may, however, face competition for acquisition targets from larger and more established companies with greater financial resources, making it more difficult for us to complete acquisitions. We cannot provide any assurance that we will be successful in consummating future acquisitions on favorable terms or that we will realize the benefits that we anticipate from one or more acquisitions that we consummate. Integrating any business, product technology or service we acquire could be expensive and time-consuming and/or disrupt our ongoing business. Further, there are numerous risks associated therewith, including but not limited to:

- diversion of management's attention from day-to-day operational matters and current products and customers;
- lack of synergy, or the inability to realize expected synergies;
- failure to commercialize the new technology or business;
- failure to meet the expected performance of the new technology or business;
- failure to retain key employees and customer or supplier relationships;
- lower-than-expected market opportunities or market acceptance of any new products; and
- unexpected reduction of sales of existing products by new products.

Our inability to consummate one or more acquisitions on such favorable terms or our failure to realize the intended

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benefits from one or more acquisitions, could have a material adverse effect on our business, liquidity, financial position and/or results of operations, including as a result of our incurrence of indebtedness and related interest expense and our assumption of unforeseen contingent liabilities. In order to finance any acquisitions, we might need to raise additional funds through public or private equity or debt financings. In that event, we could be forced to obtain financing on terms that are not favorable to us and, in the case of equity financing, that result in dilution to our stockholders. In addition, any impairment of goodwill or other intangible assets, amortization of intangible assets, write-down of other assets or charges resulting from the costs of acquisitions and purchase accounting could harm our business and operating results.

If we cannot effectively manage our growth, our business may suffer

Over the long-term, we intend to continue to grow by increasing our sales efforts and completing strategic acquisitions. To effectively manage our growth, we must, among other things:

- engage, train and manage a larger sales force and additional service personnel;
- expand the geographic coverage of our sales force;
- expand our information systems;
- identify and successfully integrate acquired businesses into our operations; and
- administer appropriate financial and administrative control procedures.

Our anticipated growth will likely place a significant strain on our management, financial, operational, technical, sales and administrative resources. Any failure to effectively manage our growth may cause our business to suffer and our stock price to decline.

Changes in tax rates or tax liabilities could affect results

As a global company, we are subject to taxation in the United States and various other countries. Significant judgment is required to determine and estimate worldwide tax liabilities. Our future annual and quarterly tax rates could be affected by numerous factors, including changes in the (1) applicable tax laws; (2) composition of earnings in countries with differing tax rates; or (3) valuation of our deferred tax assets and liabilities. In addition, we are subject to regular examination of our income tax returns by the Internal Revenue Service and other tax authorities. We regularly assess the likelihood of favorable or unfavorable outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. Although we believe our tax estimates are reasonable, there can be no assurance that any final determination will not be materially different from the treatment reflected in our historical income tax provisions and accruals, which could materially and adversely affect our results of operations.

Turmoil in the credit markets and the financial services industry may negatively impact our business, results of operations, financial condition or liquidity

During recent years, global credit markets and the financial services industry have been experienced a period of unprecedented turmoil and upheaval characterized by tightening of the credit markets, weakening of the global economy and an unprecedented level of intervention from the United States and other governments. Adverse economic conditions, such as sustained periods of economic uncertainty or a crisis in the financial markets may have a material adverse effect on our liquidity and financial condition if our ability to obtain credit from trade creditors were to be impaired. In addition, a worsening economy or an economic crisis could also adversely impact our customers' ability to finance the purchase of systems from us or our suppliers' ability to provide us with product, either of which may negatively impact our business and results of operations.

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Our debt service obligations may adversely affect our financial condition and cash flows from operations

As a result of our sale of $60.0 million of 3.75% convertible senior notes on July 25, 2011 (the "Notes"), we now have long-term debt that we had not had to maintain prior to such time.

Our maintenance of indebtedness could have important consequences because:

- it may impair our ability to obtain additional financing in the future;
- an increased portion of our cash flows from operations will have to be dedicated towards making semi-annual interest payments and repaying the principal in 2016;
- it may make us more vulnerable to downturns in our business, our industry or the economy in general.

Our ability to generate sufficient cash to pay our expenses and debt obligations will depend on our future performance, which will be affected by financial, business, economic, regulatory and other factors. We will not be able to control many of these factors, such as economic conditions and governmental regulations. If we are at any time unable to generate sufficient cash to pay our debt obligations, we may be required to attempt to renegotiate the terms of our debt obligations, seek to refinance all or a portion of our debt obligations or obtain additional financing. There can be no assurance that we will be able to successfully renegotiate such terms, that any such refinancing would be possible or that any additional financing could be obtained on terms that are favorable or acceptable to us. Failure to make a payment on our debt obligations could also result in acceleration of all of our debt obligations, including the Notes, which would materially adversely affect our business, financial condition and results of operations.

We may not have the ability to raise the funds necessary to settle conversions of the Notes or to repurchase the Notes upon a "fundamental change," and our future debt may contain limitations on our ability to pay cash upon conversion or to repurchase the Notes

Upon the occurrence of a "fundamental change" (as defined in the indenture that governs the Notes), subject to certain conditions, holders of the Notes will have the right to require us to repurchase their Notes for cash at 100% of their principal amount plus accrued and unpaid interest, if any. In addition, upon conversion of the Notes, we will be required to make cash payments of up to $1,000 for each $1,000 in principal amount of Notes converted. However, we may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of Notes surrendered for repurchase upon a fundamental change or to make cash payments in respect of Notes that are being converted. In addition, our ability to repurchase the Notes or to pay cash upon conversions of the Notes may be limited by law, by regulatory authority or by agreements governing our future indebtedness. Our failure to repurchase Notes at a time when the repurchase is required by the indenture or to pay any cash payable on future conversions of the Notes as required by the indenture would constitute a default under the indenture. A default under the indenture or a fundamental change itself could also lead to a default under agreements governing any future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the Notes or make cash payments upon conversions thereof.

New regulations related to "conflict minerals" may force us to incur additional expenses, may make our supply chain more complex and may result in damage to our reputation with customers

On August 22, 2012, under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or the Dodd-Frank Act, the SEC adopted new requirements for companies that use certain minerals and metals, known as conflict minerals, in their products, whether or not these products are manufactured by third parties. These requirements will require companies to perform due diligence, disclose and report whether or not such minerals originate from the Democratic Republic of Congo and adjoining countries. The implementation of these new requirements could adversely affect the sourcing, availability and pricing of minerals used in the manufacture of semiconductor devices, including our products. In addition, we will incur additional costs to comply with the disclosure requirements, including costs related to determining the source of any of the relevant minerals and metals used in our products. Since our supply chain is complex, we may not be able to sufficiently verify the origins for these minerals and metals used in our products through the due diligence procedures that we implement, which may harm our reputation. In such event, we may also face difficulties in satisfying customers who require that all of the

components of our products are certified as conflict mineral free.

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Risks Related to the Semiconductor Device Industry

Cyclicality in the semiconductor device industry has led to substantial decreases in demand for our systems and may from time to time continue to do so

Our operating results are subject to significant variation due to the cyclical nature of the semiconductor device industry. Our business depends upon the capital expenditures of semiconductor device manufacturers, which, in turn, depend upon the current and anticipated market demand for semiconductors and products using semiconductors. The timing, length and severity of the up-and-down cycles in the semiconductor equipment industry are difficult to predict. In recent years, the industry has experienced significant downturns, generally in connection with declines in economic conditions. This cyclical nature of the industry in which we operate affects our ability to accurately predict future revenue and, thus, future expense levels. When cyclical fluctuations result in lower than expected revenue levels, operating results may be adversely affected and cost reduction measures may be necessary in order for us to remain competitive and financially sound. During a down cycle, we must be in a position to adjust our cost and expense structure to prevailing market conditions and to continue to motivate and retain our key employees. In addition, during periods of rapid growth, we must be able to increase manufacturing capacity and personnel to meet customer demand. We can provide no assurance that these objectives can be met in a timely manner in response to industry cycles. If we fail to respond to industry cycles, our business could be seriously harmed.

Our future rate of growth is highly dependent on the development and growth of the market for microelectronic device inspection, lithography and metrology equipment

We target our products to address the needs of microelectronic device manufacturers for defect inspection and metrology. If for any reason the market for microelectronic device inspection or metrology equipment fails to grow in the long term, we may be unable to maintain current revenue levels in the short term and maintain our historical growth in the long term. Growth in the inspection market is dependent to a large extent upon microelectronic manufacturers replacing manual inspection with automated inspection technology. Growth in the metrology market is dependent to a large extent upon new chip designs and capacity expansion of microelectronic manufacturers. There is no assurance that manufacturers will undertake these actions at the rate we expect.

Risks Related to our Stock

Provisions of our charter documents and Delaware law, as well as our stockholder rights plan, could discourage potential acquisition proposals and/or delay, deter or prevent a change in control of our company

Provisions of our certificate of incorporation and bylaws, as well as our stockholder rights plan, may inhibit changes in control of our company not approved by our Board of Directors. These provisions also limit the circumstances in which a premium can be paid for the common stock, and in which a proxy contest for control of our board may be initiated. These provisions provide for:

- a prohibition on stockholder actions through written consent;
- a requirement that special meetings of stockholders be called only by our chief executive officer or Board of Directors;
- advance notice requirements for stockholder proposals and director nominations by stockholders;
- limitations on the ability of stockholders to amend, alter or repeal our by-laws;
- the authority of our board to issue, without stockholder approval, preferred stock with such terms as the board may determine; and
- the authority of our board, without stockholder approval, to adopt a Stockholder Rights Plan. Such a Shareholder Rights Plan was adopted by the Board of Directors on June 27, 2005.

We are also entitled to avail ourselves of the protections of Section 203 of the Delaware General Corporation Law, which could inhibit changes in control of us.

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Our stock price is volatile

The market price of our common stock has fluctuated widely. From the beginning of fiscal year 2009 through the end of fiscal year 2012, our stock price fluctuated between a high of $13.52 per share and a low of $1.95 per share. Consequently, the current market price of our common stock may not be indicative of future market prices, and we may be unable to sustain or increase the value of an investment in our common stock. Factors affecting our stock price may include:

- variations in operating results from quarter to quarter;
- changes in earnings estimates by analysts or our failure to meet analysts' expectations;
- changes in the market price per share of our public company customers;
- market conditions in the semiconductor and other industries into which we sell products;
- general economic conditions;
- political changes, hostilities or natural disasters such as hurricanes and floods;
- low trading volume of our common stock; and
- the number of firms making a market in our common stock.

In addition, the stock market has recently experienced significant price and volume fluctuations. These fluctuations have particularly affected the market prices of the securities of high technology companies like ours. These market fluctuations could adversely affect the market price of our common stock.

Item 1B. Unresolved Staff Comments.

None.

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Item 2. Properties.

Our executive office building is located at One Rudolph Road in Flanders, New Jersey. We own and lease facilities for engineering, manufacturing, sales and service related purposes in the United States and seven other countries — China, Germany, Japan, South Korea, Singapore, Taiwan and Scotland. The following table indicates the location, the general purpose and the square footage of our principal facilities. The expiration years of the leases covering the leased facilities are also indicated.

Location	Facility Purpose	Approximate Square Footage	Lease Expiration Year, Unless Owned
Flanders, New Jersey	Executive Office	20,000	Owned
Budd Lake, New Jersey	Engineering and Service	61,500	2016
Bloomington, Minnesota	Engineering, Manufacturing and Service	98,500	2019
Tewksbury, Massachusetts	Engineering and Service	7,000	2017
Wilmington, Massachusetts	Engineering, Manufacturing and Service	43,000	2019
Richardson, Texas	Engineering	21,000	Owned
Bohemia, New York	Engineering	6,000	2016
Snoqualmie, Washington	Engineering and Service	27,000	2018
Tianjin, China	Engineering	5,000	2014
Hsin-Chu, Taiwan	Sales and Service	10,500	2013
Takatsu, Japan	Sales and Service	5,000	2013
Sungnam-si, South Korea	Sales and Service	9,500	2013
Shanghai, China	Sales and Service	2,500	2013
Singapore	Sales and Service	2,000	2016
Scotland, United Kingdom	Sales and Service	1,000	2013
Mainz, Germany	Engineering, Manufacturing and Service	6,500	2015

We also lease office space for other smaller sales and service offices in several locations throughout the world.

We believe that our existing facilities and capital equipment are adequate to meet our current requirements, and that suitable additional or substitute space is available on commercially reasonable terms if needed.

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Item 3. Legal Proceedings.

From time to time, we are subject to legal proceedings and claims in the ordinary course of business. As previously disclosed, in December 2007, we completed the acquisition of specific assets and liabilities of the semiconductor division of Applied Precision LLC ("Applied"). As a result of the acquisition, we assumed certain liabilities of Applied including a lawsuit filed in the United States District Court, District of Arizona, by Integrated Technology Corporation ("ITC") which alleged Applied's PrecisionPoint™, PrecisionWoRx® and ProbeWoRx® products infringed an ITC patent (Integrated Technology Corporation v. Rudolph Technologies, Inc., No. CV-06-2182-PHX-ROS). Prior to trial, the District Court ruled that such products sold prior to August of 2007 infringed the ITC patent. In December 2011, a trial verdict was rendered in which the jury found that while our products manufactured after August of 2007 did not literally infringe ITC's patent, the products were found to infringe under a rule known as the doctrine of equivalents, a legal principle which expands the language of patent claims to encompass products or processes which may otherwise be found not to literally infringe the patent. The jury awarded $15.5 million to ITC in damages for sales made during the years 2000-2011, of which award approximately one-half related to sales made after August 2007. The jury found that for sales made after August of 2007 the infringement was willful. On July 23, 2012, the District Court, responding to post-trial motions filed by us and ITC related to the verdict and damages assessment, issued an Order which affirmed the jury's award, applied treble damages to the portion of the jury award related to sales of the products after 2007 and granted ITC's motion for attorney's fees and prejudgment interest on the verdict and attorney's fees. The District Court also enjoined us from future infringement of the ITC patent and from selling or supplying the applicable products with the applicable features from or into the United States. We appealed the injunction, the District Court Order and the damages assessment. In October 2012, the injunction was stayed by the Federal Court of Appeals. We believe that we have meritorious defenses and shall continue to vigorously prosecute our appeal. With that, it is reasonably possible that we could realize a loss in this matter related to products sold after August of 2007 such that in the event that we are ultimately found liable, damage estimates related to this case, which have not been accrued for as of December 31, 2012, range from approximately $25 thousand to $31.6 million. With regard to products sold before August of 2007, it is probable that we could realize a loss in this matter for which we have estimated and recorded a liability of approximately $4.3 million in "Other liabilities" in the Consolidated Balance Sheets. While we continue to believe that our current PrecisionWoRx® and ProbeWoRx® systems do not infringe ITC's patent, we reached an agreement with ITC in October 2012 with regards to a redesign of the products under which ITC agreed that such redesign is permissible under the court's injunction.

In our patent infringement suit against Camtek, Ltd., of Migdal Hamek, Israel, concerning our proprietary continuous scan wafer inspection technology, the U.S. Federal Court of Appeals issued a ruling on August 22, 2011. In its opinion, the Appellate Court affirmed multiple rulings from trial at the District Court level including (i) finding our U.S. Patent No. 6,826,298 valid, (ii) the part of the infringement ruling based on the finding that Camtek's Falcon product strobes "based on velocity," and (iii) the dismissal of Camtek's claim against us for inequitable conduct against the U.S. Patent and Trademark Office. The court did, however, revise one claim construction ruling made by the District Court in the original case. As a result, the Appellate Court set aside the verdict delivered by the jury for damages and the District Court's decision to enter an injunction against Camtek's selling Falcon tools in the U.S. and remanded the case back to the trial court for a limited trial on this the single infringement issue. No trial date has been set for this limited trial. This lawsuit was initially brought in 2005 by August Technology prior to its merger with us.

Item 4. Mine Safety Disclosures.

None.

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PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Our common stock is traded on the NASDAQ Global Select Market under the symbol "RTEC." Set forth below is a line graph comparing the annual percentage change in the cumulative return to the stockholders of the Company's Common Stock with the cumulative return of the NASDAQ Composite Index and a custom peer group for the period commencing on December 31, 2007 and ending on December 31, 2012. The peer group is comprised of capital equipment manufacturers for the semiconductor industry with relatively comparable revenues and market capitalizations to that of the Company. The peer group was recommended by a global management consulting firm. The companies included in the peer group are MKS Instruments, Inc., FEI Company, Brooks Automation, Inc., Cymer, Inc., Veeco Instruments, Inc., Cabot Microelectronics Corporation, ATMI, Inc., FormFactor, Inc., Axcelis Technologies, Inc., Advanced Energy Industries, Inc., Cohu, Inc., EMCORE Corporation, Mattson Technology, Inc., LTX-Credence, Corporation, Nanometrics, Incorporated, Ultratech, Inc., PDF Solutions, Inc. and AXT, Inc.

The information contained in the performance graph shall not be deemed to be "soliciting material" or to be "filed" with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act of 1933 or the Securities Exchange Act of 1934, except to the extent that the Company specifically incorporates it by reference into such filing.

The graph assumes that $100 was invested on December 31, 2007 in the Company's Common Stock and in each index, and that all dividends were reinvested. No cash dividends have been declared or paid on the Company's Common Stock. Stockholder returns over the indicated period should not be considered indicative of future stockholder returns. The Company operates on a 52-week calendar year.

ASSUMES $100 INVESTED ON DEC. 31 2007
ASSUMES DIVIDEND REINVESTED
FISCAL YEAR ENDING DEC. 31 2012

	12/07	12/08	12/09	12/10	12/11	12/12
Rudolph Technologies, Inc.	100.0	31.19	59.39	72.71	81.81	118.74
NASDAQ Composite	100.0	60.02	87.25	103.08	102.27	120.42
Peer Group	100.0	50.18	79.99	91.32	86.94	107.69

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The following table sets forth, for the periods indicated, the high and low sale prices per share of our common stock as reported on the NASDAQ Global Select Market.

	Price Range of Common Stock	
	High	Low
Year Ended December 31, 2011		
First Quarter	$11.93	$7.97
Second Quarter	$12.75	$9.90
Third Quarter	$10.98	$6.02
Fourth Quarter	$9.46	$6.12
Year Ended December 31, 2012		
First Quarter	$11.45	$9.13
Second Quarter	$11.26	$8.09
Third Quarter	$10.93	$8.24
Fourth Quarter	$13.52	$9.15

As of February 14, 2013, there were 85 stockholders of record of our common stock and approximately 6,248 beneficial stockholders. The closing market value of our common stock on February 14, 2013 was $11.73.

