





2010 was a year of dramatic recovery

for the semiconductor equipment industry, largely driven by secular tailwinds in mobile computing and mobile consumer electronics. Your company was among the outperformers in this recovery as we stood out with year-over-year revenue growth of nearly 150 percent and record net after-tax profitability for the fourth quarter, \$9.6 million, and for the full 2010 year, \$27.0 million. Importantly for our long term success was the fact that our five product families not only produced strong revenue growth but gained market share, a solid confirmation of our investment in new product development made during the industry downturn of 2008 through 2009. As we look ahead for 2011, there are many challenges; however, we are ready, willing and have demonstrated our capability to drive Rudolph Technologies to new levels of performance that will reward our customers, shareholders, employees and suppliers.

On behalf of our global employees now numbering over 550, I thank you for your continued support.

A handwritten signature in blue ink, appearing to read "Paul F. McLaughlin". The signature is fluid and cursive, with a prominent flourish at the end.

Paul F. McLaughlin
CHAIRMAN AND
CHIEF EXECUTIVE OFFICER

April 19, 2011

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(MARK ONE)

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

For the Fiscal Year Ended December 31, 2010

OR

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

For the transition period from _____ to _____

Commission File No. 000-27965

RUDOLPH TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

22-3531208

(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	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 No

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 No

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

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

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

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

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

(Do not check if a smaller reporting company)

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

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, 2010 of \$7.55 was approximately \$218,505,448.

The registrant had 31,443,540 shares of Common Stock outstanding as of February 11, 2011.

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 25, 2011.

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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 expectations of 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. 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 words or 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 international 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, ability to manage growth, risk of nonpayment of accounts receivable, changes in budgeted costs 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, metrology, and process control software systems used by microelectronics device manufacturers. We provide yield management solutions used in both wafer processing and final manufacturing through a family of standalone systems for macro-defect inspection, test systems, and transparent and opaque thin film measurements. All of these systems feature sophisticated software and production-worthy automation. In addition, our advanced process control portfolio includes powerful solutions to enhance productivity and achieve significant cost savings. Rudolph systems are backed by worldwide customer service and applications support.

The acquisition of selected assets related to MKS Instruments' Yield Dynamics software business was announced on August 11, 2010. The products and technology included patented analytical techniques for yield improvement that are complementary to Rudolph's existing yield management and process control portfolio. Over 30 engineering and applications personnel joined Rudolph following the closing of the transaction.

In March 2010, the John P. Kummer Group became Rudolph's distribution partner for our probe card test and analysis products in Europe. This followed with our appointment of STAr Technologies as an authorized vendor for probe card interfaces in Asia. Both of these companies have increased our presence in these growing markets.

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 AXI™ 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. Using products such as Discover® and Genesis® software, the vast amount of data gathered through automated inspection can be analyzed and classified to determine trends that ultimately affect yield.

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 S3000S™ 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 total 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 the #1 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 our customers a diverse combination of measurement technologies that provide process control for the majority of thin films used in semiconductor manufacturing. Additionally, 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 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 consistently. 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.

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.

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

We market and sell products to all major logic, memory, data storage and application-specific integrated circuit (ASIC) device manufacturers. Our customers rely on Rudolph for versatile full-fab inspection 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 and 300mm configurations. Our systems operate at high throughput with ultraclean operation and high reliability.

INSPECTION & TEST SYSTEMS				
Product	First Introduced	Functionality	Type of Fab	
			Wafer Processing	Final Manufacturing
AXi™ Inspection Module	2003	<ul style="list-style-type: none"> — Advanced detection of defects >0.5 micron — Inspection of patterned and unpatterned wafers — In line, high-speed, 100% inspection — Full color review and waferless recipe creation 	X	
E30™ Inspection Module	2003	<ul style="list-style-type: none"> — 2D defect detection of the wafer's edge — Metrology of edge feature — Incorporated into the Explorer Cluster 	X	X
B30™ Inspection Module	2003	<ul style="list-style-type: none"> — 2D defect detection of the wafer's backside — Darkfield, brightfield and color imaging — Incorporated into the Explorer Cluster 	X	X
Explorer® Inspection Cluster	2009	<ul style="list-style-type: none"> — A family of multi surface inspection tools, using one or more inspection modules — Automated handling platform — Intelligent wafer scheduling 	X	
NSX® Inspection System	1997	<ul style="list-style-type: none"> — Fully automated defect detection >0.5 micron — 2D wafer, die & bump inspection — In line, high-speed, 100% inspection 		X
Wafer Scanner™ Inspection System	1999	<ul style="list-style-type: none"> — 2D/3D bump dimensional inspection — 2D bump/surface defect inspection — In line, high-speed, 100% inspection 		X
PrecisionWoRx® System	2008	<ul style="list-style-type: none"> — Probe card test & analysis — Configurable channels — High load forces 		X
ProbeWoRx® System	2003	<ul style="list-style-type: none"> — Probe card production metrology — 3D Optical Comparative Metrology — High-speed test times — Automated, one-touch measurements 		X
WaferWoRx® System	2006	<ul style="list-style-type: none"> — Probing process analysis — 3D probe tip analysis — Proprietary, advanced software 		X

METROLOGY SYSTEMS				
			Type of Fab	
Product	First Introduced	Functionality	Wafer Processing	Final Manufacturing
MetaPULSE® System	1997	<ul style="list-style-type: none"> — 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	
S3000™ System	2006	<ul style="list-style-type: none"> — 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	

DATA ANALYSIS & REVIEW SOFTWARE				
			Type of Fab	
Product	First Introduced	Functionality	Wafer Processing	Final Manufacturing
ARTIST® Software	2003	<ul style="list-style-type: none"> — Real-time monitoring software — Enables development of human-readable models — Frees users from manual monitoring — Minimize scrap and rework 	X	
AutoShell® Software	1998	<ul style="list-style-type: none"> — Equipment automation software that interfaces to both tools and external resources 	X	
ControlWORKS® Software	1994	<ul style="list-style-type: none"> — Designed to control process equipment — Minimizes the expense and time-to-market associated with developing control applications 	X	
Discover® Software	2007	<ul style="list-style-type: none"> — Fabwide software for archival and retrieval of process related data — Facilitates root cause analysis, yield enhancement and yield learning 	X	
Discover® Enterprise Software	2005	<ul style="list-style-type: none"> — 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	<ul style="list-style-type: none"> — 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

DATA ANALYSIS & REVIEW SOFTWARE (continued)				
Product	First Introduced	Functionality	Type of Fab	
			Wafer Processing	Final Manufacturing
Gamma2™ Software	2004	<ul style="list-style-type: none"> — Connects applications to tools — Add applications to factory control architecture without changing host software 	X	
GateWay™ Software	2003	<ul style="list-style-type: none"> — 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 	X	
HarmonyASR™ Software	2005	<ul style="list-style-type: none"> — 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	<ul style="list-style-type: none"> — 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	<ul style="list-style-type: none"> — Advanced process control software deployed in CMOS, high-mix ASIC, memory and disk head fabs — Proven in all major process areas 	X	
RecipeWORKS™ Software	1998	<ul style="list-style-type: none"> — Reduces impact on tool time — 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	
TrackWORKS® Software	1998	<ul style="list-style-type: none"> — Configures and schedules preventive maintenance — View factory entities using operator-defined parameters 	X	
TrueADC™ Software	2005	<ul style="list-style-type: none"> — Automatic defect classification — High accuracy, consistency and scalability — Patented feature-based defect matching technology — Utilizes dynamic defect library method 	X	X
TrueADC™ Enterprise Software	2007	<ul style="list-style-type: none"> — 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	<ul style="list-style-type: none"> — Builds predictive models — Optimizes yield and reduces excursions — Identifies the most critical metrology measurements for controlling yield 	X	X
Genesis® Software	1997	<ul style="list-style-type: none"> — Data acquisition and integration — Data mining — Parametric analysis 	X	

Customers

Over 90 semiconductor 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 semiconductor device manufactured. Our customers are located in 20 countries. See Note 16 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 2008, 2009 and 2010, sales to end user customers that individually represented at least five percent of our revenues accounted for 36.3%, 44.8% and 44.4% of our revenues, respectively. In 2008 and 2009, sales to Intel Corporation accounted for 10.9% and 13.6 % 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. No other individual end user customer accounted for more than 10% of our revenues in 2008, 2009 and 2010. We do not have purchase contracts with any of our customers that obligate them to continue to purchase our products.

Research and Development

The macro-defect inspection, thin film transparent and opaque process control metrology market is 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 2008, 2009 and 2010 were \$31.6 million, \$26.0 million and \$33.4 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, New Jersey, Minnesota, Massachusetts, Texas, Washington, New York, Scotland, Israel, 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 facility in 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 facilities in Minnesota. During the fourth quarter of 2009, we initiated a consolidation of a portion of our facility in Budd Lake, NJ and in 2010 we moved the New Jersey manufacturing operations to our facility in Bloomington, MN. 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 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, 2010, we have been granted, or hold exclusive licenses to, 192 U.S. and foreign patents. The patents we own, jointly own or exclusively license have expiration dates ranging from 2011 to 2029. 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 and Camtek. We compete to a lesser extent with companies such as Nanometrics, Vistec, 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 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, 2010, we had a backlog of approximately \$49.7 million compared with a backlog of approximately \$54.1 million at December 31, 2009.

Employees

As of December 31, 2010, we had 550 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;
- 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 cancelled 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 cancelled, 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.

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. and United Microelectronics Corporation, from memory chip manufacturers in South Korea such as Hynix and

Samsung, and from semiconductor device manufacturers in Japan such as NEC and 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 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, 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 coverage per claim, 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 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

Metrology and inspection 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 cancelled. 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.

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 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.

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.

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 its 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 and Camtek. We compete to a lesser extent with companies such as Nanometrics, Vistec 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 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.

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 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

The credit markets and the financial services industry have been experiencing a period of unprecedented turmoil and upheaval characterized by the bankruptcy, failure, collapse or sale of various financial institutions and an unprecedented level of intervention from the United States federal government. While the ultimate outcome of these events cannot be predicted, they 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, the 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.

Risks Related to the Semiconductor Device Industry

Cyclical nature 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. 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 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.

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 2010, our stock price fluctuated between a high of \$10.98 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.

Item 2. Properties.

Our executive office building is located at One Rudolph Road in Flanders, New Jersey. We own and lease facilities for engineering, sales and service related purposes in the United States and six other countries — China, 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.

<u>Location</u>	<u>Facility Purpose</u>	<u>Approximate Square Footage</u>	<u>Lease Expiration Year, Unless Owned</u>
Flanders, New Jersey	Executive Office	20,000	Owned
Budd Lake, New Jersey	Engineering and Service	61,500	2016
Bloomington, Minnesota	Engineering, Manufacturing and Service	78,500	2012
Tewksbury, Massachusetts	Engineering and Service	7,000	2017
Richardson, Texas	Engineering	21,000	Owned
Bohemia, New York	Engineering	6,000	2016
Snoqualmie, Washington	Engineering and Service	27,000	2018
Tianjin, China	Engineering	11,000	2011
Hsin-Chu, Taiwan	Sales and Service	10,500	2012
Takatsu, Japan	Sales and Service	5,000	2012
Sungnam-si, South Korea	Sales and Service	9,500	2011
Shanghai, China	Sales and Service	2,500	2011
Singapore	Sales and Service	2,000	2012
Scotland, United Kingdom	Sales and Service	1,000	2011

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.

Item 3. Legal Proceedings.

From time to time we are subject to legal proceedings and claims in the ordinary course of business. In December 2007, we completed our 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 by Integrated Technology Corporation (“ITC”) against Applied alleging infringement on two of ITC's patents. While this litigation is currently ongoing, the Company believes that it has meritorious defenses and is vigorously defending the action. 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, 2010, range from approximately \$25 thousand to \$9 million, depending on multiple factors presented by the parties.

Item 4. (Removed and Reserved).

PART II

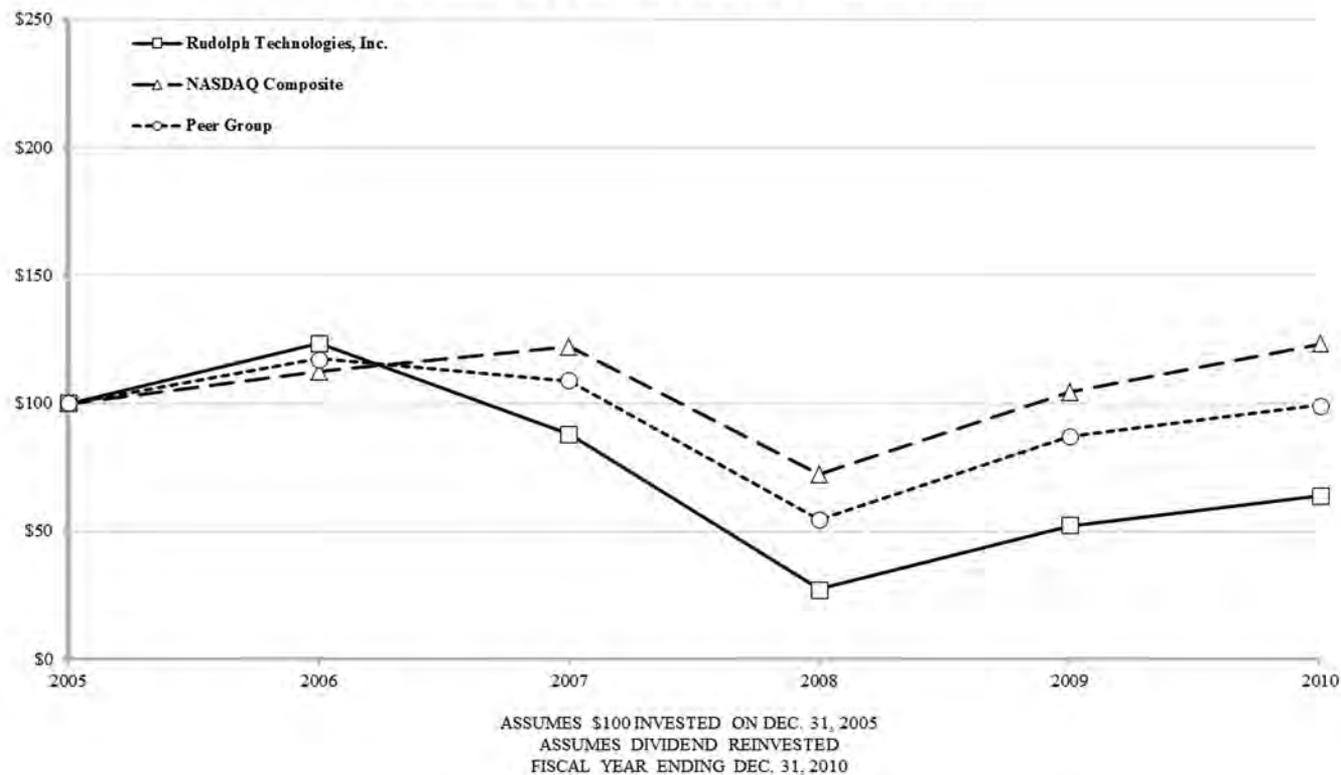
Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

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, 2005 and ending on December 31, 2010. 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, 2005 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.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN



	12/05	12/06	12/07	12/08	12/09	12/10
Rudolph Technologies, Inc.	100.0	123.60	87.89	27.41	52.17	63.90
NASDAQ Composite	100.0	112.46	122.22	72.41	104.42	123.23
Peer Group	100.0	117.48	108.82	54.57	86.99	99.30

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, 2009		
First Quarter	\$ 4.27	\$ 1.95
Second Quarter	\$ 6.18	\$ 2.96
Third Quarter	\$ 8.46	\$ 5.27
Fourth Quarter	\$ 8.25	\$ 5.70
Year Ended December 31, 2010		
First Quarter	\$ 9.53	\$ 6.14
Second Quarter	\$ 10.98	\$ 7.49
Third Quarter	\$ 9.71	\$ 7.02
Fourth Quarter	\$ 8.54	\$ 7.01

As of February 3, 2011, there were 87 stockholders of record of our common stock and approximately 5,129 beneficial stockholders. The closing market value of our common stock on February 3, 2011 was \$10.46.

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. As of the time of filing this Annual Report on Form 10-K, we have not purchased any shares under this program.

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, 2009 and 2010 and the statement of operations data for the years ended December 31, 2008, 2009 and 2010 set forth below were derived from our audited consolidated financial statements included elsewhere in this Form 10-K. The balance sheet data as of 2006, 2007 and 2008, and the statement of operations data for the years ended December 31, 2006 and 2007 were derived from our audited consolidated financial statements not included herein.

	Year Ended December 31,				
	2006	2007	2008	2009	2010
(In thousands, except per share data)					
Statement of Operations Data:					
Revenues	\$ 201,168	\$ 160,129	\$ 131,040	\$ 78,657	\$ 195,305
Cost of revenues	103,726	78,889	87,388	49,805	91,405
Gross profit	97,442	81,240	43,652	28,852	103,900
Operating expenses:					
Research and development	29,856	29,993	31,644	25,991	33,387
In-process research and development	9,900	1,000	—	—	—
Selling, general and administrative	32,338	33,159	36,512	32,703	38,173
Impairment charge for goodwill and identifiable intangible assets	—	—	227,105	—	—
Amortization	4,048	4,487	5,890	1,358	1,715
Total operating expenses	76,142	68,639	301,151	60,052	73,275
Operating income (loss)	21,300	12,601	(257,499)	(31,200)	30,625
Interest income	3,345	4,143	1,230	271	167
Other income (expense)	(209)	(39)	2,468	(938)	(255)
Income (loss) before provision for income taxes	24,436	16,705	(253,801)	(31,867)	30,537
Provision (benefit) for income taxes	11,730	4,846	(4,115)	(2,239)	3,522
Net income (loss)	<u>\$ 12,706</u>	<u>\$ 11,859</u>	<u>\$(249,686)</u>	<u>\$(29,628)</u>	<u>\$ 27,015</u>
Earnings (loss) per share:					
Basic	\$ 0.47	\$ 0.41	\$ (8.16)	\$ (0.96)	\$ 0.86
Diluted	\$ 0.46	\$ 0.40	\$ (8.16)	\$ (0.96)	\$ 0.86
Weighted average shares outstanding:					
Basic	27,276	29,168	30,614	30,888	31,286
Diluted	27,574	29,312	30,614	30,888	31,492

	December 31,				
	2006	2007	2008	2009	2010
Balance Sheet Data:					
Cash and cash equivalents	\$ 72,479	\$ 57,420	\$ 67,735	\$ 57,839	\$ 71,120
Marketable securities	33,714	16,505	10,549	3,080	629
Working capital	200,942	176,298	147,688	126,781	159,745
Total assets	440,486	460,216	197,432	178,203	219,053
Retained earnings (accumulated deficit)	32,897	44,776	(204,910)	(234,538)	(207,523)
Total stockholders’ equity	392,876	424,478	176,088	151,131	185,034

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

Overview

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

On January 22, 2008, we announced that we had acquired all intellectual property and selected assets from privately-held RVSI Inspection, LLC, headquartered in Hauppauge, New York. The acquired business is currently known as the Rudolph Technologies Wafer Scanner Product Group (“WSPG”) and has been integrated into our Inspection product offerings.

On August 3, 2009, we announced that we had acquired Adventa Control Technologies, Inc. (“Adventa”), headquartered in Plano, Texas. The acquired business is currently known as the Rudolph Technologies Process Control Group (“PCG”) and has been integrated into our Data Analysis and Review group product offerings

On August 11, 2010, we announce that we had acquired selected assets of the Yield Dynamics software business from MKS Instruments, headquartered in Andover, Massachusetts. The acquired business has been integrated into our Data Analysis and Review group product offerings.

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, cell phone and personal electronic device sales. Current forecasts by industry analysts for the semiconductor device manufacturing industry similar year-over-year capital spending plus or minus 5% for 2011. 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 2010, decreasing from the September 2010 book-to-bill ratio of 1.0.

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, 2008, 2009 and 2010, sales to customers that individually represented at least five percent of our revenues accounted for 36.3%, 44.8%, and 44.4% of our revenues, respectively. For the years ended December 31, 2008 and 2009, sales to Intel Corporation accounted for 10.9% and 13.6% 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.

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 \$1.6 million per system, our transparent film measurement systems range in average selling price from approximately \$250,000 to \$1.0 million per system and our opaque film measurement systems range in average selling price from approximately \$1.0 million to \$2.0 million per system.

A significant portion of our revenues has been derived from customers outside of the United States. In 2008, approximately 76.5% of our revenues were derived from customers outside of the United States, of which 57.0% were derived from customers in Asia and 19.5% were derived from customers in Europe. In 2009, approximately 72.4% of our revenues were derived from customers outside of the United States, of which 60.8% were derived from customers in Asia and 11.6% were derived from customers in Europe. In 2010, approximately 76.8% of our revenues were derived from customers outside of the United States, of which 65.7% were derived from customers in Asia and 11.1% were derived from customers in Europe. We expect that revenues generated from customers outside of the United States will continue to account for a significant percentage of our revenues.

The sales cycle for our systems typically ranges from nine 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,		
	2008	2009	2010
Revenues	100.0 %	100.0 %	100.0%
Cost of revenues	66.7	63.3	46.8
Gross profit	33.3	36.7	53.2
Operating expenses:			
Research and development	24.2	33.0	17.1
Selling, general and administrative	27.8	41.6	19.5
Impairment charge for goodwill and identifiable intangible assets	173.3	—	—
Amortization	4.5	1.7	0.9
Total operating expenses	229.8	76.3	37.5
Operating income (loss)	(196.5)	(39.6)	15.7
Interest income	0.9	0.3	0.1
Other income (expense)	1.9	(1.2)	(0.2)
Income before provision (benefit) income taxes	(193.7)	(40.5)	15.6
Provision (benefit) for income taxes	(3.1)	(2.8)	1.8
Net income (loss)	(190.6)%	(37.7)%	13.8%

Results of Operations 2008, 2009 and 2010

Revenues. Our revenues are derived from the sale of our systems, services, spare parts and software licensing. Our revenues were \$131.0 million, \$78.7 million and \$195.3 million in the years ended 2008, 2009 and 2010. This represents a decrease of 40.0% from 2008 to 2009 and an increase of 148.3% from 2009 to 2010. The decrease in revenue from 2008 to 2009 is primarily due to weakness in the overall semiconductor equipment manufacturing sector. The increase in revenue from 2009 to 2010 is primarily due to improving economic conditions leading to increased capital spending in the semiconductor industry.

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,					
	2008		2009		2010	
Systems and Software:						
Inspection	\$ 73,465	56%	\$ 38,027	48%	\$ 105,904	54%
Metrology	21,118	16	8,921	11	39,428	20
Data Analysis and Review	4,410	3	6,691	9	19,417	10
Parts	20,801	16	15,428	20	19,266	10
Services	11,246	9	9,590	12	11,290	6
Total revenue	<u>\$ 131,040</u>	<u>100%</u>	<u>\$ 78,657</u>	<u>100%</u>	<u>\$ 195,305</u>	<u>100%</u>

Systems revenue decreased for the year ended December 31, 2008 as compared to the year ended December 31, 2009 due to the decrease in the number of inspection and metrology systems sold during this period. These changes in systems revenue reflect a decrease in inspection systems revenue of \$35.4 million and a decrease in metrology systems revenue of \$12.2 million from 2008 to 2009. 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. The year-over-year increase in data analysis and review software revenues of \$2.3 million from 2008 to 2009 is primarily due to revenue from PCG, which is part of our Data Analysis and Review products, and which was acquired in the third quarter of 2009. Systems revenue generated by our latest product releases and major enhancements in each of our product families amounted to 40% of total revenue for 2008 compared to 35% of total revenue for 2009. The year-over-year decrease in parts and service revenues in absolute dollars from 2008 to 2009 is primarily due to overall weakness in the semiconductor market during 2009. Parts and services revenues are generated from part sales, maintenance service contracts, system upgrades, as well as time and material billable service calls.

Systems revenue increased for the year ended December 31, 2009 as compared to the year ended December 31, 2010 due to improving economic conditions leading to increased capital spending in the semiconductor industry. This contributed to an increase in the number of systems sold from 2009 to 2010. These changes in systems revenue reflect an increase in inspection systems revenue of \$67.9 million and an increase in metrology systems revenue of \$30.5 million. 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. The year-over-year increase in data analysis and review software revenues of \$12.7 million from 2009 to 2010 is primarily due to revenue from PCG. Systems revenue generated by our latest product releases and major enhancements in each of our product families amounted to 35% of total revenue for 2009 compared to 59% of total revenue for 2010. The year-over-year increase in parts and service revenues in absolute dollars from 2009 to 2010 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.

Deferred revenues of \$8.7 million at December 31, 2010 primarily consist of \$4.1 million for deferred maintenance agreements and \$4.6 million for systems awaiting acceptance and outstanding deliverables.

Gross Profit. Our gross profit has been and is anticipated to be affected by a variety of factors, including inventory step-up from purchase accounting, 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 \$43.7 million, \$28.9 million and \$103.9 million for the years ended December 31, 2008, 2009 and 2010, respectively. The increase in gross profit as a percentage of revenue from 2008 to 2009 is primarily due to an inventory write down of \$4.8 million in 2009 which had less of an impact on gross profit than the inventory write down of \$14.1 million in 2008. The increase in gross profit as a percentage of revenue from 2009 to 2010 is primarily due to higher revenues, including an increase in software sales, higher average selling prices and lower reserves due to better inventory utilization. We do not track gross margin by the sources of revenue.

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 to 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 and the cost of related supplies. Our research and development expense was \$31.6 million, \$26.0 million and \$33.4 million in 2008, 2009 and 2010, respectively. The year-over-year dollar decrease from 2008 to 2009 primarily reflects reduced compensation costs and lower project costs as part of cost reduction efforts, partially offset by an increase in litigation expenses and the inclusion of expenses related to the activities of the acquisition of PCG in the 2009 period. The year-over-year dollar increase from 2009 to 2010 is primarily due to higher costs related to compensation, projects and litigation, as well as, the inclusion of engineering costs associated with the YDI acquisition in the third quarter of 2010. 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 \$36.5 million, \$32.7 million and \$38.2 million in 2008, 2009 and 2010, respectively. The year-over-year dollar decrease from 2008 to 2009 in selling, general and administrative expense was primarily due to the elimination of administrative costs associated with prior business combinations, and lower compensation costs in the 2009 period, offset by expenses as a result of the Adventa acquisition and manufacturing consolidation costs. The year-over-year increase in selling, general and administrative expense from 2009 to 2010 was primarily due to higher compensation and corporate litigation expenses in the 2010 period.
- *Impairment Charge for Goodwill and Identifiable Intangible Assets.* Goodwill is tested for impairment annually or more frequently if an event or circumstance indicates that an impairment loss may have been incurred. Impairment charge for goodwill and identifiable intangible assets was \$227.1 million for 2008 and \$0 for both 2009 and 2010. As of October 31, 2010 we performed our annual goodwill impairment test and determined that the fair value was not less than carrying value; therefore, there was no impairment of goodwill. During our annual goodwill impairment test in October 2008, we experienced a significant decline in our stock price. As a result of the decline in stock price, our market capitalization plus an implied control premium fell significantly below the recorded value of our consolidated net assets as of October 31,

2008. In performing the goodwill impairment test, we used current market capitalization, control premiums, discounted cash flows and other factors as the best evidence of fair value. The impairment test resulted in no value attributable to our goodwill and accordingly, we wrote off all of our \$192.9 million of goodwill as of October 31, 2008.

In connection with the goodwill impairment test, we determined that our identifiable acquired intangible assets were impaired. The determination was based on the carrying values exceeding the future undiscounted cash flows and fair value attributable to such intangible assets. As a result, we recorded an impairment charge of \$34.2 million as of October 31, 2008, which represents the difference between the estimated fair values of these long-lived assets as compared to their carrying values. Fair values were determined based upon market conditions, the relief from royalty approach which utilized cash flow projections, and other factors.

Other income (expense). In 2008, other income totaled \$2.5 million. Other expense was \$0.9 million and \$0.3 million in 2009 and 2010, respectively. The year-over-year dollar changes in other income (expense) were primarily due to fluctuations in foreign currency exchange rates.

Interest income. Interest income was \$1.2 million, \$0.3 million, and \$0.2 million in 2008, 2009 and 2010, respectively. The year-over-year dollar changes in interest income is primarily due to lower average interest rates.

Income Taxes. We recorded income tax benefit of \$4.1 million and \$2.2 million, respectively, in 2008 and 2009. Income tax expense was \$3.5 million in 2010.

The income tax benefit for the year ended December 31, 2008 was \$4.1 million or 1.6% of loss before benefit for income taxes. The income tax benefit differs from the amount that would result from applying the federal statutory income tax rate of 35% to our loss before benefit for income taxes, primarily due to our inability to record a full income tax benefit for the impairments of the goodwill and long-lived assets and valuation allowances in taxable jurisdictions.

The income tax benefit for the year ended December 31, 2009 was \$2.2 million or 7.0% of loss before benefit for income taxes. The income tax benefit differs from the amount that would result from applying the federal statutory income tax rate of 35% to our loss before benefit for income taxes, primarily due to valuation allowances in taxable jurisdictions.

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.

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. As a result of our analysis, we concluded that it is more likely than not that substantially all of our net deferred tax assets will not be realized. Therefore, we continue to provide a valuation allowance against these net deferred tax assets. A portion of our net deferred tax assets relate to R&D credits which are reserved for in our FASB ASC 740 provision. We closely monitor available evidence, and may reverse some or all of the valuation allowance in future periods, if appropriate. The valuation allowance increased \$6.8 million in 2009 and decreased \$6.0 million in 2010, respectively.

Liquidity and Capital Resources

At December 31, 2009, we had \$60.9 million of cash, cash equivalents and marketable securities and \$126.8 million in working capital. At December 31, 2010, our cash, cash equivalents and marketable securities totaled \$71.7 million, while working capital amounted to \$159.7 million.

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. However, for the year ended December 31, 2008 as our revenues declined our change in inventories represented a use of cash. This was primarily due to increasing inventory related to new products and the acceleration of the slowdown in the semiconductor industry. Additionally, for the year ended December 31, 2009, as our revenue declined from \$131.0 million to \$78.7 million, our change in accounts receivables represented a use of cash. This was primarily due to increasing sales in the fourth quarter of 2009, offset by significantly lower sales in the fourth quarter of 2008.

