RUDOLPH TECHNOLOGIES INC
Form 10-K
February 23, 2007
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-K

(MARK ONE)

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

For the Fiscal Year Ended December 31, 2006

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

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

(Address of principal executive offices) (Zip Code)

Registrant s telephone number, including area code: (973) 691-1300

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

None

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

Common Stock, $0.001 Par Value

(Title of Class)

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

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

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

Indicate by check mark 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, or a non-accelerated file. See definition of accelerated filer and large accelerated filer in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ¨ Accelerated filer x Non-accelerated filer ¨

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

The aggregate market value of the voting stock held by non-affiliates of the registrant based on the closing price of the registrant s stock price on June 30, 2006 of $14.50 was approximately $341,607,298.

The registrant had 28,993,780 shares of Common Stock outstanding as of February 9, 2007.

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 24, 2007.

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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 and cash requirements. 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. In addition, we may, from time to time make oral forward-looking statements. 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. 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. Our stockholders should carefully review the cautionary statements contained in this Form 10-K. below. 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.

PART I

Item 1. Business.

General

Rudolph Technologies, Inc. is a worldwide leader in the design, development, manufacture and support of high-performance process control metrology, defect inspection, 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 and integrated modules for both transparent and opaque thin film measurements and macro-defect inspection. All of these systems feature production-worthy automation and are backed by worldwide customer support.

Our merger with August Technology was completed on February 15, 2006. As a result, we expanded our automated defect detection and product characterization systems portfolio to include new capabilities in machine vision technology, optics, lighting and precision motion control as well as proprietary software and applications experience. These systems provide our customers with information that enables process-enhancing decisions which can ultimately lower manufacturing costs, improve time-to market and enhance the performance of their products

Metrology Systems. The industry s first production-oriented microprocessor-controlled ellipsometer for thin transparent film measurements was introduced by Rudolph in 1977. Since that time, we have consistently provided innovative product developments designed to meet manufacturers most advanced measurement requirements. Our patented transparent film technology uses up to four lasers operating simultaneously at

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multiple angles and multiple wavelengths, providing powerful analysis and measurement capabilities to handle the most challenging requirements of today s advanced processes and tomorrow s new materials. 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. Our systems also employ 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, we brought patented optical acoustic metal film metrology technology to the semiconductor manufacturing floor that allows customers 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.

Inspection Systems. Chip manufacturers deploy advanced macro defect inspection (defects greater in size than 0.5 micron) throughout the fab to monitor key process steps, gather process-enhancing information and ultimately, lower manufacturing costs. Field-established tools such as the NSX, AXi, WaferView and 3Di systems are found in wafer processing (front-end) and final manufacturing (back-end) facilities around the world. These high-speed tools incorporate features like waferless recipe creating, tool-to-tool correlation, multiple inspection resolutions and proprietary review and classification software that are required in today s high-volume IC manufacturing environments. In addition to wafer frontside inspection, Rudolph s innovative all-surface systems incorporate wafer edge and backside inspection in one integrated platform to enhance productivity and continuously improve fab yield.

Data Analysis & Review Systems. Rudolph has a comprehensive offering of software solutions for process management and data review. Using wafer maps, charts and graphs, the vast amount of data gathered through automated inspection can be analyzed to determine trends that ultimately affect yield. Our goal is to provide our customers with timely and accurate information so that corrective actions can be taken. Software solutions available to our customers include products that identify, classify and analyze defect data as well as fabwide systems that are designed to determine the root cause of yield excursions as early as possible in the production flow.

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.

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

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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 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 1% 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 have recently 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.

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. Rudolph has made all-surface, 100% advanced macro defect inspection and metrology a reality. There are four types of all-surface inspection: wafer frontside, edge, and backside; and post-fab die and wafer. 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.

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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 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.

Products

We market and sell products to all major logic, memory, and ASIC device manufacturers. We provide our customers with versatile full-fab metrology and inspection systems as well as yield management software solutions. These systems are designed for high-volume semiconductor wafer processing and final manufacturing facilities and offer automated wafer handling for 200 and 300 mm configurations. Our systems operate at high throughput with ultraclean operation and high reliability.