We have never declared or paid a cash dividend on our common stock and do not anticipate paying any cash dividends in the foreseeable future. We currently intend to retain our earnings, if any, for the development of our business. The declaration of any future dividends by us is within the discretion of our Board of Directors and will be dependent on our earnings, financial condition and capital requirements as well as any other factors deemed relevant by our Board of Directors.

In July 2008, our Board of Directors authorized a share repurchase program of up to 3 million shares of our common stock with no established end date. As of the time of filing this Annual Report on Form 10-K, we have not purchased any shares under this program.

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Item 6. Selected Financial Data.

The following selected financial data should be read in conjunction with our Consolidated Financial Statements and the related Notes thereto appearing elsewhere in this Annual Report on Form 10-K, and under Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations." The balance sheet data as of December 31, 2011 and 2012 and the statement of operations data for the years ended December 31, 2010, 2011 and 2012 set forth below were derived from our audited consolidated financial statements included elsewhere in this Form 10-K. The balance sheet data as of 2008, 2009 and 2010, and the statement of operations data for the years ended December 31, 2008 and 2009 were derived from our audited consolidated financial statements not included herein.

	Year Ended December 31,				
	2008	2009	2010	2011	2012
	(In thousands, except per share data)				
Statement of Operations Data:					
Revenues	$131,040	$78,657	$195,305	$187,196	$218,486
Cost of revenues	87,388	49,805	91,405	86,843	102,811
Gross profit	43,652	28,852	103,900	100,353	115,675
Operating expenses:					
Research and development	31,644	25,991	33,387	36,298	39,331
Selling, general and administrative	36,512	32,703	38,173	40,826	40,225
Impairment charge for goodwill and identifiable intangible assets	227,105	—	—	—	—
Amortization	5,890	1,358	1,715	1,757	1,853
Total operating expenses	301,151	60,052	73,275	78,881	81,409
Operating income (loss)	(257,499)	(31,200)	30,625	21,472	34,266
Interest income (expense)	1,230	271	167	(1,925)	(4,377)
Other income (expense)	2,468	(938)	(255)	847	(482)
Income (loss) before provision (benefit) for income taxes	(253,801)	(31,867)	30,537	20,394	29,407
Provision (benefit) for income taxes	(4,115)	(2,239)	3,522	(4,832)	(14,458)
Net income (loss)	$(249,686)	$(29,628)	$27,015	$25,226	$43,865
Earnings (loss) per share:					
Basic	$(8.16)	$(0.96)	$0.86	$0.79	$1.36
Diluted	$(8.16)	$(0.96)	$0.86	$0.78	$1.34
Weighted average shares outstanding:					
Basic	30,614	30,888	31,286	31,744	32,226
Diluted	30,614	30,888	31,492	32,256	32,853

	December 31,				
	2008	2009	2010	2011	2012
Balance Sheet Data:					
Cash and cash equivalents	$67,735	$57,839	$71,120	$96,671	$104,253
Marketable securities	10,549	3,080	629	70,888	64,963
Working capital	147,688	126,781	159,745	234,244	257,004
Total assets	197,432	178,203	219,053	305,911	366,384
Convertible senior notes	—	—	—	46,524	49,010
Accumulated deficit	(204,910)	(234,538)	(207,523)	(182,297)	(138,432)
Total stockholders' equity	176,088	151,131	185,034	221,778	270,489

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Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

Overview

We are a worldwide leader in the design, development, and manufacture of high-performance process control defect inspection, advanced packaging lithography, metrology, and process control software systems used by microelectronics device manufacturers. We provide process and yield management solutions used in both wafer processing and final manufacturing through a family of standalone systems for macro-defect inspection, lithography, probe card test and analysis, and transparent and opaque thin film measurements. All Rudolph systems feature sophisticated software and production-worthy automation. Rudolph systems are backed by worldwide customer support.

In June 2012, we announced that we had acquired specific assets and liabilities of NanoPhotonics GmbH, located in Mainz, Germany ("NanoPhotonics acquisition"). The acquired business has been integrated into our inspection technology group. The impact of the acquisition was not material to our consolidated financial position or results of operations.

In December 2012, we announced that we had acquired Azores Corporation, located in Wilmington, Massachusetts ("Azores acquisition"). The acquired business marks our entry into the advanced packaging and FPD lithography markets. The impact of the acquisition was not material to our consolidated financial position or results of operations.

We have made a preliminary allocation of the purchase price to the assets acquired and liabilities assumed as of the acquisition date for the NanoPhotonics and Azores acquisitions. We expect to finalize our analysis of the purchase price allocation within the first year of the acquisitions, and therefore adjustments to goodwill and identifiable intangible assets may occur.

Rudolph's business is affected by the annual spending patterns of our customers on semiconductor capital equipment. The amount that our customers devote to capital equipment spending depends on a number of factors, including general worldwide economic conditions as well as other economic drivers such as personal computer, tablet, cell phone, other personal electronic devices and automotive sales. Current forecasts by industry analysts for the semiconductor device manufacturing industry are similar year-over-year capital spending to down 10% for 2013. Our revenues and profitability, tend to closely follow the strength or weakness of the semiconductor market. We monitor capital equipment spending through announced capital spending plans by our customers and monthly-published industry data such as the book-to-bill ratio. The book-to-bill ratio is a 3-month running statistic that compares bookings or orders placed with capital equipment suppliers to billings or shipments. A book-to-bill ratio above 1.0 shows that semiconductor device equipment manufacturers are ordering equipment at a pace that exceeds the equipment suppliers' shipments for the period. The three month rolling average North American semiconductor equipment book-to-bill ratio was 0.9 for the month of December 2012, increasing from the September 2012 book-to-bill ratio of 0.8.

Historically, a significant portion of our revenues in each quarter and year has been derived from sales to relatively few customers, and we expect this trend to continue. For the years ended December 31, 2010, 2011 and 2012, sales to customers that individually represented at least five percent of our revenues accounted for 44.4%, 43.6%, and 50.9% of our revenues, respectively. In 2010, sales to Taiwan Semiconductor Manufacturing Co. and Samsung Semiconductor, Inc. accounted for 13.9% and 11.2% of our revenues, respectively. In 2011, sales to Infineon Technologies and Samsung Semiconductor Inc. accounted for 13.5% and 12.1% of our revenues, respectively. In 2012, sales to Samsung Semiconductor Inc. and Advanced Semiconductor Engineering, Inc. accounted for 10.4% and 10.1% of our revenues, respectively.

We do not have purchase contracts with any of our customers that obligate them to continue to purchase our products, and they could cease purchasing products from us at any time. A delay in purchase or cancellation by any of our large customers could cause quarterly revenues to vary significantly. In addition, during a given quarter, a significant portion of our revenues may be derived from the sale of a relatively small number of systems. Our macro-defect inspection and probe card and test analysis systems range in average selling price from approximately $250,000 to $1.7 million per system; our transparent film measurement systems range in average selling price from approximately

$800,000 to $1.2 million per system; our opaque film measurement systems range in average selling price from approximately $1.0 million to $1.8 million per system; and our lithography steppers range in average selling price from approximately $3.0 million to $4.0 million per system.

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A significant portion of our revenues has been derived from customers outside of the United States. We expect that revenues generated from customers outside of the United States will continue to account for a significant percentage of our revenues.

The following table lists, for the periods indicated, the revenue derived from customers outside of the United States (in percentages of total revenues):

	Years Ended December 31,		
	2010	2011	2012
Asia	65.7 %	51.3 %	67.3 %
Europe	11.1 %	20.4 %	13.4 %
Total international revenue	76.8 %	71.7 %	80.7 %

The sales cycle for our systems typically ranges from six to 15 months, and can be longer when our customers are evaluating new technology. Due to the length of these cycles, we invest significantly in research and development and sales and marketing in advance of generating revenues related to these investments.

Results of Operations

The following table sets forth, for the periods indicated, our statements of operations data as percentages of our revenues. Our results of operations are reported as one business segment.

	Year Ended December 31,		
	2010	2011	2012
Revenues	100.0 %	100.0 %	100.0 %
Cost of revenues	46.8	46.4	47.1
Gross profit	53.2	53.6	52.9
Operating expenses:			
Research and development	17.1	19.4	18.0
Selling, general and administrative	19.5	21.8	18.4
Amortization	0.9	0.9	0.8
Total operating expenses	37.5	42.1	37.2
Operating income	15.7	11.5	15.7
Interest income (expense)	0.1	(1.0)	(2.0)
Other income (expense)	(0.2)	0.5	(0.2)
Income before provision (benefit) income taxes	15.6	11.0	13.5
Provision (benefit) for income taxes	1.8	(2.6)	(6.6)
Net income (loss)	13.8 %	13.6 %	20.1 %

Results of Operations 2010, 2011 and 2012

Revenues. Our revenues are derived from the sale of our systems, services, spare parts and software licensing. Our revenues were $195.3 million, $187.2 million and $218.5 million for the years ended 2010, 2011 and 2012, respectively. This represents a decrease of 4.1% from 2010 to 2011 and a increase of 16.7% from 2011 to 2012. The decrease in revenue from 2010 to 2011 is primarily due to customer deferring purchases during the second half of 2011 due to changes in demands for their products and uncertainty in the global economy. The increase in revenue from, 2011 to 2012 is primarily due to increased capital spending by our back-end customers in the semiconductor industry.

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The following table lists, for the periods indicated, the different sources of our revenues in dollars (thousands) and as percentages of our total revenues:

	Year Ended December 31,								
	2010			2011			2012		
Systems and Software:									
Inspection	$105,904	54	%	$91,825	49	%	$128,917	59	%
Metrology	39,428	20	%	38,616	21	%	38,001	17	%
Data Analysis and Review	19,417	10	%	23,356	13	%	19,840	9	%
Parts	19,266	10	%	21,719	11	%	20,802	10	%
Services	11,290	6	%	11,680	6	%	10,926	5	%
Total revenue	$195,305	100	%	$187,196	100	%	$218,486	100	%

Total systems and software revenue decreased for the year ended December 31, 2011 as compared to the year ended December 31, 2010 due to a slow down in system sales in the second half of 2011 as our customers deferred purchases due to changes in demands for their products and uncertainty in the global economy. This contributed to decreases in the number of inspection and metrology systems sold year-over-year and reflects decreases in inspection systems revenue of $14.1 million and metrology systems revenue of $0.8 million. The year-over-year increase in data analysis and review software revenues of $3.9 million from 2010 to 2011 is primarily due to increased sales across all data analysis and review software product families. The average selling price of similarly configured systems has been consistent and therefore did not have a material impact on our revenue for the same period. Systems revenue generated by our latest product releases and major enhancements in each of our product families amounted to 59% of total revenue for 2010 compared to 55% of total revenue for 2011. The year-over-year increase in parts and service revenues in absolute dollars from 2010 to 2011 is primarily due to increased spending by our customers on repairs of existing systems. Parts and services revenues are generated from part sales, maintenance service contracts, system upgrades, as well as time and material billable service calls.

Total systems and software revenue increased for the year ended December 31, 2012 as compared to the year ended December 31, 2011 due to an increase in demand for our products in advanced packaging. This contributed to an increase in the number of inspection systems sold year-over-year and reflects an increase in inspection systems revenue of $37.1 million. The year-over-year decreases in metrology systems revenue of $0.6 million and data analysis and review software revenues of $3.5 million from 2011 to 2012 are primarily due to decreased sales across all metrology and data analysis and review software product families. The average selling price of similarly configured systems has been consistent and therefore did not have a material impact on our revenue for the same period. Systems revenue generated by our latest product releases and major enhancements in each of our product families amounted to 55% of total revenue for 2011 compared to 67% of total revenue for 2012. The year-over-year decrease in parts and service revenues in absolute dollars from 2011 to 2012 is primarily due to decreased spending by our customers on repairs of existing systems as they purchased new systems. Parts and services revenues are generated from part sales, maintenance service contracts, system upgrades, as well as time and material billable service calls. Deferred revenues of $11.2 million are recorded in Other current liabilities at December 31, 2012 and primarily consist of $9.0 million for deferred maintenance agreements and $2.2 million for systems awaiting acceptance and outstanding deliverables.

Gross Profit. Our gross profit has been and will continue to be affected by a variety of factors, including manufacturing efficiencies, excess and obsolete inventory write-offs, pricing by competitors or suppliers, new product introductions, production volume, customization and reconfiguration of systems, international and domestic sales mix, and parts and service margins. Our gross profit was $103.9 million, $100.4 million and $115.7 million for the years ended December 31, 2010, 2011 and 2012, respectively. The increase in gross profit as a percentage of revenue from 2010 to 2011 is primarily due to product mix, which included an increase in software sales. The decrease in gross profit as a percentage of revenue from 2011 to 2012 is primarily due to product mix, which included a decrease in software sales. We do not track gross margin by the sources of revenue.

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Operating Expenses

The operating expenses consist of:

- Research and Development. The macro-defect inspection, thin film transparent, opaque process control, and probe card test analysis market is characterized by continuous technological development and product innovations. We believe that the rapid and ongoing development of new products and enhancements of existing products, including the transition to copper and low-k dielectrics, wafer level packaging, the continuous shrinkage in critical dimensions, and the evolution of ultra-thin gate process control, is critical to our success. Accordingly, we devote a significant portion of our technical, management and financial resources to research and development programs. Research and development expenditures consist primarily of salaries and related expenses of employees engaged in research, design and development activities. They also include consulting fees, the cost of related supplies and legal costs to defend our patents. Our research and development expense was $33.4 million, $36.3 million and $39.3 million in 2010, 2011 and 2012, respectively. The year-over-year dollar increase from 2010 to 2011 was primarily due to higher compensation, increased patent litigation costs, as well as, the inclusion of a full year of engineering costs associated with an acquisition completed in the third quarter of 2010. The year-over-year dollar increase from 2011 to 2012 was primarily due to higher compensation and project costs, as well as, additional research and development costs for acquired businesses in 2012. We continue to maintain our commitment to investing in new product development and enhancement to existing products in order to position ourselves for future growth.
- Selling, General and Administrative. Selling, general and administrative expense is primarily comprised of salaries and related costs for sales, marketing, and general administrative personnel, as well as commissions and other non-personnel related expenses. Our selling, general and administrative expense was $38.2 million, $40.8 million and $40.2 million in 2010, 2011 and 2012, respectively. The year-over-year increase from 2010 to 2011 in selling, general and administrative expense was primarily due to incremental higher compensation and corporate legal expenses. This year-over-year decrease from 2011 to 2012 is primarily due to decreased corporate legal expenses, partially offset by increased compensation costs.
- Amortization of Identifiable Intangible Assets. Amortization of identifiable intangible assets was $1.7 million, $1.8 million and $1.9 million in 2010, 2011 and 2012, respectively. The increase in amortization expense from 2010 to 2011 was due to a full year of amortization from assets derived from an acquisition completed in the third quarter of 2010. The increase in amortization expense from 2011 to 2012 was due to amortization from intangible assets from the NanoPhotonic acquisition in the second quarter of 2012.
- Interest income (expense). In 2010, net interest income was $0.2 million. In 2011 and 2012, net interest expense was $1.9 million and $4.4 million, respectively. The year-over-year increase in net interest expense for 2011 was primarily due to interest expense related to the convertible senior notes issued in the third quarter of 2011. The year-over-year increase in net interest expense for 2012 was primarily due to a full year of interest expense related to the convertible senior notes.
- Other income (expense). In 2010 and 2012, net other expense was $0.3 million and $0.5 million, respectively. In 2011 net other income was $0.8 million. The year-over-year dollar changes in net other income (expense) were primarily due to fluctuations in foreign currency exchange rates.
- Income taxes. Income tax expense was $3.5 million in 2010. In 2011 and 2012, we recorded income tax benefit of $4.8 million and $14.5 million, respectively.

Income tax expense for the year ended December 31, 2010 was $3.5 million or 11.5% of income before provision for income taxes. This differs from the federal statutory income tax rate of 35%, primarily as a result of projected tax payments in U.S. and foreign locations, offset by valuation allowances.

Income tax benefit for the year ended December 31, 2011 was $4.8 million or (23.7)% of income before provision for income taxes. The income tax benefit differs from the federal statutory income tax rate of 35%, primarily as a result of reversal of valuation allowances, partially offset by projected tax payments in U.S. and foreign locations.

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Income tax benefit for the year ended December 31, 2012 was $14.5 million or (49.2)% of income before provision for income taxes. The income tax benefit differs from the federal statutory income tax rate of 35%, primarily as a result of reversal of valuation allowances, partially offset by projected tax expense in U.S. and foreign locations.

We evaluate the recoverability of deferred tax assets from future taxable income and establish valuation allowances if recovery is deemed not likely. We consider available evidence, both positive and negative, including historical levels of income, expectations and risks associated with estimates of future taxable income and ongoing prudent and feasible tax planning strategies in assessing the need for the valuation allowance. At December 31, 2011 and 2012, we had valuation allowances of $24.7 million and $1.4 million on certain of our deferred tax assets to reflect the deferred tax asset at the net amount that is more likely than not to be realized. The decrease in valuation allowance of $23.3 million is primarily due to a release of the tax valuation allowance. We evaluated the realizability of the deferred tax asset based on positive earnings from 2010 through 2012 as well as the projected earnings in future years and believe it is more likely than not that the deferred tax asset will be realized in the future years. We will continue to monitor the realizability of the deferred tax asset and evaluate the valuation allowance.

The American Taxpayer Relief Act of 2012 was passed by Congress and signed into law in January. The provisions under this law were made retroactive to January 1, 2012. However, as a result of the law being signed in January 2013, the financial impact of any retroactive provision will be recorded as a discrete event in the first quarter of 2013. We estimate that this discrete event will reduce tax expense in the first quarter of 2013 by approximately $0.8 million for research and development tax credits for 2012.

Litigation. As discussed in Part I, Item 3 (“Legal Proceedings”), we are subject to legal proceedings and claims, which includes, among other things, our on-going litigation with ITC in which we are in the process of appealing an order of the U.S. District Court in a patent infringement action related to the predictive scrub feature of our PrecisionPoint™, PrecisionWoRx® and ProbeWoRx® products in which we were the defendants. See Part 1, Item 3 for a discussion of this action and the District Court's adverse order affirming the jury award and ordering other relief in this matter. We have appealed the order and damages assessment. In the event that the ultimate decision in the ITC Litigation results in a judgment of damages against us at the high end of the identified ranges, such result will have a material impact on the our results of operations and may also have a material impact on our liquidity and financial condition.