Net cash and cash equivalents provided by operating activities for the years ended December 31, 2008 and 2010 totaled \$15.4 million and \$16.3 million, respectively. Net cash and cash equivalents used by operating activities for the year ended December 31, 2009 totaled \$12.1 million. During the year ended December 31, 2008, cash provided by operating activities was primarily due to a decrease in accounts receivable of \$31.3 million, net loss, adjusted to exclude the effect of non-cash charges, of \$2.2 million, partially offset by a decrease in accounts payable of \$5.6 million, an increase in income taxes receivable of \$4.2

million, an increase in inventories of \$4.3 million, a decrease in accrued liabilities of \$2.5 million and a decrease in deferred revenue of \$1.6 million. During the year ended December 31, 2009, cash used by operating activities was primarily due to net loss, adjusted to exclude the effect of non-cash charges, of \$11.7 million, an increase in accounts receivable of \$13.2 million, a decrease in other current liabilities of \$1.3 million and a decrease in accrued liabilities of \$1.2 million, partially offset by a decrease in inventories of \$6.9 million, an increase in accounts payable of \$3.2 million, an increase in non-current liabilities of \$2.0 million, an increase in deferred revenue of \$1.6 million and a decrease in income taxes receivable \$1.0 million. 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 \$24.1 million and an increase of inventories of \$5.6 million.

Net cash and cash equivalents used in investing activities for the years ended December 31, 2008 and 2010 totaled \$5.7 million and \$2.8 million, respectively. The net cash and cash equivalents provided by investing activities for the year ended December 31, 2009 totaled \$1.7 million. During the year ended December 31, 2008, net cash used by investing activities included purchases of marketable securities of \$15.5 million, acquisition costs for business combinations of \$8.5 million, capital expenditures of \$3.0 million, partially offset by proceeds from sales of marketable securities of \$21.3 million. During the year ended December 31, 2009, net cash provided by investing activities included proceeds from sales of marketable securities of \$19.4 million, partially offset by purchases of marketable securities of \$12.2 million, acquisition costs for a business combination of \$5.0 million and purchase of property, plant and equipment of \$0.6 million. 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, acquisition costs for business combinations of \$0.8 million, partially offset by proceeds from sales of marketable securities of \$10.3 million. Capital expenditures over the next twelve months are expected to be approximately \$3.0 million to \$5.0 million.

Net cash provided by financing activities was \$0.2 million, \$0.2 million and \$0.5 million in 2008, 2009 and 2010, respectively. In the 2008 and 2009 periods, net cash provided by financing activities was a result of proceeds received from sales of shares through share-based compensation plans. 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

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. As of the time of filing this Annual Report on Form 10-K, we have not purchased any shares under this program.

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.

Contractual Obligations

The following table summarizes our significant contractual obligations at December 31, 2010, 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 \$6.7 million at December 31, 2010. 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
Operating lease obligations	\$ 12,377	\$ 2,929	\$ 3,831	\$ 3,432	\$ 2,185
Open and committed purchase orders	21,994	21,994	—	—	—
Total	\$ 34,371	\$ 24,923	\$ 3,831	\$ 3,432	\$ 2,185

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 when there is persuasive evidence of an arrangement, delivery has occurred, the sales price is fixed or determinable, and collection of the related receivable is reasonably assured. Certain sales of our products are sold and accounted for as multiple element arrangements, consisting primarily of the sale of the product, software, installation and training services. We generally recognize product revenue upon shipment. In the limited circumstances where customer acceptance is subjective and not obtained prior to shipment, we defer product revenue until such time as positive affirmation of acceptance has been obtained from the customer. Customer acceptance is generally based on our products meeting published performance specifications. The amount of revenue allocated to the shipment of products is done on a residual method basis. Under this method, the total arrangement value is allocated first to undelivered contract elements, based on their fair values, with the remainder being allocated to product revenue. The fair value of installation and training services is based upon billable hourly rates and the estimated time to complete the service. Revenue related to undelivered installation services is deferred until such time as installation is completed at the customer's site. Revenue related to training services is recognized ratably over the training period. Revenue from software license fees is recognized upon shipment if collection of the resulting receivable is probable, the fee is fixed or determinable, and vendor-specific objective evidence exists to allocate a portion of the total fee to any undelivered elements of the arrangement. Such undelivered elements in these arrangements typically consist of follow-on support. If vendor-specific objective evidence does not exist for the undelivered elements of the arrangement, all revenue is deferred and recognized ratably over the support 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 write down 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 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 normally 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. 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 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 2010.

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, 2010, we had a valuation allowance of \$37.2 million on most of our deferred tax assets to reflect the deferred tax asset at the net amount that is more likely than not to be realized.

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.

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 2010, the FASB issued amended guidance related to Business Combinations. The amendments affect any public entity that enters into business combinations that are material on an individual or aggregate basis. The amendments specify that if a public entity presents comparative financial statements, the entity should disclose revenue and earnings of the combined entity as though the business combination(s) that occurred during the current year had occurred as of the beginning of the comparable prior annual reporting period only. The amendments also expand the supplemental pro forma disclosures to include a description of the nature and amount of material, nonrecurring pro forma adjustments directly attributable to the business combination included in the reported pro forma revenue and earnings. The amendments are effective prospectively for business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2010. Early adoption is permitted. We will assess the impact of these amendments on our consolidated financial position and results of operations if and when an acquisition occurs.

In December 2010, the FASB issued amended guidance related to Intangibles - Goodwill and Other. The amendments modify Step 1 of the goodwill impairment test for reporting units with zero or negative carrying amounts. For those reporting units, an entity is required to perform Step 2 of the goodwill impairment test if it is more likely than not that a goodwill impairment exists. In determining whether it is more likely than not that a goodwill impairment exists, an entity should consider whether there are any adverse qualitative factors indicating that an impairment may exist. The qualitative factors are consistent with the existing guidance and examples, which require that goodwill of a reporting unit be tested for impairment between annual tests if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. For public entities, the amendments are effective for fiscal years, and interim periods within those years, beginning after December 15, 2010. Early adoption is not permitted. We do not believe that this guidance will have a material impact on our consolidated financial position and results of operations.

In July 2010, the FASB issued ASU No. 2010-20, "Disclosures about the Credit Quality of Financing Receivables and the Allowance for Credit Losses (Topic 310)." ASU No. 2010-20 requires increased disclosures about the credit quality of financing receivables and allowances for credit losses, including disclosure about credit quality indicators, past due information and modifications of finance receivables. The guidance is generally effective for reporting periods ending after December 15, 2010. The adoption of ASU No. 2010-20 did not have a significant impact on our consolidated financial position and results of operations.

In April 2010, the FASB issued ASU No. 2010-17, "Revenue Recognition- Milestone Method (Topic 605)," which provides guidance on the criteria that should be met for determining whether the milestone method of revenue recognition is appropriate. This ASU is effective in fiscal years, and interim periods within those years, beginning on or after June 15, 2010. We do not expect the adoption of ASU No. 2010-17 to have a significant impact on our consolidated financial position and results of operations.

In April 2010, the FASB issued ASU No. 2010-13, "Compensation - Stock Compensation (Topic 718)," which provides guidance on the classification of a share-based payment award as either equity or a liability. A share-based payment award that contains a condition that is not a market, performance, or service condition is required to be classified as a liability. This ASU is effective for fiscal years, and interim periods within those fiscal years, beginning on or after December 15, 2010. We do not expect the adoption of ASU No. 2010-13 to have a significant impact on our consolidated financial position and results of operations.

In February 2010, the FASB issued ASU No. 2010-09, "Subsequent Events (Topic 855) - Amendments to Certain Disclosure Requirements." The objective of this ASU was to remove the requirement for an SEC filer to disclose a date through which subsequent events have been evaluated in both issued and revised financial statements. This ASU is to be applied immediately upon issuance. We have adopted this ASU in the first quarter of 2010 and the adoption of this ASU did not have an effect on our consolidated financial position and results of operations.

In January 2010, the FASB issued ASU No. 2010-06, "Fair Value Measurements and Disclosures (Topic 820) - Improving Disclosures about Fair Value Measurements." This ASU requires new disclosures regarding significant transfers in and out of Levels 1 and 2, and information about activity in Level 3 fair value measurements. In addition, this ASU clarifies existing disclosures regarding input and valuation techniques, as well as the level of disaggregation for each class of assets and liabilities. This ASU was effective for interim and annual reporting periods beginning after December 15, 2009, except for certain Level 3 activity disclosure requirements, which are effective for reporting periods beginning after December 15, 2010. We adopted the new guidance in the first quarter of 2010, except for the disclosures related to purchases, sales, issuance and settlements, which will be effective for us beginning in the first quarter of 2011. Because these new standards are related primarily to disclosures, their adoption has not had and is not expected to have a significant impact on our consolidated financial position and results of operations.

In October 2009, the Financial Accounting Standards Board ("FASB") issued Accounting Standard Update ("ASU")

No. 2009-14 on FASB Accounting Standards Codification (“ASC”) 985, “Software—Certain Revenue Arrangements That Include Software Elements—a consensus of the FASB Emerging Issues Task Force.” The objective of this ASU is to clarify which revenue allocation and measurement guidance should be used for arrangements that contain both tangible products and software, in cases where the software is more than incidental to the tangible product as a whole. More specifically, if the software sold with or embedded within the tangible product is essential to the functionality of the tangible product, then this software as well as undelivered software elements that relate to this software are excluded from the scope of existing software revenue guidance, which is expected to decrease the amount of revenue deferred in these cases. This ASU is to be applied prospectively for revenue arrangements entered into or materially modified in fiscal years beginning on or after June 15, 2010, which for us is the year 2011. Early adoption is permitted, but this ASU must be adopted in the same period as, and use the same transition method that is used for, the ASU described in the following paragraph. We do not expect the adoption of ASU No. 2009-14 to have a significant impact on our consolidated financial position and results of operations.

In October 2009, the FASB issued ASU No. 2009-13 on FASB ASC 605, “Revenue Recognition—Multiple Deliverable Revenue Arrangements—a consensus of the FASB Emerging Issues Task Force.” The objective of this ASU is to address the accounting for multiple-deliverable arrangements to enable vendors to account for products or services (deliverables) separately rather than as a combined unit. Vendors often provide multiple products or services to their customers. Those deliverables are often provided at different points in time or over different time periods. This ASU provides amendments to the criteria in FASB ASC 605-25 for separating consideration in multiple-deliverable arrangements. The amendments in this ASU establish a selling price hierarchy for determining the selling price of a deliverable. The selling price used for each deliverable will be based on vendor specific objective evidence if available, third-party evidence if vendor-specific objective evidence is not available, or estimated selling price if neither vendor specific objective evidence nor third-party evidence is available. The amendments in this ASU also will replace the term “fair value” in the revenue allocation guidance with “selling price” to clarify that the allocation of revenue is based on entity-specific assumptions rather than assumptions of a marketplace participant. This update is effective for fiscal years beginning on or after June 15, 2010. We are currently evaluating the impact, if any, of this new accounting update on our consolidated financial statements.

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 primarily from our investments in certain available-for-sale securities. Our available-for-sale securities consist of fixed and variable rate income investments (U.S. Treasury and Agency securities, asset-backed securities, mortgage-backed securities, auction rate securities and corporate bonds). 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, 2010, 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.

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, 2010 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, 2009 and 2010, we had four and twenty forward contracts outstanding, respectively. The total notional contract value of these outstanding forward contracts at December 31, 2009 and 2010 was \$1.0 million and \$2.2 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 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, 2010. 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, 2010 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, 2010.

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, 2010 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, 2010, 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, 2010 that have materially affected, or are reasonably likely to materially affect, its internal control over financial reporting.

Item 9B. Other Information.

None.

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 25, 2011, 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" 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" and "Compensation of Directors" 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" 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 4: Ratification of Appointment of Independent Registered Public Accountants" in the Proxy Statement, which is incorporated herein by reference.

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-7 of this report. The Reports of Independent Registered Public Accounting Firms 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 filed on December 21, 2007). |
| 3.1 | Restated Certificate of Incorporation of Registrant (incorporated by reference to Exhibit (3.1(b)) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86871 filed on September 9, 1999). |
| 3.2 | 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 August 1, 2007, 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, 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, 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, No. 000-30637). |
| 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. 333-86871), 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. 333-86871), filed on September 9, 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, as amended (SEC File No. 333-86871), filed on September 9, 1999). |

<u>Exhibit No.</u>	<u>Description</u>
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, as amended (SEC File No. 333-86871), 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), and 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).
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*	Registration Agreement, dated June 14, 1996 by and among the Registrant, 11, L.L.C., Riverside Rudolph, L.L.C., Dr. Richard F. Spanier, Paul F. McLaughlin (incorporated by reference to Exhibit (10.9) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86871), filed on September 9, 1999).
10.9*	Stockholders Agreement, dated June 14, 1996 by and among the Registrant, Administration of Florida, Liberty Partners Holdings 11, L.L.C., Riverside Rudolph, L.L.C., Dr. Richard F. Spanier, Paul McLaughlin, Dale Moorman, Thomas Cooper and (incorporated by reference to Exhibit (10.10) to the Registrant's Form S-1, as amended (SEC File No. 333-86871), filed on September 9, 1999).
10.10*	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).
10.11*	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 filed on June 21, 2005).
10.12	Form of Company Shareholder Voting Agreement (incorporated by reference to Exhibit 99.2 to the Registrant's Schedule 13D SEC File No. 005-58091) filed on July 7, 2005).
10.13*	Rudolph Technologies, Inc. 2009 Stock Plan (incorporated by reference to Appendix A of the Registrant's revised Proxy Statement on Form DEF14A, filed on May 8, 2009).
10.14*	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 DEF14A, filed on May 8, 2009).
10.15*	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).
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.

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

* Management contract, compensatory plan or arrangement.

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES
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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, 2010 and 2009, and the related consolidated statements of operations, stockholder's equity and comprehensive income (loss), and cash flows for each of the three years in the period ended December 31, 2010. Our audits also included the financial statement schedule listed in the index at Item 15. 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 from 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, 2010 and 2009, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2010, 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, 2010, 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 25, 2011 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Metropark, New Jersey
February 28, 2011

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, 2010, 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, 2010, 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, 2010 and 2009, and the related consolidated statements of operations, stockholders' equity and comprehensive income (loss), and cash flows for the three years in the period ended December 31, 2010 of Rudolph Technologies, Inc. and Subsidiaries and our report dated February 25, 2011 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Metropark, New Jersey
February 28, 2011

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

(In thousands, except per share data)

	December 31,	
	2009	2010
ASSETS		
Current Assets:		
Cash and cash equivalents	\$ 57,839	\$ 71,120
Marketable securities	3,080	629
Accounts receivable, less allowance of \$602 in 2009 and \$306 in 2010	35,312	59,758
Inventories	45,534	52,311
Income taxes receivable	3,501	1,141
Prepaid expenses and other current assets	1,125	1,570
Total current assets	146,391	186,529
Property, plant and equipment, net	12,841	13,677
Goodwill	3,282	4,492
Identifiable intangible assets, net	10,821	9,571
Capitalized software	1,237	895
Deferred income taxes	3,098	3,217
Other assets	533	672
Total assets	\$ 178,203	\$ 219,053
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 5,683	\$ 7,864
Accrued liabilities:		
Payroll and related expenses	3,163	4,651
Royalties	247	517
Warranty	700	1,654
Deferred revenue	6,877	8,662
Other current liabilities	2,940	3,436
Total current liabilities	19,610	26,784
Non-current liabilities	7,462	7,235
Total liabilities	27,072	34,019
Commitments and contingencies (Note 10)		
Stockholders' equity:		
Preferred stock, \$0.001 par value, 5,000 shares authorized, no shares issued and outstanding at December 31, 2009 and 2010	—	—
Common stock, \$0.001 par value, 50,000 shares authorized, 30,997 and 31,417 issued and outstanding at December 31, 2009 and 2010, respectively	31	31
Additional paid-in capital	387,486	393,456
Accumulated other comprehensive loss	(1,848)	(930)
Accumulated deficit	(234,538)	(207,523)
Total stockholders' equity	151,131	185,034
Total liabilities and stockholders' equity	\$ 178,203	\$ 219,053

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

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except per share data)

	Year Ended December 31,		
	2008	2009	2010
Revenues	\$ 131,040	\$ 78,657	\$ 195,305
Cost of revenues	87,388	49,805	91,405
Gross profit	43,652	28,852	103,900
Operating expenses:			
Research and development	31,644	25,991	33,387
Selling, general and administrative	36,512	32,703	38,173
Impairment charge for goodwill and identifiable intangible assets	227,105	—	—
Amortization	5,890	1,358	1,715
Total operating expenses	301,151	60,052	73,275
Operating income (loss)	(257,499)	(31,200)	30,625
Interest income	1,230	271	167
Other income (expense)	2,468	(938)	(255)
Income (loss) before provision (benefit) for income taxes	(253,801)	(31,867)	30,537
Provision (benefit) for income taxes	(4,115)	(2,239)	3,522
Net income (loss)	<u>\$ (249,686)</u>	<u>\$ (29,628)</u>	<u>\$ 27,015</u>
Earnings (loss) per share:			
Basic	\$ (8.16)	\$ (0.96)	\$ 0.86
Diluted	\$ (8.16)	\$ (0.96)	\$ 0.86
Weighted average number of shares outstanding:			
Basic	30,614	30,888	31,286
Diluted	30,614	30,888	31,492

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

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

**CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
AND COMPREHENSIVE INCOME (LOSS)**

For the years ended December 31, 2008, 2009 and 2010

(In thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Retained Earnings (Accumulated Deficit)	Total	Comprehensive Income (Loss)
	Shares	Amount					
Balance at December 31, 2007	30,480	\$ 30	\$ 379,886	\$ (214)	\$ 44,776	\$ 424,478	
Issuance of shares through share-based compensation plans	223	1	219	—	—	220	
Net loss	—	—	—	—	(249,686)	(249,686)	\$ (249,686)
Share-based compensation	—	—	3,405	—	—	3,405	
Currency translation	—	—	—	(2,198)	—	(2,198)	(2,198)
Unrealized loss on investments	—	—	—	(131)	—	(131)	(131)
Comprehensive loss							<u>\$ (252,015)</u>
Balance at December 31, 2008	30,703	31	383,510	(2,543)	(204,910)	176,088	
Issuance of shares through share-based compensation plans	294	—	217	—	—	217	
Net loss	—	—	—	—	(29,628)	(29,628)	\$ (29,628)
Share-based compensation	—	—	3,759	—	—	3,759	
Currency translation	—	—	—	786	—	786	786
Unrealized loss on investments	—	—	—	(91)	—	(91)	(91)
Comprehensive loss							<u>\$ (28,933)</u>
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	\$ 27,015
Share-based compensation	—	—	5,439	—	—	5,439	
Tax benefit for share-based compensation	—	—	242	—	—	242	
Currency translation	—	—	—	914	—	914	914
Unrealized gain on investments	—	—	—	4	—	4	4
Comprehensive income							<u>\$ 27,933</u>
Balance at December 31, 2010	<u>31,417</u>	<u>\$ 31</u>	<u>\$ 393,456</u>	<u>\$ (930)</u>	<u>\$ (207,523)</u>	<u>\$ 185,034</u>	

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

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands)

	Year Ended December 31,		
	2008	2009	2010
Cash flows from operating activities:			
Net income (loss)	\$ (249,686)	\$ (29,628)	\$ 27,015
Adjustments to reconcile net income (loss) to net cash and cash equivalents provided by operating activities:			
Impairment of goodwill and identifiable intangible assets	227,105	—	—
Amortization	7,243	1,895	2,069
Depreciation	4,500	6,751	3,706
Foreign currency exchange (gain) loss	(2,547)	937	255
Net loss on sale of marketable securities	79	1	—
Share-based compensation	3,405	3,759	5,439
Provision for (recovery of) doubtful accounts and inventory valuation	14,569	4,775	(1,188)
Deferred income taxes	(2,449)	(217)	(152)
Change in operating assets and liabilities excluding effects of business combinations:			
Accounts receivable	31,290	(13,196)	(24,115)
Income taxes receivable	(4,164)	969	2,300
Inventories	(4,287)	6,922	(5,577)
Prepaid expenses and other assets	815	592	574
Accounts payable	(5,571)	3,232	2,183
Accrued liabilities	(2,471)	(1,227)	2,671
Deferred revenue	(1,581)	1,619	948
Other current liabilities	(1,501)	(1,252)	802
Non-current liabilities	640	2,009	(608)
Net cash and cash equivalents provided by (used in) operating activities	<u>15,389</u>	<u>(12,059)</u>	<u>16,322</u>
Cash flows from investing activities:			
Purchases of marketable securities	(15,541)	(12,161)	(7,823)
Proceeds from sales of marketable securities	21,302	19,446	10,261
Purchases of property, plant and equipment	(2,966)	(587)	(4,363)
Capitalized software	(30)	—	—
Purchase of business, net of cash acquired	(8,474)	(5,011)	(849)
Net cash and cash equivalents provided by (used in) investing activities	<u>(5,709)</u>	<u>1,687</u>	<u>(2,774)</u>
Cash flows from financing activities:			
Issuance of shares through share-based compensation plans	220	217	289
Tax benefit for sale of shares through share-based compensation plans	—	—	242
Net cash and cash equivalents provided by financing activities	<u>220</u>	<u>217</u>	<u>531</u>
Effect of exchange rate changes on cash and cash equivalents	415	259	(798)
Net increase (decrease) in cash and cash equivalents	10,315	(9,896)	13,281
Cash and cash equivalents at beginning of year	57,420	67,735	57,839
Cash and cash equivalents at end of year	<u>\$ 67,735</u>	<u>\$ 57,839</u>	<u>\$ 71,120</u>
Supplemental disclosure of cash flow information:			
Net cash paid (received) during the year for:			
Income taxes	\$ 1,945	\$ (3,062)	\$ 916

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

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

1. Organization and Nature of Operations:

Rudolph Technologies, Inc. (the “Company”) designs, develops, manufactures and supports high-performance process control equipment 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 and Minnesota. The Company operates in a single segment and supports a wide variety of applications in the areas of macro-defect detection and classification, diffusion, etch, lithography, CVD, PVD and CMP.

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 upon shipment provided that there is persuasive evidence of an arrangement, delivery has occurred, the sales price is fixed or determinable, and collection of the related receivable is reasonably assured. Certain sales of the Company’s products are sold and accounted for as multiple element arrangements, consisting primarily of the sale of the product, software, installation and training services. The Company generally recognizes product revenue upon shipment. In the limited circumstances where customer acceptance is subjective and not obtained prior to shipment, the Company defers product revenue until such time as positive affirmation of acceptance has been obtained from the customer. Customer acceptance is generally based on the Company’s products meeting published performance specifications. The amount of revenue allocated to the shipment of products is done on a residual method basis. Under this method, the total arrangement value is allocated first to undelivered contract elements, based on their fair values, with the remainder being allocated to product revenue. The fair value of installation, training and other services is based upon billable hourly rates and the estimated time to complete the service. Revenue related to undelivered installation services is deferred until such time as installation is completed at the customer’s site. Revenue related to training services is recognized ratably over the training period. Revenue from software license fees is recognized upon shipment if collection of the resulting receivable is probable, the fee is fixed or determinable, and vendor-specific objective evidence exists to allocate a portion of the total fee to any undelivered elements of the arrangement. If vendor specific objective evidence does not exist for the undelivered elements of an arrangement that includes software, all revenue is deferred and recognized ratably over the period required to deliver the remaining elements.

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

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 deferred tax assets, liabilities for product warranty, accruals for manufacturing consolidation, contingencies 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:

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

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 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 Other 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 our industry to estimate the implied control premium for the Company. 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, 2010. No impairments were noted.

For additional information on the Company's goodwill and other intangible assets, see Note 8 of Notes to the Consolidated

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

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. Additionally, taxes are separated into current and non-current amounts based on the classification of the related amounts for financial reporting purposes. 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 at 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 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 14 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 \$1,610 and \$696 as of December 31, 2009 and 2010, 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

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

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 12 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, 2009 and 2010, capitalized software development costs were \$1,237 and \$895, respectively. During the years ended December 31, 2008, 2009 and 2010, software development cost amortization totaled \$689, \$537 and \$354, respectively. During 2008, the Company recorded write-downs of capitalized software of \$664, in research and development expenses in the Consolidated Statement of Operations.

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.

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, 2009 and 2010, these contracts included the future sale of Japanese Yen to purchase U.S. dollars. The foreign currency forward contracts were entered into by our 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, 2009 and 2010 were as follows:

	December 31,	
	2009	2010
Notional amount	\$ 1,042	\$ 2,247
Fair value of liability	\$ 3	\$ 163

The Company recognized a loss of \$720, \$116, and \$93 with respect to forward contracts which matured during 2008, 2009 and 2010, respectively. The aggregate notional amount of these contracts was \$6,964, \$2,469 and \$1,200, for 2008, 2009 and 2010, respectively.

S. Recent Accounting Pronouncements:

In December 2010, the FASB issued amended guidance related to Business Combinations. The amendments affect any public entity that enters into business combinations that are material on an individual or aggregate basis. The amendments specify that if a public entity presents comparative financial statements, the entity should disclose revenue and earnings of the combined entity as though the business combination(s) that occurred during the current year had occurred as of the beginning of the comparable prior annual reporting period only. The amendments also expand the supplemental pro forma disclosures to include a description of the nature and amount of material, nonrecurring pro forma adjustments directly attributable to the business combination included in the reported pro forma revenue and earnings. The amendments are effective prospectively for business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2010. Early

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

adoption is permitted. The Company will assess the impact of these amendments on its consolidated financial position and results of operations if and when an acquisition occurs.

In December 2010, the FASB issued amended guidance related to Intangibles - Goodwill and Other. The amendments modify Step 1 of the goodwill impairment test for reporting units with zero or negative carrying amounts. For those reporting units, an entity is required to perform Step 2 of the goodwill impairment test if it is more likely than not that a goodwill impairment exists. In determining whether it is more likely than not that a goodwill impairment exists, an entity should consider whether there are any adverse qualitative factors indicating that an impairment may exist. The qualitative factors are consistent with the existing guidance and examples, which require that goodwill of a reporting unit be tested for impairment between annual tests if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. For public entities, the amendments are effective for fiscal years, and interim periods within those years, beginning after December 15, 2010. Early adoption is not permitted. The Company does not believe that this guidance will have a material impact on its consolidated financial position and results of operations.

In July 2010, the FASB issued ASU No. 2010-20, "Disclosures about the Credit Quality of Financing Receivables and the Allowance for Credit Losses (Topic 310)." ASU No. 2010-20 requires increased disclosures about the credit quality of financing receivables and allowances for credit losses, including disclosure about credit quality indicators, past due information and modifications of finance receivables. The guidance is generally effective for reporting periods ending after December 15, 2010. The adoption of ASU No. 2010-20 did not have a significant impact on the Company's consolidated financial position and results of operations.

In April 2010, the FASB issued ASU No. 2010-17, "Revenue Recognition- Milestone Method (Topic 605)," which provides guidance on the criteria that should be met for determining whether the milestone method of revenue recognition is appropriate. This ASU is effective in fiscal years, and interim periods within those years, beginning on or after June 15, 2010. We do not expect the adoption of ASU No. 2010-17 to have a significant impact on the Company's consolidated financial position and results of operations.

In April 2010, the FASB issued ASU No. 2010-13, "Compensation - Stock Compensation (Topic 718)," which provides guidance on the classification of a share-based payment award as either equity or a liability. A share-based payment award that contains a condition that is not a market, performance, or service condition is required to be classified as a liability. This ASU is effective for fiscal years, and interim periods within those fiscal years, beginning on or after December 15, 2010. The Company does not expect the adoption of ASU No. 2010-13 to have a significant impact on the Company's consolidated financial position and results of operations.

In February 2010, the FASB issued ASU No. 2010-09, "Subsequent Events (Topic 855) - Amendments to Certain Disclosure Requirements." The objective of this ASU was to remove the requirement for an SEC filer to disclose a date through which subsequent events have been evaluated in both issued and revised financial statements. This ASU is to be applied immediately upon issuance. The Company adopted this ASU in the first quarter of 2010 and the adoption of this ASU did not have an effect on the Company's consolidated financial position and results of operations.

In January 2010, the FASB issued ASU No. 2010-06, "Fair Value Measurements and Disclosures (Topic 820) - Improving Disclosures about Fair Value Measurements." This ASU requires new disclosures regarding significant transfers in and out of Levels 1 and 2, and information about activity in Level 3 fair value measurements. In addition, this ASU clarifies existing disclosures regarding input and valuation techniques, as well as the level of disaggregation for each class of assets and liabilities. This ASU was effective for interim and annual reporting periods beginning after December 15, 2009, except for certain Level 3 activity disclosure requirements, which are effective for reporting periods beginning after December 15, 2010. The Company adopted the new guidance in the first quarter of 2010, except for the disclosures related to purchases, sales, issuance and settlements, which will be effective for the Company beginning in the first quarter of 2011. Because these new standards are related primarily to disclosures, their adoption has not had and is not expected to have a significant impact on the Company's consolidated financial position and results of operations.

In October 2009, the Financial Accounting Standards Board ("FASB") issued Accounting Standard Update ("ASU") No. 2009-14 on FASB Accounting Standards Codification ("ASC 985"), "Software—Certain Revenue Arrangements That Include Software Elements—a consensus of the FASB Emerging Issues Task Force." The objective of this ASU is to clarify which revenue allocation and measurement guidance should be used for arrangements that contain both tangible products and software, in cases where the software is more than incidental to the tangible product as a whole. More specifically, if the software sold with or embedded within the tangible product is essential to the functionality of the tangible product, then this software as well as undelivered software elements that relate to this software are excluded from the scope of existing software revenue guidance, which is expected to decrease the amount of revenue deferred in these cases. This ASU is to be applied prospectively for revenue arrangements

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entered into or materially modified in fiscal years beginning on or after June 15, 2010, which for the Company is its fiscal year 2011. Early adoption is permitted, but this ASU must be adopted in the same period as, and use the same transition method that is used for, the ASU described in the following paragraph. The Company does not expect the adoption of ASU No. 2009-14 to have a significant impact on the Company's consolidated financial position and results of operations.