			Applications	
			Wafer	
Product	**Introduced**	**Functionality**	**Processing**	**Final Manufacturing**
Metrology Systems				
*Meta*PULSE®	1997	- Non-contact system for thin opaque films - Patented Picosecond Ultrasonic Laser Sonar Technology (PULSE) - Measures film stacks from 40 Angstroms to 5 microns	X	
*Meta*PULSE®-II	2001	- Designed for advanced copper applications - Improved throughput and repeatability - Modular platform for advanced metrology needs	X	
*Meta*PULSE®-III	2005	- Vanguard platform accommodates two PULSE modules - Robust pattern recognition	X	
ultra-II	2003	- High resolution microscope for images down to 30x30 micron - Superior accuracy for process control measurements - Measures thickness and nitrogen concentration of ultrathin nitrided gates	X	

- Addresses next-generation high-κ gates

- Provides ellipsometry at wavelengths across broad spectrum

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Product	Introduced	Functionality	Applications: Wafer Processing	Applications: Final Manufacturing
Metrology Systems				
ultra-II CD	2005	- Measures critical dimensions simultaneously with film thickness and optical properties - Incorporates ellipsometry technology for transparent film application	X	
S3000/S2000	2006	- Optimized price/performance for fabwide applications - Available with pattern recognition software	X	
Synergy MPX	2006	- Enhanced data review mode - For opaque thin film metrology 65 nm and below - Combines PULSE and X-ray technology - MMXRF virtually eliminates background noise	X	
FocusSeries	1991	- Low cost of ownership, small footprint - Focused Beam laser ellipsometry technology - Measures films using multiple wavelength and angles - Reliable and accurate	X	
Inspection Systems				
AXi Series	2003	- Advanced detection of defects >0.5 micron - Inspection of patterned and unpatterned wafers - In line, high-speed, 100% inspection	X	
E25 System	2003	- Full color review - 2D defect detection of the wafer s edge - Metrology of edge features	X	X
B20 System	2003	- 2D defect detection of the wafer s backside - Darkfield, brightfield and color imaging - Fully automated defect detection >0.5 micron	X	X
NSX® Series	1997	- 2D wafer, die & bump inspection		X
3Di Series	2001	- In line, high-speed, 100% inspection - 2D & 3D wafer bump inspection & metrology system - In line, high-speed, 100% inspection - Automated macro defect inspection for lithography applications		X
WaferView® 320	2004	- Advanced color vision system - Patented knowledge-based algorithms	X	

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Product	Introduced	Functionality	Applications: Wafer Processing	Applications: Final Manufacturing
Software Solutions				
DMSVision	1994	- Fabwide software for archival and retrieval of process related data - Facilitates root cause analysis, yield enhancement and yield learning - Fabwide information system	X	
YieldView	2002	- Stores, manages, analyzes defect data - Identifies source of process excursions - Interfaces with factory statistical process control system - In line, all surface defect analysis and data management	X	
DMS Decision	2005	- Trend analysis and visualization tools - Wafer maps visualize all-surface defects - Identifies root cause of defects and process excursions - Off line defect review and classification	X	X
Harmony ASR	2005	- Defects displayed in real time - Rapid classification of unknown defects; review of previously-classified defects - Automatic defect classification	X	X
TrueADC	2005	- High accuracy, consistency and scalability - Patented feature-based defect matching technology - Utilizes dynamic defect library method - Fabwide spatial process control system	X	X
Process Sentinel	2006	- Traces patterns back to yield-killing process issues - Combined defect and sort solution - Quickly isolates systemic faults - Advanced segmentation and wafer stacking capability	X	

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Customers

Over 90 semiconductor device manufacturers have purchased Rudolph products 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.

We depend on a relatively small number of customers and end users for a large percentage of our revenues. In the years 2004, 2005 and 2006, sales to end user customers that individually represented at least five percent of our revenues accounted for 53.4%, 62.6% and 40.9% of our revenues, respectively. In 2004, 2005 and 2006, sales to Intel Corporation accounted for 23.2%, 20.3% and 14.0% of our revenues, respectively. No other individual end user customer accounted for more than 10% of our 2006 revenues. We do not have purchase contracts with any of our customers that obligate them to continue to purchase our products.