Liquidity and Capital Resources

At December 31, 2011, our cash, cash equivalents and marketable securities totaled $167.6 million, while working capital amounted to $234.2 million. At December 31, 2012, we had $169.2 million of cash, cash equivalents and marketable securities and $257.0 million in working capital.

Typically during periods of revenue growth, changes in accounts receivable and inventories represent a use of cash as we incur costs and expend cash in advance of receiving cash from our customers. Similarly, during periods of declining revenue, changes in accounts receivable and inventories represent a source of cash as inventory purchases decline and revenue from prior periods is collected.

Net cash and cash equivalents provided by operating activities for the years ended December 31, 2010, 2011 and 2012 totaled $16.3 million, $45.4 million and $22.1 million, respectively. During the year ended December 31, 2010, cash provided by operating activities was primarily due to net income, adjusted to exclude the effect of non-cash charges, of $37.1 million, an increase in accrued liabilities of $2.7 million, a decrease in income tax receivable of $2.3 million, an increase in accounts payable of $2.2 million, an increase in deferred revenue of $0.9 million, and increase in other current liabilities of $0.8 million, partially offset by an increase of accounts receivable of $23.4 million and an increase of inventories of $5.6 million. During the year ended December 31, 2011, cash provided by operating activities was primarily due to net income, adjusted to exclude the effect of non-cash charges, of $28.9 million, a decrease of accounts receivable of $18.0 million, an increase in other current liabilities of $5.7 million, an increase in non-current liabilities of $1.5 million, and an increase in accrued liabilities of $1.1 million, partially offset by an increase in prepaid and other assets of $4.4 million, a decrease in accounts payable of $3.4 million, a decrease in deferred revenue of $1.3 million, and a decrease in income tax receivable of $0.5 million. During the year ended December 31, 2012, cash provided by operating activities was primarily due to net income, adjusted to exclude the

effect of non-cash charges, of $39.4 million, an increase in deferred revenue of $3.6 million, an increase in income tax payable of $3.5 million, an

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increase in accrued liabilities of $1.7 million, and an increase in non-current liabilities of $0.3 million, partially offset by an increase of accounts receivable of $14.7 million, an increase in inventory of $6.7 million, a decrease in accounts payable of $2.7 million, an increase in prepaid and other assets of $1.4 million, and a decrease in other current liabilities of $1.0 million.

Net cash and cash equivalents used in investing activities for the years ended December 31, 2010, 2011 and 2012 totaled $2.8 million, $71.2 million and $14.9 million, respectively. During the year ended December 31, 2010, net cash used by investing activities included purchases of marketable securities of $7.8 million, capital expenditures of $4.4 million and acquisition costs for business combinations of $0.8 million, partially offset by proceeds from sales of marketable securities of $10.3 million. During the year ended December 31, 2011, net cash used by investing activities included purchases of marketable securities of $81.0 million and capital expenditures of $1.6 million, partially offset by proceeds from sales of marketable securities of $11.4 million. During the year ended December 31, 2012, net cash used by investing activities included purchases of marketable securities of $96.3 million, acquisition costs for business combinations of $18.6 million, and capital expenditures of $2.4 million, partially offset by proceeds from sales of marketable securities of $102.4 million. Capital expenditures over the next twelve months are expected to be approximately $8.0 million to $11.0 million.

Net cash provided by financing activities was $0.5 million, $51.0 million and $0.5 million in 2010, 2011 and 2012, respectively. In the 2010 period, net cash provided by financing activities comprised proceeds received from sales of shares through share-based compensation plans of $0.3 million and tax benefit from share-based compensation plans of $0.2 million. In the 2011 period, net cash provided by financing activities comprised net proceeds from the issuance of 3.75% convertible senior notes of $57.7 million, proceeds from the sale of a warrant of $7.0 million, tax benefit from employee stock plans of $0.5 million and proceeds received for sales of shares through share-based compensation plans of $0.3 million, partially offset by the purchase of the convertible note hedge of $14.5 million. In the 2012 period, net cash provided by financing activities comprised proceeds received from sales of shares through share-based compensation plans of $0.3 million and tax benefit from share-based compensation plans of $0.2 million.

From time to time we evaluate whether to acquire new or complementary businesses, products and/or technologies. We may fund all or a portion of the purchase price of these acquisitions in cash, stock, or a combination of cash and stock.

In July 2008, our Board of Directors approved a stock repurchase program of up to 3 million shares of Company common stock with no established end date. As of the time of filing this Annual Report on Form 10-K, we have not purchased any shares under this program.

On July 25, 2011, we issued $60.0 million aggregate principal amount of 3.75% convertible senior notes, which mature on July 15, 2016 and pay interest semiannually commencing on January 15, 2012. In connection with the issuance, we entered into convertible note hedge and warrant transactions. The convertible note hedge transaction is intended to reduce potential dilution in our common stock upon conversion of the notes. However, the warrant transaction will have a dilutive effect on our earnings per share to the extent that the price of our common stock exceeds the strike price of the warrant. Net proceeds realized from the sale of the convertible senior notes, the convertible note hedge and warrant transactions were $50.2 million. We continue to use the net proceeds for general corporate purposes, which may include financing potential acquisitions and strategic transactions, growth initiatives and working capital. For additional information, see Note 8 to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

Our future capital requirements will depend on many factors, including the timing and amount of our revenues and our investment decisions, which will affect our ability to generate additional cash. We believe that our existing cash, cash equivalents and marketable securities will be sufficient to meet our anticipated cash requirements for working capital and capital expenditures for the next twelve months. Thereafter, if cash generated from operations and financing activities is insufficient to satisfy our working capital requirements, we may seek additional funding through bank borrowings, sales of securities or other means. There can be no assurance that we will be able to raise any such capital on terms acceptable to us or at all.

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Contractual Obligations

The following table summarizes our significant contractual obligations at December 31, 2012, and the effect such obligations are expected to have on our liquidity and cash flows in future periods. This table excludes the liability for unrecognized tax benefits that totaled approximately $9.6 million at December 31, 2012. We are currently unable to provide a reasonably reliable estimate of the amount or periods when cash settlement of this liability may occur.

	Payments due by period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Debt and interest obligations	$69,000	$2,250	$4,500	$62,250	$—
Operating lease obligations	16,667	3,424	6,434	4,138	2,671
Open and committed purchase orders	22,058	22,058	—	—	—
Total	$107,725	$27,732	$10,934	$66,388	$2,671

Off-Balance Sheet Arrangements

The Company does not have any significant off-balance sheet arrangements that have or are reasonably likely to have a material effect on our financial condition, results of operations or liquidity and capital resources.

Critical Accounting Policies

Management's discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. We review the accounting policies we use in reporting our financial results on a regular basis. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, accounts receivable, inventories, business acquisitions, intangible assets, share-based payments, income taxes and warranty obligations. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Results may differ from these estimates due to actual outcomes being different from those on which we based our assumptions. These estimates and judgments are reviewed by management on an ongoing basis, and by the Audit Committee at the end of each quarter prior to the public release of our financial results. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements.

Revenue Recognition.

Revenue is recognized provided that there is persuasive evidence of an arrangement, delivery has occurred or services have been rendered, the sales price is fixed or determinable, and collection of the related receivable is reasonably assured. Revenue recognition generally results at the following points: (1) for all transactions where legal title passes to the customer upon shipment, revenue is recognized upon shipment for all products that have been demonstrated to meet product specifications prior to shipment; the portion of revenue associated with certain installation-related tasks is deferred, and that revenue is recognized upon completion of the installation-related tasks; (2) for products that have not been demonstrated to meet product specifications prior to shipment, revenue is recognized at customer technical acceptance; (3) for transactions which have occurred prior to January 1, 2011, revenue for arrangements with multiple elements, such as sales of products that include software and services, was allocated to each element using the residual method based on the fair value of the undelivered items as determined using the prior guidance for revenue arrangements with multiple deliverables. Under the residual method, the amount of revenue allocated to delivered elements equals the total arrangement consideration less the aggregate fair value of any undelivered elements; (4) for transactions occurring on or after January 1, 2011 containing multiple elements, the revenue relating to the undelivered elements is deferred using the relative selling price method utilizing vendor-specific objective evidence ("VSOE") or estimated sales prices ("ESP") until delivery of the deferred elements. Third-party evidence is not typically

used to determine selling prices as to limited availability of reliable competitor products' selling prices. The ESP is established considering multiple factors including, but not limited to, gross margin objectives, internal costs and competitor pricing strategies.

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Revenues from parts sales are recognized at the time of shipment. Revenue from training and service contracts is recognized ratably over the training period and contract period. A provision for the estimated cost of fulfilling warranty obligations is recorded at the time the related revenue is recognized.

Revenue from software license fees is recognized upon shipment if collection of the resulting receivable is probable, the fee is fixed or determinable, and VSOE exists to allocate a portion of the total fee to any undelivered elements of the arrangement. License support and maintenance revenue is recognized ratably over the contract period.

Allowance for Doubtful Accounts. We maintain allowances for doubtful accounts for estimated losses resulting from the inability of our customers to make required payments. We specifically analyze accounts receivable and analyze historical bad debts, customer concentrations, customer credit-worthiness, current economic trends and changes in our customer payment terms when evaluating the adequacy of the allowance for doubtful accounts. If the financial condition of our customers were to deteriorate, resulting in an impairment of their ability to make payments, or if our assumptions are otherwise incorrect, additional allowances may be required.

Excess and Obsolete Inventory. We maintain reserves for our excess and obsolete inventory equal to the difference between the cost of inventory and the estimated market value based upon assumptions about future product life-cycles, product demand and market conditions. If actual product life-cycles, product demand and market conditions are less favorable than those originally projected by management, additional inventory write-downs may be required.

Business Acquisitions. We account for acquired or merged businesses using the purchase method of accounting which requires that the assets acquired and liabilities assumed be recorded at the date of acquisition or merger at their respective fair values. The judgments made in determining the estimated fair value assigned to each class of assets acquired and liabilities assumed, as well as asset lives, can materially impact our consolidated financial position and results of operations. Accordingly, for significant acquisitions, we typically obtain assistance from independent valuation specialists.

There are several methods that can be used to determine the fair value of assets acquired and liabilities assumed. For intangible assets, we typically utilize the “income method.” This method starts with a forecast of all of the expected future net cash flows. These cash flows are then adjusted to present value by applying an appropriate discount rate that reflects the risk factors associated with the cash flow streams. Some of the more significant estimates and assumptions inherent in the income method or other methods include the projected future cash flows (including timing) and the discount rate reflecting the risks inherent in the future cash flows. Determining the useful life of an intangible asset also requires judgment. For example, different types of intangible assets will have different useful lives and certain assets may even be considered to have indefinite useful lives. All of these judgments and estimates can significantly impact our consolidated financial position and results of operations.

Goodwill. Our formal annual impairment testing date for goodwill is October 31st or prior to the next annual testing date if an event occurs or circumstances change that would make it more likely than not that the fair value of a reporting unit is below its carrying amount. Under the amendments of ASC 350-10, ASU No. 2011-08, Testing Goodwill for Impairment, beginning in the first quarter of 2012, we have the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If, we elect this option and after assessing the totality of events or circumstances, we determine it is not likely that the fair value of a reporting unit is less than its carrying amount, then performing the two-step impairment test is unnecessary. We have not elected this option to date. The goodwill impairment test is a two-step process which requires us to make judgmental assumptions regarding fair value. The first step consists of estimating the fair value of our aggregated reporting unit using the market value of our common stock at October 31st, multiplied by the number of outstanding common shares (market capitalization) and an implied control premium as if it were to be acquired by a single stockholder. We obtain information on completed sales of similar companies in a comparable industry to estimate an implied control premium for us. We compare the estimated fair value of the reporting unit to its carrying value which includes goodwill. If the results of the initial market capitalization test produce results which are below the reporting unit carrying value, we will also consider if the market capitalization is temporarily low and, if so, we may also perform a discounted cash flow test. If the

estimated fair value is less than the carrying value, the second step is completed to compute the impairment amount by determining the “implied fair value” of goodwill. This determination requires the allocation of the estimated fair value of the reporting unit to the assets and liabilities of the reporting unit. Any remaining unallocated fair value represents the “implied fair value” of

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goodwill which is compared to the corresponding carrying value to compute the goodwill impairment amount.

Long-Lived Assets and Acquired Intangible Assets. We periodically review long-lived assets, other than goodwill, for impairment whenever changes in events or circumstances indicate that the carrying amount of an asset may not be recoverable. Assumptions and estimates used in the determination of impairment losses, such as future cash flows and disposition costs, may affect the carrying value of long-lived assets and the impairment of such long-lived assets, if any, could have a material effect on our consolidated financial statements. No such indicators were noted in 2012.

Share-Based Compensation. The fair value of our stock options is estimated at the date of grant using the Black-Scholes option pricing model. The Black-Scholes valuation calculation requires us to estimate key assumptions such as future stock price volatility, expected terms, risk-free rates and dividend yield. Expected stock price volatility is based on historical volatility of our stock. We use historical data to estimate option exercises and employee terminations within the valuation model. The expected term of options granted is derived from an analysis of historical exercises and remaining contractual life of stock options, and represents the period of time that options granted are expected to be outstanding. The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant. We have never paid cash dividends, and do not currently intend to pay cash dividends, and thus have assumed a 0% dividend yield. If our actual experience differs significantly from the assumptions used to compute our share-based compensation cost, or if different assumptions had been used, we may have recorded too much or too little share-based compensation cost. In addition, we are required to estimate the expected forfeiture rate of our share grants and only recognize the expense for those shares expected to vest. If the actual forfeiture rate is materially different from our estimate, our share-based compensation expense could be materially different.

Warranties. We provide for the estimated cost of product warranties at the time revenue is recognized. While we engage in product quality programs and processes, our warranty obligation is affected by product failure rates, material usage and service delivery costs incurred in correcting a product failure. Should actual product failure rates, material usage or service delivery costs differ from our estimates, revisions to the estimated warranty liability would be required.

Accounting for Income Taxes. As part of the process of preparing our consolidated financial statements, we are required to estimate our actual current tax exposure together with our temporary differences resulting from differing treatment of items for tax and accounting purposes. These temporary differences result in deferred tax assets and liabilities, which are included within our consolidated balance sheet. We must then assess the likelihood that our deferred tax assets will be recovered from future taxable income and to the extent we believe that recovery is not likely, we must establish a valuation allowance. Significant management judgment is required in determining our provision for income taxes and any valuation allowance recorded against our deferred tax assets. The need for a valuation allowance is based on our estimates of taxable income by jurisdiction in which we operate and the period over which our deferred taxes will be recoverable. In the event that actual results differ from these estimates or we adjust these estimates in future periods, we may need to adjust the valuation allowance, which could materially impact our financial position and results of operations. At December 31, 2011 and 2012, we had valuation allowances of $24.7 million and $1.4 million on certain of our deferred tax assets to reflect the deferred tax asset at the net amount that is more likely than not to be realized. The decrease in valuation allowance of $23.3 million is primarily due to a release of the tax valuation allowance. We evaluated the realizability of the deferred tax asset based on positive earnings from 2010 and 2012 as well as the projected earnings in future years and believe it is more likely than not that the deferred tax asset will be realized in the future years. We will continue to monitor the realizability of the deferred tax asset and evaluate the valuation allowance.

We recognize liabilities for uncertain tax positions based on a two-step process. The first step requires us to determine if the weight of available evidence indicates that the tax position has met the threshold for recognition; therefore, we must evaluate whether it is more likely than not that the position will be sustained on audit, including resolution of any related appeals or litigation processes. The second step requires us to measure the tax benefit of the tax position taken, or expected to be taken, in an income tax return as the largest amount that is more than 50% likely of being realized when effectively settled. This measurement step is inherently difficult and requires subjective estimations of such amounts to determine the probability of various possible outcomes. We reevaluate the uncertain tax positions each

quarter based on factors including, but not limited to, changes in facts or circumstances, changes in tax law, effectively settled issues, and new audit activity. Such a change in recognition or measurement could result in the recognition of a tax benefit or an additional charge to the tax provision in the period.

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Although we believe the measurement of our liabilities for uncertain tax positions is reasonable, no assurance can be given that the final outcome of these matters will not be different than what is reflected in the historical income tax provisions and accruals. If additional taxes are assessed as a result of an audit or litigation, it could have a material effect on our income tax provision and net income in the period or periods for which that determination is made.

Impact of Recent Accounting Pronouncements

In December 2011, the Financial Accounting Standards Board (FASB) issued ASU No. 2011-11, “Balance Sheet (Topic 210): Disclosures about Offsetting Assets and Liabilities.” The ASU requires an entity to disclose information about offsetting and related arrangements to enable users of its financial statements to understand the effect of those arrangements on its financial position. This ASU is effective for annual reporting periods beginning on or after January 1, 2013, and interim periods within those annual periods. We do not believe that this guidance will have a material impact on its consolidated financial position, results of operations, or cash flows.

In September 2011, the FASB issued ASU No. 2011-08, “Intangibles-Goodwill and Other (Topic 350): Testing Goodwill for Impairment.” The ASU is to simplify how entities, both public and non public, test goodwill for impairment. The amendments in the ASU permit an entity to first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the two -step goodwill impairment test described in Topic 350. The more-likely-than-not threshold is defined as having a likelihood of more than 50 percent. This ASU is effective for annual and interim goodwill impairment tests performed for fiscal years beginning after December 15, 2011. The adoption of this ASU did not have a material impact on our consolidated financial position, results of operations, or cash flows.

In June 2011, the FASB issued ASU No. 2011-05, “Comprehensive Income (Topic 220): Presentation of Comprehensive Income.” The ASU is to improve the comparability, consistency, and transparency of financial reporting and to increase the prominence of items reported in other comprehensive income and to facilitate convergence of U.S. generally accepted accounting principles (GAAP) and International Financial Reporting Standards (IFRS). The FASB decided to eliminate the option to present components of other comprehensive income as part of the statement of changes in stockholders’ equity, among other amendments in this ASU. In December 2011, the FASB issued Accounting Standards Update (ASU) No. 2011-12, “Comprehensive Income (Topic 220): Deferral of the Effective Date for Amendments to the Presentation of Reclassifications of Items Out of Accumulated Other Comprehensive Income in Accounting Standards Update No. 2011-05.” The ASU is to defer only those changes in ASU No. 2011-05 that relate to the presentation of reclassification adjustments. The amendments are being made to allow the FASB time to redeliberate whether to present on the face of the financial statements the effects of reclassifications out of accumulated other comprehensive income on the components of net income and other comprehensive income for all periods presented. These ASU’s are effective for fiscal years and interim periods within those years, beginning after December 15, 2011. Other than a change in presentation, the adoption of this guidance did not have a material impact on our consolidated financial position, results of operations, or cash flows, as it is disclosure-only in nature.