In October 2009, the FASB issued ASU No. 2009-13 on FASB ASC 605, "Revenue Recognition—Multiple Deliverable Revenue Arrangements—a consensus of the FASB Emerging Issues Task Force." The objective of this ASU is to address the accounting for multiple-deliverable arrangements to enable vendors to account for products or services (deliverables) separately rather than as a combined unit. Vendors often provide multiple products or services to their customers. Those deliverables are often provided at different points in time or over different time periods. This ASU provides amendments to the criteria in FASB Accounting Standards Codification ("ASC") 605-25 for separating consideration in multiple-deliverable arrangements. The amendments in this ASU establish a selling price hierarchy for determining the selling price of a deliverable. The selling price used for each deliverable will be based on vendor specific objective evidence if available, third-party evidence if vendor-specific objective evidence is not available, or estimated selling price if neither vendor specific objective evidence nor third-party evidence is available. The amendments in this ASU also will replace the term "fair value" in the revenue allocation guidance with "selling price" to clarify that the allocation of revenue is based on entity-specific assumptions rather than assumptions of a marketplace participant. This update is effective for fiscal years beginning on or after June 15, 2010. The Company is currently evaluating the impact, if any, of this new accounting update on its consolidated financial statements.

3. Business Combinations:

RVSI Inspection

On January 22, 2008, the Company announced that it had acquired all intellectual property and selected assets from privately-held RVSI Inspection, LLC, headquartered in Hauppauge, New York. The acquired business is currently known as the Rudolph Technologies Wafers Scanner Product Group. The impact of the acquisition was not material to the Company's consolidated financial position or results of operations.

Adventa

On August 3, 2009, the Company announced that it had acquired Adventa Control Technologies, Inc. ("Adventa"), headquartered in Plano, Texas. The acquired business is currently known as the Rudolph Technologies Process Control Group. The impact of the acquisition was not material to the Company's consolidated financial position or results of operations.

Yield Dynamics

On August 11, 2010, the Company announced that it had acquired selected assets of the Yield Dynamics software business from MKS Instruments, headquartered in Andover, Massachusetts. The acquired business has been integrated into our Data Analysis and Review group product offerings. The impact of the acquisition was not material to the Company's consolidated financial position or results of operations.

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 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 as of December 31, 2009 and December 31, 2010:

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	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, 2009				
Available-for-sale debt securities:				
U.S. Treasury notes	\$ 212	\$ 212	\$ —	\$ —
Auction rate securities	248	—	—	248
Municipal bonds	2,620	—	2,620	—
Total available-for-sale debt securities	3,080	212	2,620	248
Derivatives:				
Foreign currency forward contracts	(3)	(3)	—	—
Total derivatives	(3)	(3)	—	—
Total	\$ 3,077	\$ 209	\$ 2,620	\$ 248
December 31, 2010				
Available-for-sale debt securities:				
U.S. Treasury notes	\$ 362	\$ 362	\$ —	\$ —
Auction rate securities	267	—	—	267
Total available-for-sale debt securities	629	362	—	267
Derivatives:				
Foreign currency forward contracts	(163)	(163)	—	—
Total derivatives	(163)	(163)	—	—
Total	\$ 466	\$ 199	\$ —	\$ 267

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

Level 2 investments 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. These investments, which are held by a custodian, include: municipal bonds and government-sponsored enterprise securities. Investment prices are obtained from third party pricing providers, which models prices utilizing the above observable inputs, for each asset class.

Level 3 investments consist of auction rate securities for which the Company uses a discounted cash flow model to value these investments. 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, 2010:

	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)
Balance at December 31, 2009	\$ 248
Unrealized gains in accumulated other comprehensive loss	19
Purchases, issuances, and settlements, net	—
Transfers into (out of) Level 3	—
Balance at December 31, 2010	\$ 267

The carrying value of other financial instruments, including cash and cash equivalents, accounts receivable, accounts payable, and accrued liabilities approximate fair value due to their short maturities.

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

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 income (expense)." Net realized losses of \$79, \$1 and \$0 were included in the Consolidated Statement of Operations for 2008, 2009 and 2010, respectively. 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, 2010, the Company held one auction-rate security with a fair value of \$267. 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, 2010, the Company has recorded a cumulative temporary unrealized impairment loss of \$233 within "Accumulated other comprehensive loss" based upon its assessment of the fair value of these securities. The Company believes that this impairment is temporary as it does not intend to sell these securities, the Company will not be required to sell these securities 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, 2009 and 2010 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, 2009 and 2010, marketable securities are categorized as follows:

	<u>Amortized Cost</u>	<u>Gross Unrealized Holding Gains</u>	<u>Gross Unrealized Holding Losses</u>	<u>Fair Value</u>
December 31, 2009				
Treasury notes and obligations of agencies	\$ 2,819	\$ 13	\$ —	\$ 2,832
Tax-free auction rate securities	500	—	(252)	248
Total marketable securities	<u>\$ 3,319</u>	<u>\$ 13</u>	<u>\$ (252)</u>	<u>\$ 3,080</u>
December 31, 2010				
Treasury notes and obligations of agencies	\$ 359	\$ 3	\$ —	\$ 362
Tax-free auction rate securities	500	—	(233)	267
Total marketable securities	<u>\$ 859</u>	<u>\$ 3</u>	<u>\$ (233)</u>	<u>\$ 629</u>

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, 2009 and 2010:

	<u>December 31, 2009</u>		<u>December 31, 2010</u>	
	<u>Amortized Cost</u>	<u>Fair Value</u>	<u>Amortized Cost</u>	<u>Fair Value</u>
Due within one year	\$ 2,452	\$ 2,456	\$ 359	\$ 362
Due after one through five years	367	376	—	—
Due after five through ten years	—	—	—	—
Due after ten years	500	248	500	267
Total marketable securities	<u>\$ 3,319</u>	<u>\$ 3,080</u>	<u>\$ 859</u>	<u>\$ 629</u>

The following table summarizes the estimated fair value and gross unrealized holding losses of marketable securities,

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aggregated by investment instrument and period of time in an unrealized loss position at December 31, 2009 and 2010. No amounts have been in an unrealized loss position for less than 12 months.

	In Unrealized Loss Position For Greater Than 12 Months	
	Fair Value	Gross Unrealized Losses
December 31, 2009		
Tax-free auction rate securities	248	(252)
Total marketable securities	<u>\$ 248</u>	<u>\$ (252)</u>
December 31, 2010		
Tax-free auction rate securities	267	(233)
Total marketable securities	<u>\$ 267</u>	<u>\$ (233)</u>

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

6. Inventories:

Inventories are comprised of the following:

	December 31,	
	2009	2010
Materials	\$ 19,343	\$ 25,579
Work-in-process	14,577	13,480
Finished goods	11,614	13,252
Total inventories	<u>\$ 45,534</u>	<u>\$ 52,311</u>

The Company has established reserves of \$9,474 and \$7,536 at December 31, 2009 and 2010, respectively, for slow moving and obsolete inventory. During 2009, the Company recorded a charge in cost of revenues of \$4,832 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 2009, the Company disposed of \$6,989 of inventory. During 2010, the Company recorded a recovery of cost of revenues of \$1,046 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 2010, the Company disposed of \$892 of inventory.

7. Property, Plant and Equipment:

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

	December 31,	
	2009	2010
Land and building	\$ 4,927	\$ 4,997
Machinery and equipment	13,382	15,547
Furniture and fixtures	2,730	2,944
Computer equipment	6,089	6,375
Leasehold improvements	6,102	6,314
	<u>33,230</u>	<u>36,177</u>
Accumulated depreciation	(20,389)	(22,500)
Total property, plant and equipment, net	<u>\$ 12,841</u>	<u>\$ 13,677</u>

Depreciation expense amounted to \$4,500, \$6,751 and \$3,706 for the years ended December 31, 2008, 2009, and 2010,

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respectively.

8. Identifiable Intangible Assets and Goodwill:

Identifiable Intangible Assets

Identifiable intangible assets as of December 31, 2009 and 2010 are as follows:

	<u>Gross Carrying Amount</u>	<u>Accumulated Amortization</u>	<u>Net</u>
December 31, 2009			
Developed technology	\$ 53,390	\$ 45,153	\$ 8,237
Customer and distributor relationships	7,436	6,674	762
Trade names	4,342	2,520	1,822
Total identifiable intangible assets	<u>\$ 65,168</u>	<u>\$ 54,347</u>	<u>\$ 10,821</u>
December 31, 2010			
Developed technology	\$ 53,826	\$ 46,484	\$ 7,342
Customer and distributor relationships	7,446	6,789	657
Trade names	4,361	2,789	1,572
Total identifiable intangible assets	<u>\$ 65,633</u>	<u>\$ 56,062</u>	<u>\$ 9,571</u>

Intangible asset amortization expense amounted to \$5,890, \$1,358 and \$1,715 for the years ended December 31, 2008, 2009 and 2010, respectively. Assuming no change in the gross carrying value of identifiable intangible assets and estimated lives, estimated amortization expense amounts to \$1,757 for 2011, \$1,664 for 2012, \$1,664 for 2013, \$1,405 for 2014, and \$1,033 for 2015.

Goodwill

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

Balance at December 31, 2008	\$ —
Adventa acquisition	3,282
Balance at December 31, 2009	<u>3,282</u>
YDI acquisition	1,210
Balance at December 31, 2010	<u>\$ 4,492</u>

Goodwill and Identifiable Intangible Assets Impairment

During October 2008, the Company experienced a significant decline in its stock price. As a result of the decline in stock price, the Company's market capitalization plus an implied control premium fell significantly below the recorded value of its consolidated net assets as of October 31, 2008. In performing the goodwill impairment test, the Company used current market capitalization, control premiums, discounted cash flows and other factors as the best evidence of fair value. The impairment test resulted in no value attributable to the Company's goodwill and accordingly, the Company wrote off all of its \$192.9 million of goodwill as of October 31, 2008.

In connection with the goodwill impairment test as of October 31, 2008, the Company determined that its identifiable acquired intangible assets were impaired. The determination was based on the carrying values exceeding the future undiscounted cash flows and fair value attributable to such intangible assets. As a result, the Company recorded an impairment charge of \$34.2 million, which represents the difference between the estimated fair values of these long-lived assets as compared to their carrying values. Fair values were determined based upon market conditions, the relief from royalty approach which utilized cash flow projections, and other factors.

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9. Non-current liabilities

	December 31,	
	2009	2010
Unrecognized tax benefits (including interest)	\$ 4,472	\$ 4,831
Other	2,990	2,404
Total non-current liabilities	\$ 7,462	\$ 7,235

10. 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,		
	2008	2009	2010
Balance, beginning of the year	\$ 2,365	\$ 1,813	\$ 700
Accruals	1,868	894	2,363
Warranty liability assumed in acquisition	215	—	—
Usage	(2,635)	(2,007)	(1,409)
Balance, end of the year	\$ 1,813	\$ 700	\$ 1,654

Legal Matters

From time to time the Company is subject to legal proceedings and claims in the ordinary course of business. In December 2007, Rudolph completed its acquisition of specific assets and liabilities of the semiconductor division of Applied Precision LLC ("Applied"). As a result of the acquisition, Rudolph assumed certain liabilities of Applied including a lawsuit filed by Integrated Technology Corporation ("ITC") against Applied alleging infringement on two of ITC's patents. While this litigation is currently ongoing, Rudolph believes that it has meritorious defenses and is vigorously defending the action. In the event that Rudolph is ultimately found liable, damage estimates related to this case, which have not been accrued for as of December 31, 2010, range from approximately \$25 to \$9,000, depending on multiple factors presented by the parties.

Lease Agreements

The Company rents space for its manufacturing and service operations and sales offices, which expire through 2018. Total rent expense for these facilities amounted to \$2,821, \$2,720 and \$2,916 for the years ended December 31, 2008, 2009 and 2010, respectively.

The Company also leases certain equipment pursuant to operating leases, which expire through 2014. Rent expense related

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to these leases amounted to \$148, \$122 and \$118 for the years ended December 31, 2008, 2009 and 2010, respectively.

Total future minimum lease payments under noncancelable operating leases as of December 31, 2010 amounted to \$2,929 for 2011, \$2,162 for 2012, \$1,668 for 2013, \$1,701 for 2014, \$1,730 for 2015 and \$2,185 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 \$838, \$279 and \$871 for the years ended December 31, 2008, 2009 and 2010, respectively.

Open and Committed Purchase Orders

The Company has open and committed purchase orders of \$21,994 as of December 31, 2010.

11. 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.

12. 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 1999 Stock Plan (the “1999 Plan”) effective August 31, 1999. The 1999 Plan provided for the grant of 2,000 stock options and stock purchase rights, subject to annual increases, 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. Options granted under the 1999 Plan typically grade vested over a five-year period and expired ten years from the date of grant. Restricted stock units granted under the 1999 Plan typically vested over a five-year period for employees and one year for directors. Restricted stock units granted to employees had time based vesting or performance and time based vesting. In the fourth quarter of 2009, the 1999 Plan expired and as of December 31, 2009 and 2010, there were no shares of common stock reserved for future grants under the 1999 Plan, respectively.

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. As the 1999 Plan expired in the fourth quarter of 2009, shares of common stock available for future grants of 753 from the 1999 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, 2010, there were 3,561 shares of common stock reserved for future grants under the 2009 Plan.

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

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	Year Ended December 31,		
	2008	2009	2010
Share-based compensation expense:			
Stock options	\$ 508	\$ 453	\$ 618
Restricted stock units	2,897	3,306	4,821
Total share-based compensation	3,405	3,759	5,439
Tax effect on share-based compensation	1,396	1,541	2,230
Net effect on net income	<u>\$ 2,009</u>	<u>\$ 2,218</u>	<u>\$ 3,209</u>
Tax effect on:			
Cash flows from financing activities	\$ —	\$ —	\$ 242
Effect on earnings per share—basic	\$ (0.07)	\$ (0.07)	\$ (0.10)
Effect on earnings per share—diluted	\$ (0.07)	\$ (0.07)	\$ (0.10)

Valuation Assumptions for Stock Options

For the year ended December 31, 2009, there were 397 stock options granted. For the year ended December 31, 2010, there were 10 stock options granted. The fair value of each option was estimated on the date of grant using the Black-Scholes option-pricing model with the following assumptions:

	Year Ended December 31,	
	2009	2010
Expected life (years)	4.9	5.0
Expected volatility	82.0 %	85.5 %
Expected dividend yield	0.0 %	0.0 %
Risk-free interest rate	2.0 %	2.1 %
Weighted average fair value per option	\$ 4.50	\$ 5.07

Stock Option Activity

A summary of the Company's stock option activity with respect to the years ended December 31, 2008, 2009 and 2010 follows:

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	Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Outstanding at December 31, 2007	2,755	\$ 21.27		
Granted	—	—		
Exercised	(11)	1.95		
Expired	(425)	22.52		
Forfeited	(12)	15.96		
Outstanding at December 31, 2008	2,307	21.16		
Granted	397	6.88		
Exercised	(14)	3.07		
Expired	(485)	16.68		
Forfeited	(17)	11.96		
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	3.5	\$ 532
Vested or expected to vest at December 31, 2010	1,935	\$ 19.24	3.4	\$ 511
Exercisable at December 31, 2010	1,652	\$ 21.36	2.6	\$ 114

The total intrinsic value of the stock options exercised during 2008, 2009 and 2010 was \$87, \$41 and \$68, respectively.

The options outstanding and exercisable at December 31, 2010 were in the following exercise price ranges:

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Shares	Weighted Average Remaining Contractual Life (years)	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
\$6.80 - \$7.86	399	8.7	\$ 6.90	102	\$ 7.11
\$10.00 - \$15.38	396	3.3	\$ 13.33	395	\$ 13.33
\$15.48 - \$20.41	420	2.6	\$ 16.83	420	\$ 16.83
\$20.60 - \$26.20	454	2.0	\$ 24.12	454	\$ 24.12
\$28.06 - \$50.30	281	0.1	\$ 40.11	281	\$ 40.11
\$ 6.80 - \$50.30	1,950	3.5	\$ 19.14	1,652	\$ 21.36

As of December 31, 2010, there was \$997 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 2.6 years.

Restricted Stock Unit Activity

A summary of the Company's restricted stock unit activity with respect to the years ended December 31, 2008, 2009 and 2010 follows:

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2007	680	\$ 16.08
Granted	334	\$ 7.53
Vested	(185)	\$ 14.77
Forfeited	(100)	\$ 14.60
Nonvested at December 31, 2008	729	\$ 12.70
Granted	919	\$ 4.86
Vested	(237)	\$ 11.48
Forfeited	(39)	\$ 10.40
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	<u>1,455</u>	\$ 7.28

As of December 31, 2010, there was \$6,215 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 2009. 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 ASC 718. No stock-based compensation expense for the ESPP was recorded for the years ended December 31, 2008, 2009 and 2010. As of December 31, 2009 and 2010, there were 300 and 280 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. The Company temporarily suspended its matching contributions to the plan for the six months ended December 31, 2009. The Company reinstated the matching contributions to the plan effective January 1, 2010. Company matching contributions to the plan totaled \$899, \$340 and \$817 for the years ended December 31, 2008, 2009 and 2010, 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, 2008, 2009 and 2010.

13. Other Income (Expense):

	Year Ended December 31,		
	2008	2009	2010
Foreign currency exchange gains (losses), net	\$ 2,547	\$ (937)	\$ (255)
Realized gains (losses) on sales of marketable securities, net	(79)	(1)	—
Total other income (expense)	<u>\$ 2,468</u>	<u>\$ (938)</u>	<u>\$ (255)</u>

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

14. Income Taxes:

The components of income tax expense are as follows:

	Year Ended December 31,		
	2008	2009	2010
Current:			
Federal	\$ (3,985)	\$ (2,640)	\$ 743
State	11	(46)	124
Foreign	2,308	230	2,807
	<u>(1,666)</u>	<u>(2,456)</u>	<u>3,674</u>
Deferred:			
Federal	(3,155)	157	—
State	572	37	(167)
Foreign	134	23	15
	<u>(2,449)</u>	<u>217</u>	<u>(152)</u>
Total income tax expense (benefit)	<u>\$ (4,115)</u>	<u>\$ (2,239)</u>	<u>\$ 3,522</u>

Income (loss) before income tax of \$(263,081) and \$9,280 was generated by domestic and foreign operations, respectively, in 2008. Income (loss) before income tax of \$(32,123) and \$256 was generated by domestic and foreign operations, respectively, in 2009. Income before income tax of \$16,284 and \$14,253 was generated by domestic and foreign operations, respectively, in 2010.

Deferred tax assets and liabilities are comprised of the following:

	December 31,	
	2009	2010
Research and development credit carryforward	\$ 7,445	\$ 7,367
Reserves and accruals not currently deductible	1,493	1,729
Deferred revenue	1,015	2,395
Domestic net operating loss carryforwards	7,393	985
Depreciation	759	471
Capital losses	497	73
Foreign net operating loss and credit carryforwards	3,935	4,933
Intangibles	17,379	15,753
Tax deductible transaction costs	601	534
Share-based compensation	114	1,706
Inventory obsolescence reserve	5,098	4,049
Other	668	491
Gross deferred tax assets	<u>46,397</u>	<u>40,486</u>
Valuation allowance for deferred tax assets	<u>(43,267)</u>	<u>(37,239)</u>
Deferred tax assets after valuation allowance	<u>3,130</u>	<u>3,247</u>
Gross deferred tax liabilities	<u>(32)</u>	<u>(30)</u>
Net deferred tax assets	<u>\$ 3,098</u>	<u>\$ 3,217</u>

At December 31, 2009 and 2010, we had valuation allowances of \$43,267 and \$37,239 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 \$6,028 is primarily due to utilization of domestic net operating loss carry forwards. Valuation allowances have been recorded

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

on substantially all of the Company's deferred tax assets as of December 31, 2009 and 2010, except for \$3,094 and \$3,217 of research and development credits which are reserved for in the Company's provision for uncertain tax positions and \$4 and \$0 for alternative minimum tax credits, as the Company has incurred cumulative losses. The Company computes cumulative losses for these purposes by adjusting pretax results for permanent items.

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, 2008, 2009 and 2010 to income before provision for income taxes as follows:

	Year Ended December 31,		
	2008	2009	2010
Federal income tax provision at statutory rate	\$ (88,830)	\$ (11,154)	\$ 10,687
State taxes, net of federal effect	(1,789)	(904)	468
Non-deductible goodwill impairment charges	50,440	—	—
Foreign taxes net of federal effect	1,342	525	—
Domestic manufacturing benefit	—	—	(573)
Change in valuation allowance for deferred tax assets	35,196	8,312	(6,553)
True up of prior year benefit	(45)	580	(414)
Other	(429)	402	(93)
Provision (benefit) for income taxes	<u>\$ (4,115)</u>	<u>\$ (2,239)</u>	<u>\$ 3,522</u>
Effective tax rate	<u>2%</u>	<u>7%</u>	<u>12%</u>

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.

At December 31, 2010, the Company had federal, state and foreign net operating loss carryforwards of \$0, \$15,147 and \$1,696, respectively. The net operating loss carryforwards expire on various dates through December 31, 2029. Utilization of the net operating loss carry forwards may be subject to an annual limitation in the event of a change in ownership in future years as defined by Section 382 of the Internal Revenue Code and similar state provisions. At December 31, 2010, the Company had federal and state research & development credits and foreign tax credit carryforwards of \$5,553, \$2,860 and \$4,205, respectively. The federal research & development credits are set to expire at various dates through December 31, 2030. 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, 2017.

A provision has not been made at December 31, 2010 for U.S. or additional foreign withholding taxes on approximately \$1,142 of undistributed earnings of our foreign subsidiary in Europe because it is the present intention of management to permanently reinvest these undistributed 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,		
	2008	2009	2010
Unrecognized tax benefits, opening balance	\$ 5,875	\$ 5,967	\$ 5,531
Gross increases—tax positions in prior period	700	(71)	982
Gross increases—current-period tax positions	225	68	211
Lapse of statute of limitations	(833)	(433)	—
Unrecognized tax benefits, ending balance	<u>\$ 5,967</u>	<u>\$ 5,531</u>	<u>\$ 6,724</u>

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

Included in the balance of unrecognized tax benefits at December 31, 2009 and 2010 are unrecognized tax benefits of \$5,531 and \$6,724, of which \$4,392 and \$4,731, would be reflected as an adjustment to income tax expense if recognized, respectively. It is expected that the amount of unrecognized tax benefits will change in the next 12 months; however, we do not expect the change to 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, 2008, 2009 and 2010, the Company recognized approximately \$37, \$16 and \$27 in interest and penalties expense associated with uncertain tax positions, respectively. As of December 31, 2009 and 2010, the Company had accrued interest and penalties expense related to unrecognized tax benefits of \$170 and \$214, respectively.

The Company is subject to U.S. federal income tax as well as income tax in multiple state and foreign jurisdictions. Presently, the Company has not been contacted by the Internal Revenue Service for examination of income tax returns for open periods, December 31, 2007 through December 31, 2009. In 2010, the State of New Jersey and the State of Minnesota closed their audits for the years 2005 through 2007 without any material adjustments. 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, 2005.

15. Manufacturing Consolidation:

Budd Lake, New Jersey, Facility

As a result of the decline in the semiconductor capital equipment industry between 2008 and 2009 and its effect on the Company's Metrology operations, the Company recorded restructuring and asset write-down charges in the three months ended December 31, 2009. The cumulative restructuring and write-down charges through the period ended December 31, 2010 are as follows: 1) \$4,500 for asset write-downs, which includes inventory and fixed assets related to discontinued older product lines which the Company believes will not be competitive as the industry recovers; 2) \$1,845 for unused and excess rental space that has developed as the Company's Metrology operations have declined over time; and 3) \$425 for employee termination costs related to moving the manufacturing of the Company's metrology products from its facility in Budd Lake, NJ to its facility in Bloomington, MN. These charges, which total \$6,838, were recorded in Cost of revenues and Selling, general and administrative expenses for \$3,048 and \$3,722, respectively.

The following table sets forth changes in the Company's reserve as of December 31, 2010.

	Year Ended December 31, 2010			
	Balance at December 31, 2009	Charged to Costs and Expenses	Payments and Other	Balance at December 31, 2010
Employee termination	\$ 159	\$ 266	\$ (425)	\$ —
Excess rental space	1,949	—	(403)	1,546
Total	<u>\$ 2,108</u>	<u>\$ 266</u>	<u>\$ (828)</u>	<u>\$ 1,546</u>

16. Segment Reporting and Geographic Information:

The Company reports 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, and manufacture of high-performance control metrology, defect inspection and data analysis systems used by semiconductor device manufacturers. The Company and its subsidiaries currently operate in a single reportable segment: the design, development, manufacture, sale and service of process control systems used in semiconductor device manufacturing. 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:

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

	Year Ended December 31,					
	2008		2009		2010	
Systems:						
Inspection	\$ 73,465	56%	\$ 38,027	48%	\$105,904	54%
Metrology	21,118	16%	8,921	11%	39,428	20%
Data Analysis and Review	4,410	3%	6,691	9%	19,417	10%
Parts	20,801	16%	15,428	20%	19,266	10%
Services	11,246	9%	9,590	12%	11,290	6%
Total revenue	<u>\$131,040</u>	<u>100%</u>	<u>\$ 78,657</u>	<u>100%</u>	<u>\$195,305</u>	<u>100%</u>

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,		
	2008	2009	2010
Revenues from third parties:			
United States	\$ 30,744	\$ 21,673	\$ 45,243
Taiwan	27,361	22,401	48,455
China	6,582	5,261	24,201
Singapore	12,106	11,765	30,305
South Korea	17,577	4,062	17,612
Japan	11,035	4,394	7,725
Europe	25,635	9,101	21,764
Total revenue	<u>\$ 131,040</u>	<u>\$ 78,657</u>	<u>\$ 195,305</u>

In 2008 and 2009, sales to Intel Corporation accounted for 10.9% and 13.6 % 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. No other individual end user customer accounted for more than 10% of our revenues in 2008, 2009 and 2010.

As of December 31, 2009 there were two customers, STATS ChipPAC, LTD. and Hynix Semiconductor, Inc., that accounted for more than 10% of net accounts receivable. At December 31, 2010, two customers, Semiconductor Manufacturing International Corporation and Samsung Semiconductor, Inc., accounted for more than 10% of net accounts receivable.

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

17. Earnings (Loss) Per Share:

Basic earnings (loss) per share is calculated using the weighted average number of shares of common stock outstanding during the period. Diluted earnings (loss) per share is computed in the same manner and also gives effect to all dilutive common equivalent shares outstanding during the period. For the year ended December 31, 2008, all outstanding stock options and restricted stock units were excluded from the computation of diluted loss per share totaling 2,307 and 729, respectively, because the effect in the period would be anti-dilutive. For the year ended December 31, 2009, all outstanding stock options and restricted stock units totaling 2,188 and 1,372, respectively, were excluded from the computation of diluted loss per share because the effect in the period would be anti-dilutive. 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, respectively.

The computations of basic and diluted loss per share for the years ended December 31, 2008, 2009, and 2010 are as follows:

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

	Income (Numerator)	Shares (Denominator)	Per-Share Amount
For the year ended December 31, 2008			
Basic earnings per share:			
Net income	\$ (249,686)	30,614	\$ (8.16)
Effect of dilutive stock options and restricted stock units	—	—	—
Diluted earnings per share:			
Net income	<u>\$ (249,686)</u>	<u>30,614</u>	<u>\$ (8.16)</u>
For the year ended December 31, 2009			
Basic loss per share:			
Net loss	\$ (29,628)	30,888	\$ (0.96)
Effect of dilutive stock options and restricted stock units	—	—	—
Diluted loss per share:			
Net loss	<u>\$ (29,628)</u>	<u>30,888</u>	<u>\$ (0.96)</u>
For the year ended December 31, 2010			
Basic income per share:			
Net income	\$ 27,015	31,286	\$ 0.86
Effect of dilutive stock options and restricted stock units	—	206	—
Diluted loss per share:			
Net income	<u>\$ 27,015</u>	<u>31,492</u>	<u>\$ 0.86</u>

18. 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. As of the time of filing this Annual Report on Form 10-K, the Company has not purchased any shares under this program.

19. Quarterly Consolidated Financial Data (unaudited):

The following tables present certain unaudited consolidated quarterly financial information for each of the eight quarters ended December 31, 2010. 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.

Year-over-year quarterly comparisons of the Company's results of operations may not be as 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.

RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

	Quarters Ended				Total
	March 31, 2009	June 30, 2009	September 30, 2009	December 31, 2009	
Revenues	\$ 11,061	\$ 15,341	\$ 23,330	\$ 28,925	\$ 78,657
Gross profit	2,284	5,406	9,473	11,689	28,852
Loss before income taxes	(10,958)	(8,669)	(5,574)	(6,666)	(31,867)
Net loss	(10,054)	(8,625)	(4,835)	(6,114)	(29,628)
Loss per share:					
Basic	\$ (0.33)	\$ (0.28)	\$ (0.16)	\$ (0.20)	\$ (0.96)
Diluted	\$ (0.33)	\$ (0.28)	\$ (0.16)	\$ (0.20)	\$ (0.96)
Weighted average number of shares outstanding:					
Basic	30,788	30,957	31,109	30,990	30,888
Diluted	30,788	30,957	31,109	30,990	30,888

	Quarters Ended				Total
	March 31, 2010	June 30, 2010	September 30, 2010	December 31, 2010	
Revenues	\$ 40,622	\$ 48,349	\$ 52,323	\$ 54,011	\$ 195,305
Gross profit	20,287	25,190	29,272	29,151	103,900
Income before income taxes	2,768	7,372	9,506	10,891	30,537
Net income	2,045	6,513	8,903	9,554	27,015
Income per share:					
Basic	\$ 0.07	\$ 0.21	\$ 0.28	\$ 0.30	\$ 0.86
Diluted	\$ 0.07	\$ 0.21	\$ 0.28	\$ 0.30	\$ 0.86
Weighted average number of shares outstanding:					
Basic	31,117	31,216	31,365	31,409	31,286
Diluted	31,352	31,437	31,534	31,606	31,492

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

<u>Column A</u>	<u>Column B</u>	<u>Column C</u>		<u>Column D</u>	<u>Column E</u>
<u>Description</u>	<u>Balance at Beginning of Period</u>	<u>Charged to (Recovery of) Costs and Expense</u>	<u>Charged to Other Accounts (net)</u>	<u>Deductions</u>	<u>Balance at End of Period</u>
Year 2008:					
Allowance for doubtful accounts	\$ 214	\$ 445	\$ —	\$ —	\$ 659
Inventory valuation	3,394	14,124	—	5,887	11,631
Warranty	2,365	1,868	215	2,635	1,813
Deferred tax valuation allowance	1,295	35,196	—	—	36,491
Year 2009:					
Allowance for doubtful accounts	\$ 659	\$ (57)	\$ —	\$ —	\$ 602
Inventory valuation	11,631	4,832	—	6,989	9,474
Warranty	1,813	894	—	2,007	700
Deferred tax valuation allowance	36,491	8,312	(853)	683	43,267
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

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
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 filed on December 21, 2007).
3.1	Restated Certificate of Incorporation of Registrant (incorporated by reference to Exhibit (3.1(b)) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86871 filed on September 9, 1999).
3.2	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 August 1, 2007, 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, 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, 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, No. 000-30637).
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. 333-86871), 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. 333-86871), filed on September 9, 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, as amended (SEC File No. 333-86871), 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, as amended (SEC File No. 333-86871), 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).
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).