Research and Development

The thin film transparent, opaque process control and macro-defect inspection 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 *Meta*PULSE 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 2004, 2005 and 2006 were $15.8 million, $11.9 million and $27.6 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, Germany, Scotland, Ireland, Israel, 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 Mt. Olive, 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 Mt. Olive, New Jersey and Bloomington, Minnesota. Our core manufacturing competencies include electrical, optical and mechanical assembly and testing as well as the

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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. 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, 2006, we have been granted, or hold exclusive licenses to, 80 U.S. and foreign patents. The patents we own, jointly own or exclusively license have expiration dates ranging from 2010 to 2023. We also have 95 pending regular and provisional applications in the U.S. and other countries. Our patents and applications principally cover various aspects of transparent thin film measurement, altered material characterization and macro-defect detection and classification.

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 *Meta*PULSE 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 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 as great an extent 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, Therma-Wave 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.

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Significant competitive factors in the market for 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 has been specified 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, 2006, we had a backlog of approximately $26.1 million compared with a backlog of approximately $16.2 million at December 31, 2005.

Employees

As of December 31, 2006, we had 620 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;

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- the timing, cancellation or delay of customer orders, shipments and acceptance;

- 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 would 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

In 2004, 2005 and 2006, sales to end user customers that individually represented at least five percent of our revenues accounted for, in the aggregate, 53.4%, 62.6% and 40.9% of our revenues. In 2004, 2005 and 2006, sales to Intel Corporation, a key customer, accounted for 23.2%, 20.3% and 14.0% of our revenues, respectively. 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 would significantly decline. We expect that we will continue to depend on a small number of large customers for a significant portion of our revenues for at least the next several years. 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 revenue may vary significantly each quarter due to relatively small fluctuations in our unit sales

During any quarter, a significant portion of our revenue may be derived from the sale of a relatively small number of systems. Our transparent film measurement systems range in selling price from approximately $250,000 to $1.0 million per system, our opaque film measurement systems range in selling price from approximately $900,000 to $2.0 million per system and our macro-defect detection systems range in selling price from approximately $250,000 to $1.4 million per system. Accordingly, a small change in the number of systems we sell may also cause significant changes in our operating results. This, in turn, could cause fluctuations in the market price of our common stock.

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;

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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, if ever, and receive payment 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 a 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.

Because we derive a significant portion of our revenues from sales in Asia, our sales and results of operations could be adversely affected by the instability of Asian economies

Our sales to customers in Asian markets represented approximately 59.6%, 56.3% and 59.9% of our revenues in 2004, 2005 and 2006, respectively. Countries in the Asia Pacific region, including Japan, Korea, China, Singapore and Taiwan, each of which accounted for a significant portion of our business in that region, have experienced currency, banking and equity market weaknesses in the past. We expect that political or economic instability in the Asian markets we service could adversely affect our results of operations and cash flows in future periods.

Our significant level of international sales subjects 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

International sales accounted for approximately 69.1%, 77.5% and 70.6%, respectively, of our revenues in 2004, 2005 and 2006. We anticipate that international sales will account for a significant portion of our revenue during at least the next five years. Due to the significant level of our international sales, we are subject to a number of material risks, including:

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

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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.

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.

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. 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 $5.0 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

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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, trade secret and trademark law 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

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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. However, in the event that a confidentiality agreement is breached, we may not have adequate remedies. Our confidential and proprietary information and technology might also be independently developed by, or become otherwise known to, third parties.

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.

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 Rudolph 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, Therma-Wave 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

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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. During downturns in our industry, we have often experienced significant employee attrition, and we may experience further attrition in the event of future downturns. Although we have employment and noncompetition agreements with key members of our senior management team, including Messrs. McLaughlin, Loiterman and Roth, these individuals or other key employees may still leave us. 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

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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 facilities 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 facilities, 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 earnings

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.

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, we are aware of the 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;

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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 addition, 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 amortization of intangible assets, write-down of impaired assets or 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

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.

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

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, we must include in our Annual Report on Form 10-K a report of management on the effectiveness of our internal control over financial reporting and an attestation by our independent registered public accounting firm on the adequacy of management s assessment of

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our internal control and the effectiveness of internal control over financial reporting. Ongoing compliance with these requirements is complex, costly and time-consuming. If (1) we fail to maintain effective internal control over financial reporting; (2) our management does not timely assess the adequacy of such internal control; or (3) our independent registered public accounting firm does not timely attest to the evaluation, we could be subject to regulatory sanctions and the public s perception of us may decline.

The outbreak of an avian influenza (bird flu) pandemic, severe acute respiratory syndrome (SARS), or other health related issues, could impact our customer or supply base

SARS or other health related issues, such as an avian influenza (bird flu) pandemic, could have a negative impact on consumer demand, on travel needed to secure new business or manage our operations, on transportation of our products from our suppliers or to our customers, or on workers needed to sell or manufacture our products or our customers products.