In May 2011, the FASB issued ASU No. 2011-04, “Fair Value Measurement (Topic 820): Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRS.” The ASU will improve the comparability of fair value measurements presented and disclosed in financial statements prepared in accordance with U.S. GAAP and IFRS. This ASU is effective during interim and annual periods beginning after December 15, 2011. The adoption of this ASU did not have a material impact on our consolidated financial position, results of operations, or cash flows.

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Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Interest Rate and Credit Market Risk

We are exposed to changes in interest rates and market liquidity including our investments in certain available-for-sale securities and our convertible senior notes. Our available-for-sale securities consist of fixed and variable rate income investments (Municipal notes, bonds and an auction rate security). We continually monitor our exposure to changes in interest rates, market liquidity and credit ratings of issuers from our available-for-sale securities. It is possible that we are at risk if interest rates, market liquidity or credit ratings of issuers change in an unfavorable direction. The magnitude of any gain or loss will be a function of the difference between the fixed rate of the financial instrument and the market rate and our financial condition and results of operations could be materially affected. Based on a sensitivity analysis performed on our financial investments held as of December 31, 2012, an immediate adverse change of 10% in interest rates (e.g. 3.00% to 3.30%) would result in an immaterial decrease in the fair value of our available-for-sale securities. The interest rate on our convertible senior notes is fixed. Therefore, any change in interest rates will not have an impact on our consolidated financial position, results of operations or cash flows.

Foreign Currency Risk

We have branch operations in Taiwan, Singapore and South Korea and wholly-owned subsidiaries in Europe, Japan and China. Our international subsidiaries and branches operate primarily using local functional currencies. These foreign branches and subsidiaries are limited in their operations and level of investment so that the risk of currency fluctuations is not material. A hypothetical 10% appreciation or depreciation in the U.S. dollar relative to the reporting currencies of our foreign subsidiaries at December 31, 2012 would have affected the foreign-currency-denominated non-operating expenses of our foreign subsidiaries by approximately $0.9 million. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and financial condition.

A substantial portion of our international systems sales are denominated in U.S. dollars with the exception of Japan and, as a result, we have relatively little exposure to foreign currency exchange risk with respect to these sales. Substantially all our sales in Japan are denominated in Japanese yen. From time to time, we may enter into forward exchange contracts to economically hedge a portion of, but not all, existing and anticipated foreign currency denominated transactions expected to occur within 12 months. The change in fair value of the forward contracts is recognized in the Consolidated Statements of Operations each reporting period. As of December 31, 2011 and 2012, we had twenty-six and eight forward contracts outstanding, respectively. The total notional contract value of these outstanding forward contracts at December 31, 2011 and 2012 was $2.7 million and $3.5 million, respectively. We do not use derivative financial instruments for trading or speculative purposes.

Item 8. Financial Statements and Supplementary Data.

The consolidated financial statements required by this item are set forth on the pages indicated at Item 15(a) of this Annual Report on Form 10-K.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information we are required to disclose in reports that we file or submit under the Securities Exchange Act of 1934, as amended (the “Exchange Act”) is recorded, processed, summarized and reported within the time period specified in SEC rules and forms. These controls and procedures are also designed to ensure that such information is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate, to allow timely decisions regarding

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required disclosure. In designing and evaluating disclosure controls and procedures, we have recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. Management is required to apply judgment in evaluating its controls and procedures.

We performed an evaluation under the supervision and with the participation of our management, including our principal executive and principal financial officers, to assess the effectiveness of the design and operation of our disclosure controls and procedures under the Exchange Act as of December 31, 2012. Based on that evaluation, our management, including our principal executive and principal financial officers, concluded that our disclosure controls and procedures were effective as of December 31, 2012 at the reasonable assurance level.

Management's Report on 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). 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 accounting principles generally accepted in the United States of America. Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on our evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2012. 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.

Our consolidated financial statements as of and for the year ended December 31, 2012 have been audited by Ernst & Young LLP, our independent registered public accounting firm, in accordance with the standards of the Public Company Accounting Oversight Board (United States). Ernst & Young LLP has also audited our internal control over financial reporting as of December 31, 2012, as stated in its attestation report included elsewhere in this Annual Report on Form 10-K.

There have been no changes in the Company's internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) that occurred during the Company's quarter ended December 31, 2012 that have materially affected, or are reasonably likely to materially affect, its internal control over financial reporting.

Item 9B. Other Information.

None.

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PART III

Certain information required by Part III is omitted from this Annual Report on Form 10-K because we will file a definitive proxy statement within one hundred twenty (120) days after the end of the fiscal year pursuant to Regulation 14A (the "Proxy Statement") for our Annual Meeting of Stockholders currently scheduled for May 22, 2013, and the information included in the Proxy Statement is incorporated herein by reference.

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this Item with respect to directors and executive officers, see "Proposal One: Election of Directors," "Executive Officers" and "Corporate Governance Principles and Practices" in the Proxy Statement, which is incorporated herein by reference. Information regarding compliance with Section 16 of the Securities Exchange Act of 1934, as amended, is incorporated by reference to the information under the heading "Section 16(a) Beneficial Ownership Reporting Compliance" in the Proxy Statement.

Code of Ethics. We have adopted a code of ethics that applies to our principal executive officer, principal financial officer and controller. This code of ethics is posted on our internet website address at http://www.rudolphtech.com.

Item 11. Executive Compensation.

The information required by this Item, see "Executive Compensation," "Compensation of Directors" and "Compensation Committee Interlocks and Insider Participation" in the Proxy Statement, which is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this Item, see "Security Ownership" and "Equity Compensation Plan Information" in the Proxy Statement, which is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this Item, see "Related Persons Transactions Policy" and "Board Independence" in the Proxy Statement, which is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

The information required by this Item, see "Proposal 3: Ratification of Appointment of Independent Registered Public Accountants" in the Proxy Statement, which is incorporated herein by reference.

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PART IV

Item 15. Exhibits and Financial Statement Schedule.

(a)The following documents are filed as part of this Annual Report on Form 10-K:

1. Financial Statements

The consolidated financial statements and consolidated financial statement information required by this Item are included on pages F-1 through F-8 of this report. The Reports of Independent Registered Public Accounting Firm appear on pages F-2 through F-3 of this report.

2. Financial Statement Schedule

See Index to financial statements on page F-1 of this report.

3. Exhibits

The following is a list of exhibits. Where so indicated, exhibits, which were previously filed, are incorporated by reference.

Exhibit No.	Description
2.1	Agreement and Plan of Merger, dated as of June 27, 2005, by and among the Registrant, NS Merger Sub, Inc. and August Technology Corporation (incorporated by reference to Exhibit 99.2 to the Registrant's Schedule 13D (SEC File No. 005-58091) filed on July 7, 2005).
2.2	Amendment No. 1, dated as of December 8, 2005, by and among the Registrant, NS Merger Sub, Inc. and August Technology Corporation, to the Agreement and Plan of Merger, dated as of June 27, 2005, by and among the Registrant, NS Merger Sub, Inc. and August Technology Corporation. (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K (SEC File No. 000-27965) filed on December 9, 2005).
2.3	Asset Purchase Agreement dated as of December 18, 2007, by and among the Registrant, Mariner Acquisition Company LLC, Applied Precision Holding, LLC and Applied Precision, LLC (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K (SEC File No. 000-27965), filed on December 21, 2007).
3.1	Restated Certificate of Incorporation of Registrant (incorporated by reference to Exhibit (3.1(c)) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86821, filed on October 5, 1999).
3.2	Restated Bylaws of Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on August 1, 2007, SEC File No. 000-27965).
3.3	Amendment to Restated Bylaws of Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on February 2, 2009, SEC File No. 000-27965).
4.1	Rights Agreement (incorporated by reference to Exhibit 4.1 of the Registrant's Registration Statement on Form 8-A, filed on June 28, 2005, SEC File No. 000-27965).
4.2	August Technology Corporation 1997 Stock Incentive Plan (incorporated by reference to the Appendix to August Technology Corporation's Proxy Statement for its 2004 Annual Shareholders Meeting, filed on March 11, 2004, SEC File No. 000-30637).
4.3	Indenture, dated as of July 25, 2011, by and between The Bank of New York Mellon Trust Company, N.A., as Trustee, and Rudolph Technologies, Inc. (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
10.1+	License Agreement, dated June 28, 1995, between the Registrant and Brown University Research Foundation (incorporated by reference to Exhibit (10.1) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86821), filed on September 9, 1999).

+ Confidential treatment has been granted with respect to portions of this exhibit.

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Exhibit No.	Description
10.2*	Form of Indemnification Agreement (incorporated by reference to Exhibit (10.3) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86821), filed on October 5, 1999).
10.3*	Amended 1996 Non-Qualified Stock Option Plan (incorporated by reference to Exhibit 10.15 to Registrant's quarterly report on Form 10-Q (SEC File No. 000-27965), filed on November 14, 2001).
10.4*	Form of 1999 Stock Plan (incorporated by reference to Exhibit (10.5) to the Registrant's Registration Statement on Form S-1, (SEC File No. 333-86821), filed on September 9, 1999).
10.5*	Form of 1999 Employee Stock Purchase Plan (incorporated by reference to Exhibit (10.6) to the Registrant's Registration Statement on Form S-1, (SEC File No. 333-86821), filed on September 9, 1999).
10.6*	Management Agreement, dated as of July 24, 2000, by and between Rudolph Technologies, Inc. and Paul F. McLaughlin (incorporated by reference to Exhibit 10.12 to Registrant's quarterly report on Form 10-Q (SEC File No. 000-27965), filed on November 3, 2000) as amended August 20, 2009 (incorporated by reference to Exhibit 10.1 to Registrant's quarterly report on Form 10-Q, filed on November 6, 2009), as amended May 19, 2010 (incorporated by reference to Exhibit 10.1 to Registrant's quarterly report on Form 10-Q, filed on August 4, 2010), as amended September 27, 2011 (incorporated by reference to Exhibit 10.6 to Registrant's quarterly report on Form 10-Q, filed on November 2, 2011), and as amended February 8, 2013 (filed with this report as Exhibit 10.1).
10.7*	Management Agreement, dated as of July 24, 2000 by and between Rudolph Technologies, Inc. and Steven R. Roth (incorporated by reference to Exhibit 10.14 to Registrant's quarterly report on Form 10-Q (SEC File No. 000-27965), filed on November 3, 2000) as amended August 20, 2009 (incorporated by reference to Exhibit 10.2 to Registrant's quarterly report on Form 10-Q, filed on November 6, 2009).
10.8*	Form of option agreement under 1999 Stock Plan (incorporated by reference to Exhibit 10.12 to Registrant's quarterly report on Form 10-Q (SEC File No. 000-27965), filed on November 5, 2004).
10.9*	Form of Restricted Stock Award pursuant to the Rudolph Technologies, Inc. 1999 Stock Plan (incorporated by reference to the Registrant's Current Report on Form 8-K (SEC File No. 000-27965), filed on June 21, 2005).
10.10*	Rudolph Technologies, Inc. 2009 Stock Plan (incorporated by reference to Appendix A of the Registrant's revised Proxy Statement on Form DEFR14A, filed on May 8, 2009).
10.11*	Rudolph Technologies, Inc. 2009 Employee Stock Purchase Plan, as amended (incorporated by reference to Appendix B of the Registrant's revised Proxy Statement on Form DEFR14A, filed on May 8, 2009).
10.12*	Executive Change of Control Agreement, dated as of August 20, 2009, by and between Rudolph Technologies, Inc. and Nathan H. Little (incorporated by reference to Exhibit 10.3 to Registrant's quarterly report on Form 10-Q, filed on November 6, 2009).
10.13	Purchase Agreement, dated July 19, 2011, among Rudolph Technologies, Inc. and Credit Suisse Securities (USA) LLC (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
10.14	Confirmation of Convertible Note Hedge Transaction dated July 19, 2011, by and between Rudolph Technologies, Inc. and Credit Suisse International (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
10.15	Amendment dated July 22, 2011 to Confirmation of Convertible Note Hedge Transaction dated July 19, 2011, by and between Rudolph Technologies, Inc. and Credit Suisse International (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).

10.16	Confirmation of Issuer Warrant Transaction dated July 19, 2011, by and between Rudolph Technologies, Inc. and Credit Suisse International (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).

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* Management contract, compensatory plan or arrangement.

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Exhibit No.	Description
10.17	Amendment dated July 22, 2011 to Confirmation of Issuer Warrant Transaction dated July 19, 2011, by and between Rudolph Technologies, Inc. and Credit Suisse International (incorporated by reference to Exhibit 10.5 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
21.1	Subsidiaries.
23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm.
31.1	Certification of Paul F. McLaughlin, Chief Executive Officer, pursuant to Securities Exchange Act Rule 13a-14(a).
31.2	Certification of Steven R. Roth, Chief Financial Officer, pursuant to Securities Exchange Act Rule 13a-14(a).
32.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, signed by Paul F. McLaughlin, Chief Executive Officer of Rudolph Technologies, Inc.
32.2	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, signed by Steven R. Roth, Chief Financial Officer of Rudolph Technologies, Inc.
101.INS**	XBRL Instance Document
101.SCH**	XBRL Taxonomy Extension Schema Document
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document

** Users of the XBRL data are advised pursuant to Rule 406T of Regulation S-T that this interactive data file is deemed not filed or part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act of 1933, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, and otherwise is not subject to liability under these sections.

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS AND
FINANCIAL STATEMENT SCHEDULE

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders
of Rudolph Technologies, Inc. and Subsidiaries

We have audited the accompanying consolidated balance sheets of Rudolph Technologies, Inc. and Subsidiaries as of December 31, 2012 and 2011, and the related consolidated statements of operations, comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2012. Our audits also included the financial statement schedule listed in the Index at Item 15(a). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule 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 financial statements referred to above present fairly, in all material respects, the consolidated financial position of Rudolph Technologies, Inc. and Subsidiaries at December 31, 2012 and 2011, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2012, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Rudolph Technologies, Inc. and Subsidiaries' internal control over financial reporting as of December 31, 2012, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 28, 2013 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Metropark, New Jersey
February 28, 2013

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
Rudolph Technologies, Inc. and Subsidiaries

We have audited Rudolph Technologies, Inc. and Subsidiaries' internal control over financial reporting as of December 31, 2012, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (the COSO criteria). Rudolph Technologies, Inc. and Subsidiaries' 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, Rudolph Technologies, Inc. and Subsidiaries maintained, in all material respects, effective internal control over financial reporting as of December 31, 2012, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Rudolph Technologies, Inc. and Subsidiaries as of December 31, 2012 and 2011, and the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2012 of Rudolph Technologies, Inc. and Subsidiaries and our report dated February 28, 2013 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Metropark, New Jersey
February 28, 2013

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(In thousands, except per share data)

	December 31, 2011	2012
ASSETS		
Current Assets:		
Cash and cash equivalents	$96,671	$104,253
Marketable securities	70,888	64,963
Accounts receivable, less allowance of $262 in 2011 and $606 in 2012	41,036	57,113
Inventories	49,501	63,422
Income taxes receivable	1,747	—
Prepaid expenses and other current assets	3,258	4,301
Total current assets	263,101	294,052
Property, plant and equipment, net	12,530	11,909
Goodwill	4,492	11,371
Identifiable intangible assets, net	7,814	12,358
Deferred income taxes	12,240	34,600
Other assets	5,734	2,094
Total assets	$305,911	$366,384
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$4,439	$3,932
Accrued liabilities:		
Payroll and related expenses	5,696	8,975
Royalties	660	765
Warranty	1,406	2,024
Income tax payable	—	1,823
Deferred revenue	7,332	11,170
Other current liabilities	9,324	8,359
Total current liabilities	28,857	37,048
Convertible senior notes	46,524	49,010
Other non-current liabilities	8,752	9,837
Total liabilities	84,133	95,895
Commitments and contingencies (Note 9)		
Stockholders' equity:		
Preferred stock, $0.001 par value, 5,000 shares authorized, no shares issued and outstanding at December 31, 2011 and 2012	—	—
Common stock, $0.001 par value, 50,000 shares authorized, 31,883 and 32,367 issued and outstanding at December 31, 2011 and 2012, respectively	32	32
Additional paid-in capital	405,505	409,974
Accumulated other comprehensive loss	(1,462)	(1,085)
Accumulated deficit	(182,297)	(138,432)
Total stockholders' equity	221,778	270,489
Total liabilities and stockholders' equity	$305,911	$366,384

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

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share data)

	Year Ended December 31,		
	2010	2011	2012
Revenues	$195,305	$187,196	$218,486
Cost of revenues	91,405	86,843	102,811
Gross profit	103,900	100,353	115,675
Operating expenses:			
Research and development	33,387	36,298	39,331
Selling, general and administrative	38,173	40,826	40,225
Amortization	1,715	1,757	1,853
Total operating expenses	73,275	78,881	81,409
Operating income	30,625	21,472	34,266
Interest income (expense)	167	(1,925)	(4,377)
Other income (expense)	(255)	847	(482)
Income before provision (benefit) for income taxes	30,537	20,394	29,407
Provision (benefit) for income taxes	3,522	(4,832)	(14,458)
Net income	$27,015	$25,226	$43,865
Earnings per share:			
Basic	$0.86	$0.79	$1.36
Diluted	$0.86	$0.78	$1.34
Weighted average number of shares outstanding:			
Basic	31,286	31,744	32,226
Diluted	31,492	32,256	32,853

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

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In thousands)

	Year Ended December 31,		
	2010	2011	2012
Net income	$27,015	$25,226	$43,865
Other comprehensive income, net of tax:			
Change in net unrealized gains (losses) on investments, net of tax	4	151	(17)
Change in currency translation adjustments	914	(683)	394
Total comprehensive income	$27,933	$24,694	$44,242