<u>Exhibit No.</u>	<u>Description</u>
10.8*	Registration Agreement, dated June 14, 1996 by and among the Registrant, 11, L.L.C., Riverside Rudolph, L.L.C., Dr. Richard F. Spanier, Paul F. McLaughlin (incorporated by reference to Exhibit (10.9) to the Registrant's Registration Statement on Form S-1, as amended (SEC File No. 333-86871), filed on September 9, 1999).
10.9*	Stockholders Agreement, dated June 14, 1996 by and among the Registrant, Administration of Florida, Liberty Partners Holdings 11, L.L.C., Riverside Rudolph, L.L.C., Dr. Richard F. Spanier, Paul McLaughlin, Dale Moorman, Thomas Cooper and (incorporated by reference to Exhibit (10.10) to the Registrant's Form S-1, as amended (SEC File No. 333-86871), filed on September 9, 1999).
10.10*	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).
10.11*	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 filed on June 21, 2005).
10.12*	Form of Company Shareholder Voting Agreement (incorporated by reference to Exhibit 99.2 to the Registrant's Schedule 13D (SEC File No. 005-58091) filed on July 7, 2005).
10.13*	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).
10.14*	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).
10.15*	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).
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.

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

* Management contract, compensatory plan or arrangement.

SUBSIDIARIES

Name

Rudolph Technologies Europe, B.V.
Rudolph Technologies Japan KK
Rudolph Technologies (Shanghai) Trading Co., Ltd.
August Technology Corporation

Jurisdiction

Netherlands
Japan
China
Minnesota

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

- (1) Registration Statement (Form S-8 No. 333-163240) pertaining to the Rudolph Technologies, Inc. 2009 Stock Plan and the Rudolph Technologies, Inc. 2009 Employee Stock Purchase Plan,
- (2) Registration Statement (Forms S-8 No. 333-149705, No. 333-129773, and No. 333-104349) pertaining to the Rudolph Technologies, Inc. 1999 Stock Plan and the Rudolph Technologies, Inc. 1999 Employee Stock Purchase Plan,
- (3) Registration Statement (Form S-8 No. 333-132283) pertaining to the August Technology Corporate 1997 Stock Incentive Plan, and
- (4) Registration Statement (Form S-8 No. 333-92443) pertaining to the Rudolph Technologies, Inc. 1996 Non-Qualified Stock Option Plan, the Rudolph Technologies, Inc. 1999 Stock Plan and the Rudolph Technologies, Inc. 1999 Employee Stock Purchase Plan;

of our reports dated February 25, 2011, with respect to the consolidated financial statements and schedule of Rudolph Technologies, Inc. and Subsidiaries, and with respect to the effectiveness of internal control over financial reporting of Rudolph Technologies, Inc. and Subsidiaries, included in this Annual Report (Form 10-K) for the year ended December 31, 2010.

/s/ Ernst & Young LLP

Metropark, New Jersey
February 28, 2011

Certification of Chief Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Paul F. McLaughlin, certify that:

1. I have reviewed this annual report on Form 10-K of Rudolph Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 25, 2011

By: _____

/s/ PAUL F. MCLAUGHLIN

Paul F. McLaughlin

Chairman and Chief Executive Officer

Certification of Chief Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Steven R. Roth, certify that:

1. I have reviewed this annual report on Form 10-K of Rudolph Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 25, 2011

By:

/s/ STEVEN R. ROTH

Steven R. Roth
Senior Vice President and Chief Financial Officer

RUDOLPH

TECHNOLOGIES

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

To be held May 25, 2011

TO THE STOCKHOLDERS:

NOTICE IS HEREBY GIVEN that the 2011 Annual Meeting of Stockholders of Rudolph Technologies, Inc. (the "Company"), a Delaware corporation, will be held on May 25, 2011 at 1:00 p.m., local time, near the Company's Taiwan facility, at the Ambassador Hotel Taipei, 63 Chung Shan North Road, Section 2, Taipei 104, Taiwan ROC, for the following purposes:

1. To elect the two Class III directors named herein to serve for three-year terms expiring upon the 2014 Annual Meeting of Stockholders or until their successors are elected;
2. To cast an advisory (non-binding) vote to approve the compensation of our named executive officers as disclosed in our Compensation Discussion and Analysis and in the tabular and accompanying narrative disclosure regarding named executive officer compensation in this proxy statement.
3. To cast an advisory (non-binding) vote regarding how frequently the Company should conduct the type of advisory vote on executive compensation set forth above under "Proposal 2 - Advisory Vote on Executive Compensation."
4. To ratify the appointment of Ernst & Young LLP as our independent registered public accountants for the year ending December 31, 2011; and
5. To transact such other business as may properly come before the meeting and any adjournment or postponement thereof.

The foregoing items of business are more fully described in the Proxy Statement accompanying this Notice. Included in the mailing of this Proxy Statement is a copy of our Annual Report on Form 10-K for the fiscal year ended December 31, 2010.

Only stockholders of record at the close of business on March 31, 2011 are entitled to notice of and to vote at the meeting and any adjournment thereof.

All stockholders as of the record date are cordially invited to attend the meeting in person. However, to ensure your representation at the meeting, you are urged to mark, sign, date and return the enclosed proxy card as promptly as possible in the postage-prepaid envelope enclosed for that purpose.

IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS FOR THE ANNUAL MEETING OF STOCKHOLDERS TO BE HELD MAY 25, 2011:

The enclosed proxy statement and 2010 Annual Report to Stockholders are available at <http://www.rudolphtech.com/resources/images/6169.pdf>.

FOR THE BOARD OF DIRECTORS

Steven R. Roth

Secretary

Flanders, New Jersey

April 19, 2011

RUDOLPH TECHNOLOGIES, INC.

PROXY STATEMENT

INFORMATION CONCERNING SOLICITATION AND VOTING

General

The enclosed Proxy is solicited on behalf of the Board of Directors of Rudolph Technologies, Inc. (the "Company") for use at the 2011 Annual Meeting of Stockholders to be held May 25, 2011 at 1:00 p.m. local time (the "Annual Meeting"), or at any adjournment thereof, for the purposes set forth herein and in the accompanying Notice of Annual Meeting of Stockholders. The Annual Meeting will be held near the Company's Taiwan facility, at the Ambassador Hotel Taipei, 63 Chung Shan North Road, Section 2, Taipei 104, Taiwan ROC. The Company's telephone number is (973) 691-1300.

These proxy solicitation materials and the Company's Annual Report to Stockholders for the year ended December 31, 2010, including financial statements, were mailed on or about April 19, 2011 to stockholders entitled to vote at the meeting.

Record Date and Voting Securities

Stockholders of record at the close of business on March 31, 2011 (the "Record Date") are entitled to notice of and to vote at the meeting. At the Record Date, 31,551,458 shares of the Company's Common Stock, \$0.001 par value, were issued and outstanding.

Revocability of Proxies

Any proxy given pursuant to this solicitation may be revoked by the person giving it at any time before it is voted. If you are a stockholder of record, you may change your vote after submitting your proxy, by delivering to the Secretary of the Company at the Company's principal executive offices, a written notice of revocation or a duly executed proxy bearing a later date or by attending the meeting and voting in person. If you are a beneficial owner of shares, please contact your bank, broker or other holder of record for specific instructions on how to change or revoke your vote.

Voting and Solicitation

Whether you hold your shares directly as a stockholder of record, or beneficially in street name, you may vote your shares without attending the meeting. Even if you plan to attend the meeting, we recommend that you vote your shares in advance so that your vote will be counted if you later decide not to attend the meeting.

If you hold shares in your name as a holder of record, you are considered the "stockholder of record" with respect to those shares. You can vote your shares by completing and returning the enclosed Proxy which has been mailed to you, along with a postage-paid envelope.

If your shares are held in a stock brokerage account or by a bank or other holder of record, you are considered the "beneficial owner" of shares held in "street name." This Proxy Statement has been forwarded to you by your broker, bank or other holder of record who is considered, with respect to those shares, the "stockholder of record." As the beneficial owner, you have the right to direct your broker, bank or other holder of record on how to vote your shares by submitting voting instructions to such person in accordance with the directions outlined in your Proxy.

Stockholders of record may vote in person at the meeting, but beneficial owners must obtain a legal Proxy from the broker, bank or other holder of record authorizing the beneficial holder to vote such shares at the meeting.

Each stockholder of record is entitled to one vote for each share of Common Stock owned by such stockholder on all matters presented at the Annual Meeting. Stockholders do not have the right to cumulate their votes in the election of directors.

The Company will bear the cost of soliciting proxies. In addition, the Company may reimburse brokerage firms and other persons representing beneficial owners of shares for their expenses in forwarding solicitation material to such beneficial owners. Solicitation of proxies by mail may be supplemented by telephone, telegram, facsimile or personal solicitation by directors, officers or regular employees of the Company. No additional compensation will be paid to such persons for such services.

Quorum; Abstentions; Broker Non-votes

The required quorum for the transaction of business at the Annual Meeting is a majority of the votes eligible to be cast by holders of shares of Common Stock issued and outstanding on the Record Date. Abstentions and broker non-votes will be counted to determine whether there is a quorum present. If a quorum is not present, the Annual Meeting will be rescheduled for a later date.

If you return a signed and dated Proxy but do not indicate how the shares are to be voted, those shares will be voted as recommended by the Board. A valid Proxy also authorizes the individuals named as proxies to vote your shares in their discretion on any other matters which, although not described in the Proxy Statement, are properly presented for action at our Annual Meeting. If you indicate on your Proxy that you wish to “abstain” from voting on an item, your shares will not be voted on that item. A broker non-vote occurs when a bank, broker or other registered holder of record holds shares for a beneficial owner but is not empowered to vote on a particular proposal on behalf of such beneficial owner.

The election of directors and the advisory votes on named executive officer compensation and the frequency of future advisory votes on executive compensation are treated as “non-routine” proposals. This means that if a brokerage firm holds your shares on your behalf, those shares will not be voted in the election of directors unless you provide instructions to that firm by voting your proxy.

In order to ensure that any shares held on your behalf by a brokerage firm or other organization are voted in accordance with your wishes, we encourage you to provide instructions to that firm or organization by voting your proxy.

Vote Required

Each director is elected by the vote of the majority of the votes cast. This means that in order for a director nominee to be elected to our Board of Directors, the number of shares cast “for” a director’s election must exceed the number of votes cast “against” that director’s election (with “abstentions” and “broker non-votes” not counted as a vote cast either “for” or “against” that director’s election, although abstentions and broker non-votes count for quorum purposes). Our Bylaws provide for a majority voting standard for uncontested elections and provide that any incumbent director nominee in an uncontested election who does not receive an affirmative majority of votes cast must promptly tender such director’s resignation to our Board of Directors. Further information regarding the process that will be followed if such an event occurs can be located under the heading “Proposal 1 — Election of Directors.”

The proposal to approve, on an advisory basis, the compensation of our named executive officers and the proposal to ratify the appointment of Ernst & Young LLP as our independent registered public accounting firm for the year ending December 31, 2011 require the affirmative vote, in person or by proxy, of a majority of the shares present or represented at the meeting and entitled to vote on the matter will constitute the Company’s stockholders’ non-binding approval of the proposals. For such proposals, abstentions are counted for quorum purposes, but in effect count as negative votes because they are shares represented by proxy that are not voted in the affirmative. Broker non-votes are counted for quorum purposes, but are not counted as part of the vote total and have no effect on the outcome.

For the proposal to cast advisory votes for the frequency of future “say on pay,” the outcome will be determined by plurality vote, which means that we will consider stockholders to have expressed a non-binding preference for the option that receives the highest number of favorable votes. This vote is advisory only and not binding on the Board of Directors. Abstentions and broker non-votes will have no effect on this advisory vote.

Voting Recommendations of the Company’s Board of Directors

The Board of Directors recommends a vote (i) “FOR” the election of the Board’s director nominees named herein (ii) “FOR” the approval (on an advisory basis) of the compensation of our named executive officers (iii) “1 YEAR” for the frequency of future advisory votes on executive compensation; and (iv) “FOR” the ratification of Ernst & Young LLP as our independent registered public accounting firm for the year ending December 31, 2011.

Attending the Annual Meeting

All stockholders of record as of the Record Date may attend the 2011 Annual Meeting. To gain admission, you will need valid picture identification and proof that you are a stockholder of record of the Company as of the Record Date (which, if you are a beneficial holder, can be obtained from your bank, broker or other record holder of your shares). To obtain directions to attend the 2011 Annual Meeting and vote in person, please contact Investor Relations at 973-691-1300.

Deadlines for Submission of Stockholder Proposals for 2012 Annual Meeting

Stockholders of the Company are entitled to present proposals for consideration at forthcoming stockholder meetings

provided that they comply with the proxy rules promulgated by the Securities and Exchange Commission (the “SEC”) and the Bylaws of the Company. Stockholders wishing to present a proposal at the Company’s 2011 Annual Stockholder Meeting must submit such proposal in writing to the Company no later than December 21, 2011 if they wish for it to be eligible for inclusion in the proxy statement and form of proxy relating to that meeting. In addition, under the Company’s Bylaws, a stockholder wishing to make a proposal at the 2012 Annual Stockholder Meeting must submit such proposal in writing to the Company no earlier than January 26, 2012 and no later than February 25, 2012. The Nominating and Governance Committee will consider qualified director nominees recommended by stockholders. Our process for receiving and evaluating Board member nominations from our stockholders is described below under the caption “Nominating and Governance Committee.”

Householding

The Company has adopted a procedure approved by the SEC called “householding.” Under this procedure, when multiple stockholders of record share the same address, we may deliver only one set of the Proxy and Proxy Statement to that address unless we have received contrary instructions from one or more of those stockholders. The same procedure applies to brokers and other nominees holding shares of our stock in “street name” for more than one beneficial owner with the same address.

If a stockholder holds shares of stock in multiple accounts (e.g., with our transfer agent and/or banks, brokers or other registered stockholder), we may be unable to use the householding procedures and, therefore, that stockholder may receive multiple copies of the Proxy and Proxy Statement. You should follow the instructions on each Proxy that you receive in order to vote the shares you hold in different accounts.

A stockholder that shares an address with another stockholder, who has received only one set of the Proxy and Proxy Statement may write or call us as specified below to (i) request a separate copy of such materials, which will be promptly mailed without charge, and (ii) request that separate copies of these materials be sent to his or her home for future meetings. Conversely, a stockholder of record who shares the same address with another stockholder of record may write or call us as specified below to request that a single set of the Proxy and Proxy Statement be delivered to that address. Such stockholder requests should be directed to our Investor Relations Department, which can be contacted via phone at 973-691-1300 or mail at Rudolph Technologies, Inc., One Rudolph Road, P.O. Box 1000, Flanders, New Jersey 07836. If you are a beneficial owner of shares held in street name, please contact your bank, broker or other holder of record.

CORPORATE GOVERNANCE PRINCIPLES AND PRACTICES

Rudolph Technologies, Inc. is committed to sound and effective corporate governance practices. Having such principles is essential to running our business efficiently and to maintaining our integrity in the marketplace. The major components of our corporate governance practices are described below.

Codes of Ethics

We have adopted a Code of Business Conduct and Ethics (applicable to all employees, executive officers and directors) and a Financial Code of Ethics (applicable to our financial officers, including our Chief Executive Officer (“CEO”) and Chief Financial Officer (“CFO”)) that set forth principles to guide all employees, executive officers and directors and establish procedures for reporting any violations of these principles. These may be found on our website at <http://www.rudolphtech.com/CodesEthics.aspx> or may be requested by writing to Rudolph Technologies, Inc., Attention: Investor Relations, One Rudolph Road, P.O. Box 1000, Flanders, New Jersey 07836. The Company will disclose any amendment to its codes of ethics or waiver of a provision of its codes of ethics applicable to its officers, including the name of the officer to whom the waiver was granted, on our website at www.rudolphtech.com, on the Investor Relations page.

Board Leadership Structure and Oversight of Risk

Our Company is led by Mr. Paul F. McLaughlin, who has served as our Chairman since January 2000 and Chief Executive Officer since June 1996. Our Board of Directors is comprised of Mr. McLaughlin and six independent directors. The Board has three standing committees with separate chairs — the Audit, Compensation, and Nominating and Governance Committees. Each of the Board committees is comprised solely of independent directors. Our Audit Committee is responsible for overseeing risk management and, on at least an annual basis, reviews and discusses with management policies and systems pursuant to which management addresses risk, including risks associated with our audit, financial reporting, internal control, disclosure control, legal and regulatory compliance, and investment policies. Our Audit Committee regularly reviews with our Board any issues that arise in connection with such topics and, in accordance with our Summary of Corporate Governance Guidelines, our full Board regularly engages in discussions of risk management to assess major risks facing our Company and review options for the mitigation of such risks. Each of our Board committees also considers the risk within its area of responsibilities. For example, our Compensation Committee periodically reviews enterprise risks to ensure that our compensation programs do not encourage excessive risk-taking and our Nominating and Governance Committee oversees risks related to governance issues, such as succession planning, and serves as the contact point for employees to report corporate compliance issues. We do not have a lead director, but our Summary of Corporate Governance Policies provides that our independent directors meet without the presence of management and the non-independent director coincident with each regularly scheduled Board meeting.

We have employed this same basic leadership structure since the Company became a public company in November 1999. We believe that this leadership structure has been effective for the Company. We have a single leader for our Company and we believe that he is seen by our customers, business partners, investors and other stakeholders as providing strong leadership for the Company and in our industry. We believe that our Chairman/CEO, together with our Audit Committee and the full Board of Directors, provide effective oversight of the risk management function.

Board Meetings and Committees

The Board of Directors of the Company held a total of four meetings during 2010. Each of our directors attended 100% of the total meetings of the Board and Board committees on which he served during 2010. While the Company does not currently have a formal policy regarding the attendance of directors at the annual meeting of stockholders, directors are encouraged to attend. All members of the Board of Directors attended the 2010 Annual Meeting of Stockholders. Each of the Audit Committee, Compensation Committee and Nominating and Governance Committee has adopted a written charter. The charters of these committees are in compliance with rules adopted by the SEC and the NASDAQ Global Select Market[®] on which our Common Stock is listed (“Nasdaq”).

Board Independence

The Board makes an annual determination as to the independence of each of our Board members under the current standards for “independence” established by Nasdaq and the SEC. The Board has determined that the following members of the Board, consisting of a majority of the Board, satisfy these independence standards: Daniel H. Berry, Leo Berlinghieri, Richard F. Spanier, Thomas G. Greig, Aubrey C. Tobey and John R. Whitten. In addition, on four occasions during 2010, our Board met in executive sessions in which solely the independent Board members were present.

Audit Committee

We have an Audit Committee that assists the Board in fulfilling its responsibilities for general oversight of the integrity of our financial statements, our accounting policies and procedures and our compliance with legal and regulatory requirements. Specifically, the Audit Committee recommends engagement of the Company’s independent registered public accountants, and is primarily responsible for approving the services performed by the Company’s independent registered public accountants and for reviewing and evaluating the Company’s system of internal controls over financial reporting and disclosure. The report of our Audit Committee is found below under the caption “Audit Committee Report.”

The Audit Committee is governed by its own charter that sets forth its specific responsibilities and the qualifications for membership to the committee. The charter of the Audit Committee is available on our website at www.rudolphtech.com, on the Investor Relations page. The Audit Committee held five meetings in 2010. The Audit Committee is currently composed of Thomas G. Greig, Richard F. Spanier and John R. Whitten. The Board has determined that Thomas G. Greig, Richard F. Spanier and John R. Whitten meet the requirements for membership to the Audit Committee set forth by Nasdaq and the SEC, including that they be “independent.”

The Board has determined that John R. Whitten meets the definition of an “Audit Committee Financial Expert” under SEC rules, and also has the level of financial sophistication required of at least one member of the Audit Committee under Nasdaq rules.

Compensation Committee

The Compensation Committee has its own charter that sets forth its specific responsibilities, including the establishment of the policies upon which compensation of and incentives for the Company's executive officers will be based, the review and recommendation for approval by the independent members of the Board the compensation of the Company's executive officers, and the administration of the Company's stock and stock purchase plans. The charter of the Compensation Committee is available on the Company's website at www.rudolphtech.com, on the Investor Relations page.

In general, the Compensation Committee is responsible for reviewing and recommending for approval by the independent members of the Board of Directors the Company's executive salary levels and variable compensation programs, both cash-based and equity-based. With respect to the compensation of the Company's Chief Executive Officer, the Compensation Committee reviews and recommends for approval the various elements of the Chief Executive Officer's compensation. With respect to other executive officers, the Compensation Committee reviews the recommendations for compensation for such individuals presented to the Committee by the Chief Executive Officer and the reasons thereof. Each year, the CEO is responsible for establishing personal and corporate objectives for each of the Company executives. These objectives are reviewed and agreed upon by the CEO and the executive subject to the approval of the Compensation Committee. In addition, as part of the annual performance review of the Company's executives, the CEO assesses the performance of his direct reports and determines the merit increase, if any, that would be proposed for each individual. These merit increase proposals, along with each executive's personal and corporate objectives and their bonus target levels (based on a percentage of their base salary), are then compiled by the CEO and submitted to the Compensation Committee for their review. At the Compensation Committee meeting during which the executive compensation plans (bonuses and merit increases) are to be reviewed, the CEO attends the initial session to present the proposed plans and to answer questions. Thereafter, the Compensation Committee meets without the CEO being present to review, discuss and recommend for approval by the independent members of the Board all executive compensation plans subject to any modifications made by the Compensation Committee. The CEO does not participate in decisions regarding his own compensation.

In accordance with its charter, the Compensation Committee may form and delegate its authority to subcommittees when appropriate. Further, the Compensation Committee has the authority to retain and terminate any compensation consultant to be used to assist in the evaluation of director, CEO or executive compensation and has authority to approve the consultant's fees and other retention terms. From time to time, the Compensation Committee engages the services of such outside compensation consultants to provide advice on compensation plans and issues related to the Company's executive and non-executive employees. In 2010, the Compensation Committee engaged Pay Governance, LLC to update the Company's competitive compensation assessment, review certain contract provisions with our CEO and provide other ad hoc assistance to the Committee. The Compensation Committee also has the authority to obtain advice and assistance from internal or external legal, accounting or other advisors.

The Compensation Committee held four meetings in 2010 prior to the Board of Directors meeting where all Compensation Committee members attended in person. This Committee is currently composed of Daniel H. Berry, Leo Berlinghieri and Aubrey C. Tobey. The Board has determined that Daniel H. Berry, Leo Berlinghieri and Aubrey C. Tobey meet the requirements for membership on the Compensation Committee, including the independence requirements of Nasdaq, the criteria established by the Internal Revenue Service to be considered an "outside director," and the criteria established by the SEC to be considered a "non-employee director." For further discussion of the Compensation Committee, please refer to the Executive Compensation section of the Compensation, Discussion and Analysis ("CD&A").

Nominating and Governance Committee

Like the other committees of the Board, the Nominating and Governance Committee has its own charter that outlines its responsibilities. These responsibilities include identifying prospective director nominees and recommending to the Board director nominees for the next annual meeting of stockholders and replacements of a director in the event a director steps down. The Nominating and Governance Committee also recommends to the Board the appointment of directors to the Audit and Compensation Committees and is charged with developing and recommending to the Board the governance principles applicable to the Company. The charter of the Nominating and Governance Committee is available on our website at www.rudolphtech.com, on the Investor Relations page.

The Nominating and Governance Committee is currently composed of Directors Thomas G. Greig, Richard F. Spanier and Aubrey C. Tobey and held four meetings during the last year. The Board has determined that all of these directors meet the requirements for membership to the Nominating and Governance Committee, including the independence requirements of Nasdaq.

The Nominating and Governance Committee determines the required selection criteria and qualifications of director nominees based upon the needs of the Company at the time nominees are considered. A candidate must possess the ability to apply good business judgment and must be in a position to properly exercise his or her duties of loyalty and care. Candidates should also exhibit proven leadership capabilities, high integrity and experience with a high level of responsibilities within their chosen fields, and have the ability to grasp complex principles of business, finance, international transactions and semiconductor inspection and metrology technologies. When current Board members are considered for nomination for reelection, the Nominating and Governance Committee also takes into consideration their prior contributions to and performance on the Board and their record of attendance.

The Nominating and Governance Committee will consider the above criteria for nominees identified by the Nominating and Governance Committee itself, by stockholders, or through some other source. The Nominating and Governance Committee uses the same process for evaluating all nominees, regardless of the original source of nomination. The Nominating and Governance Committee may use the services of a third party search firm to assist in the identification or evaluation of Board member candidates.

The Nominating and Governance Committee has a formal policy with regard to consideration of director candidates recommended by the Company's stockholders, which may be found on our website at <http://www.rudolphtech.com/DirectorCandidates.aspx>. In accordance with the policy, the Committee will consider recommendations and nominations for candidates to the Board of Directors from stockholders of the Company holding no less than 1% of the Company's securities for at least twelve months prior to the date of the submission of the recommendation or nomination. Stockholders wishing to recommend persons for consideration by the Nominating and Governance Committee as nominees for election to the Company's Board of Directors can do so by writing to the Office of the General Counsel of the Company at its principal executive offices giving each such person's name, biographical data and qualifications, along with the other information specified in the policy and under Section 2.5 of the Company's Bylaws. Any such recommendation should be accompanied by a written statement concerning the eligibility and qualifications from the person recommended and his or her consent to be named as a nominee and, if nominated and elected, to serve as a director.

The Nominating and Governance Committee has not adopted a formal diversity policy with regard to the selection of director nominees. Diversity is one of the factors that the Nominating and Governance Committee considers in identifying nominees for director. In selecting director nominees, the Nominating and Governance Committee considers, among other factors, (1) the competencies and skills that the candidate possesses and the candidate's areas of qualification and expertise that would enhance the composition of the Board, and (2) how the candidate would contribute to the Board's overall balance of expertise, perspectives, backgrounds and experiences in substantive matters pertaining to the Company's business.

In its identification of director nominees, the Nominating and Governance Committee will consider how the candidate would contribute to the Board's overall balance of diversity of expertise, perspectives, backgrounds and experiences in substantive matters pertaining to the Company's business.

Communications with the Board of Directors

We have a formal policy regarding communications with the Board of Directors, which may be found on our website at <http://www.rudolphtech.com/StockholderCommunicationsPolicy.aspx>. Stockholders may communicate with the Board of Directors by writing to them at c/o Rudolph Technologies, Inc., Office of the General Counsel, One Rudolph Road, P.O. Box 1000, Flanders, New Jersey 07836 and such communications will be forwarded to the Board of Directors. Stockholders who would like their submission directed to a member of the Board of Directors may so specify, and the communication will be forwarded to such specific directors, as appropriate.

Related Persons Transactions Policy

There were no “related person transactions” since the beginning of 2010 involving any director, director nominee or executive officer of the Company, any known 5% stockholder of the Company or any immediate family member of any of the foregoing persons (which are referred to together as “related persons”). A “related person transaction” generally means a transaction involving more than \$120,000 in which the Company (including any of its subsidiaries) is a participant and in which a related person has a direct or indirect material interest. Our related person practices and policies are included in our corporate governance documents, including our Code of Business Conduct and Ethics, Audit Committee Charter and Summary of Corporate Governance Policies, each of which is available at the Investor Relations section of our website located at <http://www.rudolphtech.com/Investors.aspx>. Pursuant to our Code of Business Conduct and Ethics, our directors, officers and employees are required to avoid any actual or apparent conflicts of interest (other than conflicts of interest that have received appropriate approval as described below), which includes taking actions or having interests that may interfere with the objective or efficient performance of such person’s duties to the Company or that may result in such person receiving improper personal benefits as a result of their position with the Company. Pursuant to our Summary of Corporate Governance Policies, if a director becomes involved in any activity or interest that may result in an actual or potential conflict (or the appearance of a conflict) with the interests of the Company, that director is required to disclose such information promptly to the Board, which will determine an appropriate resolution on a case-by-case basis. Pursuant to this policy, all directors must recuse themselves from any discussion or decision affecting their personal, business or professional interests. Similarly, our Board will determine the appropriate resolution of any actual or potential conflict of interest involving our CEO and our CEO will determine the appropriate resolution of any conflict of interest issue involving any other officer of the Company. When necessary and appropriate, resolution of such issues may require consideration of the matter by the Audit Committee. Pursuant to the Board’s Summary of Corporate Governance Policies and the Audit Committee Charter, the Audit Committee, which consists entirely of independent directors, will review any proposed transaction in which the Company or its subsidiaries are to participate if the amount involved in the transaction exceeds \$120,000 and we are aware that any related person may have a direct or indirect material interest in the transaction. The Audit Committee will consider the facts and circumstances and will approve or ratify a proposed transaction if the Audit Committee considers it appropriate and believes that such transaction will serve the long-term interests of our stockholders. The Compensation Committee of the Board reviews and approves compensation decisions for Board members and our executive officers (and such other employees of the Company as directed by the Board) pursuant to the Compensation Committee Charter.

PROPOSAL 1

ELECTION OF DIRECTORS

Nominees

The authorized number of directors is currently established at seven. The Company's Certificate of Incorporation provides that the directors shall be divided into three classes, with the classes serving for staggered, three-year terms. Currently, there are two directors in each of Class I and Class III and three directors in Class II. Each of the two Class III directors is to be elected at this Annual Meeting and will hold office until the 2014 Annual Meeting or until their successors have been duly elected and qualified. Each of the three Class II directors will hold office until the 2013 Annual Meeting or until their successors have been duly elected and qualified and each of the two Class I directors will hold office until the 2012 Annual Meeting or until their successors have been duly elected and qualified. These directors were approved by the Board for inclusion on this Proxy Statement based on the recommendation of the Nominating and Governance Committee.