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

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
For the years ended December 31, 2010, 2011 and 2012
(In thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total
	Shares	Amount				
Balance at December 31, 2009	30,997	$31	$387,486	$ (1,848)	$ (234,538)	$151,131
Issuance of shares through share-based compensation plans	420	—	289	—	—	289
Net income	—	—	—	—	27,015	27,015
Share-based compensation	—	—	5,439	—	—	5,439
Tax benefit for share-based compensation plans	—	—	242	—	—	242
Currency translation	—	—	—	914	—	914
Unrealized gain on investments	—	—	—	4	—	4
Comprehensive income						
Balance at December 31, 2010	31,417	31	393,456	(930)	(207,523)	185,034
Issuance of shares through share-based compensation plans	466	1	256	—	—	257
Net income	—	—	—	—	25,226	25,226
Share-based compensation	—	—	4,802	—	—	4,802
Tax benefit for share-based compensation plans	—	—	528	—	—	528
Issuance of convertible notes	—	—	13,963	—	—	13,963
Sale of warrant	—	—	7,007	—	—	7,007
Purchase of convertible note hedge	—	—	(14,507)	—	—	(14,507)
Currency translation	—	—	—	(683)	—	(683)
Unrealized gain on investments	—	—	—	151	—	151
Comprehensive income						
Balance at December 31, 2011	31,883	32	405,505	(1,462)	(182,297)	221,778
Issuance of shares through share-based compensation plans	484	—	257	—	—	257
Net income	—	—	—	—	43,865	43,865
Share-based compensation	—	—	4,001	—	—	4,001
Tax benefit for share-based compensation plans	—	—	211	—	—	211
Currency translation	—	—	—	394	—	394
Unrealized loss on investments	—	—	—	(17)	—	(17)
Comprehensive income						
Balance at December 31, 2012	32,367	$32	$409,974	$ (1,085)	$ (138,432)	$270,489

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

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2010	2011	2012
Cash flows from operating activities:			
Net income	$27,015	$25,226	43,865
Adjustments to reconcile net income to net cash and cash equivalents provided by operating activities:			
Amortization of intangibles and other	2,069	2,113	2,212
Amortization of convertible note discount and issuance costs	—	1,129	2,736
Depreciation	3,706	4,210	3,680
Foreign currency exchange (gain) loss	255	(846)	482
Net gain on sale of marketable securities	—	(1)	—
Share-based compensation	5,439	4,802	4,001
Provision for (recovery of) doubtful accounts and inventory valuation	(1,188)	1,278	3,263
Deferred income taxes	(152)	(9,018)	(20,814)
Change in operating assets and liabilities excluding effects of business combinations:			
Accounts receivable	(23,428)	17,958	(14,743)
Income taxes	2,300	(529)	3,547
Inventories	(5,577)	(35)	(6,701)
Prepaid expenses and other assets	(113)	(4,389)	(1,365)
Accounts payable	2,183	(3,427)	(2,735)
Accrued liabilities	2,671	1,083	1,682
Deferred revenue	948	(1,330)	3,648
Other current liabilities	802	5,720	(990)
Non-current liabilities	(608)	1,500	299
Net cash and cash equivalents provided by operating activities	16,322	45,444	22,067
Cash flows from investing activities:			
Purchases of marketable securities	(7,823)	(81,004)	(96,309)
Proceeds from sales of marketable securities	10,261	11,418	102,384
Purchases of property, plant and equipment	(4,363)	(1,622)	(2,429)
Purchase of businesses, net of cash acquired	(849)	—	(18,580)
Net cash and cash equivalents used in investing activities	(2,774)	(71,208)	(14,934)
Cash flows from financing activities:			
Net proceeds from issuance of convertible senior notes	—	57,749	—
Proceeds from sale of warrant	—	7,007	—
Purchase of convertible note hedge	—	(14,507)	—
Issuance of shares through share-based compensation plans	289	257	257
Tax benefit for sale of shares through share-based compensation plans	242	528	211
Net cash and cash equivalents provided by financing activities	531	51,034	468
Effect of exchange rate changes on cash and cash equivalents	(798)	281	(19)
Net increase in cash and cash equivalents	13,281	25,551	7,582
Cash and cash equivalents at beginning of year	57,839	71,120	96,671
Cash and cash equivalents at end of year	$71,120	$96,671	$104,253

Supplemental disclosure of cash flow information:

Income taxes paid	$916	$2,454	$2,402
Interest paid	$—	$—	$2,188

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

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1. Organization and Nature of Operations:

Rudolph Technologies, Inc. (the "Company") designs, develops, manufactures and supports high-performance process control defect inspection, advanced packaging lithography, metrology and process control software systems used in semiconductor device manufacturing. The Company has branch sales and service offices in South Korea, Taiwan and Singapore and wholly-owned sales and service subsidiaries in Europe, Japan, China, Minnesota, and Massachusetts. The Company operates in a single segment and is a provider of process characterization equipment and software for wafer fabs and advanced packaging facilities.

2. Summary of Significant Accounting Policies:

A. Consolidation:

The consolidated financial statements reflect the accounts of the Company and its wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated.

B. Revenue Recognition:

Revenue is recognized provided that there is persuasive evidence of an arrangement, delivery has occurred or services have been rendered, the sales price is fixed or determinable, and collection of the related receivable is reasonably assured. Revenue recognition generally results at the following points: (1) for all transactions where legal title passes to the customer upon shipment, revenue is recognized upon shipment for all products that have been demonstrated to meet product specifications prior to shipment; the portion of revenue associated with certain installation-related tasks is deferred, and that revenue is recognized upon completion of the installation-related tasks; (2) for products that have not been demonstrated to meet product specifications prior to shipment, revenue is recognized at customer technical acceptance; (3) for transactions which have occurred prior to January 1, 2011, revenue for arrangements with multiple elements, such as sales of products that include software and services, was allocated to each element using the residual method based on the fair value of the undelivered items as determined using the prior guidance for revenue arrangements with multiple deliverables. Under the residual method, the amount of revenue allocated to delivered elements equals the total arrangement consideration less the aggregate fair value of any undelivered elements; (4) for transactions occurring on or after January 1, 2011 containing multiple elements, the revenue relating to the undelivered elements is deferred using the relative selling price method utilizing vendor-specific objective evidence ("VSOE") or estimated sales prices ("ESP") until delivery of the deferred elements. Third-party evidence is not typically used to determine selling prices as to limited availability of reliable competitor products' selling prices. The ESP is established considering multiple factors including, but not limited to, gross margin objectives, internal costs and competitor pricing strategies.

Revenues from parts sales are recognized at the time of shipment. Revenue from training and service contracts is recognized ratably over the training period and contract period. A provision for the estimated cost of fulfilling warranty obligations is recorded at the time the related revenue is recognized.

Revenue from software license fees is recognized upon shipment if collection of the resulting receivable is probable, the fee is fixed or determinable, and VSOE exists to allocate a portion of the total fee to any undelivered elements of the arrangement. License support and maintenance revenue is recognized ratably over the contract period.

C. Estimates:

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America 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. Significant estimates made by management include allowance for doubtful accounts, inventory obsolescence, purchase accounting allocations, recoverability and useful

lives of property, plant and equipment and identifiable intangible assets, recoverability of goodwill, recoverability of

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deferred tax assets, liabilities for product warranty, contingencies, including litigation reserves and share-based payments, including forfeitures and liabilities for tax uncertainties. Actual results could differ from those estimates.

D. Cash and Cash Equivalents:

Cash and cash equivalents include cash and highly liquid debt instruments with original maturities of three months or less when purchased.

E. Marketable Securities:

The Company determined that all of its investment securities are to be classified as available-for-sale. Available-for-sale securities are carried at fair value, with the unrealized gains and losses reported in stockholders' equity under the caption "Accumulated other comprehensive loss." Realized gains and losses, interest and dividends on available-for-sale securities are included in interest income and other, net. Available-for-sale securities are classified as current assets regardless of their maturity date if they are available for use in current operations. The Company reviews its investment portfolio to identify and evaluate investments that have indications of possible impairment. Factors considered in determining whether a loss is other-than-temporary include the length of time and extent to which fair value has been less than the cost basis, credit quality and the Company's ability and intent to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value. When a decline in fair value is determined to be other-than-temporary, unrealized losses on available-for-sale securities are charged against earnings. The specific identification method is used to determine the gains and losses on marketable securities. For additional information on the Company's marketable securities, see Note 5 of Notes to the Consolidated Financial Statements.

F. Allowance for Doubtful Accounts:

The Company evaluates the collectability of accounts receivable based on a combination of factors. In the cases where the Company is aware of circumstances that may impair a specific customer's ability to meet its financial obligation, the Company records a specific allowance against amounts due, and thereby reduces the net recognized receivable to the amount management reasonably believes will be collected. For all other customers, the Company recognizes allowances for doubtful accounts based on the length of time the receivables are outstanding, industry and geographic concentrations, the current business environment and historical experience.

G. Inventories:

Inventories are stated at the lower of cost (first-in, first-out) or market. Cost includes material, labor and overhead costs. Demonstration units, which are available for sale, are stated at their manufacturing costs and reserves are recorded to adjust the demonstration units to their net realizable value, if lower than cost.

H. Property, Plant and Equipment:

Property, plant and equipment are stated at cost. Depreciation of property, plant and equipment is computed using the straight-line method over the estimated useful lives of the assets which are thirty years for buildings, four to seven years for machinery and equipment, seven years for furniture and fixtures, and three years for computer equipment. Leasehold improvements are amortized using the straight-line method over the lesser of the lease term or the estimated useful life of the related asset. Repairs and maintenance costs are expensed as incurred and major renewals and betterments are capitalized.

I. Impairment of Long-Lived Assets:

Long-lived assets, such as property, plant, and equipment, and identifiable acquired intangible assets with definite useful lives, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount

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of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized by the amount by which the carrying amount of the asset exceeds the fair value of the asset, which is generally based on discounted cash flows.

J. Goodwill and Intangible Assets:

Intangible assets with definitive useful lives are amortized using the straight-line method over their estimated useful lives. Goodwill and intangible assets with indefinite useful lives are not amortized but are tested for impairment at least annually and when there are indications of impairment. Goodwill impairment is deemed to exist if the net book value of a reporting unit exceeds its estimated fair value. The Company estimates the fair value of its aggregated reporting unit using the market value of its common stock at October 31 multiplied by the number of outstanding common shares (market capitalization) and an implied control premium as if it were to be acquired by a single stockholder. The Company obtains information on completed sales of similar companies in the related industry to estimate the implied control premium for the Company. Under the amendments of ASC 350-10, ASU No. 2011-08, Testing Goodwill for Impairment, beginning in the first quarter of 2012, the Company has the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If, the Company elects this option and after assessing the totality of events or circumstances, the Company determines that it is not likely that the fair value of a reporting unit is less than its carrying amount, then performing the two-step impairment test is unnecessary. The Company has not elected this option to date. If the results of the initial market capitalization test produce results which are below the reporting unit carrying value, the Company may also perform a discounted cash flow test. The Company tested for goodwill impairment on October 31, 2012. No impairments were noted.

For additional information on the Company’s goodwill and purchased intangible assets, see Note 6 of Notes to the Consolidated Financial Statements.

K. Concentration of Credit Risk:

Financial instruments, which potentially subject the Company to concentrations of credit risk, consist primarily of accounts receivable, cash and cash equivalents and marketable securities. The Company performs ongoing credit evaluations of its customers and generally does not require collateral for sales on credit. The Company maintains allowances for potential credit losses. The Company maintains cash and cash equivalents and marketable securities with higher credit quality issuers and monitors the amount of credit exposure to any one issuer.

L. Warranties:

The Company generally provides a warranty on its products for a period of twelve to fifteen months against defects in material and workmanship. The Company provides for the estimated cost of product warranties at the time revenue is recognized.

M. Income Taxes:

The Company accounts for income taxes using the asset and liability approach for deferred taxes which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the Company’s consolidated financial statements or tax returns. A valuation allowance is recorded to reduce a deferred tax asset to that portion which more likely than not will be realized. The Company does not provide for federal income taxes on the undistributed earnings of its foreign operations as it is the Company’s intention to permanently re-invest undistributed earnings.

The impact of an uncertain income tax position is recognized as the largest amount that is more-likely-than-not to be sustained upon audit by the relevant taxing authority and includes consideration of interest and penalties. An

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uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained. The liability for unrecognized tax benefits is classified as non-current unless the liability is expected to be settled in cash within 12 months of the reporting date.

For additional information on the Company's income taxes, see Note 13 of Notes to the Consolidated Financial Statements.

N. Translation of Foreign Currencies:

The Company has branch operations in Taiwan, Singapore and South Korea and wholly-owned subsidiaries in Europe, Japan and China. Its international subsidiaries and branches operate primarily using local functional currencies. These foreign branches and subsidiaries are limited in their operations and level of investment so that the risk of currency fluctuations is not material. A substantial portion of the Company's international systems sales are denominated in U.S. dollars with the exception of Japan and, as a result, it has relatively little exposure to foreign currency exchange risk with respect to these sales.

Assets and liabilities are translated at exchange rates in effect at the balance sheet date, and income and expense accounts and cash flow items are translated at average monthly exchange rates during the period. Net exchange gains or losses resulting from the translation of foreign financial statements and the effect of exchange rates on intercompany transactions of a long-term investment nature are recorded directly as a separate component of stockholders' equity under the caption, "Accumulated other comprehensive loss." Any foreign currency gains or losses related to transactions are included in operating results. The Company had accumulated exchange losses resulting from the translation of foreign operation financial statements of $1,379 and $985 as of December 31, 2011 and 2012, respectively.

O. Share-based Compensation:

The fair value of stock options is determined using the Black-Scholes valuation model. The Black-Scholes valuation calculation requires the Company to estimate key assumptions such as future stock price volatility, expected terms, risk-free interest rates and dividend yield. Expected stock price volatility is based on historical volatility of the Company's stock. The Company uses historical data to estimate option exercises and employee terminations within the valuation model. The expected term of options granted is derived from an analysis of historical exercises and remaining contractual life of stock options, and represents the period of time that options granted are expected to be outstanding. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant. The Company has never paid cash dividends, and does not currently intend to pay cash dividends, and thus has assumed a 0% dividend yield. Such value is recognized as expense over the service period, net of estimated forfeitures. The estimation of stock awards that will ultimately vest requires significant judgment. The Company considers many factors when estimating expected forfeitures, including types of awards, employee class, and historical experience. Actual results, and future changes in estimates, may differ substantially from the Company's current estimates. Compensation expense for all share-based payments includes an estimate for forfeitures and is recognized over the expected term of the share-based awards using the straight-line method.

For additional information on the Company's share-based compensation plans, see Note 11 of Notes to the Consolidated Financial Statements.

P. Research and Development and Software Development Costs:

Expenditures for research and development are expensed as incurred. Certain software product development costs incurred after technological feasibility has been established are capitalized and amortized, commencing upon the general release of the software product to the Company's customers, over the economic life of the software product. Annual amortization of capitalized costs is computed using the greater of: (i) the ratio of current gross revenues for the software product over the total of current and anticipated future gross revenues for the software product or (ii) the straight-line basis, typically over seven years. Software product development costs incurred prior to the product

reaching technological feasibility are expensed as incurred and included in research and development costs. At December 31,

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2011 and 2012, capitalized software development costs were $562 and $201, respectively. During the years ended December 31, 2010, 2011 and 2012, software development cost amortization totaled $354, $356 and $361, respectively.

Q. Fair Value of Financial Instruments:

The carrying amounts of the Company's financial instruments, including cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities, approximate fair value due to their short maturities. The carrying amount of our convertible senior notes was $46,524 and $49,010 as of December 31, 2011 and 2012, respectively. The fair value of our convertible senior notes was 46,524 and $51,018 as of December 31, 2011 and 2012, respectively. The Company's convertible senior notes are not publicly traded. The estimated fair value of these obligations is based, primarily, on a market approach, comparing the Company's interest rates to those rates the Company believes it would reasonably receive upon re-entry into the market. Judgment is required to estimate the fair value, using available market information and appropriate valuation methods.

For additional information on the Company's fair value of financial instruments, see Note 4 of Notes to the Consolidated Financial Statements.

R. Derivative Instruments and Hedging Activities:

The Company, when it considers it to be appropriate, enters into forward contracts to hedge the economic exposures arising from foreign currency denominated transactions. At December 31, 2011 and 2012, these contracts included the future sale of Japanese Yen to purchase U.S. dollars. The foreign currency forward contracts were entered into by the Company's Japanese subsidiary to hedge a portion of certain intercompany obligations. The forward contracts are not designated as hedges for accounting purposes and therefore, the change in fair value is recorded in selling, general and administrative expenses in the Consolidated Statements of Operations.

The dollar equivalent of the U.S. dollar forward contracts and related fair values as of December 31, 2011 and 2012 were as follows:

	December 31,	
	2011	2012
Notional amount	$2,672	$3,457
Fair value of asset	$99	$268

The Company recognized a loss of $93 and $256 with respect to forward contracts that matured during 2010 and 2011, respectively. In 2012, the Company recognized a gain of $112 with respect to forward contracts that matured. The aggregate notional amount of matured contracts was $1,200, $2,950 and $3,340, for 2010, 2011 and 2012, respectively.

S. Reclassifications:

Certain prior year amounts have been reclassified to conform to the 2012 financial statement presentation.

T. Recent Accounting Pronouncements:

In December 2011, the Financial Accounting Standards Board (FASB) issued ASU No. 2011-11, "Balance Sheet (Topic 210): Disclosures about Offsetting Assets and Liabilities." The ASU requires an entity to disclose information about offsetting and related arrangements to enable users of its financial statements to understand the effect of those arrangements on its financial position. This ASU is effective for annual reporting periods beginning on or after January 1, 2013, and interim periods within those annual periods. The Company does not believe that this guidance will have a material impact on its consolidated financial position, results of operations, or cash flows.

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In September 2011, the FASB issued ASU No. 2011-08, “Intangibles-Goodwill and Other (Topic 350): Testing Goodwill for Impairment.” The ASU is to simplify how entities, both public and non public, test goodwill for impairment. The amendments in the ASU permit an entity to first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the two -step goodwill impairment test described in Topic 350. The more-likely-than-not threshold is defined as having a likelihood of more than 50 percent. This ASU is effective for annual and interim goodwill impairment tests performed for fiscal years beginning after December 15, 2011. The adoption of this ASU did not have a material impact on the Company’s consolidated financial position, results of operations, or cash flows.

In June 2011, the FASB issued ASU No. 2011-05, “Comprehensive Income (Topic 220): Presentation of Comprehensive Income.” The ASU is to improve the comparability, consistency, and transparency of financial reporting and to increase the prominence of items reported in other comprehensive income and to facilitate convergence of U.S. generally accepted accounting principles (GAAP) and International Financial Reporting Standards (IFRS). The FASB decided to eliminate the option to present components of other comprehensive income as part of the statement of changes in stockholders’ equity, among other amendments in this ASU. In December 2011, the FASB issued Accounting Standards Update (ASU) No. 2011-12, “Comprehensive Income (Topic 220): Deferral of the Effective Date for Amendments to the Presentation of Reclassifications of Items Out of Accumulated Other Comprehensive Income in Accounting Standards Update No. 2011-05.” The ASU is to defer only those changes in ASU No. 2011-05 that relate to the presentation of reclassification adjustments. The amendments are being made to allow the FASB time to redeliberate whether to present on the face of the financial statements the effects of reclassifications out of accumulated other comprehensive income on the components of net income and other comprehensive income for all periods presented. These ASU's are effective for fiscal years and interim periods within those years, beginning after December 15, 2011. Other than a change in presentation, the adoption of this guidance did not have a material impact on the Company’s consolidated financial position, results of operations, or cash flows, as it is disclosure-only in nature.

In May 2011, the FASB issued ASU No. 2011-04, “Fair Value Measurement (Topic 820): Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRS.” The ASU will improve the comparability of fair value measurements presented and disclosed in financial statements prepared in accordance with U.S. GAAP and IFRS. This ASU is effective during interim and annual periods beginning after December 15, 2011. The adoption of this ASU did not have a material impact on the Company’s consolidated financial position, results of operations, or cash flows.

3. Business Combinations:

NanoPhotonics

In June 2012, the Company announced that it had acquired specific assets and liabilities of NanoPhotonics GmbH, located in Mainz, Germany (“NanoPhotonics acquisition”). The acquired business has been integrated into the Company’s inspection technology group. The impact of the acquisition was not material to the Company’s consolidated financial position or results of operations.

Azores

In December 2012, the Company announced that it had acquired Azores Corporation, located in Wilmington, Massachusetts (“Azores acquisition”). The acquired business marks the Company's entry into the advanced packaging and FPD lithography markets. The impact of the acquisition was not material to the Company’s consolidated financial position or results of operations.

The Company has made a preliminary allocation of the purchase price to the assets acquired and liabilities assumed as of the acquisition date for the NanoPhotonics and Azores acquisitions. The Company expects to finalize its analysis of the purchase price allocation within the first year of the acquisitions, and therefore adjustments to goodwill and identifiable intangible assets may occur.

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4. Fair Value Measurements:

The Company applies a three-level valuation hierarchy for fair value measurements. This hierarchy prioritizes the inputs into three broad levels. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the asset or liability. Level 3 inputs are unobservable inputs based on management's assumptions used to measure assets and liabilities at fair value. A financial asset's or liability's fair value measurement classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement.

The following tables provide the assets carried at fair value measured on a recurring basis at December 31, 2011 and December 31, 2012:

		Fair Value Measurements Using		
	Carrying Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
December 31, 2011				
Available-for-sale debt securities:				
Municipal notes and bonds	$70,525	$—	$70,525	$—
Auction rate securities	363	—	—	363
Total available-for-sale debt securities	70,888	—	70,525	363
Derivatives:				
Foreign currency forward contracts	99	99	—	—
Total derivatives	99	99	—	—
Total	$70,987	$99	$70,525	$363
December 31, 2012				
Available-for-sale debt securities:				
Municipal notes and bonds	$64,117	$—	$64,117	$—
Corporate bonds	500	—	500	—
Auction rate securities	346	—	—	346
Total available-for-sale debt securities	64,963	—	64,617	346
Derivatives:				
Foreign currency forward contracts	268	268	—	—
Total derivatives	268	268	—	—
Total	$65,231	$268	$64,617	$346

The Company's investments classified as Level 1 are based on quoted prices that are available in active markets. The foreign currency forward contracts are primarily measured based on the foreign currency spot and forward rates quoted by the banks or foreign currency dealers.

The Company's investments classified as Level 2 are valued using observable inputs to quoted market prices, benchmark yields, reported trades, broker/dealer quotes or alternative pricing sources with reasonable levels of price transparency. Investment prices are obtained from third party pricing providers, which models prices utilizing the above observable inputs, for each asset class.

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Level 3 investments consist of an auction rate security for which the Company uses a discounted cash flow model to value this investment. The Level 3 assumptions used in preparing the discounted cash flow model included estimates of interest rates of 2.5%, timing and amount of cash flows and expected holding periods of the auction rate security, based on data available as of December 31, 2012. Changes in the unobservable input values would be unlikely to cause material changes in the fair value of the auction rate security.

This table presents a reconciliation for all assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 3) for the year ended December 31, 2012:

	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)
Balance at December 31, 2011	$363
Unrealized gains in accumulated other comprehensive loss	8
Settlements	(25)
Transfers into (out of) Level 3	—
Balance at December 31, 2012	$346

See Note 5 for additional discussion regarding the fair value of the Company's marketable securities.

Fair Value of Other Financial Instruments

The carrying value of cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximates fair value because of the short maturity of these instruments. The estimated fair value of these obligations is based, primarily, on a market approach, comparing the Company's interest rates to those rates the Company believes it would reasonably receive upon re-entry into the market. Judgment is required to estimate the fair value, using available market information and appropriate valuation methods.

The Company's convertible senior notes are not publicly traded. The carrying amount of the Company's convertible senior notes was $46,524 and $49,010 as of December 31, 2011 and 2012, respectively. The estimated fair value of the Company's convertible senior notes was $46,524 and $51,018 as of December 31, 2011 and 2012, respectively. The Level 3 assumptions, based on data available as of December 31, 2012, used in preparing the discounted cash flow model included estimates of interest rates 9.4%, timing and amount of cash flows and expected holding periods of the convertible senior notes. The fair value of the contingent interest associated with the convertible notes is $0 as of December 31, 2012 and is valued quarterly using the present value of expected cash flow model incorporating the probabilities of the contingent events occurring.

5. Marketable Securities:

The Company has evaluated its investment policies and determined that all of its investment securities are to be classified as available-for-sale. Available-for-sale securities are carried at fair value, with the unrealized gains and losses reported in Stockholders' Equity under the caption "Accumulated other comprehensive loss." Realized gains and losses on available-for-sale securities are included in "Other expense (income)." The Company records other-than-temporary impairment charges for its available-for-sale investments when it intends to sell the securities, it is more-likely-than not that it will be required to sell the securities before a recovery, or when it does not expect to recover the entire amortized cost basis of the securities. The cost of securities sold is based on the specific identification method.

As of December 31, 2012, the Company held one auction-rate security with a fair value of $346. The underlying asset of the Company's auction-rate security consisted of a municipal bond with an auction reset feature. Due to auction

failures in the marketplace, the Company will not have access to these funds unless (a) future auctions occur and are successful, (b) the security is called by the issuer, (c) the Company sells the security in an available secondary market, or (d) the underlying note matures. Currently, there are no active secondary markets. As of December 31, 2012, the

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Company has recorded a cumulative temporary unrealized impairment loss of $129 within "Accumulated other comprehensive loss" based upon its assessment of the fair value of this security. The Company believes that this impairment is temporary as it does not intend to sell this security, the Company will not be required to sell this security before recovery, and the Company expects to recover the amortized cost basis of these securities.

The Company has determined that the gross unrealized losses on its marketable securities at December 31, 2011 and 2012 are temporary in nature. The Company reviews its investment portfolio to identify and evaluate investments that have indications of possible impairment. Factors considered in determining whether a loss is other-than-temporary include the length of time and extent to which fair value has been less than the cost basis, credit quality and the Company's ability and intent to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value.

At December 31, 2011 and 2012, marketable securities are categorized as follows:

	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Fair Value
December 31, 2011				
Municipal notes and bonds	$70,475	$60	$(10)	$70,525
Auction rate securities	500	—	(137)	363
Total marketable securities	$70,975	$60	$(147)	$70,888
December 31, 2012				
Municipal notes and bonds	$64,088	$36	$(7)	$64,117
Corporate Bonds	500	—	—	500
Auction rate securities	475	—	(129)	346
Total marketable securities	$65,063	$36	$(136)	$64,963

The amortized cost and estimated fair value of marketable securities classified by the maturity date listed on the security, regardless of the Consolidated Balance Sheet classification, is as follows at December 31, 2011 and 2012:

	December 31, 2011		December 31, 2012	
	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Due within one year	$59,469	$59,509	$57,367	$57,390
Due after one through five years	10,587	10,599	7,016	7,022
Due after five through ten years	314	312	205	205
Due after ten years	605	468	475	346
Total marketable securities	$70,975	$70,888	$65,063	$64,963

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The following table summarizes the estimated fair value and gross unrealized holding losses of marketable securities, aggregated by investment instrument and period of time in an unrealized loss position at December 31, 2011 and 2012.

	In Unrealized Loss Position For Less Than 12 Months		In Unrealized Loss Position For Greater Than 12 Months	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
December 31, 2011				
Municipal notes and bonds	$7,291	$(10)	$—	$—
Tax-free auction rate securities	—	—	363	(137)
Total marketable securities	$7,291	$(10)	$363	$(137)
December 31, 2012				
Municipal notes and bonds	$9,037	$(7)	$—	$—
Corporate bonds	—	—	—	—
Tax-free auction rate securities	—	—	346	(129)
Total marketable securities	$9,037	$(7)	$346	$(129)

See Note 4 for additional discussion regarding the fair value of the Company's marketable securities.

6. Goodwill and Purchased Intangible Assets:

Goodwill

The changes in the carrying amount of goodwill are as follows:

Balance at December 31, 2011	$4,492
NanoPhotonics acquisition	4,154
Azores acquisition	2,725
Balance at December 31, 2012	$11,371

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Purchased Intangible Assets
Purchased intangible assets as of December 31, 2011 and 2012 are as follows:

	Gross Carrying Amount	Accumulated Amortization	Net
December 31, 2011			
Developed technology	$53,826	$47,879	$5,947
Customer and distributor relationships	7,446	6,905	541
Trade names	4,361	3,035	1,326
Total identifiable intangible assets	$65,633	$57,819	$7,814
December 31, 2012			
Developed technology	$58,961	$49,358	$9,603
Customer and distributor relationships	8,712	7,102	1,610
Trade names	4,361	3,216	1,145
Total identifiable intangible assets	$72,034	$59,676	$12,358

Intangible asset amortization expense amounted to $1,715, $1,757 and $1,853 for the years ended December 31, 2010, 2011 and 2012, respectively. Assuming no change in the gross carrying value of identifiable intangible assets and estimated lives, estimated amortization expense will be $2,464 for 2013, $2,205 for 2014, $1,833 for 2015, $1,725 for 2016, and $1,337 for 2017.

7. Balance Sheet Details:
Inventories
Inventories are comprised of the following:

	December 31,	
	2011	2012
Materials	$27,153	$31,629
Work-in-process	11,172	15,889
Finished goods	11,176	15,904
Total inventories	$49,501	$63,422

The Company has established reserves of $7,927 and $5,620 at December 31, 2011 and 2012, respectively, for slow moving and obsolete inventory. During 2011, the Company recorded a net charge in cost of revenues of $1,324 for the write-down of inventory for excess parts, for older product lines and for parts that were rendered obsolete by design and engineering advancements. In 2011, the Company disposed of $933 of inventory. During 2012, the Company recorded a net charge in cost of revenues of $2,934 for the write-down of inventory for excess parts, for older product lines and for parts that were rendered obsolete by design and engineering advancements. In 2012, the Company disposed of $5,241 of inventory.

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Property, Plant and Equipment
Property, plant and equipment, net is comprised of the following:

	December 31,	
	2011	2012
Land and building	$4,997	$4,997
Machinery and equipment	17,514	18,826
Furniture and fixtures	3,384	3,381
Computer equipment	6,350	7,789
Leasehold improvements	6,329	6,807
	38,574	41,800
Accumulated depreciation	(26,044)	(29,891)
Total property, plant and equipment, net	$12,530	$11,909

Depreciation expense amounted to $3,706, $4,210 and $3,680 for the years ended December 31, 2010, 2011, and 2012, respectively.

Other assets
Other assets is comprised of the following:

	December 31,	
	2011	2012
Capitalized software	$562	$201
Other	5,172	1,893
Total other assets	$5,734	$2,094

Other current liabilities
Other current liabilities is comprised of the following:

	December 31,	
	2011	2012
Litigation accrual	$4,293	$4,293
Other	5,031	4,066
Total other current liabilities	$9,324	$8,359

Other non-current liabilities
Other non-current liabilities is comprised of the following:

	December 31,	
	2011	2012
Unrecognized tax benefits (including interest)	$6,574	$7,671
Other	2,178	2,166
Total non-current liabilities	$8,752	$9,837

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8. Debt Obligations:

On July 25, 2011, the Company issued $60,000 aggregate principal amount of 3.75% Convertible Senior Notes due 2016 (the "Notes") at par. The Notes were issued pursuant to an indenture, dated as of July 25, 2011 (the "Indenture"), between the Company and Bank of New York Mellon Trust Company, N.A., as Trustee, which includes a form of Note. The Notes pay interest semi-annually in arrears on January 15 and July 15 of each year, beginning January 15, 2012, at an annual rate of 3.75% and will mature on July 15, 2016, unless earlier converted or repurchased. The Notes may be converted, under certain circumstances, based on an initial conversion rate of 77.241 shares of Company common stock per $1 principal amount of Notes, which represents an initial conversion price of approximately $12.95 per share. The net proceeds to the Company from the sale of the Notes, including the convertible note hedge and warrant discussed below, were $50,249.

The following table reflects the net carrying value of the Notes as of December 31, 2012:

	December 31, 2012
Convertible senior notes	$60,000
Less: Unamortized interest discount	10,990
Net carrying value of convertible senior notes	$49,010

The Notes may be converted at any time prior to the close of business on the business day immediately preceding April 15, 2016, at the option of the holder, upon satisfaction of one or more of the following conditions: 1) during any calendar quarter commencing after September 30, 2011, if the last reported sale price of the Company's common stock for at least 20 trading days (whether or not consecutive) during the period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter exceeds 130% of the applicable conversion price on each applicable trading day; 2) during the five business day period after any five consecutive trading-day period (the "measurement period") in which the "trading price" (as defined in the Indenture) per $1 principal amount of the Notes for each trading day of such measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the applicable conversion rate on such trading day; or 3) upon the occurrence of specified corporate events. On and after April 15, 2016 until the close of business on the second scheduled trading day immediately preceding the maturity date of July 15, 2016, holders may convert their notes, in multiples of $1 principal amount, regardless of whether any of the foregoing conditions have been met.

Upon conversion, the Company will deliver to holders in respect of each $1 principal amount of Notes being converted a "settlement amount" equal to the sum of the daily settlement amounts for each of the 40 consecutive trading days during the applicable cash settlement averaging period. The conversion value of each Note will be paid in: 1) cash equal to the principal amount of the Notes to be converted, and 2) to the extent the conversion value exceeds the aggregate principal amount of the Notes being converted, the Company's common stock in respect of the remainder (plus cash in lieu of any fractional shares of common stock). The conversion rate will be subject to adjustment in certain circumstances but will not be adjusted for any accrued and unpaid interest. Upon a "fundamental change" at any time, as defined in the Indenture, the Company will, under certain circumstances, increase the conversion rate for a holder who elects to convert its Notes in connection with a "make whole fundamental change," as defined in the Indenture. In addition, the holders may, subject to certain conditions, require the Company to repurchase for cash all or a portion of their Notes upon a "fundamental change" at a price equal to 100% of the principal amount of the Notes being repurchased plus accrued and unpaid interest, if any.

The Company separately accounts for the liability and equity components of the Notes. The initial debt component of the Notes were valued at $45,493 based on the present value of the future cash flows using a discount rate of 10%, the Company's assumed borrowing rate at the date of issuance for similar debt instruments without the conversion feature. The equity component was valued at $14,507. Total issuance costs were $2,251, of which $544 was allocated to the

equity component and $1,707 was allocated to debt issuance costs and will be amortized to interest expense over the term of the Notes.

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The following table presents the amount of interest cost recognized relating to the Notes during the twelve months ended December 31, 2012.

	December 31, 2012
Contractual interest coupon	$2,251
Amortization of interest discount	2,486
Amortization of debt issuance costs	250
Total interest cost recognized	$4,987

The remaining bond discount of the Notes of $10,990, as of December 31, 2012 will be amortized over the remaining life of the Notes.

Concurrently with the issuance of the Notes, the Company purchased a convertible note hedge and sold a warrant. Each of the convertible note hedge and warrant transactions were entered into with an affiliate of the initial purchaser of the Notes (the “Option Counterparty”). The convertible note hedge is intended to reduce the potential future dilution to the Company’s common stock associated with the conversion of the Notes. However, the warrant transaction will have a dilutive effect on the Company’s earnings per share to the extent that the price of the Company’s common stock exceeds the strike price of the warrant. The strike price of the warrant will initially be $17.00 per share. Each of these components is discussed separately below:

Convertible Note Hedge. The Option Counterparty agreed to sell to the Company up to approximately 4,634 shares of the Company’s common stock, which is the maximum number of shares issuable upon conversion of the Notes, at a price of $12.95 per share. The convertible note hedge transaction will be settled in shares of the Company’s common stock (and cash in lieu of fractional shares) and will expire on the earlier of the “second scheduled trading day” (as defined in the Indenture) prior to the maturity date of the Notes or the last day any of the Notes remain outstanding. Subject to certain terms and conditions, settlement of the convertible note hedge would result in the Company receiving shares of the Company’s common stock equivalent to the number of shares that the Company is obligated to deliver to holders of the Notes upon conversion of the Notes.

The Company will not be required to make any cash payments to the Option Counterparty or its affiliates upon the exercise of the options that are a part of the convertible note hedge transaction, but will be entitled to receive from the Option Counterparty a number of shares of Company common stock generally based on the amount by which the market price per share of Company common stock, as measured under the terms of the convertible note hedge transaction, is greater than the strike price of the convertible note hedge transaction during the relevant valuation period under the convertible note hedge transaction.

The convertible note hedge transaction cost of $14,507 has been accounted for as an equity transaction.