Pursuant to the Company's Bylaws, our directors are generally elected by the affirmative vote of the majority of the votes cast (provided, however, that if the number of nominees exceeds the number of directors to be elected, directors will be elected by a plurality voting standard). In order for a director in an uncontested election to be elected, the number of shares cast "for" his election must exceed the number of votes cast "against" his election (with "abstentions" and "broker non-votes" not counted as a vote cast either "for" or "against" that director's election). If a nominee who is an incumbent director is not elected, our Bylaws provide that such director must promptly tender a resignation to the Board. Our Nominating and Governing Committee would then make a recommendation to the Board on whether to accept or reject the tendered resignation, or whether other action should be taken. Within 90 days after the date of the certification of the election results, our Board will act on any such tendered resignation and publicly disclose (in a press release, a filing with the SEC or other broadly disseminated means of communication) its decision regarding the tendered resignation and the rationale behind the decision.

Unless otherwise instructed, the proxy holders will vote the proxies received by them for the Company's two nominees named below, each of whom is currently a director of the Company. Each nominee has indicated that he will serve if elected. In the event that any nominee of the Company becomes unable or unavailable to serve as a director at the time of the Annual Meeting (which we do not anticipate), the proxy holders will vote the proxies for any substitute nominee who is designated by the current Board of Directors to fill the vacancy or the Board of Directors may, in its discretion, elect to reduce the number of directors serving on the Board.

Vote Required

Each Class III Director shall be elected by the vote of the majority of the votes cast. This means that the number of shares cast "for" a director's election must exceed the number of votes cast "against" that director's election in order for such director to be elected (with "abstentions" and "broker non-votes" not counted as a vote cast either "for" or "against" that director's election, although abstentions count for quorum purposes).

The names of the two Class III nominees for director and certain information about each of them are set forth below. The names of, and certain information about, the current Class I and Class II directors with unexpired terms are also set forth below. All information is as of the Record Date.

<u>Name</u>	<u>Position</u>	<u>Director Since</u>	<u>Age</u>
<i>Nominee Class III Directors:</i>			
John R. Whitten	Former Chief Financial Officer, Vice President and Treasurer, Applied Industrial Technologies, Inc.	2006	64
Aubrey C. Tobey	President, ACT International	1998	85
<i>Continuing Class I Directors:</i>			
Leo Berlinghieri	Chief Executive Officer and President, MKS Instruments, Inc.	2008	57
Paul F. McLaughlin	Chairman and Chief Executive Officer, Rudolph Technologies, Inc.	1996	65
<i>Continuing Class II Directors:</i>			
Daniel H. Berry	Operating Partner, Riverside Partners, LLC	1998	65
Thomas G. Greig	Senior Managing Director, Liberty Capital Partners, Inc.	2003	63
Richard F. Spanier	Retired, Chairman Emeritus	1966	71

Except as indicated below, each nominee or incumbent director has been engaged in the principal occupation set forth above during the past five years. There are no family relationships between any directors or executive officers of the Company.

Information About The Directors And The Nominees

Our Board and its Nominating and Governance Committee believe that all of the directors and nominees are highly qualified and have demonstrated leadership skills and have experience and judgment in areas that are relevant to our business. We believe that their ability to challenge and stimulate management and their dedication to the affairs of the Company collectively serve the interests of the Company and its stockholders. Additional information regarding the background and qualifications of our directors, including the experience and skills that led to the Board's determination that each director should serve on our Board at this time, is also set forth below.

Nominees for Class III Directors

Aubrey C. Tobey has served as one of the Company's directors since October 1998. Since May 1987, Mr. Tobey has served as President of ACT International, a company which provides marketing and management services for high technology companies. Mr. Tobey holds a B.S. in Mechanical Engineering from Tufts University and an M.S. in Mechanical Engineering from the University of Connecticut. Mr. Tobey has previously served on the board of SEMI, on the U.S. Department of Commerce Technical Advisory Committee for Semiconductors and as a director of Chartered Semiconductor Manufacturing, Ltd. as well as on other boards.

Mr. Tobey's widespread experience for over 45 years in the semiconductor industry provides him with invaluable insights into the industry's sales, marketing and technical challenges and global opportunities. His extensive experience and comprehensive understanding of business matters within both the domestic and international semiconductor markets provides the Board with a broad perspective on key industry issues. Mr. Tobey's strong corporate governance background, realized in part through his breadth of experience on other boards, fuels his significant contributions as a member of the Board, the Company's Compensation Committee and the Company's Nominating and Governance Committee, for which he serves as the chairman.

John R. Whitten has served as one of the Company's directors since July 2006 upon his appointment to the Company's Board of Directors. From November 1995 to December 2003, Mr. Whitten served as Chief Financial Officer, Vice President and Treasurer of Applied Industrial Technologies, Inc. (NYSE- AIT), an industrial supply distributor. Mr. Whitten is a C.P.A. and holds a B.B.A. in Accounting from Cleveland State University. Mr. Whitten is currently an independent director overseeing 63 portfolios in the mutual fund complex of American Century Investments, a registered investment company.

Mr. Whitten's extensive financial background, including his previous experience at a public accounting firm and as Chief Financial Officer of a public company, provide valuable insight to the Board of Directors and the Audit Committee, for which he serves as the chairman.

The Company's Board of Directors unanimously recommends voting "FOR" each of the nominees set forth herein.

Continuing Class I Directors

Paul F. McLaughlin has served as the Company's Chairman since January 2000 and Chief Executive Officer and as a director of the Company since June 1996. Mr. McLaughlin holds a B.S. in Metallurgical Engineering from Rensselaer Polytechnic Institute, an M.S. in Metallurgy and Materials Science from Lehigh University and an M.B.A. from Harvard University Graduate School of Business Administration.

Mr. McLaughlin has over 25 years of experience in the semiconductor capital equipment business, including more than 10 years as Chief Executive Officer of the Company, which gives him a unique and valuable insight into the challenges and strategies relevant to the semiconductor industry as a whole, and to our Company in particular.

Leo Berlinghieri has served as one of the Company's directors since September 2008. Since July 2005, Mr. Berlinghieri has served as Chief Executive Officer and President of MKS Instruments, Inc., an equipment supplier to the semiconductor industry. From April 2004 to July 2005, Mr. Berlinghieri served as President and Chief Operating Officer and prior to that he served as Vice President and Chief Operating Officer from July 2003 to April 2004 for MKS Instruments, Inc. Mr. Berlinghieri is currently a board member of MKS Instruments, Inc.

Mr. Berlinghieri's 30 years of experience coupled with his tenure at the helm of the same public corporation in the semiconductor industry provides him with valuable insight into the operational and strategic issues facing our industry.

Continuing Class II Directors

Daniel H. Berry has served as one of the Company's directors since October 1998. Since September 2010, Mr. Berry has served as Chief Executive Officer of NDS Surgical Imaging, a supplier to the medical imaging industry. Since January 2002, Mr. Berry has been an Operating Partner of Riverside Partners, LLC, a private equity investment firm. From July 2004 to August 2007, Mr. Berry also served as Executive Vice President of Applied Precision, formerly a Riverside portfolio company. He was employed by Ultratech Stepper, Inc. (presently Ultratech, Inc.), an equipment supplier to the semiconductor industry, from 1990 to 2001 in various positions including President and Chief Operating Officer from May 1999 to November 2001. Prior to this, Mr. Berry held positions at General Signal, Perkin Elmer and Bell Laboratories. Mr. Berry is a member of the Board of Trustees of the Polytechnic Institute of New York University and is a member of the Board of Directors of various companies in Riverside Partners portfolio of investments. Mr. Berry holds a B.S. in Electrical Engineering from the Polytechnic Institute of Brooklyn.

Mr. Berry's extensive business experience, particularly within the semiconductor industry for more than 35 years, provides him with insight into the challenges we face within the industry.

Thomas G. Greig has served as one of the Company's directors since January 2003. Mr. Greig has been employed by Liberty Capital Partners, Inc., a private equity investment firm, since July 1998 and currently holds the position of Senior Managing Director. From December 1985 to July 1998, Mr. Greig was a Managing Director of Donaldson, Lufkin, & Jenrette, Inc., an investment banking firm. Mr. Greig holds a B.S. in Engineering from Princeton University, an M.S.E. in Electrical Engineering from New York University and an M.B.A. from Harvard University Graduate School of Business Administration. Mr. Greig is currently the Non-Executive Chairman of the Board of Black Box Corporation.

Mr. Greig has a wide-ranging acquisition and financial background as well as extensive prior experience serving on the boards of public and private companies, offering the Board of Directors and the Audit Committee a combination of valuable skill sets.

Richard F. Spanier has served as Chairman Emeritus of the Company's Board of Directors since January 2000 and prior to that as the Company's Chairman of the Board of Directors since September 1966. From September 1966 to June 1996, Dr. Spanier served as the Company's President and Chief Executive Officer. Dr. Spanier holds a B.S. in Physics, an M.S. in Physical Chemistry and a Ph.D. in Chemical Physics from Stevens Institute of Technology.

Dr. Spanier's 30 years of experience as President of the Company and his extensive scientific and practical engineering background provides the Board of Directors with a technical perspective and valuable insight into the challenges and strategies relevant to the semiconductor industry as a whole, and to our Company in particular. In addition, his financial acumen is a valued asset in his role as a member of our Audit Committee.

Compensation of Directors

Directors who are employees of the Company receive no compensation for their services as members of the Board of Directors. In 2010, directors were not paid to serve on the committees of the Board of Directors with the exception of those directors serving as committee chairmen. Daniel H. Berry, Aubrey C. Tobey and John R. Whitten each received cash compensation of \$2,500 each quarter in 2010 for their services as the Chairman of the Compensation Committee, as the Chairman of the Nominating and Governance Committee and as Chairman of the Audit Committee, respectively. From time to time, directors may be compensated for work performed as members of special subcommittees of the Board of Directors. No fees were paid to directors for special subcommittee work in 2010.

Directors who are not employees of the Company received cash compensation of \$5,000 for attendance at the first quarterly meeting of the Board of Directors in 2010 and \$10,000 for each of the three remaining quarterly meetings. Effective as of July 2008, the equity component of a non-employee director's compensation is comprised of an annual grant of restricted stock units ("RSUs"), which are awarded annually as of the third quarter Board of Directors meeting, the date of which varies year-to-year, in an amount of shares calculated by dividing \$50,000 by the Company common stock closing stock price on the date of such annual grant, rounded to the nearest 100 shares. In addition, initial grants issued to a new non-employee director as of the first Board of Directors meeting after the election of such non-employee directors ("First Meeting") and are calculated in accordance with the annual grant formula set forth above, but are prorated by the number of quarters between such First Meeting and the date on which the next annual grant is scheduled to be awarded. Any initial grants and/or annual grants so awarded are issued at the closing price of the Company's common stock as of the date of grant and typically vest on the first anniversary of the grant date. All equity awards granted in 2010 were granted under and subject to the terms of the Rudolph Technologies, Inc. 2009 Stock Plan.

For the year ended December 31, 2010, the directors, excluding the director who is a named executive officer, of the Company (six individuals) received the following total compensation:

<u>Name</u>	<u>Fees Earned or Paid in Cash</u>	<u>Stock Awards(1)</u>	<u>Option Awards</u>	<u>Total</u>
Leo Berlinghieri	\$ 35,000	\$ 50,040	\$ —	\$ 85,040
Daniel H. Berry	\$ 45,000	\$ 50,040	\$ —	\$ 95,040
Thomas G. Greig	\$ 35,000	\$ 50,040	\$ —	\$ 85,040
Richard F. Spanier	\$ 35,000	\$ 50,040	\$ —	\$ 85,040
Aubrey C. Tobey	\$ 45,000	\$ 50,040	\$ —	\$ 95,040
John R. Whitten	\$ 45,000	\$ 50,040	\$ —	\$ 95,040

- (1) Represents the grant date fair value for each share-based compensation award granted during the year, calculated in accordance with FASB ASC Topic 718. The assumptions used in determining the grant date fair values of these awards are set forth in Note 12 to our consolidated financial statements, which are included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2010 filed with the SEC. As of December 31, 2010, our directors had the following stock awards outstanding: Mr. Berlinghieri — 6,000 RSUs and 0 stock options; Mr. Berry — 6,000 RSUs and 25,000 stock options; Mr. Greig — 6,000 RSUs and 15,000 stock options; Mr. Spanier — 6,000 RSUs and 25,000 stock options; Mr. Tobey — 6,000 RSUs and 25,000 stock options; and Mr. Whitten — 6,000 RSUs and 0 stock options.

PROPOSAL 2

ADVISORY VOTE ON EXECUTIVE COMPENSATION

We are asking our stockholders to cast an advisory vote to approve the compensation of our named executive officers as disclosed in our Compensation Discussion and Analysis and in the tabular and accompanying narrative disclosure regarding named executive officer compensation in this proxy statement.

Pursuant to recently adopted federal legislation and as required by Section 14A(a)(1) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), our shareholders are entitled to vote at the Annual Meeting to approve the compensation of the Company's named executive officers, as disclosed in this proxy statement pursuant to Item 402 of Regulation S-K under the Securities Act of 1933, as amended and the Exchange Act, at least once every three years.

Our executive compensation arrangements are designed to enhance stockholder value on an annual and long-term basis. Through the use of base pay as well as annual and long-term incentives, we seek to compensate our named executive officers for their contributions to our profitability and success. Please read the Compensation Discussion and Analysis beginning on page 16 of this proxy statement and the tabular and additional narrative disclosures on executive compensation beginning on page 29 of this proxy statement for additional details about our executive compensation arrangements, including information about the fiscal year 2010 compensation of our named executive officers.

This advisory vote addresses the overall compensation of our named executive officers as well as our philosophy and policies regarding executive compensation practices as described in this proxy statement. We are asking our stockholders to indicate their support for our compensation arrangements as described in this proxy statement.

For the reasons discussed above, the Board recommends that stockholders vote in favor of the following resolution:

"RESOLVED, that the compensation paid to the Company's named executive officers, as disclosed in this Proxy Statement pursuant to Item 402 of Regulation S-K, including the Compensation Discussion and Analysis, compensation tables and narrative discussion is hereby APPROVED."

Because your vote is advisory, it will not be binding upon or overrule any decisions of the Board, nor will it create any additional fiduciary duty on the part of the Board. This advisory vote also does not seek to have the Board or Compensation Committee take any specific action. However, the Board and the Compensation Committee value the view expressed by our stockholders in their vote on this proposal and will take into account the outcome of the vote when considering executive compensation matters in the future. In considering the outcome of this advisory vote, the Board will review and consider all shares voted in favor of the proposal and not in favor of the proposal. Broker non-votes will have no impact on the outcome of this advisory vote.

The Board recommends a vote "FOR" the approval of the compensation of the named executive officers as disclosed in this proxy statement pursuant to Item 402 of Regulation S-K as required by Section 14A(a)(1) of the Exchange Act.

PROPOSAL 3

ADVISORY VOTE ON THE FREQUENCY OF THE ADVISORY VOTE ON EXECUTIVE COMPENSATION

We are asking our stockholders to cast an advisory vote regarding how frequently the Company should conduct the type of advisory vote on executive compensation set forth above under “Proposal 2 - Advisory Vote on Executive Compensation.”

Specifically, in this advisory vote we are asking stockholders to indicate whether the Company should conduct an advisory vote on the compensation of our named executive officers once every year, once every two years, or once every three years (i.e., on an annual, biennial or triennial basis). Alternatively, stockholders may abstain from casting a vote on this matter.

After careful consideration, our Board of Directors has determined that an annual advisory vote on executive compensation is the most appropriate alternative for Rudolph Technologies, Inc. The Board of Directors’ determination was influenced by the fact that the compensation of our named executive officers is evaluated, adjusted and approved on an annual basis. As part of the annual review process, the Board of Directors believes that stockholder sentiment should be a factor that is taken into consideration by the Board of Directors and the Compensation Committee in making decisions with respect to executive compensation. By providing an advisory vote on executive compensation on an annual basis, our stockholders will be able to provide us with direct input on our compensation philosophy, policies and practices as disclosed in the proxy statement every year. In addition, we consider this to be a good governance practice. We understand that our stockholders may have different views as to what is the best approach for Rudolph Technologies, Inc. and we look forward to hearing from our stockholders on this agenda item every year.

Based on these considerations, the Board is recommending that stockholders vote that an advisory vote on executive compensation should be held once every year (1 year), but it is important to note that the proxy card provides for four choices (every one, two, or three years, or abstain) and that stockholders are not voting to approve or disapprove the Board’s recommendation.

Because your vote is advisory, it will not be binding upon the Board, nor will it create any additional fiduciary duty on the part of the Board. However, the Board will take into account the outcome of the vote when determining how frequently an advisory vote on executive compensation should be conducted in the future.

Legislation requires that our stockholders be given the opportunity, at least once every six years, to cast an advisory vote regarding how frequently we should conduct this advisory vote on executive compensation.

The Board of Directors recommends a vote in favor of a frequency of once every year (1 year) for future non-binding stockholder votes on the compensation of the named executive officers as required by Section 14A(a)(2) of the Exchange Act.

PROPOSAL 4
RATIFICATION OF APPOINTMENT OF INDEPENDENT
REGISTERED PUBLIC ACCOUNTANTS

Although ratification by stockholders is not required by law, the Board of Directors is submitting the selection of Ernst & Young LLP for ratification as a matter of good corporate governance. The Audit Committee of the Board of Directors has recommended, and the Board of Directors has approved, the selection of Ernst & Young LLP as independent registered public accountants, to audit the financial statements of the Company for the year ending December 31, 2011 and recommends that the stockholders vote for ratification of such appointment. In the event of a negative vote on such ratification, the Board of Directors will reconsider its selection. Even if the selection is ratified, the Audit Committee may appoint a new independent registered public accounting firm at any time during the year if they believe that such a change would be in the best interests of the Company and its stockholders. Ernst & Young LLP has served as the Company's independent registered public accounts since March 19, 2008. Representatives of Ernst & Young LLP are not expected to be present at the Annual Meeting to make a statement nor be available to respond to appropriate questions.

Policy on Audit Committee Pre-Approval of Audit and Permissible Non-Audit Services of Independent Registered Public Accountants

The Audit Committee pre-approves all audit and permissible non-audit services provided by the Company's independent registered public accountants. These services may include audit services, audit-related services, tax and other services. Pre-approval is generally provided for up to one year, and any pre-approval is detailed as to the particular service or category of services and is generally subject to a specific budget. The independent registered public accountants and management are required to periodically report to the Audit Committee regarding the extent of services provided by the independent registered public accountants in accordance with this pre-approval and the fees for the services performed to date. The Audit Committee may also pre-approve particular services on a case-by-case basis. During 2010, all services provided by Ernst & Young LLP were pre-approved by the Audit Committee in accordance with this policy.

Fees billed to the Company by Ernst & Young LLP for 2010 and 2009

For the years ended December 31, 2010 and 2009, aggregate fees for professional services rendered by our independent registered public accounting firm, Ernst & Young LLP, in the following categories were as follows:

	<u>2010</u>	<u>2009</u>
Audit fees	\$ 804,525	\$ 805,714
Audit related fees	30,000	30,000
Tax fees	—	—
All other fees	—	—
Total	<u>\$ 834,525</u>	<u>\$ 835,714</u>

Audit Fees:

Audit fees for the years ended December 31, 2010 and 2009 were for the audit of the Company's annual financial statements and a review of those financial statements included in the Company's quarterly reports on Form 10-Q and services that are normally provided by the independent registered public accountants in connection with statutory and regulatory filings or engagements for that calendar year.

Audit Related Fees:

Audit related fees for the years ended December 31, 2010 and 2009 were for assurance and related services that are reasonably related to the performance of the audit or review of the Company's annual financial statements and are not reported under "Audit Fees", including fees for employee benefit plan audits.

Tax Fees:

Tax fees include fees for tax compliance, tax planning and tax advice. No such fees were billed to the Company by Ernst & Young LLP for the years ended December 31, 2010 and 2009.

All Other Fees:

All other fees consist of fees for products and services other than the services described above. No such fees were billed to the Company by Ernst & Young LLP for the years ended December 31, 2010 and 2009.

All of the fees listed in the chart above were pre-approved by the Audit Committee, which concluded that the provisions of such services by Ernst & Young LLP was compatible with the maintenance of that firm's independence in the conduct of its audit functions.

Vote Required

The affirmative vote of a majority of the votes cast will be required to ratify Ernst & Young LLP as the Company's independent registered public accountants for the year ending December 31, 2011.

The Company's Board of Directors unanimously recommends voting "FOR" the ratification of the appointment of Ernst & Young LLP as the Company's independent registered public accountants for the year ending December 31, 2011.

AUDIT COMMITTEE REPORT

The following is the Audit Committee's report submitted to the Board of Directors for the year ended December 31, 2010.

The Audit Committee of the Board of Directors has:

- reviewed and discussed with management and with Ernst & Young LLP, the Company's independent registered public accounting firm, together and separately, the Company's audited consolidated financial statements contained in its Annual Report on Form 10-K for the year ended December 31, 2010;
- discussed with Ernst & Young LLP, the matters required to be discussed by Statement on Auditing Standards No. 61, as amended (AICPA, Professional Standards, Vol. 1, AU section 380), as adopted by the Public Company Accounting Oversight Board in Rule 3200T; and
- received the written disclosures and the letter from Ernst & Young LLP required by applicable requirements of the Public Company Accounting Oversight Board regarding the independent accountant's communications with the Audit Committee concerning independence, and has discussed with Ernst & Young LLP its independence.

Based on the foregoing review and discussions, the Audit Committee recommended to the Board of Directors that the audited financial statements be included in the Company's Annual Report on Form 10-K for the year ended December 31, 2010.

THE AUDIT COMMITTEE

John R. Whitten (Chairman)
Thomas G. Greig
Richard F. Spanier

EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

Executive Summary

Rewarding continuous improvement in financial and operating results and the creation of shareholder value are key attributes of our compensation philosophy, which serves as the framework for the Company's executive compensation program. The focus of our program is on incentive arrangements that reward executives for improvement in the Company's results and appreciation in our stock value. In 2010, we continued to face challenges related to a global economic recession. Despite the economic conditions, the Company achieved many of its strategic and business objectives for the year.

- Earnings for 2010 were \$0.86 per share, compared to loss per share of (\$0.96) in 2009;
- Revenues reached \$195.3 million in 2010 versus \$78.7 million in 2009;
- Operating cash flow exceeded \$16.3 million in 2010; and
- Our stock price finished the year at \$8.23, a gain of over 22% for 2010.

As a result, our Named Executive Officers (“NEOs”) earned above target cash bonus awards for 2010 under our Key Executive Cash Bonus Plan. Similarly, our performance-based restricted stock units were earned at a range from 112% to 120% of target and will now time vest equally in 20% increments beginning in March 2011.

To underscore the importance of “pay-for-performance” in our compensation philosophy and our Company's culture, the Committee has developed incentive arrangements based on rigorous performance standards established at levels in excess of the overall industry projections in order that the Company strive to outperform the industry. Our Key Executive Cash Bonus Plan component of compensation rewards executives for achieving specific corporate, business unit and individual goals, including targets related to additional corporate and/or business unit financial measures, operational measures and activities, investor relations activities, transactional activities, and marketing initiatives depending on the executive involved.

Our long-term incentive program consists of grants of performance-based restricted stock units which are earned based on the achievement of annual performance goals and, once earned have additional time vesting requirements. Performance targets related to corporate revenue and EPS were established by the Committee prior to grant. Achievement of maximum performance can result in earning up to 120% of the target shares granted. Once earned, shares time vest equally over the next four years. Shares earned and vested are subject to the Company's stock ownership and retention guidelines.

Introduction / Corporate Governance

Compensation Committee Members and Charter

The Compensation Committee of the Board of Directors of Rudolph Technologies, Inc. (referred to herein as the “Committee” or the “Compensation Committee”) is currently composed of Daniel Berry, who serves as the Chairman of the Committee, Aubrey C. Tobey and Leo Berlinghieri, each of whom meets the requirements for membership on the Compensation Committee, including Nasdaq independence requirements and the criteria established by the SEC to be considered a “non-employee director.” In general, the Compensation Committee is responsible for reviewing and recommending for approval by the independent members of the Board of Directors the Company's compensation policies and practices, including executive salary levels and variable compensation programs, both cash-based and equity-based. The Compensation Committee reviews and recommends for approval the various elements of the Chief Executive Officer's (“CEO”) compensation. With respect to other executive officers, including each of our named executive officers, the Compensation Committee reviews the recommendations for compensation for such individuals presented to the Committee by the CEO, and the reasons therefore, and may, in its discretion, modify the compensation packages for any such individuals. The Committee then recommends such compensation packages to the Board of Directors for approval.

Compensation Consultants

From time to time, the Compensation Committee has engaged the services of outside compensation consultants to provide advice on compensation plans and issues related to the Company's executive and non-executive employees. In 2010, the Committee engaged Pay Governance, LLC, an executive compensation consulting company to provide assistance to the Committee in 2010 and early 2011. Included within this most recent assignment, Pay Governance was engaged to update the Company's competitive compensation assessment, review the CEO's contract provisions and provide other ad hoc assistance to the Compensation Committee. Pay Governance has performed no other work for the Company.

Role of Executives in Establishing Compensation

The Committee makes all determinations regarding executive compensation subject to Board approval. On an annual basis, the Committee evaluates our CEO's performance in light of the goals and objectives established for measuring his performance at the beginning of the previous fiscal year. The results of this evaluation guide the Committee in setting our CEO's salary, bonus and other incentive and equity compensation. With regard to compensation for executives other than the CEO, the Committee seeks input from the CEO. Each year, the CEO is responsible for establishing personal and corporate objectives for each of the Company's executives, including our named executive officers. These objectives are reviewed and agreed upon by the CEO and the executive subject to the approval of the Compensation Committee. In addition, as part of the annual performance review of the Company's executives, the CEO assesses the performance of his direct reports and determines the merit increase, if any, to be proposed for each individual. These merit increase proposals, each executive's personal and corporate objectives, their bonus target levels (based on a percentage of their base salary) and their equity grant proposals, are then compiled by the CEO and submitted to the Compensation Committee for review and consideration for approval. At the Compensation Committee meeting during which the executive compensation plans (bonuses, merit increases and equity grant proposals) are reviewed, the CEO attends the initial session to present the proposed plans and to answer questions. Thereafter, the Compensation Committee meets without the CEO being present to review, discuss and approve all executive compensation plans, subject to any modifications made by the Compensation Committee.

Other than set forth above, no other executives attended the Compensation Committee meetings in 2010. Further, no executives of the Company attended any of the Board's executive sessions.

Compensation Committee Activity

During 2010, the Compensation Committee met four times. As discussed above, the Company's Chairman and CEO, Paul McLaughlin, met with the Compensation Committee in early 2010 to present the proposed compensation plans for each of the Company's executives as well as the incentive award opportunities under the 2010 Employee Cash Bonus Program for certain non-executive employees. At each of its meetings held during 2010, the Compensation Committee met in executive session, without the presence of Mr. McLaughlin or any other Company executives or advisors, to review the relevant compensation matters at such times.

In 2010, the Compensation Committee took a number of actions. These included:

- Reviewing and recommending for approval the annual compensation of the Company's CEO for 2010;
- Reviewing and recommending for approval the annual compensation for each executive of the Company for 2010;
- Reviewing and recommending for approval the Key Executive Bonus Plan and Employee Cash Bonus Programs for 2010; and
- Reviewing and recommending for approval the equity incentive awards and related performance targets issued to the Company's executives for 2010.

In reviewing and setting the annual compensation for each executive of the Company, the Compensation Committee reviewed the amounts payable under each of the elements of their respective compensation plans, including their base salary, annual bonus and perquisites, as well as the equity grants for the individuals. In doing so, the Committee took into consideration both the Company's internal pay equity as well as the competitive environment within which the Company operates. In each instance, the Committee determined that the base salary for the individual executives was at an acceptable level and that the perquisites were suitable for the related positions.

In early 2011, the Compensation Committee met to review for 2011 the annual compensation of the Company CEO, the annual compensation for each executive officer, the Key Executive Bonus Plan, and the Employee Cash Bonus Program. In addition, the Committee reviewed and the Board approved the equity incentive awards for the Company's executives and other personnel. The Committee reviewed and the Board approved base salary increases to the executive team for 2011, including each of our named executive officers. In addition, the Committee reviewed and the Board approved both the Key Executive Bonus Plan and the Employee Cash Bonus Program for 2011 and the 2011 equity awards granted to the executive team, which were in the form of performance-based restricted stock units ("RSUs").

Objectives of Compensation Programs

Compensation Philosophy

The Compensation Committee believes that the most effective executive compensation program is one that is designed to reward the achievement of specific annual, long-term and strategic goals by the Company, and which aligns executives' interests with those of the stockholders by compensating executives based on specified financial performance, with the objective of improving stockholder value. The Compensation Committee evaluates both performance and compensation to ensure that the Company maintains its ability to attract and retain superior employees in key positions and that compensation provided to key employees remains competitive relative to the compensation paid to similarly situated executives at competitor companies. The Compensation Committee believes executive compensation packages provided by the Company to its executives, including the named executive officers, should include cash, select perquisites and stock-based compensation that rewards performance as measured against established goals. In addition, the Company strives to promote an ownership mentality among its key leadership and the Board of Directors, in part through the guidelines described below under the heading "Stock Ownership/Retention Guidelines."

Benchmarking

In order to meet its objective of maintaining competitive executive compensation packages, the Committee obtains third-party compensation information from time to time and reviews executive compensation programs of comparable, publicly held, high technology companies.

The Company has engaged compensation consultants at various times in the development and evaluation of its compensation programs. To the extent that compensation consultants are not engaged to consult with the Committee with respect to compensation for a position or time period, the Committee obtains market compensation information from internal resources at the Company. The Committee reviews data related to compensation levels and programs of other similar companies prior to making its decisions, but only considers such information in a general manner in order to obtain an understanding of the current compensation practices within our industry. In the fall of 2008, the Committee engaged Towers Watson to perform a comprehensive assessment of compensation levels provided to executives. Data representing company proxy disclosures and industry compensation surveys was used in conducting this assessment. Towers Watson developed a peer group of industry related companies based on the following criteria:

- Semiconductor equipment industry (publicly traded companies);
- Revenues of approximately \$500 million or less;
- Market capitalization of less than \$1 billion; and
- Competitors for business and employee talent.

The peer group for 2010, as approved by the Committee, consisted of the following 19 companies:

Advanced Energy Industries Inc.	FormFactor Inc.
ATMI Inc.	LTX-Credence Corp.
Axcelis Technologies Inc.	Mattson Technology Inc.
AXT Inc.	MKS Instruments Inc.
Brooks Automation Inc.	Nanometrics Inc.
Cabot Microelectronics Corp.	PDF Solutions Inc.
Cohu Inc.	Semitool Inc.
Cymer Inc.	Ultratech Inc.
EMCORE Corp.	Veeco Instruments Inc.
FEI Co.	