Warrant. The Company received $7,007 from the Option Counterparty from the sale of the warrant to purchase up to approximately 4,634 shares of the Company’s common stock at an exercise price of $17.00 per share. As of December 31, 2012, the warrant had an expected life of 4.0 years and expires between October 13, 2016 and January 9, 2017. As of December 31, 2012, the warrant had not been exercised and remained outstanding. Additionally, if the market price per share of Company common stock, as measured under the terms of the warrant transaction, exceeds the strike price of the warrant during the valuation period at the maturity of the warrant, the Company will owe the Option Counterparty a number of shares of Company common stock in an amount based on the excess of such market price per share of Company common stock over the strike price of the warrant.

The fair value of the warrant was initially recorded in equity and continues to be classified as equity.

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The convertible note hedge transaction and the warrant transaction are separate transactions entered into by the Company. Holders of the Notes will not have any rights with respect to the convertible note hedge transaction and the warrant transaction.

9. Commitments and Contingencies:

Intellectual Property Indemnification Obligations

The Company has entered into agreements with customers that include limited intellectual property indemnification obligations that are customary in the industry. These guarantees generally require the Company to compensate the other party for certain damages and costs incurred as a result of third party intellectual property claims arising from these transactions. The nature of the intellectual property indemnification obligations prevents the Company from making a reasonable estimate of the maximum potential amount it could be required to pay to its customers. Historically, the Company has not made any indemnification payments under such agreements and no amount has been accrued in the accompanying consolidated financial statements with respect to these indemnification guarantees.

Warranty Reserves

The Company generally provides a warranty on its products for a period of twelve to fifteen months against defects in material and workmanship. The Company estimates the costs that may be incurred during the warranty period and records a liability in the amount of such costs at the time revenue is recognized. The Company's estimate is based primarily on historical experience. The Company periodically assesses the adequacy of its recorded warranty liabilities and adjusts the amounts as necessary. Settlements of warranty reserves are generally associated with sales that occurred during the 12 to 15 months prior to the year-end and warranty accruals are related to sales during the year.

Changes in the Company's warranty reserves are as follows:

	Year Ended December 31,		
	2010	2011	2012
Balance, beginning of the year	$700	$1,654	$1,406
Accruals	2,363	1,987	2,482
Warranty Liability assumed in acquisition	—	—	225
Usage	(1,409)	(2,235)	(2,089)
Balance, end of the year	$1,654	$1,406	$2,024

Legal Matters

From time to time, the Company is subject to legal proceedings and claims in the ordinary course of business. As previously disclosed, in December 2007, the Company completed the acquisition of specific assets and liabilities of the semiconductor division of Applied Precision LLC ("Applied"). As a result of the acquisition, the Company assumed certain liabilities of Applied including a lawsuit filed in the United States District Court, District of Arizona, by Integrated Technology Corporation ("ITC") which alleged Applied's PrecisionPoint™, PrecisionWoRx® and ProbeWoRx® products infringed an ITC patent (Integrated Technology Corporation v. Rudolph Technologies, Inc., No. CV-06-2182-PHX-ROS). Prior to trial, the District Court ruled that such products sold prior to August of 2007 infringed the ITC patent. In December 2011, a trial verdict was rendered in which the jury found that while the Company's products manufactured after August of 2007 did not literally infringe ITC's patent, the products were found to infringe under a rule known as the doctrine of equivalents, a legal principle which expands the language of patent claims to encompass products or processes which may otherwise be found not to literally infringe the patent. The jury awarded $15,475 to ITC in damages for sales made during the years 2000-2011, of which award approximately one-half related to sales made after August 2007. The jury found that for sales made after August of 2007 the infringement

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was willful. On July 23, 2012, the District Court, responding to post-trial motions filed by the Company and ITC related to the verdict and damages assessment, issued an Order which affirmed the jury's award, applied treble damages to the portion of the jury award related to sales of the products after 2007 and granted ITC's motion for attorney's fees and prejudgment interest on the verdict and attorney's fees. The District Court also enjoined the Company from future infringement of the ITC patent and from selling or supplying the applicable products with the applicable features from or into the United States. The Company appealed the injunction, the District Court Order and the damages assessment. In October 2012, the injunction was stayed by the Federal Court of Appeals. The Company believes that it has meritorious defenses and shall continue to vigorously prosecute its appeal. With that, it is reasonably possible that the Company could realize a loss in this matter related to products sold after August of 2007 such that in the event that the Company is ultimately found liable, damage estimates related to this case, which have not been accrued for as of December 31, 2012, range from approximately $25 to $31,641. With regard to products sold before August of 2007, it is probable that the Company could realize a loss in this matter for which the Company has estimated and recorded a liability of approximately $4,293 in “Other liabilities” in the Consolidated Balance Sheets. While the Company continues to believe that its current PrecisionWoRx® and ProbeWoRx® systems do not infringe ITC's patent, the Company reached an agreement with ITC in October 2012 with regards to a redesign of the products under which ITC agreed that such redesign is permissible under the court's injunction.

In the Company's patent infringement suit against Camtek, Ltd., of Migdal Hamek, Israel, concerning the Company's proprietary continuous scan wafer inspection technology, the U.S. Federal Court of Appeals issued a ruling on August 22, 2011. In its opinion, the Appellate Court affirmed multiple rulings from trial at the District Court level including (i) finding the Company's U.S. Patent No. 6,826,298 valid, (ii) the part of the infringement ruling based on the finding that Camtek's Falcon product strobes “based on velocity,” and (iii) the dismissal of Camtek's claim against the Company for inequitable conduct against the U.S. Patent and Trademark Office. The court did, however, revise one claim construction ruling made by the District Court in the original case. As a result, the Appellate Court set aside the verdict delivered by the jury for damages and the District Court's decision to enter an injunction against Camtek's selling Falcon tools in the U.S. and remanded the case back to the trial court for a limited trial on this the single infringement issue. No trial date has been set for this limited trial. This lawsuit was initially brought in 2005 by August Technology prior to its merger with the Company.

Lease Agreements

The Company rents space for its manufacturing and service operations and sales offices, which expire through 2019. Total rent expense for these facilities amounted to $2,916, $3,139 and $3,134 for the years ended December 31, 2010, 2011 and 2012, respectively.

The Company also leases certain equipment pursuant to operating leases, which expire through 2014. Rent expense related to these leases amounted to $118, $111 and $123 for the years ended December 31, 2010, 2011 and 2012, respectively.

Total future minimum lease payments under noncancelable operating leases as of December 31, 2012 amounted to $3,424 for 2013, $2,336 for 2014, $3,198 for 2015, $2,135 for 2016, $2,003 for 2017 and $2,671 for all periods thereafter.

Royalty Agreements

Under various licensing agreements, the Company is obligated to pay royalties based on net sales of products sold. There are no minimum annual royalty payments. Royalty expense amounted to $871, $1,086 and $1,165 for the years ended December 31, 2010, 2011 and 2012, respectively.

Open and Committed Purchase Orders

The Company has open and committed purchase orders of $22,058 as of December 31, 2012.

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10. Preferred Share Purchase Rights:

On June 27, 2005, the Board of Directors of the Company adopted a Stockholder Rights Plan (the "Rights Plan") and declared a dividend distribution of one Preferred Share Purchase Right (a "Right") on each outstanding share of Company common stock. Each right entitles stockholders to buy one one-thousandth of a share of newly created Series A Junior Participating Preferred Stock of Rudolph at an exercise price of $120. The Company's Board of Directors is entitled to redeem the Rights at $0.001 per Right at any time before a person has acquired 15% or more of the outstanding Rudolph common stock.

Subject to limited exceptions, the Rights will be exercisable if a person or group acquires 15% or more of Rudolph common stock or announces a tender offer for 15% or more of the common stock. Each Right other than Rights held by the acquiring person, which will become void, entitles its holder to purchase a number of common shares of Rudolph having a market value at that time of twice the Right's exercise price.

The Rights Plan is scheduled to expire in 2015.

11. Share-Based Compensation and Employee Benefit Plans:

Share-Based Compensation Plans

The Company's share-based compensation plans are intended to attract and retain employees and to provide an incentive for them to assist the Company to achieve long-range performance goals and to enable them to participate in long-term growth of the Company. The Company settles stock option exercises and restricted stock awards with newly issued common shares.

The Company established the 2009 Stock Plan (the "2009 Plan") effective November 1, 2009. The 2009 Plan provides for the grant of 3,300 stock options and stock purchase rights to employees, directors and consultants at an exercise price equal to or greater than the fair market value of the common stock on the date of grant. Shares of common stock available for future grants of 753 from a previous stock plan were carried forward into the allocated balance of the 2009 Plan. Options granted under the 2009 Plan typically grade vest over a five-year period and expire ten years from the date of grant. Restricted stock units granted under the 2009 Plan typically vest over a five-year period for employees and one year for directors. Restricted stock units granted to employees have time based vesting or performance and time based vesting. As of December 31, 2011 and 2012, there were 3,057 and 2,472, respectively shares of common stock available for issuance pursuant to future grants under the 2009 Plan.

The following table reflects share-based compensation expense by type of award:

	Year Ended December 31,		
	2010	2011	2012
Share-based compensation expense:			
Stock options	$618	$404	$282
Restricted stock units	4,821	4,398	3,719
Total share-based compensation	5,439	4,802	4,001
Tax effect on share-based compensation	2,230	1,902	1,551
Net effect on net income	$3,209	$2,900	$2,450
Tax effect on:			
Cash flows from financing activities	$242	$528	$211
Effect on earnings per share—basic	$(0.10)	$(0.09)	$(0.08)
Effect on earnings per share—diluted	$(0.10)	$(0.09)	$(0.07)

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Valuation Assumptions for Stock Options

For the years ended December 31, 2010, 2011 and 2012 there were 10, 0 and 165 employee stock options granted, respectively. The fair value of each option granted to employees was estimated on the date of grant using the Black-Scholes option-pricing model with the following assumptions:

	Year Ended December 31,				
	2010		2011	2012	
Expected life (years)	5.0		0.0	5.0	
Expected volatility	85.5	%	—	85.2	%
Expected dividend yield	—	%	—	—	%
Risk-free interest rate	2.1	%	—	0.8	%
Weighted average fair value per option	$5.07		—	$7.88	

Non-Employee Options

At December 31, 2012, the fair value of options granted to non-employees was $337.

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Stock Option Activity
A summary of the Company's stock option activity with respect to the years ended December 31, 2010, 2011 and 2012 follows:

	Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Outstanding at December 31, 2009	2,188	$19.75		
Granted	10	7.47		
Exercised	(22)	5.20		
Expired	(225)	25.86		
Forfeited	(1)	14.46		
Outstanding at December 31, 2010	1,950	19.14		
Granted	—	—		
Exercised	(7)	10.27		
Expired	(515)	32.35		
Forfeited	—	—		
Outstanding at December 31, 2011	1,428	14.42		
Granted	195	11.90		
Exercised	(6)	10.16		
Expired	(130)	14.00		
Forfeited	—	—		
Outstanding at December 31, 2012	1,487	$14.15	3.7	$3,122
Vested or expected to vest at December 31, 2012	1,456	$14.21	3.6	$3,058
Exercisable at December 31, 2012	1,211	$15.00	2.5	$2,289

The total intrinsic value of the stock options exercised during 2010, 2011 and 2012 was $68, $14 and $14, respectively.
The options outstanding and exercisable at December 31, 2012 were in the following exercise price ranges:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Shares	Weighted Average Remaining Contractual Life (years)	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
$6.80 - $7.86	399	6.5	$6.90	318	$6.91
$8.60 - $14.81	439	5.5	$12.65	244	$13.26
$15.04 - $18.20	374	0.6	$16.31	374	$16.31
$18.39 - $29.85	275	1.0	$24.09	275	$24.09
$6.80 - $29.85	1,487	3.7	$14.15	1,211	$15.00

As of December 31, 2012, there was $1,813 of total unrecognized compensation cost related to stock options granted under the plans. That cost is expected to be recognized over a weighted average remaining period of 4.0 years.

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Restricted Stock Unit Activity

A summary of the Company's restricted stock unit activity with respect to the years ended December 31, 2010, 2011 and 2012 follows:

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2009	1,372	$7.72
Granted	487	$7.58
Vested	(377)	$9.23
Forfeited	(27)	$7.97
Nonvested at December 31, 2010	1,455	$7.28
Granted	535	$10.25
Vested	(436)	$8.46
Forfeited	(89)	$7.26
Nonvested at December 31, 2011	1,465	$8.01
Granted	409	$9.81
Vested	(457)	$8.53
Forfeited	(37)	$8.16
Nonvested at December 31, 2012	1,380	$8.37

As of December 31, 2012, there was $5,906 of total unrecognized compensation cost related to restricted stock units granted under the plans. That cost is expected to be recognized over a weighted average period of 2.0 years.

Employee Stock Purchase Plan

The Company established an Employee Stock Purchase Plan (the "ESPP") effective November 1, 2009. The Company's prior employee stock purchase plan, effective August 31, 1999, expired in the fourth quarter of 2010. Under the terms of the ESPP, eligible employees may have up to 15% of eligible compensation deducted from their pay and applied to the purchase of shares of Company common stock. The price the employee must pay for each share of stock will be 95% of the fair market value of Company common stock at the end of the applicable six-month purchase period. The ESPP is intended to qualify under Section 423 of the Internal Revenue Code and is a non-compensatory plan as defined by FASB Accounting Standards Codification (ASC) 718, Stock Compensation. No stock-based compensation expense for the ESPP was recorded for the years ended December 31, 2010, 2011 and 2012. As of December 31, 2011 and 2012, there were 558 and 837 shares available for issuance under the ESPP, respectively.

401(k) Savings Plan

The Company has a 401(k) savings plan that allows employees to contribute up to 100% of their annual compensation to the Plan on a pre-tax or after tax basis, limited to a maximum annual amount as set periodically by the Internal Revenue Service. The plan provides a 50% match of all employee contributions up to 6 percent of the employee's salary. Company matching contributions to the plan totaled $817, $838 and $880 for the years ended December 31, 2010, 2011 and 2012, respectively.

Profit Sharing Program

The Company has a profit sharing program, wherein a percentage of pre-tax profits, at the discretion of the Board of Directors, is provided to all employees who have completed a stipulated employment period. The Company did not make contributions to this program for the years ended December 31, 2010, 2011 and 2012.

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12. Other Income (Expense):

Other income (expense) is comprised of the following:

	Year Ended December 31,		
	2010	2011	2012
Foreign currency exchange gains (losses), net	$(255)	$846	$(482)
Realized gains on sales of marketable securities, net	—	1	—
Total other income (expense)	$(255)	$847	$(482)

13. Income Taxes:

The components of income tax expense are as follows:

	Year Ended December 31,		
	2010	2011	2012
Current:			
Federal	$743	$1,737	$3,164
State	124	318	312
Foreign	2,807	2,131	2,880
	3,674	4,186	6,356
Deferred:			
Federal	—	(8,038)	(18,003)
State	(167)	(818)	(2,799)
Foreign	15	(162)	(12)
	(152)	(9,018)	(20,814)
Total income tax expense (benefit)	$3,522	$(4,832)	$(14,458)

Income before tax of $16,284 and $14,253 was generated by domestic and foreign operations, respectively, in 2010. Income (loss) before tax of $23,963 and $(3,569) was generated by domestic and foreign operations, respectively, in 2011. Income before tax of $13,278 and $16,129 was generated by domestic and foreign operations, respectively, in 2012.

The income tax benefit of $4,832 and $14,458 in 2011 and 2012, respectively, primarily resulted from benefits related to the release of valuation allowance recorded against U.S. deferred tax assets, partially offset by taxes accrued in both the U.S. and foreign tax jurisdictions.

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Deferred tax assets and liabilities are comprised of the following:

	December 31,	
	2011	2012
Research and development credit carryforward	$7,574	$5,290
Reserves and accruals not currently deductible	4,059	4,444
Deferred revenue	2,035	3,191
Domestic net operating loss carryforwards	690	2,288
Capital losses	71	31
Foreign net operating loss and credit carryforwards	1,586	2,145
Intangibles	13,944	12,610
Tax deductible transaction costs	472	429
Share-based compensation	2,000	2,086
Inventory obsolescence reserve	4,077	1,797
Other	862	2,261
Gross deferred tax assets	37,370	36,572
Valuation allowance for deferred tax assets	(24,674)	(1,361)
Deferred tax assets after valuation allowance	12,696	35,211
Gross deferred tax liabilities	(456)	(611)
Net deferred tax assets	$12,240	$34,600

At December 31, 2011 and 2012, we had valuation allowances of $24,674 and $1,361 on certain of our deferred tax assets to reflect the deferred tax asset at the net amount that is more likely than not to be realized. The Company released $23,313 in valuation allowance after it evaluated the realizability of the federal and state deferred tax assets based on positive earnings for the past three years as well as the projected earnings in future years and believes it is more likely than not that the deferred tax asset will be realized in the future years. The Company will continue to monitor the realizability of the deferred tax asset and evaluate the valuation allowance.

In assessing the realizability of deferred tax assets, the Company uses a more likely than not standard. If it is determined that it is more-likely-than-not that deferred tax assets will not be realized, a valuation allowance must be established against the deferred tax assets. The ultimate realization of the assets is dependent on the generation of future taxable income during the periods in which the associated temporary differences become deductible. Management considers the scheduled reversal of deferred income tax liabilities, projected future taxable income and tax planning strategies when making this assessment.

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

The provision for income taxes differs from the amount of income tax determined by applying the applicable U.S. federal income tax rate of 35% for the years ended December 31, 2010, 2011 and 2012 to income before provision for income taxes as follows:

	Year Ended December 31,		
	2010	2011	2012
Federal income tax provision at statutory rate	$10,687	$7,138	$10,292
State taxes, net of federal effect	468	207	(698)
Foreign taxes net of federal effect	—	1,136	1,296
Domestic manufacturing benefit	(573)	(536)	(915)
Change in valuation allowance for deferred tax assets	(6,553)	(12,358)	(23,313)
True-up of prior year benefit	(414)	—	—
Other	(93)	(419)	(1,120)
Provision (benefit) for income taxes	$3,522	$(4,832)	$(14,458)
Effective tax rate	12%	(24)%	(49)%

At December 31, 2012, the Company had state net operating loss carryforwards of $13,687. The net operating loss carryforwards expire on various dates through December 31, 2030. At December 31, 2012, the Company had federal and state research & development credits and foreign tax credit carryforwards of $3,406, $1,859 and $2,145, respectively. The federal research & development credits are set to expire at various dates through December 31, 2031.The state research & development credits are set to expire at various dates through December 21, 2023. The foreign tax credit is set to expire at various dates through December 31, 2019.

A provision has not been made at December 31, 2012 for U.S. or additional foreign withholding taxes on approximately $3,147 of undistributed earnings of our foreign subsidiaries in Europe and Japan because it is the present intention of management to permanently reinvest these undistributed earnings. Upon distribution of those earnings, U.S. taxes on such permanently reinvested foreign earnings would be recorded net of applicable foreign tax credits and withholding taxes, if any.

The total amount of unrecognized tax benefits were as follows:

	December 31,		
	2010	2011	2012
Unrecognized tax benefits, opening balance	$5,531	$6,724	$8,476
Gross increases—tax positions in prior period	982	1,358	(8)
Gross increases—current-period tax positions	211	394	1,098
Lapse of statute of limitations	—	—	—
Unrecognized tax benefits, ending balance	$6,724	$8,476	$9,566

Included in the balance of unrecognized tax benefits at December 31, 2011 and 2012 are unrecognized tax benefits of $6,118 and $6,272 which would be reflected as an adjustment to income tax expense if recognized, respectively. It is reasonably possible that certain amounts of unrecognized tax benefits may reverse in the next 12 months; however, we do not expect such reversals would have a significant impact on our results of operations or financial position.

The Company recognizes accrued interest and penalties related to unrecognized tax benefits in income tax expense. During the years ended December 31, 2010, 2011 and 2012, the Company recognized approximately $27, $330 and $557 in interest and penalties expense associated with uncertain tax positions, respectively. As of December 31, 2011 and 2012, the Company had accrued interest and penalties expense related to unrecognized tax benefits of $566 and $1,538, respectively.

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

The Company is subject to U.S. federal income tax as well as income tax in multiple state and foreign jurisdictions. Presently, the Company is under a federal income tax examination by the Internal Revenue Service for examination of income tax returns for the tax years ended, December 31, 2007 through December 31, 2009. The Company has not been contacted by any other U.S. state, local or foreign tax authority for all open tax periods beginning after December 31, 2007.

The American Taxpayer Relief Act of 2012 was passed by Congress and signed into law on January 1, 2013. The provisions under this law were made retroactive to January 1, 2012. However, as a result of the law being signed on January 1, 2013, the financial impact of any retroactive provision will be recorded as a discrete event in the first quarter of 2013. The Company estimates that this discrete event will reduce tax expense in the first quarter of 2013 by approximately $800 for research and development tax credits for 2012.

14. Segment Reporting and Geographic Information:

The Company has one reportable segment. Operating segments are business units that have separate financial information and are separately reviewed by the Company's chief decision maker. The Company's chief decision maker is the Chief Executive Officer. The Company is engaged in the design, development, manufacture and support of high-performance control metrology, defect inspection, advanced packaging lithography and data analysis systems used by microelectronics device manufacturers. The Company and its subsidiaries currently operate in a single reportable segment: the design, development, manufacture and support of high-performance process control defect inspection, metrology, and process control software systems used by microelectronics device manufacturers. The chief operating decision maker allocates resources and assesses performance of the business and other activities at the reporting segment level.

The following table lists the different sources of revenue:

	Year Ended December 31,								
	2010			2011			2012		
Systems:									
Inspection	$105,904	54	%	$91,825	49	%	$128,917	59	%
Metrology	39,428	20	%	38,616	21	%	38,001	17	%
Data Analysis and Review	19,417	10	%	23,356	13	%	19,840	9	%
Parts	19,266	10	%	21,719	11	%	20,802	10	%
Services	11,290	6	%	11,680	6	%	10,926	5	%
Total revenue	$195,305	100	%	$187,196	100	%	$218,486	100	%

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

The Company's significant operations outside the United States include sales, service and application offices in Europe and Asia. For geographical reporting, revenues are attributed to the geographic location in which the product is shipped. Revenue by geographic region is as follows:

	Year Ended December 31,		
	2010	2011	2012
Revenues from third parties:			
United States	$45,243	$52,910	$42,108
Taiwan	48,455	26,898	61,319
South Korea	17,612	26,725	31,959
Singapore	30,305	16,344	26,183
Austria	1,841	15,960	11,423
Japan	7,725	14,925	15,444
Germany	8,191	14,657	8,990
China	24,201	11,124	12,266
Other Europe	11,732	7,653	8,794
Total revenue	$195,305	$187,196	$218,486

In 2010, sales to Taiwan Semiconductor Manufacturing Co. and Samsung Semiconductor Inc. accounted for 13.9% and 11.2% of our revenues, respectively. In 2011, sales to Infineon Technologies and Samsung Semiconductor Inc. accounted for 13.5% and 12.1% of our revenues, respectively. In 2012, sales to Samsung Semiconductor Inc. and Adavanced Semiconductor Engineering, Inc. accounted for 10.4% and 10.1% of our revenues, respectively. No other individual end user customer accounted for more than 10% of our revenues in 2010, 2011 and 2012.

At December 31, 2011, two customers, Infineon Technologies and Samsung Semiconductor, Inc., accounted for more than 10% of net accounts receivable. At December 31, 2012, one customer, Intel Corporation, accounted for more than 10% of net accounts receivable.

Substantially all of the Company's long-lived assets are located within the United States of America.

15. Earnings Per Share:

Basic earnings per share is calculated using the weighted average number of shares of common stock outstanding during the period. Diluted earnings per share is computed in the same manner and also gives effect to all dilutive common equivalent shares outstanding during the period. Potential common shares that would have the effect of increasing diluted earnings per share are considered to be antidilutive. In accordance with U.S. GAAP, these shares were not included in calculating diluted earnings per share. For the year ended December 31, 2010, the weighted average number of stock options and restricted stock units excluded from the computation of diluted earnings per share were 2,059 and 446. For the year ended December 31, 2011, the weighted average number of stock options and restricted stock units excluded from the computation of diluted earnings per share were 1,257 and 291, respectively. For the year ended December 31, 2012, the weighted average number of stock options and restricted stock units excluded from the computation of diluted earnings per share were 984 and 37, respectively. Diluted earnings per share-weighted average shares outstanding do not include any effect resulting from assumed conversion of the Notes and warrants (as described in Note 8) as their impact would be anti-dilutive.

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

The computations of basic and diluted income per share for the years ended December 31, 2010, 2011, and 2012 are as follows:

	December 31, 2010	2011	2012
Numerator:			
Net income	$27,015	$25,226	$43,865
Denominator:			
Basic earnings per share - weighted average shares outstanding	31,286	31,744	32,226
Effect of potential diluted securities:			
Employee stock options and restricted stock units - dilutive shares	206	512	627
Diluted earnings per share - weighted average shares outstanding	31,492	32,256	32,853
Earnings per share:			
Basic	$0.86	$0.79	$1.36
Diluted	$0.86	$0.78	$1.34

16. Share Repurchase Program

In July 2008, the Board of Directors authorized a share repurchase program of up to 3,000 shares of the Company's common stock with no established end date. As of the time of filing this Annual Report on Form 10-K, the Company has not purchased any shares under this program.

17. Quarterly Consolidated Financial Data (unaudited):

The following tables present certain unaudited consolidated quarterly financial information for the years ended December 31, 2012 and 2011. In the opinion of the Company's management, this quarterly information has been prepared on the same basis as the consolidated financial statements and includes all adjustments (consisting only of normal recurring adjustments) necessary to present fairly the information for the periods presented. The results of operations for any quarter are not necessarily indicative of results for the full year or for any future period.

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

Year-over-year quarterly comparisons of the Company's results of operations may not be meaningful, as the sequential quarterly comparisons set forth below tend to reflect the cyclical activity of the semiconductor industry as a whole. Other quarterly fluctuations in expenses are related directly to sales activity and volume and may also reflect the timing of operating expenses incurred throughout the year and the purchase accounting effects of business combinations.

	Quarters Ended				
	March 31, 2011	June 30, 2011	September 30, 2011	December 31, 2011	Total
Revenues	$50,599	$51,543	$41,434	$43,620	$187,196
Gross profit	27,297	27,859	22,254	22,943	100,353
Income (loss) before income taxes	8,150	7,930	5,333	(1,019)	20,394
Net income	6,739	6,957	5,300	6,230	25,226
Income per share:					
Basic	$0.21	$0.22	$0.17	$0.20	$0.79
Diluted	$0.21	$0.22	$0.16	$0.19	$0.78
Weighted average number of shares outstanding:					
Basic	31,537	31,589	31,829	31,873	31,744
Diluted	32,071	32,038	32,309	32,458	32,256

	Quarters Ended				
	March 31, 2012	June 30, 2012	September 30, 2012	December 31, 2012	Total
Revenues	$45,709	$56,326	$62,152	$54,299	$218,486
Gross profit	23,765	30,222	33,125	28,563	115,675
Income before income taxes	2,873	9,931	10,571	6,032	29,407
Net income	1,862	6,346	6,661	28,996	43,865
Income per share:					
Basic	$0.06	$0.20	$0.21	$0.90	$1.36
Diluted	$0.06	$0.19	$0.20	$0.88	$1.34
Weighted average number of shares outstanding:					
Basic	32,026	32,144	32,317	32,354	32,226
Diluted	32,713	32,727	32,862	33,045	32,853

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
SCHEDULE OF VALUATION AND QUALIFYING ACCOUNTS
(In thousands)

Column A	Column B	Column C		Column D	Column E
Description	Balance at Beginning of Period	Charged to (Recovery of) Costs and Expense	Charged to Other Accounts (net)	Deductions	Balance at End of Period
Year 2010:					
Allowance for doubtful accounts	$602	$(142)	$—	$154	$306
Inventory valuation	9,474	(1,046)	—	892	7,536
Warranty	700	2,363	—	1,409	1,654
Deferred tax valuation allowance	43,267	(6,553)	745	220	37,239
Year 2011:					
Allowance for doubtful accounts	$306	$(41)	$—	$3	$262
Inventory valuation	7,536	1,324	—	933	7,927
Warranty	1,654	1,987	—	2,235	1,406
Deferred tax valuation allowance	37,239	(12,358)	—	207	24,674
Year 2012:					
Allowance for doubtful accounts	$262	$344	$—	$—	$606
Inventory valuation	7,927	2,934	—	5,241	5,620
Warranty	1,406	2,482	225	2,089	2,024
Deferred tax valuation allowance	24,674	(23,313)	—	—	1,361

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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.

Rudolph Technologies, Inc.
By: /s/ Paul F. McLaughlin
Paul F. McLaughlin
Chairman and Chief Executive Officer
Date: February 28, 2013

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 AND ON THE DATES INDICATED.

Signature	Title	Date
/s/ Paul F. McLaughlin Paul F. McLaughlin	Chairman and Chief Executive Officer	February 28, 2013
/s/ Steven R. Roth Steven R. Roth	Senior Vice President, Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 28, 2013
/s/ Leo Berlinghieri Leo Berlinghieri	Director	February 28, 2013
/s/ Daniel H. Berry Daniel H. Berry	Director	February 28, 2013
/s/ Thomas G. Greig Thomas G. Greig	Director	February 28, 2013
/s/ Richard F. Spanier Richard F. Spanier	Director	February 28, 2013
/s/ Aubrey C. Tobey Aubrey C. Tobey	Director	February 28, 2013
/s/ John R. Whitten John R. Whitten	Director	February 28, 2013

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EXHIBIT INDEX

Exhibit No.	Description
2.1	Agreement and Plan of Merger, dated as of June 27, 2005, by and among the Registrant, NS Merger Sub, Inc. and August Technology Corporation (incorporated by reference to Exhibit 99.2 to the Registrant's Schedule 13D (SEC File No. 005-58091) filed on July 7, 2005).
2.2	Amendment No. 1, dated as of December 8, 2005, by and among the Registrant, NS Merger Sub, Inc. and August Technology Corporation, to the Agreement and Plan of Merger, dated as of June 27, 2005, by and among the Registrant, NS Merger Sub, Inc. and August Technology Corporation. (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K (SEC File No. 000-27965) filed on December 9, 2005).
2.3	Asset Purchase Agreement dated as of December 18, 2007, by and among the Registrant, Mariner Acquisition Company LLC, Applied Precision Holding, LLC and Applied Precision, LLC (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K (SEC File No. 000-27965), filed on December 21, 2007).
3.1	Restated Certificate of Incorporation of Registrant (incorporated by reference to Exhibit (3.1(c)) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86821, filed on October 5, 1999).
3.2	Restated Bylaws of Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on August 1, 2007, SEC File No. 000-27965).
3.3	Amendment to Restated Bylaws of Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on February 2, 2009, SEC File No. 000-27965).
4.1	Rights Agreement (incorporated by reference to Exhibit 4.1 of the Registrant's Registration Statement on Form 8-A, filed on June 28, 2005, SEC File No. 000-27965).
4.2	August Technology Corporation 1997 Stock Incentive Plan (incorporated by reference to the Appendix to August Technology Corporation's Proxy Statement for its 2004 Annual Shareholders Meeting, filed on March 11, 2004, SEC File No. 000-30637).
4.3	Indenture, dated as of July 25, 2011, by and between The Bank of New York Mellon Trust Company, N.A., as Trustee, and Rudolph Technologies, Inc. (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
10.1+	License Agreement, dated June 28, 1995, between the Registrant and Brown University Research Foundation (incorporated by reference to Exhibit (10.1) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86821), filed on September 9, 1999).
10.2*	Form of Indemnification Agreement (incorporated by reference to Exhibit (10.3) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86821), filed on October 5, 1999).
10.3*	Amended 1996 Non-Qualified Stock Option Plan (incorporated by reference to Exhibit 10.15 to Registrant's quarterly report on Form 10-Q (SEC File No. 000-27965), filed on November 14, 2001).
10.4*	Form of 1999 Stock Plan (incorporated by reference to Exhibit (10.5) to the Registrant's Registration Statement on Form S-1, (SEC File No. 333-86821), filed on September 9, 1999).
10.5*	Form of 1999 Employee Stock Purchase Plan (incorporated by reference to Exhibit (10.6) to the Registrant's Registration Statement on Form S-1, (SEC File No. 333-86821), filed on September 9, 1999).
10.6*	Management Agreement, dated as of July 24, 2000, by and between Rudolph Technologies, Inc. and Paul F. McLaughlin (incorporated by reference to Exhibit 10.12 to Registrant's quarterly report on Form 10-Q (SEC File No. 000-27965), filed on November 3, 2000) as amended August 20, 2009 (incorporated by reference to Exhibit 10.1 to Registrant's quarterly report on Form 10-Q, filed on November 6, 2009), as amended May 19, 2010 (incorporated by reference to Exhibit 10.1 to

Registrant's quarterly report on Form 10-Q, filed on August 4, 2010), as amended September 27, 2011 (incorporated by reference to Exhibit 10.6 to Registrant's quarterly report on Form 10-Q, filed on November 2, 2011), and as amended February 8, 2013 (filed with this report as Exhibit 10.1).

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+ Confidential treatment has been granted with respect to portions of this exhibit.

* Management contract, compensatory plan or arrangement.

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Exhibit No.	Description
10.7*	Management Agreement, dated as of July 24, 2000 by and between Rudolph Technologies, Inc. and Steven R. Roth (incorporated by reference to Exhibit 10.14 to Registrant's quarterly report on Form 10-Q (SEC File No. 000-27965), filed on November 3, 2000) as amended August 20, 2009 (incorporated by reference to Exhibit 10.2 to Registrant's quarterly report on Form 10-Q, filed on November 6, 2009).
10.8*	Form of option agreement under 1999 Stock Plan (incorporated by reference to Exhibit 10.12 to Registrant's quarterly report on Form 10-Q (SEC File No. 000-27965), filed on November 5, 2004).
10.9*	Form of Restricted Stock Award pursuant to the Rudolph Technologies, Inc. 1999 Stock Plan (incorporated by reference to the Registrant's Current Report on Form 8-K (SEC File No. 000-27965),filed on June 21, 2005).
10.10*	Rudolph Technologies, Inc. 2009 Stock Plan (incorporated by reference to Appendix A of the Registrant's revised Proxy Statement on Form DEFR14A, filed on May 8, 2009).
10.11*	Rudolph Technologies, Inc. 2009 Employee Stock Purchase Plan, as amended (incorporated by reference to Appendix B of the Registrant's revised Proxy Statement on Form DEFR14A, filed on May 8, 2009).
10.12*	Executive Change of Control Agreement, dated as of August 20, 2009, by and between Rudolph Technologies, Inc. and Nathan H. Little (incorporated by reference to Exhibit 10.3 to Registrant's quarterly report on Form 10-Q, filed on November 6, 2009).
10.13	Purchase Agreement, dated July 19, 2011, among Rudolph Technologies, Inc. and Credit Suisse Securities (USA) LLC (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
10.14	Confirmation of Convertible Note Hedge Transaction dated July 19, 2011, by and between Rudolph Technologies, Inc. and Credit Suisse International (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
10.15	Amendment dated July 22, 2011 to Confirmation of Convertible Note Hedge Transaction dated July 19, 2011, by and between Rudolph Technologies, Inc. and Credit Suisse International (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
10.16	Confirmation of Issuer Warrant Transaction dated July 19, 2011, by and between Rudolph Technologies, Inc. and Credit Suisse International (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
10.17	Amendment dated July 22, 2011 to Confirmation of Issuer Warrant Transaction dated July 19, 2011, by and between Rudolph Technologies, Inc. and Credit Suisse International (incorporated by reference to Exhibit 10.5 to the Registrant's Current Report on Form 8-K filed on July 25, 2011, SEC File No. 000-27965).
21.1	Subsidiaries.
23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm.
31.1	Certification of Paul F. McLaughlin, Chief Executive Officer, pursuant to Securities Exchange Act Rule 13a-14(a).
31.2	Certification of Steven R. Roth, Chief Financial Officer, pursuant to Securities Exchange Act Rule 13a-14(a).
32.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, signed by Paul F. McLaughlin, Chief Executive Officer of Rudolph Technologies, Inc.
32.2	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, signed by Steven R. Roth, Chief Financial Officer of Rudolph

Technologies, Inc.

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* Management contract, compensatory plan or arrangement.

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Exhibit No.	Description
101.INS**	XBRL Instance Document
101.SCH**	XBRL Taxonomy Extension Schema Document
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document

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** Users of the XBRL data are advised pursuant to Rule 406T of Regulation S-T that this interactive data file is deemed not filed or part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act of 1933, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, and otherwise is not subject to liability under these sections.