In the fall of 2010 for its 2011 review, Pay Governance used the same peer group as set forth above except for Semitool Inc., which was acquired, and Veeco Instruments Inc., who has outgrown the peer group from a revenues perspective.

The pay practices of the foregoing peer group were analyzed for base salary and short- and long-term incentives. Periodically, peer groups are used to evaluate other programs such as executive retirement, perquisites and severance policies. Our peer group data is supplemented by broader technology industry data from compensation surveys to further facilitate the evaluation of compensation levels and design. Compensation levels are developed at the low (25th percentile), middle (50th percentile) and high (75th percentile) end of the market for each pay element (base salary and short- and long-term incentives) and for total compensation. A similar process has been followed by consultants engaged by the Committee in prior years.

While the Committee reviews market data representing the market 25th, 50th and 75th percentiles for each pay element and in total, no specific philosophy of targeting a particular market compensation level has been applied for such compensation and instead the Committee uses its discretion in setting the levels as appropriate. Although we do not specifically target any element of compensation or total compensation for our executives, compensation for the pay elements and total compensation for our named executive officers in 2010 as compared to the market peer group median data was as follows:

- Base salary: 0% to 12% above the market median;
- Short-term incentive: 25% below to 10% above the market median;
- Long-term incentive: 62% below to 37% above the market median; and
- Total compensation: 27% below to 11% above the market median.

Compensation Policies

The Company has not established formal written policies regarding its compensation programs or the elements thereof with the exception of a set of guidelines that address stock ownership by executives and directors (as discussed in more detail below). However, the Compensation Committee has developed a set of core objectives and principles that it has used to develop the executive compensation program. The specific objectives of our executive compensation program are to:

- Attract and retain executive talent;
- Align compensation with Company and individual performance; and
- Foster an ownership mentality and create alignment with stockholders.

The following principles support the objectives and design of the compensation program:

- The compensation program will be fair and competitive, from an internal and external perspective, taking into account the role, unique qualifications and distinct responsibilities of each executive;
- A substantial portion of an executive's compensation will be at risk and linked to the achievement of both corporate and individual goals and changes in stockholder value;
- Retirement benefits will provide financial stability following employment but will not be the focal point of why executives choose to work for the Company;
- The use of perquisites and other executive benefits will serve a business purpose; and
- All compensation program elements taken as a whole will help focus executives to achieve the Company's financial goals.

Compensation Programs Design

The compensation program provided to the Company's executive officers is generally comprised of four parts, each selected to address different objectives: cash base salary, annual cash performance incentive bonuses, long-term incentives which may be in the form of both time-vesting and performance RSU grants and perquisites and other executive benefits. Executives are also entitled to participate in benefit programs available to all Company employees, such as our ESPP and 401(k) Plan. This design was adopted for executives by the Compensation Committee taking into consideration a number of parameters including the Company's compensation consultant's advice, comparable practices within the industry and the desire to achieve the goals discussed herein underlying the compensation plan. It is believed that as a result of this program the Company can attract, retain and motivate employees and reward the achievement of strategic corporate goals, thereby enhancing stockholder value.

Annually, the Compensation Committee reviews the elements of the compensation package as well as the overall package afforded to the executives. At this time, the Compensation Committee, in its discretion, can recommend adjustments to the elements of the program to the Board of Directors for review and approval. This review would typically be performed coincident with the evaluation of the individual executive's performance in relation to their Key Executive Cash Bonus Plan goals, salary adjustment and equity grants, if any, as discussed below.

The Committee and Board believe that each of the elements as well as the entire compensation package for Company executives is appropriate for the Company given its performance, industry, current challenges and environment.

Based on the objectives discussed in the foregoing section, the Compensation Committee seeks to structure any equity or incentive compensation program to motivate executives to achieve the business goals set by the Company and reward the executives for achieving such goals, which we believe aligns the financial incentives of our executives with the interests of our stockholders. The Committee primarily uses salary and perquisites and other executive benefits as a means for providing compensation to employees primarily for their knowledge and experience and for fulfilling their basic job responsibilities.

In establishing these components of the executive compensation package, it is the Compensation Committee's intention to set total executive compensation at a sufficient level to attract and retain a strong motivated leadership team, while remaining reasonable and in line with stockholder perception of overall fairness of executive compensation.

Base salary levels for executive officers of the Company have been generally established at or near the start of each year. The Company's annual executive cash incentive bonuses are administered through its Key Executive Cash Bonus Plan. The plan provides guidelines for the calculation of annual non-equity incentive based compensation, subject to Compensation Committee oversight and modification based on the achievement of corporate and individual goals. At its first meeting of each year, the Compensation Committee determines final bonuses for executive officers earned in the preceding year based on each individual's performance and the performance of the Company, based upon its audited financial statements, if such a plan was established for such preceding year, and also reviews the plan established for the current year and approves the group of executives eligible to participate in the plan for that year.

Each of the Company's executives, including our named executive officers, is eligible to receive equity compensation in the form of stock option and/or RSU grants under the Company's 2009 Stock Plan. All full-time and part-time employees are eligible for stock option or RSU grants. It is believed that through the Company's broad-based equity compensation plan, the economic interests of all employees, including the executives, are more closely aligned to those of the stockholders. It is also believed that this approach will allow the Company to use equity as an incentive in a balanced manner that supports the recruitment and retention of top talent. With the implementation of stock option expensing under SFAS No. 123R (now FASB ASC Topic 718) in 2006, the Company shifted the majority of its equity compensation grants away from stock options and toward RSUs, in accordance with the provisions set forth under the heading "Equity Compensation Plan." In doing so, the Company has retained the incentive aspects associated with such grants, to increase the value of our stock, while potentially reducing the dilution to the Company's stock in light of the fewer number of shares granted. The Compensation Committee generally recommends for approval by the Board the grant of equity awards at the first regularly scheduled meeting of the Board or upon completion of the Compensation Committee's review and approval process. The Committee and Board do not generally grant equity awards at other times during the year, other than in the case of a new hire or exceptional circumstances. As described in more detail below under the heading "Equity Compensation Plan," the Committee approved RSU grants, which were subject to both service-based vesting conditions and to performance conditions on February 1, 2010, shortly after at its first regularly scheduled meeting of fiscal 2010 on January 25, 2010. All RSU awards were granted at the fair market value of our common stock on the grant date. Fair market value on the grant date means the closing Nasdaq stock price per share on the grant date.

Impact of Performance on Compensation

The performance of an executive has a direct impact on the compensation received by such executive from the Company. On an annual basis, the CEO reviews the performance and compensation for the Company's executives to determine any potential salary adjustment for each individual. This assessment takes into consideration a number of factors, including the Company's profitability; the performance of applicable business units; the executive's individual performance and measurable contribution to the Company's success; and pay levels of similar positions with comparable companies in the industry and within similar technology industries.

In addition, both Company and individual performance are assessed by the CEO when proposing to the Committee any bonus payout to the named executive officers (other than the CEO) under the Key Executive Cash Bonus Plan. The Key Executive Cash Bonus Plan also includes various incentive level opportunities based on the executive's accountability and impact on Company operations, with target award opportunities that are established as a percentage of base salary. Typically, these targets range from 10% of base salary to 75% of base salary for the executives in the plan. For our named executive officers, 2010 target cash bonus opportunities were set as follows: Mr. McLaughlin - 75% of salary; Mr. Roth - 45% of salary; Mr. Little

- 50% of salary and Mr. Plisinski - 45% of salary. For our named executive officers, 2011 target cash bonus opportunities are set as follows: Mr. McLaughlin - 75% of salary; Mr. Roth - 45% of salary; Mr. Little - 50% of salary and Mr. Plisinski - 45% of salary. As Senior Vice President of Worldwide Sales, Mr. Brooks does not participate in the cash bonus aspect of the Key Executive Cash Bonus Plan but instead has approximately 25% of his total compensation tied to sales commissions at quota.

During years in which the Key Executive Cash Bonus Plan is implemented, payout is based upon achievement of corporate and personal objectives with no payout being awarded unless the Company meets 80% of the Board approved corporate financial targets established as part of the plan. Personal objectives are awarded on an "all or nothing" basis. Failure to meet the personal objectives thereby has a negative impact on the ultimate bonus payout.

In addition to a review of the prior year's objectives, the CEO and each executive also confer to propose new individual performance bonus targets for the current year, which are combined with the projected corporate targets into a discretionary incentive bonus proposal. The personal targets that are established are designed to ensure the addition of incremental value to the Company if they are achieved and are of sufficient challenge that the executive must dedicate focused effort to achieve them. These personal performance targets in 2010 included goals related to additional corporate and/or business unit financial measures, operational measures and activities, investor relations activities, transactional activities, and marketing initiatives depending on the executive involved. The corporate component to the bonus goals was set based on the Company's then current strategic and financial plans. The determination of these goals is made annually to meet the changing nature of the Company's business. Upon completion of the prior year's results and prior to implementation of the current year's proposed Key Executive Cash Bonus Plan, the results for each participating executive employee are submitted to, and reviewed by, the Compensation Committee, which considers the CEO's recommendations and determines the final bonus earned by each executive based on Company and individual performance and establishes the Company and individual metrics applicable to the next year's Key Executive Cash Bonus Plan. Thereafter, the Committee's recommendations are presented to the Board for approval in order to issue the payment of the bonus, if any, and implement the new plans for the current year. If, during the year, there are changes to the Key Executive Cash Bonus Plan that are proposed, such changes are presented to the Compensation Committee to render a decision as to their implementation. The Compensation Committee may exercise positive or negative discretion in relation to their recommendation to the Board regarding an individual's award under the Key Executive Bonus Plan based upon its review.

Finally, an executive's role, responsibilities, individual performance and contribution to the Company are factors in the size of any discretionary equity grant that may be recommended by the Compensation Committee to the Board of Directors for approval as further long term incentive to the individual.

Based upon the foregoing, the compensation which an executive may realize in the course of a year can be impacted by the positive or negative performance of such individual as well as Company performance. We intend for an individual's compensation under the Key Executive Cash Bonus Plan to be proportionate to the Company's and his or her performance against established, measurable goals. Similarly, equity awards that are performance based, such as those established in 2010, are also proportionate to the measurable goals established for the Company and the executive. However, this relationship is more subjective when applied to salary adjustments. In this case, when implemented, an executive's performance is evaluated by taking into consideration the executive's contribution to the Company, the significance of the individual's achievements in relation to the overall corporate goals and mission, and the executive's effectiveness in his or her role within the Company and then weighed against the performance of other executives. Thus, there is no formula per se which is applied in determining relative salary adjustments; however, industry norms and reference to comparative company data are considered to the extent appropriate.

Elements of Compensation Section

Elements of Executive Compensation

The Compensation Committee believes that the annual cash compensation paid to executives should be commensurate with both the executive's and the Company's performance. For this reason, the Company's executive cash compensation consists of base compensation (salary) and variable incentive compensation (annual bonus and equity awards).

A discussion of the individual components of the Company's executive compensation package follows.

Base Salary

The Company provides executives and other employees with base salary to compensate them for services rendered during the fiscal year. Base salaries for executive officers are established considering a number of factors, including the executive's individual performance, unique qualifications, role and responsibilities, measurable contribution to the Company's profitability and success, and the base salary levels of similar positions with comparable companies in the industry. The Compensation Committee supports the Company's compensation philosophy of moderation for elements such as base salary and perquisites

and other executive benefits. As noted above, under “Impact of Performance on Compensation,” base salary decisions are made as part of the Company's formal annual review process and are influenced by the performance of the Company and the individual.

The CEO's recommendations for salary adjustments (other than his own) are reviewed and modified as deemed appropriate by the Compensation Committee and then presented to the Board for approval.

In 2009, no base salary rate increases were implemented. Each named executive officer realized reduced compensation in 2009 as compared to 2008 due to mandatory time-off without pay as a result of the challenging economic conditions during that time. In 2010, base salary rate increases for each executive officer for 2010 were implemented, which increases for named executive officers ranged from 3% to 5%. In 2011, similar base salary rate increases for each executive officer for 2011 were implemented ranging from 3% to 5%.

Short-Term Bonus Plan

An executive's annual performance award under the Key Executive Cash Bonus Plan generally depends on the financial performance of the Company relative to profit, revenue or other financial targets and the executive's individual performance. The incentive opportunity is generally set at a higher percentage for more senior officers, with the result that such officers have a higher percentage of their potential total cash compensation at risk.

When established by the Compensation Committee, most executive employees, including all of our named executive officers (other than Mr. Brooks), participate in the Company's Key Executive Cash Bonus Plan, which is designed to generate additional incentive for maximizing the employee's performance in realizing the corporate strategic goals and mission. As noted above, under “Impact of Performance on Compensation,” this plan is individualized to each participating executive employee and generally is based upon the financial performance of the Company relative to profit and revenue targets and the executive's individual performance. The plan is not currently administered to comply with rules set forth under IRC Section 162(m) regarding performance-based compensation, although the Committee is aware of this provision and the potential benefits of compliance.

When implemented, an executive may earn a short-term incentive award due to success as it relates to the executive's individual goals, as long as the Company's performance exceeds the threshold of the corporate performance goal. The Committee has the ability to use its discretion in determining the size of any bonus award and did not do so in 2010.

If, during the year, there are changes to the plan that may be proposed, such proposed changes are presented to the Compensation Committee and then the Board or the Compensation Committee, as appropriate, which then renders a decision as to implementation. Upon completion of the year, the individual's and the Company's results with respect to the performance targets are then assessed and presented to the Compensation Committee along with the proposed plans for the current year. The Compensation Committee reviews the submitted payouts and suggests changes to the extent it deems such action necessary. Key Executive Cash Bonus Plan awards are paid out following completion of the annual audit by the Company's independent registered public accountants. This generally occurs in the first quarter of each year, and an executive must remain on the payroll at the payment date to receive payment.

However, in December 2010, the Committee approved an early payout of initial bonus awards under the Key Executive Cash Bonus Plan for 2010 to all eligible participants, including the Named Executive Officers. These initial bonus awards were based on achievement of annual performance metrics under the plan as of the close of the Company's third quarter. The Committee determined to take this action in order to provide its executive officers with an early reward for the Company's exceptional performance during the first three quarters of fiscal 2010. The payments were subject to a clawback provision that required participants to reimburse the Company for any amount that was paid to the participant in excess of the amount that was ultimately determined to be earned under the Company's audited financial results for the full fiscal year. In the event that the Committee determined that a participant was entitled to additional incentive compensation under the plan based on the Company's full year financial results, an additional payment equal to such amount would be made to the participant in March 2011, following the annual audit by the Company's independent registered public accountants. Due to the Company's performance for the full fiscal year, the Company's executive officers were entitled to such additional payments under the Key Executive Cash Bonus Plan in March 2011.

While the Key Executive Bonus Plan was not established in 2009 due to the challenging economic climate, the Compensation Committee reinstated the Key Executive Cash Bonus Plan in 2010 with some modifications. The 2010 plan was established such that each named executive officer's potential cash award was subject to the achievement of 2010 corporate financial objectives relating to Company revenue and non-GAAP earnings per share (“EPS”). The targets established for 2010 were of comparable difficulty for prior years. The cash bonus potential was divided into two portions, 40% which has additional performance requirements (“Additional Performance Component”) and 60% which was to be paid out based on achievement of meeting 80% of the 2010 corporate revenue and EPS goals, without further performance requirements. For the Additional Performance Component, the cash bonus payout was contingent on the further meeting of the 2010 corporate revenue and EPS

goals from the 80% threshold to the 100% level of each goal as well as personal performance goals. In the event the Company exceeded the 2010 corporate revenue and/or EPS goals, additional upside cash bonus payout was proposed to be made under the Additional Performance Component to the executive. The personal performance goals in 2010 included targets related to additional corporate and/or business unit financial measures, operational measures and activities, investor relations activities, transactional activities, and marketing initiatives depending on the executive involved.

In each year the Company has offered the Key Executive Cash Bonus Plan, the corporate targets annually established have been set at levels in excess of the overall industry projections in order that the Company drive to outperform the industry. Between 2006 and 2008, the Company achieved 100%, 12.5%, and 9.5% of the corporate performance goals. Due to the economic conditions, no plan was established for 2009, but with the reinstatement of the plan in 2010, the Company achieved the following performance results (dollars in millions, except per share data):

Performance Measure	Threshold	Target	Actual Performance Achieved	Actual Performance Achieved Percentage
Corporate Revenue	\$121.0	\$151.0	\$195.3	174%
Non-GAAP Earnings Per Share (1)	\$0.23	\$0.29	\$1.10	776%

(1) Non-GAAP financial measures exclude the impact of under-utilized manufacturing facilities costs, litigation fees, acquisition related expenses, share based compensation, and restructuring costs.

The 2011 plan has been established such that each named executive officer's potential cash award is subject to the achievement of 2011 corporate financial objectives relating to Company revenue and non-GAAP EPS. The targets established for 2011 are of comparable difficulty as compared to that cited above for prior years. Should the Company not reach 80% of either the 2011 corporate revenue or EPS goal, then no payout under the plan will be issued to executives. In the event the threshold levels are attained then the cash bonus potential of the plan is divided into a maximum of four portions: two variable components related to Company revenue and to EPS ("Variable Components") and two fixed components related to personal performance goals and Company business unit performance goals ("Fixed Components"). Only executives associated with a particular Company business unit have a portion of their cash bonus potential allocated to this aspect of the Fixed Components. Cash bonuses arising from the Fixed Components will be awarded on an "each or nothing" basis. At revenue levels or EPS at or above the 80% thresholds, each business unit performance goal, if applicable, and personal performance goal can be earned in full. If neither the revenue nor the EPS exceed the 80% thresholds, then payouts from business unit goals and personal goals will automatically be zero. Cash bonuses arising from the Variable Components will be awarded starting at the 80% threshold level and increase linearly up to the plan target amount. If the plan target is exceeded in either or both categories then the cash payout will increase for the applicable portion of the Variable Component at 1/2 of the rate from that used between 80% and 100%. The personal performance goals in 2011 include targets related to additional corporate financial measures, operational measures and activities, investor relations activities, transactional activities, and marketing initiatives depending on the executive involved. The business unit performance goals in 2011 include targets related to additional business unit financial measures and operational measures and activities depending on the executive involved. As Senior Vice President of Worldwide Sales, Mr. Brooks does not participate in the cash bonus aspect of the Key Executive Cash Bonus Plan but instead has approximately 25% of his total compensation tied to sales commissions at quota.

Equity Compensation Plan

The Compensation Committee currently administers the Company's 2009 Stock Plan, which was approved by stockholder vote on May 19, 2009 and was effective as of November 1, 2009. Pursuant to the 2009 Stock Plan, employees and members of management, including the Company's named executive officers, may receive annual grants of incentive stock options, non-qualified stock options and/or RSUs (collectively, "Grants") at or about the time of their performance reviews each year from a pool of shares previously approved by Rudolph stockholders. The Company's long-term incentive compensation program seeks to align the executives' interests with the Company's stockholders by rewarding successes in stockholder returns. Additionally, the Committee desires to foster an ownership mentality among executives by providing stock-based incentives as a portion of compensation. In determining which type of stock vehicles to include in the program, the Committee considers the following attributes:

- Increases in total stockholder return;
- Stock price appreciation; and/or
- Continued loyalty to, and employment with, the Company.

Over the past several years, the Committee has periodically awarded executives with grants of stock options and/or time-based or performance-based RSUs.

The purpose of the Grant program is to provide incentive to executives and other key employees of the Company to work to maximize long-term return to the Company's stockholders. The number of Grants awarded to each executive officer is made on a discretionary rather than formula basis by the Compensation Committee. Similarly, the allocation of shares from the Grant pool to the CEO is determined by the Compensation Committee. Regarding the Grant process, the Compensation Committee does not delegate any related function, and the named executive officers are not treated differently from other executive officers.

In awarding Grants to the executive officers, the CEO (except in connection with his own Grants) and the Compensation Committee consider a number of subjective factors, including the executive's position and responsibilities at the Company, such executive's individual performance, the number of Grants held (if any) and other factors that they may deem relevant.

In 2010, the Compensation Committee awarded executives with a grants of time-based and performance-based RSUs with the number of RSUs allocated to each named executive determined in a similar manner to the RSU awards discussed above. Each named executive officer's equity award was subject to the achievement of the 2010 corporate financial objectives relating to Company revenue and non-GAAP EPS. The corporate targets were established at levels in excess of the overall industry projections in order that the Company strives to outperform the industry. In 2009, the first year the Company employed performance based equity awards, the target was fully met and 100% of the RSU award was granted. The 2010 equity award was divided into two portions, 20% of which had the Additional Performance Component and 80% of which was paid out based on achievement of meeting 80% of the 2010 corporate revenue and EPS goals, without further performance requirements. The goals for corporate revenue and non-GAAP EPS are the same as those used for 2010 in the Key Executive Bonus Plan and are included in the table on the previous page. For the Additional Performance Component, the bonus payout was contingent on the further meeting of the 2010 corporate revenue and EPS goals from the 80% threshold to the 100% level of each goal as well as personal performance goals. In the event the Company exceeded the 2010 corporate revenue and/or EPS goals, additional upside in the number of RSUs awarded under the Additional Performance Component was proposed to be made to the executive up to a cumulative maximum of 120% of the award target level. The personal performance goals in 2010 include targets related to additional corporate and/or business unit financial measures, operational measures and activities, investor relations activities, transactional activities, and marketing initiatives depending on the executive involved. As a result of the Company achieving 174% of the corporate revenue performance goal and 776% of the corporate EPS performance goal, each named executive officer received the RSU grant in an amount equal to a range of 112% to 120% of their respective award target levels. All RSUs earned under the 2010 program time-vest equally in 20% increments beginning in March 2011.

In 2011, the Compensation Committee awarded executives with a grant of RSUs with the number of RSUs allocated to each named executive determined in a similar manner to the RSU awards discussed above. Twenty percent (20%) of each named executive officer's equity award is subject to the achievement of the 2011 corporate financial objectives relating to Company revenue and EPS. The corporate targets are established at levels in excess of the overall industry projections in order that the Company drive to outperform the industry. For this component of the RSU grant, the bonus payout is contingent on the meeting of the 2011 corporate revenue or EPS goals starting at the 80% threshold and increasing linearly to the 100% level of the goal with the greatest achievement. Should the Company exceed the 2011 corporate revenue and/or EPS goals, additional upside in the number of RSUs awarded under this component will be made to the executive up to a up to a cumulative maximum of 120% of the award target level. The remaining 80% of the RSU grant will be subject solely to service-based vesting conditions. All RSUs earned will time-vest equally in 20% increments beginning in March 2012.

Personal Benefits and Perquisites

All employees of the Company, including its executives, receive a benefit package ("Benefit Package") which includes the following components: health and dental insurance, elective vision care program, life insurance and accidental death and dismemberment coverage, 401(k) savings plan, short and long term disability insurance with supplemental income continuation, health care and dependent care flexible spending account programs, employee assistance program (EAP), tuition reimbursement plan, employee stock purchase plan, employee referral bonus program, and length of service awards. We believe that these benefits are consistent with industry practice and are necessary in recruiting and retaining qualified employees. In addition to the Benefit Package, executive employees receive the following perquisites: a car allowance of \$500 per month, Company paid tax preparation services and Company paid membership in one airline executive club. The foregoing perquisites were determined based on a review of comparable company offerings performed by the Company and its compensation consultant and are evaluated annually as part of the Company's compensation review. It is believed that these perquisites are reasonable and consistent with the Company's overall compensation program to better enable the Company to attract and retain superior employees for key positions.

Employee Stock Purchase Plan

The Company has maintained an Employee Stock Purchase Plan since 1999. The Company's 2009 Employee Stock Purchase Plan was approved by stockholder vote on May 19, 2009 and was effective as of November 1, 2009. The Compensation Committee currently administers the Company's 2009 Employee Stock Purchase Plan. Under the terms of our current and prior Employee Stock Purchase Plans, eligible employees may elect to have up to 15% of eligible compensation deducted from their base salary and applied to the purchase of shares of Company common stock. The price the employee must pay for each share of stock is 95% of the fair market value of the Company common stock at the end of the applicable six month purchase period. The Employee Stock Purchase Plans qualify as a non-compensatory plan under section 423 of the Internal Revenue Code.

Other Material Elements

The Company does not have any deferred compensation plans and there are no other material elements related to the Company's compensation of its executives that are not otherwise specified herein.

Employment and Change-in-Control Agreements

Overview. While the Company utilizes employment agreements on a limited basis, we currently maintain employment agreements or arrangements with each of our named executive officers. In 2000, the Company entered into management agreements with Messrs. McLaughlin and Roth, each effective as of July 24, 2000. These individuals previously had employment agreements with the Company at the time when it was a private entity and at the time of the Company's initial public offering, each executive's respective agreement was redrafted to reflect terms that we believe are appropriate for such officer's service in such respective capacities with a publicly held corporation (e.g. rights in equity holdings).

Mr. McLaughlin's management agreement provides for an initial term of two years with automatic renewals for additional two-year terms and Mr. Roth's agreement provides for a term of one year with automatic renewals for additional one-year terms, unless the Company or the applicable executive delivers a notice of non-renewal to the other party. Mr. McLaughlin's agreement prohibits him from competing with the Company in any way or soliciting its employees during the term of his employment and for two years after termination of his employment. Mr. Roth's agreement prohibits him from competing with the Company in any way or soliciting its employees during his terms of employment and for one year after termination of his employment. Upon the merger with August Technology Corporation, the Company assumed certain executive employment agreements into which August Technology had entered, including the employment agreements of Messrs. Plisinski and Brooks. Pursuant to these agreements, each executive has a set annual base salary that may be adjusted upward or downward by the CEO or Board of Directors.

Pursuant to these arrangements, each of the foregoing named executive officers may be entitled to payments following a change-in-control event. The Committee believes that providing severance in a change-in-control situation is beneficial to stockholders so that executives may remain objectively neutral when evaluating a transaction that may be beneficial to stockholders yet could negatively impact the continued employment of the executive. As a result, in August 2009, the Compensation Committee further authorized the Company to enter into a Change-in-Control Agreement with Mr. Little and authorized amendments to the management agreements of with Messrs. McLaughlin and Roth to include comparable change-in-control terms.

See "Potential Payments Upon Termination of Employment or Change-in-Control" below for a description of these arrangements and quantification of payments that the Named Executive Officers would have been entitled to receive upon applicable hypothetical termination scenarios as of December 31, 2010.

Retention Incentive. The 2009 amendment to the management agreement of Mr. McLaughlin included a retention incentive which provides that should Mr. McLaughlin remain in the employ of the Company through June 30, 2012, then, upon retiring, he would be entitled to receive:

- His final paycheck, including payout of all earned but unused vacation hours;
- Accelerated vesting of any equity awards that have not previously vested, which would remain exercisable within the shorter of three years from the termination date or the remaining terms of the exercise life of such equity award; and
- The establishment of a Health Savings Account ("HSA") in the amount of \$160,000 for the benefit of Mr. McLaughlin and his spouse whereby, after his retirement, Mr. McLaughlin can pay for his and his spouse's Qualified Medical Expenses as reflected in IRS Publication 502. Mr. McLaughlin is provided the option to elect to continue participation in the Company's medical benefit plans for any duration, interrupted or not, after his retirement, which may be funded through the HSA.

This retention incentive was provided to Mr. McLaughlin to help assure that his services are retained at least through the specified target date.

Other Elements of Post-Termination Compensation

The Company does not have a practice of providing retirement benefits, including any supplemental executive retirement plans (SERPs), to its executives. The Company retains the discretion to utilize the offer of severance and/or change-in-control protection as an incentive in its hiring and retention of executives.

Non-Solicitation and Non-Competition Policy. The Company maintains a policy of entering into an agreement with each of its new employees, including executives which contains both non-solicitation and non-competition provisions. The non-solicitation provisions apply for one year after termination of the individual's employment while the non-competition provisions are in effect during the individual's employment and for one year thereafter. Each of the Company's executives has entered into these covenants on the stated terms with the Company, except Mr. McLaughlin, whose non-solicitation and non-competition provisions are in place during, and extend for two years after the end of, his employment with the Company. In each case, these covenants have been implemented to protect the confidential information, goodwill and other assets of the Company that are transferred to the individual during employment and to preclude possible unfair competition against the Company through the use of such information. For those individuals with employment agreements, should a breach of the non-solicitation or non-competition terms of their agreements occur, this could give rise to the Company declaring a breach under the agreement and terminating all severance payments thereunder.

General Termination Benefits. Upon termination of an executive's employment with the Company, the individual is entitled to receive his or her base salary earned through the termination date, prorated on a daily basis, along with a payout for all accrued but unused vacation time earned through such date. Thereafter, further cash compensation to the executives is discontinued, except to the extent that severance or change-in-control payments must be made per the discussions above. This includes the removal of any obligation by the Company to pay any unpaid bonuses, except in the cases of Messrs. McLaughlin and Roth per their management agreements. In addition to the foregoing, upon termination, all perquisites and benefits cease. As discussed above, certain executives with the Company who have entered into employment agreements are entitled to elect to continue group health or other group benefits as allowed by COBRA. The Company retains the right to offer severance and/or payment of COBRA benefits to any individual who is terminated from the Company at its discretion.

Equity Awards Upon Termination. Except as described under "Potential Payments Upon Termination of Employment or Change-in-Control" below, in the event an individual who has received RSU grants from the Company ceases in their employment or engagement to provide services to the Company, under the Company's Restricted Stock Purchase Agreement and in accordance with the Company's 1999 and 2009 Stock Plans, any RSU grants which are not vested as of the individual's termination date are forfeited immediately, without any further action by the Company. Similarly, in the event an individual who has received stock option grants from the Company ceases in their employment or engagement to provide services to the Company, under the Company's Employee Stock Option Agreement and in accordance with the Company's 1999 and 2009 Stock Plans, any vested stock options which are not exercised within three months of the individual's termination date are forfeited, without any further action by the Company. As Administrator of the Company's 1999 and 2009 Stock Plans, the Compensation Committee retains the right to waive or amend such forfeiture of any unvested RSU and/or stock option grants at its discretion.

Stock Ownership/Retention Guidelines

The Company has established guidelines related to stock ownership and retention for its executives and its outside directors. The guidelines require that each executive, including each of the named executive officers, who directly reports to the CEO owns at least 2,500 shares of Company common stock within one year of the assumption of an executive position and thereafter maintains such ownership status during the course of employment with the Company. Executives of the Company who are at the Vice President level but do not directly report to the CEO are required to own at least 1,250 shares of Company common stock within one year following the assumption of such position with the Company and thereafter maintain such ownership status during the course of employment. With regard to non-employee Directors of the Company, each Director is required to own at least 2,500 shares of Company common stock within one year following the date of election or appointment to the Board and thereafter maintain such ownership status during the terms of service as a Director of the Company. The Company has no other stock retention policies applicable to its employees, including the named executive officers and other executives, or directors. The Company adopted these policies to further align the interest of the executives and non-employee directors with the interests of stockholders, have a stake in the long-term financial future of the Company and to further promote the Company's commitment to sound corporate governance while allowing them to prudently manage their personal financial affairs.

In assessing compliance with the foregoing guidelines, the Company takes into consideration only the ownership of common stock in the Company. To that end, unearned RSUs and vested or unvested stock options do not qualify as shares for purposes of compliance with the Company's stock ownership and retention guidelines.

The Company's stock ownership and retention guidelines are reviewed annually by the Nominating and Governance Committee of the Company. At their last review on July 28, 2010, the Nominating and Governance Committee reviewed the compliance of the Company's executives and directors with the terms of the policies. It was determined that all executives and directors who were with the Company and acting in their executive/director capacities for periods in excess of one year were in compliance with the ownership requirements. In the event that an individual were to not own below the requisite number of shares, the Company would inform the individual of the discrepancy and thereafter, such individual would be required to acquire sufficient shares to reach the threshold amount. Should such individual continue to not own the minimum number of required shares, additional action, including possible removal from the executive role or a determination to not nominate the director for election would be considered by the Board. At its July 2010 meeting, the Nominating and Governance Committee determined that the ownership and retention requirements continue to be fully appropriate and no changes were required at that time.

The Nominating and Governance Committee has scheduled its review of the Company's stock ownership and retention guidelines for its July 2011 meeting and at this annual review will evaluate the appropriateness of the foregoing stock ownership levels for 2012 based in part on the trailing three-year weighted average of the Company's stock price at the time of the evaluation, as well as other considerations such as market conditions and comparable practices within the industry.

The Company has no other policies regarding stock ownership or retention and does not have a policy which addresses hedging of Company stock ownership by executives other than the Company's policy relating to insider trading.

Adjustments or Recovery of Prior Compensation

The Company does not presently have any policies or practices that provide for the recovery or adjustment of amounts previously awarded or paid to a named executive officer in the event that financial results or other performance measures on which an award or payment were based were to be restated or adjusted. However, if the Company is required to restate its financial results due to material noncompliance with any financial reporting requirements as a result of misconduct, the Sarbanes-Oxley Act of 2002 requires the CEO and Chief Financial Officer to disgorge (i) any bonus or other incentive-based or equity-based compensation received from the Company during the 12-month period following the first public issuance of the financial document embodying such financial reporting requirement; and (ii) any profits realized from the sale of Company stock during that 12-month period. In addition, Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act requires the SEC to direct the national securities exchanges to prohibit the listing of any security of an issuer that does not develop and implement a clawback policy. The SEC has not yet finalized its rules related to these clawback policies. Once the final rules are in place, the Company will adopt a policy that complies with SEC regulations.

Impact of Regulatory Requirements

The Company's equity grant policies have been impacted by the implementation of SFAS No. 123R, which was adopted on January 1, 2006 (now FASB ASC Topic 718). The Company has been generally required to value equity granted after the adoption this accounting pronouncement under the fair value method and expense those amounts in the income statement over the award's vesting period. Because of the financial impact of this accounting pronouncement, the current intent of the Company is to limit the number of shares granted. The Committee believes that this strategy is best aligned with the Company's stakeholder philosophy because it is intended to limit future earnings dilution resulting from the exercise of options while at the same time retains an equity component to compensation, which the Company believes is important to employee commitment.

IRS Limits on Deductibility of Compensation

An income tax deduction under Section 162(m) of the Internal Revenue Code will generally be available for annual compensation in excess of \$1 million paid to the executive officers only if that compensation is "performance-based" and complies with certain other tax law requirements. Although the Compensation Committee considers deductibility issues when approving executive compensation elements, the Company believes that the other compensation objectives, such as attracting, retaining and providing incentives to qualified managers, are important and may supersede the goal of maintaining deductibility. Consequently, the Compensation Committee may make compensation decisions without regard to deductibility when it believes it is in the best interests of the Company and its stockholders to do so.

Conclusion

In reviewing its compensation programs, the Company has concluded that each element of compensation as well as the total compensation delivered to its named executive officers and its other executive officers are reasonable, appropriate and in the best interests of the Company and its stockholders. The Company believes that this is primarily attributable to the success of the program in meeting the Company's goals of establishing a compensation package that attracts and retains a strong motivated leadership team, aligns the financial incentives of the executives with the interests of the stockholders, and rewards the achievement of specific annual, long-term and strategic goals by the Company. At the same time, the compensation package remains consistent with those offered by competitive companies within the industry. The Committee and the Board believe that the compensation programs established by the Company have enabled it to recruit and secure a talented and motivated leadership team by which the Company drives toward the ultimate objective of improving stockholder value.

COMPENSATION COMMITTEE REPORT ON EXECUTIVE COMPENSATION

We, the Compensation Committee of the Board of Directors, have reviewed and discussed the Compensation Discussion and Analysis (“CD&A”) within the Executive Compensation section of this Proxy Statement with the management of the Company. Based on such review and discussion, we are of the opinion that the executive compensation policies and plans provide appropriate compensation to properly align Rudolph Technologies, Inc.’s performance and the interests of its stockholders through the use of competitive and equitable executive compensation in a balanced and reasonable manner, for both the short and long-term. Accordingly, we have recommended to the Board of Directors that the CD&A be included as part of this proxy filing.

THE COMPENSATION COMMITTEE

Daniel H. Berry (Chairman)
Leo Berlinghieri
Aubrey C. Tobey

Summary Compensation Table

The table below sets forth information for the years ended December 31, 2010, 2009 and 2008 concerning the compensation of the Chief Executive Officer, the Chief Financial Officer, the other most highly compensated executive officers and the most highly compensated non-executive officer of the Company who were serving as such at December 31, 2010 (together, the "Named Executive Officers"):

Name and Principal Position	Year	Salary (\$)	Stock Awards (\$) (1)	Option Awards (\$) (1)	Non-Equity Incentive Plan Compensation (\$) (2)	All Other Compensation (\$) (3)	Total (\$)
Paul F. McLaughlin	2010	\$580,985	\$677,000	—	\$704,626	\$24,018	\$1,986,629
Chairman and Chief Executive Officer	2009	\$555,864	\$629,600	\$770,010	—	\$20,809	\$1,976,283
	2008	\$565,456	\$800,000	—	\$125,556	\$22,064	\$1,513,076
Steven R. Roth	2010	\$275,334	\$101,550	—	\$196,330	\$19,464	\$592,678
Senior Vice President, Finance and Administration and Chief Financial Officer	2009	\$268,065	\$137,725	\$250,701	—	\$15,016	\$671,507
	2008	\$272,370	\$175,000	—	\$47,984	\$18,014	\$513,368
Nathan H. Little	2010	\$259,384	\$142,170	—	\$162,760	\$18,595	\$582,909
Executive Vice President and General Manager, Inspection Business Unit	2009	\$232,786	\$157,400	\$299,946	—	\$15,229	\$705,361
	2008	\$259,719	\$200,000	—	\$44,737	\$18,564	\$523,020
Michael P. Plisinski	2010	\$248,986	\$101,550	—	\$144,898	\$7,054	\$502,488
Vice President and General Manager, Data Analysis & Review Business Unit	2009	\$242,413	\$118,050	—	—	\$5,252	\$365,715
	2008	\$247,188	\$150,000	—	\$21,544	\$6,832	\$425,564
D. Mayson Brooks (4)	2010	\$378,274	\$33,850	—	—	\$4,298	\$416,422
Senior Vice President, Worldwide Sales and Field Operations	2009	\$328,727	\$78,700	—	—	\$4,614	\$412,041
	2008	\$338,234	\$100,000	—	—	\$5,581	\$443,815

(1) Amounts reflected represent the grant date fair value for each share-based compensation award granted to the executive officer during the covered year, calculated in accordance with FASB ASC Topic 718. The assumptions used in determining the grant date fair values of awards are set forth in Note 12 to our consolidated financial statements, which are included in our Annual Report on Form 10-K filed with the SEC on February 28, 2011. For 2010, the amount reported represents the grant date fair value attributable to the 2010 award of performance-based RSUs, assuming that the performance conditions were satisfied based on the probable outcome of such conditions at the time of grant. Had each Named Executive Officer earned an award based on achievement of the maximum level of performance conditions, the amounts would have been as follows: Mr. McLaughlin, \$812,400; Mr. Roth, \$121,860; Mr. Little, \$170,604; Mr. Plisinski, \$121,860; and Mr. Brooks, \$40,620. Based on the Company and individual actual performance during fiscal 2010, the grant date fair value amounts for awards actually earned in 2010 were as follows: Mr. McLaughlin, \$812,400; Mr. Roth, \$121,860; Mr. Little, \$159,237; Mr. Plisinski, \$116,254; and Mr. Brooks, \$40,620.

(2) Represents performance bonus awards under the key executive cash bonus plan. With respect to the 2010 amounts, the performance bonus awards were earned in 2010 and a portion was paid out in 2010 with the remaining portion paid out in 2011. In 2009, due to the global economic crisis, the key executive cash bonus plan was temporarily suspended. With respect to the 2008 amounts, the performance bonus awards were earned in 2008, but paid in 2009.

(3) The table below details the components of this column.

Name	Year	Matching Contribution to 401(k)	Insurance (a)	Perquisites	Total "All Other Compensation"
Paul F. McLaughlin	2010	\$10,259	\$864	\$12,895 (b)	\$24,018
Steven R. Roth	2010	\$8,250	\$864	\$10,350 (c)	\$19,464
Nathan H. Little	2010	\$7,258	\$864	\$10,473 (d)	\$18,595
Michael P. Plisinski	2010	\$6,190	\$864	—*	\$7,054
D. Mayson Brooks	2010	\$3,434	\$864	—*	\$4,298

* Less than \$10,000 of perquisites in the aggregate, and therefore, zero perquisites disclosed.

- (a) Insurance is defined as the premium associated with coverage under the group term life insurance and accidental death and dismemberment insurance plans provided by the Company to its employees. Coverage is equal to the lesser of two times salary or \$450,000.
 - (b) Perquisites include automobile allowance (\$6,000), estimated tax return preparation fees (\$6,500), and reimbursement of executive airline club membership for the year ended December 31, 2010.
 - (c) Perquisites include automobile allowance (\$6,000), tax return preparation fees (\$4,000) and reimbursement of executive airline club membership for the year ended December 31, 2010.
 - (d) Perquisites include automobile allowance (\$6,000), tax return preparation fees (\$4,000), reimbursement of executive airline club membership and the amount paid by the Company for opting out of health insurance coverage for the year ended December 31, 2010.
- (4) Mr. Brooks' salary consists of both a base salary and a sales commission at quota, which is targeted to approximate 25% of total cash compensation.

Grants of Plan-Based Awards in 2010

The following table sets forth information with respect to non-equity and equity incentive plan awards granted in 2010 to the Named Executive Officers.

	Grant Date	Estimated Future Payouts Under Non-Equity Incentive Plan Awards (\$) (1)			Estimated Future Payouts Under Equity Incentive Plan Awards (#) (2)			Grant Date Fair Value of Stock and Option Awards (\$)
		Threshold (d)	Target (e)	Maximum (f)	Threshold (d)	Target (e)	Maximum (f)	
Paul F. McLaughlin	2/1/2010	—	583,657	n/a	—	100,000	120,000	677,000
Steven R. Roth	2/1/2010	—	276,107	n/a	—	15,000	18,000	101,550
Nathan H. Little	2/1/2010	—	262,500	n/a	—	21,000	25,200	142,170
Michael P. Plisinski	2/1/2010	—	249,685	n/a	—	15,000	18,000	101,550
D. Mayson Brooks	2/1/2010	n/a	n/a	n/a	—	5,000	6,000	33,850

- (1) The amounts reported in these columns represent the annual cash incentive opportunities under the Company's Key Executive Bonus Plan for each of our Named Executive Officers for the 2010 performance period. The metrics against which performance was measured under this plan, as well as other details regarding the plan, are discussed above in the Compensation Discussion and Analysis under Short-Term Bonus Plan. The amounts actually earned by our Named Executive Officers under the plan are reflected in the "Non-Equity Incentive Plan Compensation" column of the Summary Compensation Table above.
- (2) The amounts reported in these columns represent the award opportunities under the Company's 2010 performance-based RSU program. The metrics against which performance was measured under this program, as well as other details regarding the plan, are discussed above in the Compensation Discussion and Analysis under the heading "Equity Compensation Plan". This award was granted under the Company's 2009 Stock Plan. 20% of the RSUs earned under this plan vested on March 1, 2011 and the remaining RSUs will vest 20% on each of the subsequent four anniversaries of the respective grant dates with the exception of Mr. McLaughlin's award, the vesting of which may accelerate pursuant to the terms of Mr. McLaughlin's management agreement with the Company.

Outstanding Equity Awards at 2010 Year-End

The following table sets forth information with respect to outstanding equity awards held by the Named Executive Officers at December 31, 2010.

Name	Grant Date(1)	Option Awards (2)				Stock Awards	
		Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested #(3)	Market Value of Units of Stock That Have Not Vested \$(4)
Paul F. McLaughlin(5)	1/26/2001	125,000	—	\$40.13	1/25/2011		
	10/19/2001	30,000	—	\$23.40	10/18/2011		
	10/18/2002	35,000	—	\$14.62	10/17/2012		
	1/29/2003	150,000	—	\$16.41	1/28/2013		
	1/29/2004	75,000	—	\$26.20	1/28/2014		
	2/16/2006					7,000	\$57,610
	2/1/2007					32,000	\$263,360
	5/27/2008					26,280	\$216,284
	2/10/2009					128,000	\$1,053,440
	8/20/2009	34,400	137,600	\$6.80	8/19/2019		
2/1/2010					120,000	\$987,600	
Steven R. Roth	1/26/2001	50,000	—	\$40.13	1/25/2011		
	10/19/2001	15,000	—	\$23.40	10/18/2011		
	10/18/2002	10,000	—	\$14.62	10/17/2012		
	1/29/2003	45,000	—	\$16.41	1/28/2013		
	1/29/2004	25,000	—	\$26.20	1/28/2014		
	2/16/2006					1,600	\$13,168
	2/1/2007					7,000	\$57,610
	5/27/2008					5,748	\$47,306
	2/10/2009					28,000	\$230,440
	8/20/2009	11,200	44,800	\$6.80	8/19/2019		
2/1/2010					18,000	\$148,140	
Nathan H. Little	5/22/2001	25,000	—	\$50.30	5/21/2011		
	10/19/2001	15,000	—	\$23.40	10/18/2011		
	1/29/2003	75,000	—	\$16.41	1/28/2013		
	1/29/2004	35,000	—	\$26.20	1/28/2014		
	2/16/2006					2,000	\$16,460
	2/1/2007					8,000	\$65,840
	5/27/2008					6,570	\$54,071
	2/10/2009					32,000	\$263,360
	8/20/2009	13,400	53,600	\$6.80	8/19/2019		
	2/1/2010					23,521	\$193,578
Michael P. Plisinski(6)	2/6/2004	1,324	—	\$24.20	2/6/2014		
	10/22/2004	921	—	\$10.00	10/22/2014		
	12/30/2004	7,624	—	\$13.62	12/30/2014		
	3/7/2005	2,329	—	\$15.87	3/7/2015		
	4/29/2005	26,687	—	\$15.48	4/29/2015		
	7/21/2005	735	—	\$16.71	7/21/2015		
	1/25/2006	11,914	—	\$14.81	1/25/2016		

Name	Grant Date(1)	Option Awards (2)				Stock Awards	
		Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options (#)	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)(3)	Market Value of Units of Stock That Have Not Vested (\$)(4)
Micheal P. Plisinski (continued)	5/23/2006					2,000	\$16,460
	2/1/2007					7,000	\$57,610
	5/27/2008					4,927	\$40,549
	2/10/2009					24,000	\$197,520
	2/1/2010					17,172	\$141,326
D. Mayson Brooks(7)	2/6/2004	4,766	—	\$24.20	2/6/2014		
	4/30/2004	1,467	—	\$17.19	4/30/2014		
	3/7/2005	1,926	—	\$15.87	3/7/2015		
	7/21/2005	377	—	\$16.71	7/21/2015		
	1/25/2006	8,108	—	\$14.81	1/25/2016		
	5/23/2006					1,000	\$8,230
	2/1/2007					4,000	\$32,920
	5/27/2008					3,285	\$27,036
	2/10/2009					16,000	\$131,680
	2/1/2010					6,000	\$49,380

(1) For better understanding of this table, we have included an additional column showing the grant date of stock options and restricted stock units.

(2) Stock options became exercisable in accordance with the vesting schedule below with the exception of Mr. McLaughlin's August 20, 2009 grant (see explanation at note 5 below):

Grant Date	Vesting
1/26/2001 — 1/29/2003	1/5 on the first anniversary of the grant date with 1/60 monthly thereafter and vesting accelerated on 4/15/05
1/29/2004	1/5 on the first anniversary of the grant date with 1/60 monthly thereafter and vesting accelerated on 4/15/05
2/6/2004 — 4/30/2004	Full vesting at grant date
10/22/2004	Full vesting at 120 days
12/30/2004	1/3 at grant date and in years 2 and 3
3/7/2005	Full vesting at grant date
4/29/2005	1/3 at grant date and in years 2 and 3
7/21/2005	Full vesting at grant date
1/25/2006	1/5 at grant date and in years 2, 3, 4 and 5
8/20/2009	1/5 per year on the anniversary of the grant date

(3) Restricted stock units vest in accordance with the schedule below with the exception of Mr. McLaughlin's May 27, 2008, February 10, 2009 and February 1, 2010 grants (see explanation at note 5 below):

Grant Date	Vesting
1/27/2005 — 2/1/2007	1/5 per year on the anniversary of the grant date
5/27/2008	1/5 on January 31, 2009 and 1/5 per year on the anniversary of that vest date
2/10/2009	1/5 per year on the anniversary of the grant date
2/1/2010	1/5 on March 1, 2011 and 1/5 per year on the anniversary of the grant date

- (4) Based on the Company's common stock closing price of \$8.23 per share on December 31, 2010.
- (5) Per Mr. McLaughlin's management agreement with the Company, signed August 20, 2009, if Mr. McLaughlin remains employed by the Company through June 30, 2012 all unvested stock option, restricted stock units and other awards granted in accordance with the Company's share-based compensation plans will fully vest.
- (6) Mr. Plisinski's outstanding stock options were assumed in connection with the merger of the Company with August Technology on February 15, 2006.
- (7) Mr. Brooks' outstanding stock options were assumed in connection with the merger of the Company with August Technology on February 15, 2006.

Option Exercises and Stock Vested in 2010

The following table sets forth information with respect to the exercise of stock options and vesting of restricted stock by the Named Executive Officers during the year ended December 31, 2010:

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$)	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting \$(1)
Paul F. McLaughlin	—	\$ —	73,760	\$ 547,675
Steven R. Roth	—	\$ —	16,917	\$ 125,090
Nathan H. Little	—	\$ —	20,290	\$ 149,572
Michael P. Plisinski	—	\$ —	13,143	\$ 99,797
D. Mayson Brooks	—	\$ —	8,095	\$ 61,436

- (1) Value realized represents fair market value of the shares at time of vesting.

The Company does not have a defined benefit pension program nor does it offer non-qualified deferred compensation.

Potential Payments Upon Termination of Employment or Change-in-Control

This section (including the following tables) summarizes each Named Executive Officer's estimated payments and other benefits that would be received by the NEO or his estate if his employment had terminated on December 31, 2010, under the circumstances set forth below.

Our Named Executive Officers would be generally be entitled to certain termination payments upon his death or Disability, his involuntary termination without Cause, or his voluntary termination with Good Reason. Messrs. Little, Plisinski and Brooks would only be entitled to termination payments for the executive's voluntary termination with Good Reason following a Change of Control of the Company. Although the definitions of each of these terms is specific to the Named Executive Officer's employment agreement with the Company, the terms generally have the following meanings:

"Disability" generally means that the executive, due to physical or mental impairment, is unable to perform his duties to the Company for a specified period of time and is only defined in the Agreements with Messrs. McLaughlin, Roth and Little. For Messrs. McLaughlin and Roth this period of time is either a period of 90 consecutive days or 120 days in any 365 day period. For Mr. Little, this period of time is 12 months.

"Cause" generally means that the executive is dismissed after the Company's Board concludes that the executive engaged in a crime or other serious act involving moral turpitude; materially breached an agreement between him and the Company; or otherwise materially breached his obligations to the Company.

A voluntary termination for "Good Reason" generally means that the executive's duties, responsibilities or status with the Company or its successor are materially reduced; his primary place of work is moved to a location outside a predetermined radius; or any successor to the Company materially breaches the terms of his agreement with the Company or does not assume his employment agreement or offer him an agreement with comparable terms and benefits. For Messrs. Little, Plisinski and Brooks, a reduction in base salary would also constitute "good reason" for voluntary termination. For Messrs. McLaughlin and Roth, any requirement that the executive make a material misstatement or omission in any financial report or government filing would also constitute "good reason" for voluntary termination.

Mr. McLaughlin

Mr. McLaughlin's management agreement provides for the following:

- In the event Mr. McLaughlin's employment is terminated as a result of his death or "Disability", Mr. McLaughlin or his estate shall be entitled to:
 - » Payment of all base salary due and owing through the termination date including an amount equal to all earned but unused vacation hours through the termination date;
 - » Payment of Mr. McLaughlin's bonus as was paid for the most recent completed bonus period; and
 - » Accelerated vesting of all unvested stock options, restricted stock units or other equity awards which shall be exercisable within the shorter of: i) three years from the termination date; or ii) the remaining term of the exercise life of the respective award as of the termination date.

- In the event Mr. McLaughlin's employment is terminated without "Cause" or Mr. McLaughlin terminates his employment for "Good Reason", Mr. McLaughlin shall be entitled to:
 - » Payment of all base salary due and owing through the termination date including an amount equal to all earned but unused vacation hours through the termination date;
 - » Payment for a period of two years of Mr. McLaughlin's:
 - * Then-current base salary (paid over a period of two years); and
 - * Bonus as was paid for the most recent completed bonus period (made as a lump sum payment);
 - » Accelerated vesting of all unvested stock options, restricted stock units or other equity awards which shall be exercisable within the shorter of: i) three years from the termination date; or ii) the remaining term of the exercise life of the respective award as of the termination date.

- If, within one year following the occurrence of a “Change of Control”¹, Mr. McLaughlin’s employment is terminated for any reason other than for Cause or Mr. McLaughlin terminates his employment for Good Reason, Mr. McLaughlin shall be entitled to:
 - » Payment of all base salary due and owing through the termination date including an amount equal to all earned but unused vacation hours through the termination date;
 - » Payment for a period of two years of Mr. McLaughlin’s:
 - * Then-current base salary (paid over a period of two years); and
 - * Bonus as was paid for the most recent completed bonus period (made as a lump sum payment);
 - » Accelerated vesting of all unvested stock options, restricted stock units or other equity awards;
 - » Entitlement to exercise stock options within the shorter of: i) three years from the termination date; or ii) the remaining term of the exercise life of the respective stock option as of the termination date; and
 - » Maintenance of Mr. McLaughlin’s and his dependent’s health care benefit coverage to the same extent provided for by and with the same Company/Executive payment contribution percentages under Company’s group plans at the time of termination. Such coverage shall extend for a term of one year from the Termination Date unless Executive becomes covered as an insured under another employer’s or spousal health care plan.
- To the extent that termination or change of control payments made to Mr. McLaughlin under his agreement are subject to the excise tax imposed by Section 4999 of the Internal Revenue Code, Mr. McLaughlin would either have to pay the excise tax or have his benefits reduced so that no portion of his termination payments were subject to the excise tax.
- In order to receive these termination or change of control payments, Mr. McLaughlin would be required to sign a general release of all known and unknown claim the he may have against the Company.
- As part of his Employment Agreement, Mr. McLaughlin is subject to non-competition and non-solicitation restrictions. During the term of the Agreement and for a period of two years following his resignation or termination for any reason, Mr. McLaughlin may not:
 - » Directly or indirectly own, operate, manage, control, participate in, consult with, advise, provide services for, or in any manner engage in (including by himself or in association with any person, firm, corporate or other business organization or through an entity), any business engaged in the businesses in which the Company and its subsidiaries is engaged or then proposes to engage within any geographical area in which the Company or its subsidiaries engages in business. Nothing prohibits executive from being a passive owner or not more than 5% of the outstanding stock of any class of a corporation which is publicly traded, or any other passive minority investment in any investment fund, limited partnership or similar entity whether or not publicly traded, and so long as executive has no active participation in the business of such entity; or
 - » Directly or indirectly through another entity, (i) induce or attempt to induce any employee of the Company to leave the employ of the Company, or in any way interfere with the relationship between the Company and any employee thereof, including without limitation, inducing or attempting to induce any employee, group of employees or any other person or persons to interfere with the business or operations of the Company, (ii) hire any person who was an employee of the Company at any time during executive’s employment period, or (iii) induce or attempt to induce, whether directly or indirectly, any customer, supplier, distributor, franchisee, licensee or other business relation of the Company to cease doing business with the Company, or in any way interfere with the relationship between any such customer, supplier, distributor, franchisee, licensee or business relation and the Company.

¹ For Mr. McLaughlin and Mr. Roth, a “Change of Control” would generally be considered to have occurred if: (i) any person or persons becomes the beneficial owner of 25 percent or more of our outstanding voting shares; (ii) during any two consecutive year period individuals who presently make up our Board or who become members of our Board with the approval of at least two-thirds of our existing Board (other than a new director who assumes office in connection with an actual or threatened election contest) cease to be at least a majority of the Board; (iii) a merger or consolidation of the Company is consummated with another entity (unless the Company would represent more than 51 percent of the combined voting power of the surviving entity and had the power to elect as least a majority of the board of the surviving entity); (iv) our stockholders approve a plan of liquidation of the company or an agreement for the sale of all or substantially all of our assets; or (v) any other event occurs of a nature that would be required to be reported as a “change in control” under Schedule 14A of the Exchange Act.

Mr. Roth

Mr. Roth's management agreement generally contains similar provisions and generally provides for the same payments upon termination as would be provided under Mr. McLaughlin's management agreement, except that, in the event of an involuntary termination without Cause or a voluntary termination for Good Reason (whether or not a Change of Control had occurred), Mr. Roth would be entitled to payment for a period of one year (instead of two years in the case of Mr. McLaughlin) of his then-current base salary and bonus as was paid for the most recent completed bonus period. Likewise, Mr. Roth would be subject to the same non-competition and non-solicitation restrictions applicable to Mr. McLaughlin, except that such restrictions would be applicable for a period of one year (instead of two years in the case of Mr. McLaughlin).

Mr. Little

Mr. Little's executive change of control agreement provides for the following:

- In the event Mr. Little's employment is terminated as a result of his death or "Disability", Mr. Little or his estate shall be entitled to:
 - » Payment of all base salary due and owing through the termination date including an amount equal to all earned but unused vacation hours through the termination date; and
 - » Accelerated vesting of all unvested stock options, restricted stock units or other equity awards which shall be exercisable within the shorter of: i) three years from the termination date; or ii) the remaining term of the exercise life of the respective award as of the termination date.
- If, within one year following the occurrence of a "Change of Control"², Mr. Little's employment is terminated for any reason other than for "Good Cause" or Mr. Little terminates his employment for "Good Reason", Mr. Little shall be entitled to:
 - » Payment of all base salary due and owing through the termination date including an amount equal to all earned but unused vacation hours through the termination date;
 - » Payment of Mr. Little's then-current base salary for a period of 12 months (paid over a period of 12 months);
 - » Accelerated vesting of all unvested stock options, restricted stock units or other equity awards;
 - » Entitlement to exercise stock options within the shorter of: i) three years from the termination date; or ii) the remaining term of the exercise life of the respective stock option as of the termination date; and
 - » Maintenance of Mr. Little's and his dependent's health care benefit coverage to the same extent provided for by and with the same Company/Executive payment contribution percentages under Company's group plans at the time of termination. Such coverage shall extend for a term of one year from the termination date unless he becomes covered as an insured under another employer's or spousal health care plan.

²For Mr. Little, a "Change of Control" would generally be considered to have occurred if: (i) any person or persons becomes the beneficial owner of 50 percent or more of our outstanding voting shares; (ii) during any 12 month period a majority of the Board is replaced by directors whose appointment or election is not endorsed by a majority of the members of the Board prior to the date of the appointment or election; or (iii) there is a change in the ownership of Company assets that occurs with a person or group over a 12 month period if the subject assets have a total gross fair market value equal to or more than 40 percent of the total gross fair market value of all of the assets of Company immediately prior to such acquisition or acquisitions (subject to certain limitations).

- To the extent that change of control termination payments made to Mr. Little under this agreement are subject to the excise tax imposed by Section 4999 of the Internal Revenue Code, Mr. Little would either have to pay the excise tax or have his benefits reduced so that no portion of his termination payments were subject to the excise tax.
- In order to receive these change of control termination payments, Mr. Little would be required to sign a general release of all known and unknown claim the he may have against the Company.
- Upon the hiring of Mr. Little, the Company agreed to include a severance stipulation as part of his respective employment package. It was agreed that in the event of his termination without cause, he would receive severance in the amount of six months of his base salary. This stipulation was agreed to as an additional incentive negotiated by Mr. Little and the Company prior to commencing his employment.
- As part of a separate agreement with the Company, Mr. Little is subject to non-competition and non-solicitation restrictions. During the term of the agreement and for a period of one year following his resignation or termination for any reason, Mr. Little may not:
 - » Induce or influence, or attempt to induce or influence any person engaged as an employee, consultant or agent of the Company to terminate his/her relationship with the Company;
 - » Directly or indirectly, solicit, attempt to solicit, assist another to solicit customers of the Company, or in any other way, attempt to influence customers of the Company that were known to executive by virtue of his employment or with whom executive worked with while a Company employee to alter or terminate their business relationship with the Company;
 - » Directly or indirectly, whether as sole proprietor, partner, silent partner, venturer, stockholder, director, officer, consultant or employee or agent, engage or participate in any employment or activity which:
 - * involves the sale, distribution, design and/or manufacturing of instruments for use in the semiconductor manufacturing industry or is otherwise competitive with the Company's business within the United States; or
 - * may cause him to use or disclose, either intentionally or inadvertently, the Company's confidential information.

Mr. Plisinski and Mr. Brooks

Mr. Plisinski's and Mr. Brooks employment agreements each provide for the following:

- In the event of any termination of Mr. Plisinski's or Mr. Brooks' employment, the executive shall be entitled to payment of all base salary due and owing through the termination date including an amount equal to all earned but unused vacation hours through the termination date.
- In the event Mr. Plisinski's or Mr. Brooks' employment is terminated by the Company without "Cause", the executive shall be entitled to:
 - » Payment of the executive's then-current base salary for a period of 12 months; and
 - » Payment by Company for a period of 12 months of amounts due under COBRA for continuation of Company's group health and other group benefits, if so elected to continue by the executive.

- If, within 18 months following the occurrence of a “Change in Control”³, Mr. Plisinski’s or Mr. Brooks’ employment is terminated for any reason other than for “Good Cause” or Mr. Plisinski or Mr. Brooks terminates his employment for “Good Reason”, the executive shall be entitled to:
 - » Payment of the executive’s then-current base salary for a period of 18 months; and
 - » Payment by Company for a period of 18 months of amounts due under COBRA for continuation of Company’s group health and other group benefits, if so elected to continue by the executive.
 - » Accelerated vesting of all unvested stock options.
- As part of their Employment Agreements, Mr. Plisinski and Mr. Brooks are subject to non-solicitation restrictions. During the term of the Agreement and for a period of one year following their respective resignation or termination for any reason, neither Mr. Plisinski nor Mr. Brooks may:
 - » Directly or indirectly solicit, on executive’s own behalf, or on behalf of another, any of the Company’s or any subsidiary’s customers or potential customers with whom executive or executive’s supervisees had contact, either directly or indirectly, within the twelve months immediately preceding executive’s resignation or termination of employment, for the purpose of providing, selling, or attempting to sell any products or services competing with those provided or sold by the Company or any subsidiary, or clearly contemplated thereby due to research, development, engineering, applications, licensing, or other like projects in process, at the time of resignation or termination; or
 - » Hire or attempt to hire, or influence or solicit, or attempt to influence or solicit, either directly or indirectly, any employee of the Company or any subsidiary to leave or terminate his/her or her employment, or to work for any other person or entity.

³For Mr. Plisinski and Mr. Brooks, a “Change of Control” would generally be considered to have occurred if: (i) a merger or consolidation of the Company or an acquisition by the Company involving the issuance of its securities as consideration for the acquired business (or any combination thereof, during any consecutive 24 month period) results in the stockholders of the Company following such transactions having less than 50 percent of combined voting power of the surviving entity; (ii) any person or persons becomes the beneficial owner of 20 percent or more of our outstanding shares; (iii) our stockholders approve a plan of liquidation of the Company; (iv) all or substantially all of our assets are sold; (v) during any 24 month consecutive year period the individuals who presently make up our Board or who become members of our Board with the approval of at least two-thirds of our existing Board cease to be at least 70 percent of the Board; or (vi) the Company enters into a letter of intent or other agreement relating to the types of events described above that ultimately results in a change in control or a tender offer, exchange offer or proxy contest is commenced that ultimately results in the type of events described in (ii) or (v) above.

Potential Payments Upon Termination or Change-in-Control — Mr. McLaughlin

<u>Termination Circumstance</u>	<u>Cash Severance</u>		<u>Value of Accelerated Unvested Equity</u>	<u>Benefits Continuation</u>
	<u>Base Salary</u>	<u>Management Incentive Bonus</u>		
Involuntary without cause termination	\$ 1,167,314	\$ —	\$ 2,775,062	\$ —
	(2X salary)			
Executive resignation for good reason	\$ 1,167,314	\$ —	\$ 2,775,062	\$ —
	(2X salary)			
Death	\$ —	\$ —	\$ 2,775,062	\$ —
Disability	\$ —	\$ —	\$ 2,775,062	\$ —
Retirement	\$ —	\$ —	\$ —	\$ —

Within 12 Months following Sale or Change of Control:

Termination by Company without cause	\$ 1,167,314	\$ —	\$ 2,775,062	\$ 9,123
	(2X salary)			
Termination by executive with good reason	\$ 1,167,314	\$ —	\$ 2,775,062	\$ 9,123
	(2X salary)			

Potential Payments Upon Termination or Change-in-Control — Mr. Roth

<u>Termination Circumstance</u>	<u>Cash Severance</u>		<u>Value of Accelerated Unvested Equity</u>	<u>Benefits Continuation</u>
	<u>Base Salary</u>	<u>Management Incentive Bonus</u>		
Involuntary without cause termination	\$ 276,107	\$ —	\$ 560,728	\$ —
	(1X salary)			
Executive resignation for good reason	\$ 276,107	\$ —	\$ 560,728	\$ —
	(1X salary)			
Death	\$ —	\$ —	\$ 560,728	\$ —
Disability	\$ —	\$ —	\$ 560,728	\$ —
Retirement	\$ —	\$ —	\$ —	\$ —

Within 12 Months following Sale or Change of Control:

Termination by Company without cause	\$ 276,107	\$ —	\$ 560,728	\$ 13,950
	(1X salary)			
Termination by executive with good reason	\$ 276,107	\$ —	\$ 560,728	\$ 13,950
	(1X salary)			

Potential Payments Upon Termination or Change-in-Control — Mr. Little

<u>Termination Circumstance</u>	<u>Cash Severance</u>		<u>Value of Accelerated Unvested Equity</u>	<u>Benefits Continuation</u>
	<u>Base Salary</u>	<u>Management Incentive Bonus</u>		
Involuntary without cause termination	\$ 131,250	\$ —	\$ —	\$ —
	(6 months salary)			
Executive resignation for good reason	\$ 131,250	\$ —	\$ —	\$ —
	(6 months salary)			
Death	\$ —	\$ —	\$ 669,957	\$ —
Disability	\$ —	\$ —	\$ 669,957	\$ —
Retirement	\$ —	\$ —	\$ —	\$ —
Within 12 Months following Sale or Change of Control:				
Termination by Company without cause	\$ 262,500	\$ —	\$ 669,957	\$ 9,892
	(1X salary)			
Termination by executive with good reason	\$ 262,500	\$ —	\$ 669,957	\$ 9,892
	(1X salary)			

Potential Payments Upon Termination or Change-in-Control — Mr. Brooks

<u>Termination Circumstance</u>	<u>Cash Severance</u>		<u>Value of Accelerated Unvested Equity</u>	<u>Benefits Continuation</u>
	<u>Base Salary</u>	<u>Management Incentive Bonus</u>		
By the Company with/without cause termination	\$ 254,964	\$ —	\$ —	\$ 12,874
	(1X salary)			
Death	\$ —	\$ —	\$ —	\$ —
Disability	\$ 254,964	\$ —	\$ —	\$ 12,874
Retirement	\$ —	\$ —	\$ —	\$ —
Within 18 months following sale or change of control:				
Termination by Company with/without cause	\$ 382,446	\$ —	\$ —	\$ 12,874
	(1.5X salary)			
Termination by executive with good reason	\$ 382,446	\$ —	\$ —	\$ 12,874
	(1.5X salary)			

Potential Payments Upon Termination or Change-in-Control — Mr. Plisinski

<u>Termination Circumstance</u>	<u>Cash Severance</u>		<u>Value of Accelerated Unvested Equity</u>	<u>Benefits Continuation</u>
	<u>Base Salary</u>	<u>Management Incentive Bonus</u>		
By the Company with/without cause termination	\$ 249,685 (1X salary)	\$ —	\$ —	\$ 13,950
Death	\$ —	\$ —	\$ —	\$ —
Disability	\$ 249,685	\$ —	\$ —	\$ 13,950
Retirement	\$ —	\$ —	\$ —	\$ —
Within 18 months following sale or change of control:				
Termination by Company with/without cause	\$ 374,523 (1.5X salary)	\$ —	\$ —	\$ 13,950
Termination by executive with good reason	\$ 374,523 (1.5X salary)	\$ —	\$ —	\$ 13,950

Executive Officers

Set forth below is certain information regarding the executive officers of the Company and their ages as of March 31, 2011. Information relating to Paul F. McLaughlin is set forth above under the caption “PROPOSAL 1 — ELECTION OF DIRECTORS — Nominees.”

Nathan H. Little, age 59, has served as the Company’s Executive Vice President and General Manager, Inspection Business Unit since February 2006. From July 2004 to February 2006, Mr. Little served as Executive Vice President responsible for global sales, marketing and new business development. From January 2003 to July 2004, Mr. Little served as the Company’s Senior Vice President of Operations responsible for engineering and manufacturing. Mr. Little has been a Vice President since he joined the Company in May 2001. From 1986 through 2001, Mr. Little held various positions with Philips Electronics where he last served as Vice President, NPR Purchasing for Philips Electronics North America. Mr. Little received a B.S. in Mechanical Engineering from Northwestern University, an M.S. in Mechanical Engineering from the University of Minnesota and an M.B.A. from Harvard University Graduate School of Business.

Steven R. Roth, age 50, has served as the Company’s Senior Vice President, Finance and Administration and Chief Financial Officer since February 2002. From September 1996 to February 2002, Mr. Roth served as the Company’s Vice President, Finance and Administration and Chief Financial Officer. From August 1991 to August 1996, Mr. Roth served as a Director of Corporate Finance for Bell Communications Research, now called Telcordia, a research and development company serving the telecommunications industry. Mr. Roth is a C.P.A. and holds a B.S. in Accounting from Villanova University.

D. Mayson Brooks, age 52, has served as the Company’s Senior Vice President of Worldwide Sales and Field Operations since January 2011. Prior to that Mr. Brooks served as the Company’s Vice President of Global Sales since December 2006 and prior to that as the Company’s Vice President of Global Sales, Inspection from February 2006 when the Company merged with August Technology Corporation to December 2006. From July 1999 to February 2006, Mr. Brooks served in various Vice President positions in the areas of sales, marketing and field operations for August Technology. Mr. Brooks holds a B.S. in Engineering from the United States Naval Academy and an M.B.A. from the University of North Carolina.

Scott Danciak, age 41, has served as the Company’s Vice President of Engineering for the Inspection Business Unit since June 2006. From March 2005 to June 2006, Mr. Danciak served as the Company’s Director of Thin Film Development and from September 2004 to March 2005 he served as the Senior Manager for Thin Film Development. From September 2003 to September 2004, Mr. Danciak served as the Company’s Manager of Hardware Engineering. Prior to that, he served the Company in various engineering management and staff positions since 1997. Mr. Danciak holds a B.S. in Electrical Engineering from Johns Hopkins University.

Robert DiCrosta, age 63, has served as the Company’s Vice President of Global Customer Support since February 2002. From July 2000 to February 2002, Mr. DiCrosta served as the Director of Global Customer Support. Prior to that, he served in various positions in Customer Support and Finance with other high tech equipment manufacturers. Mr. DiCrosta received a B.S. in Marketing from the University of Bridgeport and an M.B.A. in Finance and International Finance from New York University.

Robert A. Koch, age 49, has served as the Company's Vice President and General Counsel since May 2003. From April 1986 to May 2003, Mr. Koch was employed by Howmedica Osteonics Corp., the orthopaedic implant subsidiary of Stryker Corporation, where he was their in-house counsel for 12 years and last served as their Director of Legal Affairs. Mr. Koch holds a B.S. in Chemical Engineering and an M.S. in Biomedical Engineering, both from Rutgers University. Mr. Koch earned his J.D. from Rutgers School of Law — Newark in 1991 and is admitted to practice in New Jersey and New York.

Avishai Kepten, age 55, has served as the Company's Vice President and General Manager, Metrology Business Unit since October 2010. From September 2008 to March 2010, Dr. Kepten served as Vice President, Solar Cell Lines, and Vice President Business Development for Spire Corporation, a solar capital equipment, turnkey manufacturing lines and systems company. From December 2002 to April 2008, Dr. Kepten served as Director of New Product Development and Director of Technology for Novellus Systems, Inc., a semiconductor capital equipment manufacturer. Dr. Kepten holds a Ph.D. in Microelectronics from Israel Institute of Technology.

John R. Kurdock, age 66, has served as the Company's Vice President, Corporate Programs since October 2010. From July 2007 to October 2010, Mr. Kurdock served as the Company's Vice President and General Manager, Metrology Business Unit since July 2007. From November 2006 to July 2007, Mr. Kurdock served as the Company's Assistant General Manager and Vice President, Metrology Business Unit and prior to that as the Company's Vice President of Manufacturing, Metrology from February 2006 to November 2006. Mr. Kurdock joined the Company as Vice President of Manufacturing in January 2005. From June 2003 to January 2005, Mr. Kurdock was an independent consultant specializing in the semiconductor capital equipment industry. From January 1997 to June 2003, Mr. Kurdock was the Vice President of Operations for Electro Scientific Industries, a semiconductor capital equipment manufacturer. Mr. Kurdock holds a B.S. in Mechanical Engineering from Carnegie Mellon University.

Ardelle R. Johnson, age 55, has served as the Company's Vice President of Corporate Marketing since February 2006 when the Company merged with August Technology Corporation. From August 2003 to February 2006, Mr. Johnson served as Vice President of Marketing for August Technology. From June 1980 to April 2003, Mr. Johnson was employed by FSI International Inc., a semiconductor capital equipment company, serving most recently as Vice President of Sales and Marketing. He holds a B.S. in Chemistry from the University of Minnesota and an M.S. from the University of Wisconsin.

Christopher J. Morath, age 42, has served as the Company's Vice President of Operations, Metrology Business Unit, since August 2007. From November 2006 to August 2007, Mr. Morath served as the Company's Director of Manufacturing Operations, Metrology Business Unit. From January 2004 to November 2006, Mr. Morath served as the Company's Director of Marketing and prior to that served for three years as Director of Product Development in Engineering. Mr. Morath received a B.A. in Physics from Boston University, an M.S. and Ph.D. in Condensed Matter Physics from Brown University, and an M.B.A. from the Wharton School of the University of Pennsylvania.

Jeffrey T. Nelson, age 55, has served as the Company's Vice President of Manufacturing since August 2010 and prior to that as the Company's Vice President of Manufacturing, Inspection since February 2006 when the Company merged with August Technology Corporation. From August 2004 to February 2006, Mr. Nelson served as August Technology's Vice President of Manufacturing. Mr. Nelson received a B.S. in Business Administration from the University of Minnesota.

Michael P. Plisinski, age 41, has served as the Company's Vice President and General Manager, Data Analysis and Review Business Unit since February 2006 when the Company merged with August Technology Corporation. From February 2004 to February 2006, he was August Technology's Vice President of Engineering and its Director of Strategic Marketing for review and analysis products from July 2003 to February 2004. Mr. Plisinski joined August Technology as part of the acquisition of Counterpoint Solutions, a semiconductor review and analysis company, where he was both President and sole founder from June 1999 to July 2003. Mr. Plisinski has a B.S. in Computer Science from the University of Massachusetts.

Rajiv Roy, age 52, has served as the Vice President of Business Development and Director of Back-End Product Management since June 2008. From February 2006 to June 2008, Mr. Roy served as the Company's Director of Marketing. Prior to the Company's merger with August Technology in February 2006, Mr. Roy served as the Director of Strategic Marketing for August Technology from April 2003 to February 2006. Mr. Roy joined August Technology as part of the acquisition of Semiconductor Technologies and Instruments, Inc., a supplier to the semiconductor industry, where he was President from August 2000 to March 2003. Mr. Roy has a Bachelor of Technology in Electrical Engineering from Indian Institute of Technology, Kanpur, and from the University of Texas at Dallas, an M.S. in Math Sciences and a M.A. in Marketing.

Compensation Committee Interlocks and Insider Participation

The Compensation Committee consists of Directors Daniel H. Berry, Leo Berlinghieri and Aubrey C. Tobey, none of whom has any of the interlocking relationships described in Item 407(e)(4) of Regulation S-K.

SECURITY OWNERSHIP

The following table sets forth certain information with respect to beneficial ownership of the Company's Common Stock as of March 31, 2011 (except as otherwise indicated), by: (i) each person who is known by the Company to own beneficially more than five percent of the Common Stock, (ii) each of the Named Executive Officers, (iii) each of the Company's directors, and (iv) all directors and executive officers as a group. Except as indicated in the footnotes to this table, the persons named in the table have sole voting and investment power with respect to all shares of Common Stock shown as beneficially owned by them, subject to community property laws where applicable.

Beneficial Owner	Number of Shares(1)	Percentage (2)
Artisan Investment Corporation(3) 875 East Wisconsin Avenue, Suite 800, Milwaukee, WI 53202	4,265,888	13.5 %
Black Rock, Inc.(4) 40 East 52nd Street, New York, NY 10022	2,566,058	8.1 %
Dimensional Fund Advisors LP(5) Palisades West, Building One, 6300 Bee Cave Road, Austin, Texas 78746	1,914,958	6.1 %
Sparta Asset Management, LLC(6) One O'Hare Centre, 6250 N. River Road, Suite 1000, Rosemont, IL 60018	1,833,692	5.8 %
Gagnon Securities LLC(7) 1370 Avenue of the Americas, Suite 2400, New York, NY 10019	1,677,024	5.3 %
Paul F. McLaughlin	716,537	2.3 %
Steven R. Roth	150,050	*
Nathan H. Little	201,889	*
Michael P. Plisinski	157,082	*
D. Mayson Brooks	27,127	*
Leo Berlinghieri	2,500	*
Daniel H. Berry(8) c/o Riverside Partners LLC, One Exeter Plaza, Boston, MA 02116	607,667	1.9 %
Thomas G. Greig	85,500	*
Richard F. Spanier(9)	98,208	*
Aubrey C. Tobey	42,500	*
John R. Whitten	30,000	*
All directors and executive officers as a group (twenty persons)(10)	2,413,095	7.4 %

* Less than 1%.

(1) Includes the number of shares subject to options which are exercisable and restricted stock units vesting within 60 days of March 31, 2011 by the following persons: Mr. McLaughlin, (324,400 shares), Mr. Roth (106,200 shares), Mr. Little (163,400 shares), Mr. Plisinski (53,534 shares), Mr. Brooks (17,644), Mr. Berry (25,000 shares), Mr. Greig (15,000 shares), Mr. Spanier (25,000 shares), Mr. Tobey (25,000 shares) and all directors and executive officers as a group (954,390 shares).

(2) Applicable percentage ownership is based on 31,551,458 shares of Common Stock outstanding as of March 31, 2011. Beneficial ownership of shares is determined in accordance with the rules of the SEC and generally includes shares as to which a person holds sole or shared voting or investment power. Shares of Common Stock subject to options that are presently exercisable or exercisable within 60 days of March 31, 2011 are deemed to be beneficially owned by the person holding such options for the purpose of computing the percentage ownership of such person, but are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise noted the address for the stockholders named in this table is c/o Rudolph Technologies, Inc., One Rudolph Road, P.O. Box 1000, Flanders, NJ 07836.

- (3) Information provided herein is based on the Schedule 13G/A that was filed on February 11, 2011 by Artisan Partners Holdings LP, Artisan Partners Limited Partnership, Artisan Investment Corporation, Artisan Investments GP LLC, ZFIC, Inc., Andrew A. Ziegler, Carlene M. Ziegler and Artisan Funds, Inc. These reporting persons have shared voting and dispositive power over these shares.
- (4) Information provided herein is based on the Schedule 13G/A that was filed on February 8, 2011 by Black Rock, Inc.
- (5) Information provided herein is based on the Schedule 13G/A that was filed on February 11, 2011 by Dimensional Fund Advisors LP.
- (6) Information provided herein is based on the Schedule 13G that was filed on February 7, 2011 by Sparta Asset Management, LLC.
- (7) Information provided herein is based on the Schedule 13G that was filed on February 11, 2011 by Gagnon Securities LLC and Neil Gagnon, which indicates that Gagnon Securities LLC holds shared voting and dispositive power over 704,033 shares and Neil Gagnon holds sole voting and dispositive power over 1,017,092 shares and shared voting and dispositive power over 659,932 shares.
- (8) The number of shares of Common Stock beneficially owned by Mr. Berry includes indirect beneficial ownership in 552,667 shares of Rudolph Technologies Common Stock held by the Riverside Fund II, LP, an affiliate of Riverside Partners, LLC. Mr. Berry is an Operating Partner of Riverside Partners, LLC and disclaims beneficial ownership except to the extent of his pecuniary interest therein.
- (9) Includes 7,671 shares held by Dr. Spanier's wife.
- (10) The number of shares of Common Stock beneficially owned by our directors and executive officers as a group includes 552,667 shares of our Common Stock held by the Riverside Fund II, LP, an affiliate of Riverside Partners, LLC.

EQUITY COMPENSATION PLAN INFORMATION

The following table sets forth information with respect to the Company's equity compensation plans as of December 31, 2010.

	(a)	(b)	(c)
	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights(1)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))
Equity compensation plans approved by security holders	3,405,281	10.97	3,560,518
Equity compensation plans not approved by security holders	N/A	N/A	N/A
Total	3,405,281	10.97	3,560,518

(1) Includes 1,454,486 shares issuable upon vesting of outstanding Restricted Stock Units.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Securities Exchange Act of 1934 requires the Company's executive officers and directors and persons who own more than 10% of a registered class of the Company's equity securities to file an initial report of ownership on Form 3 and changes in ownership on Form 4 or Form 5 with the SEC. Such persons are also required by SEC rules to furnish the Company with copies of all Section 16(a) forms they file. Based solely on its review of the copies of such forms received by it, or written representations from certain reporting persons, the Company believes that, during the year ended December 31, 2010, all officers, directors and greater than 10% beneficial owners complied with all Section 16(a) filing requirements, except John R. Kurdock filed a late Form 4 on November 9, 2010 with respect to one transaction on November 4, 2010 and Rajiv Roy filed a late Form 4 on May 25, 2010 with respect to one transaction on May 17, 2010.

OTHER MATTERS

The Company knows of no other matters to be submitted to the Annual Meeting. If any other matters properly come before the Annual Meeting, it is the intention of the persons named in the enclosed Proxy to vote the shares they represent as the Board of Directors may recommend.

ADDITIONAL INFORMATION

Stockholders may obtain a copy of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2010, including financial statements and schedules included in the annual report on Form 10-K, without charge, by visiting the Company's website at www.rudolphtech.com and clicking on Investor Relations or by writing to Steven R. Roth, Chief Financial Officer at the Company's headquarters (One Rudolph Road, P.O. Box 1000, Flanders, New Jersey 07836). Upon written request to the Company, at the address of the Company's headquarters, the exhibits set forth on the exhibit index of the Company's Annual Report on Form 10-K will be made available at reasonable charge (which will be limited to our reasonable expenses in furnishing such exhibits).

BY ORDER OF THE BOARD OF DIRECTORS

Steven R. Roth
Secretary

Dated: April 19, 2011

BOARD OF DIRECTORS

Paul F. McLaughlin
Chairman of the Board and
Chief Executive Officer

John R. Whitten
Former Chief Financial Officer,
Vice President and Treasurer
Applied Industrial Technologies, Inc.

Leo Berlinghieri
Chief Executive Officer and President
MKS Instruments, Inc.

Daniel H. Berry
Operating Partner
Riverside Partners, LLC

Thomas G. Greig
Senior Managing Director
Liberty Capital Partners, Inc.

Richard F. Spanier
Retired, Chairman Emeritus

Aubrey C. Tobey
President
ACT International

EXECUTIVE OFFICERS

Paul F. McLaughlin
Chairman of the Board and
Chief Executive Officer

Nathan H. Little
Executive Vice President and General
Manager, Inspection Business Unit

Michael P. Plisinski
Vice President and General Manager,
Data Analysis & Review Business Unit

Steven R. Roth
Senior Vice President, Finance and
Administration and Chief Financial
Officer

CORPORATE HEADQUARTERS

Rudolph Technologies, Inc.
One Rudolph Road
P.O. Box 1000
Flanders, New Jersey 07836
Phone: 973 691 1300
www.rudolphtech.com

WORLDWIDE OFFICES

**Rudolph Technologies
Metrology Business Unit**
Budd Lake, New Jersey

**Rudolph Technologies
Inspection Business Unit**
Bloomington, Minnesota
Richardson, Texas
Snoqualmie, Washington
Bohemia, New York

**Rudolph Technologies Data
Analysis & Review Business Unit**
Tewksbury, Massachusetts
Richardson, Texas

Rudolph Technologies Europe B.V.
Scotland, United Kingdom

Rudolph Technologies Japan KK
Takastu, Japan

Rudolph Technologies China
Shanghai, China
Tianjin, China

Rudolph Technologies Korea
Sungnam-si, South Korea

Rudolph Technologies Singapore
Singapore

Rudolph Technologies Taiwan
Hsin-Chu City, Taiwan

KEY EMPLOYEES

D. Mayson Brooks
Senior Vice President, of Worldwide
Sales and Field Operations

Scott R. Danciak
Vice President of Engineering,
Inspection Business Unit

Robert DiCrosta
Vice President, Global Customer
Support

Avishai Kepten
Vice President and General Manager,
Metrology Business Unit

Robert A. Koch
Vice President and General Counsel

John R. Kurdock
Vice President, Corporate Programs

Ardelle R. Johnson
Vice President, Corporate Marketing

Christopher J. Morath
Vice President of Operations,
Metrology Business Unit

Jeffrey T. Nelson
Vice President of Manufacturing

Rajiv Roy
Vice President, Business Development
& Director Back-end Product
Management

SHAREHOLDER INFORMATION

**General Shareholder and Investor
Questions may be Directed to:**
Steven R. Roth
Chief Financial Officer
Rudolph Technologies, Inc.
One Rudolph Road
P.O. Box 1000
Flanders, New Jersey 07836
Phone: 973 691 1300

**Independent Registered Public
Accounting Firm**
Ernst & Young, LLP
Iselin, New Jersey

**Registrar and Transfer Agent
American Stock Transfer &
Trust Company, LLC**
59 Maiden Lane
New York, New York 10038
Phone: 212 936 5100
www.amstock.com

Stock Symbol
Common Stock is traded on the
NASDAQ Global Select Market® under
the symbol, RTEC.

Annual Meeting
Stockholders are invited to attend
the Annual Meeting at 1:00 PM on
Wednesday, May 25, 2011 at the
Ambassador Hotel, Taipei, 63 Chung
Shan North Road, Section 2, Taipei
104, Taiwan ROC.

Form 10-K
The Annual Report on Form 10-K filed
with the Securities and Exchange
Commission is available without
charge upon written request to
Investor Relations at our corporate
headquarters address.

HB LED

As the LED industry enters what promises to be a period of rapid expansion, rising costs and increased competition are driving a focus on yield management

PHOTOVOLTAICS

Process control software targets the still-troublesome area of photovoltaic cell efficiency; solar cell manufacturers hope to reach grid parity through reduced costs and inefficiencies

SEMICONDUCTOR

Rudolph's commitment to invest in research and development has resulted in bringing the best possible inspection, metrology and process control solutions to the industry

NASDAQ | RTEC

Rudolph Technologies, Inc.
One Rudolph Road
P.O. Box 1000
Flanders, NJ 07836

973 691 1300

www.rudolphtech.com

**Annual Meeting of Stockholders of
RUDOLPH TECHNOLOGIES, INC.**

May 25, 2011

NOTICE OF INTERNET AVAILABILITY OF PROXY MATERIAL:

The Notice of Meeting, Proxy Statement, Proxy Card
are available at <http://www.rudolphtech.com/resources/images/6169.pdf>

Please sign, date and mail your proxy card in the envelope provided as soon as possible.

✔ Please detach along perforated line and mail in the envelope provided ✔

PLEASE SIGN, DATE AND RETURN PROMPTLY IN THE ENCLOSED ENVELOPE. PLEASE MARK YOUR VOTE IN BLUE OR BLACK INK AS SHOWN HERE [X]

The Board of Directors recommends you vote "FOR" all nominees, "FOR" Proposals 2 and 4 and "1 YEAR" for Proposal 3.

1. ELECTION OF DIRECTORS:		FOR	AGAINST	ABSTAIN
Nominees:				
Aubrey C. Tobey		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
John R. Whitten		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. TO APPROVE, ON AN ADVISORY (NON-BINDING) BASIS, THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS AS DISCLOSED IN THE PROXY STATEMENT.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1 YR	2 YR	3YR	ABSTAIN
3. TO RECOMMEND, ON AN ADVISORY (NON-BINDING) BASIS, THE FREQUENCY OF THE ADVISORY VOTE ON EXECUTIVE COMPENSATION.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		FOR	AGAINST	ABSTAIN
4. TO RATIFY THE APPOINTMENT OF ERNST & YOUNG LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTANTS.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. IN THEIR DISCRETION, THE PROXIES ARE AUTHORIZED TO VOTE UPON SUCH OTHER BUSINESS AS MAY PROPERLY BE BROUGHT BEFORE THE MEETING OR ANY ADJOURNMENT THEREOF.				
This proxy, when properly executed, will be voted in the manner described herein by the undersigned. If no direction is made, this proxy will be voted FOR all nominees listed, FOR Item 2 and 4, 1 YEAR for Item 3 and according to the discretion of the proxy holders on any other matter that may properly come before the Annual Meeting of Stockholders.				

Signature of stockholder

Dated

Signature of stockholder

Dated

Note: Please sign exactly as your name or names appear on this Proxy. When shares are held jointly, each holder should sign. When signing as an executor, administrator, attorney, trustee or guardian, please give full title as such. If the signer is a corporation, please sign in full corporate name by duly authorized officer, giving full title as such. If a signer is a partnership, please sign in partnership name by authorized person.

RUDOLPH TECHNOLOGIES, INC.

PROXY

**THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD
OF DIRECTORS OF RUDOLPH TECHNOLOGIES, INC.**

The undersigned hereby constitutes and appoints Daniel H. Berry and Richard F. Spanier, or either of them, as and for his or her proxies, each with the power to appoint such proxy's substitute, and hereby authorizes them, or either of them, to vote all of the shares of Common Stock of Rudolph Technologies, Inc. held of record by the undersigned on March 31, 2011, at the Annual Meeting of Stockholders of Rudolph Technologies, Inc. to be held on Wednesday, May 25, 2011 and at any and all adjournments or postponements thereof as follows:

(Continued and to be signed on reverse side.)