Risks Related to our Merger with August Technology

Rudolph may not realize the benefits of its merger with August Technology

On February 15, 2006 we completed the merger with August Technology Corporation. Rudolph s failure to meet the challenges involved in realizing any of the anticipated benefits of the merger, could seriously harm Rudolph s financial positions, results of operations and cash flows. Realizing the benefits of the merger will depend in part on the continued successful integration of technology, operations and personnel. The anticipated benefits of the merger are based on projections and assumptions, not actual experience. The failure to realize any of the anticipated benefits of the merger could seriously hinder Rudolph s plans for product development as well as business and market expansion following the merger.

Risks Related to the Semiconductor Device Industry

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

Our operating results are subject to significant variation due to the cyclical nature of the semiconductor device industry. Our business depends upon the capital expenditures of semiconductor device manufacturers, which, in turn, depend upon the current and anticipated market demand for semiconductors and products using semiconductors. The timing, length and severity of the up-and-down cycles in the semiconductor equipment industry are difficult to predict. 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.

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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 recently adopted stockholders 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 Stockholders Rights Plan. Such a Shareholders 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.

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, Korea, Singapore, Taiwan and Scotland. The following table indicates the general location, the general purpose and the square footage of our principal facilities. The expiration years of the leases covering the leased facilities are also indicated.

Location	Facility Purpose	Approximate Square Footage	Lease Expiration Year, Unless Owned
Flanders, New Jersey	Executive Office	20,000	Owned
Mt. Olive, New Jersey	Engineering, Manufacturing and Service	83,500	2016
Bloomington, Minnesota	Engineering, Manufacturing and Service	78,500	2012
Lowell, Massachusetts	Engineering, Manufacturing and Service	10,000	2008
Richardson, Texas	Yield Metrology Group	21,000	Owned
Hsin-Chu, Taiwan	Sales and Service	10,000	2008
Takatsu, Japan	Sales and Service	5,000	2008
Seoul, Korea	Sales and Service	5,000	2009
Shanghai, China	Sales and Service	4,000	2009
Singapore	Sales and Service	2,000	2007
Scotland, United Kingdom	Sales and Service	1,000	2009

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

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

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Item 3. Legal Proceedings.

From time to time we are subject to legal proceedings and claims in the ordinary course of business. We are not aware of any legal proceedings or claims that management believes would have a material adverse effect on our consolidated financial statements taken as a whole.

Item 4. Submission of Matters to a Vote of Security Holders.

No matters were submitted to a vote of security holders during the fourth quarter of the fiscal year covered by this report.

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PART ll

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 National 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 Stock Market index and the RDG Semiconductor Index for the period commencing on December 31, 2001, and ending on December 31, 2006. 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, 2001 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. Under the assumptions stated above, over the period from December 31, 2001 to December 31, 2006 the total annual compound return on an investment in the Company would have been (14.24)%, as compared to 6.5% for the Nasdaq Stock Market index and (3.81)% for the RDG Semiconductor index.

	12/01	12/02	12/03	12/04	12/05	12/06
Rudolph Technologies, Inc.	100.00	55.83	71.50	50.03	37.53	46.39
NASDAQ Composite	100.00	71.97	107.18	117.07	120.50	137.02
RDG Semiconductor Composite	100.00	49.02	92.98	74.64	83.56	82.35

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

	Price Range of Common Stock	
	High	**Low**
Year Ended December 31, 2005		
First Quarter	$ 19.19	$ 14.65
Second Quarter	$ 15.63	$ 12.09
Third Quarter	$ 16.45	$ 13.13
Fourth Quarter	$ 13.99	$ 11.61
Year Ended December 31, 2006		
First Quarter	$ 18.09	$ 12.75
Second Quarter	$ 20.00	$ 13.70
Third Quarter	$ 19.25	$ 12.80
Fourth Quarter	$ 20.15	$ 13.10

As of February 9, 2007, there were 115 stockholders of record of our common stock and approximately 7,822 beneficial stockholders. The closing market value of our common stock on February 9, 2007 was $15.67.

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.

Certain Equity Compensation Plan Information included in Item 12 of Part III, hereof, is hereby incorporated into this Item 5 of Part II and will be included in our Proxy Statement for the 2007 Annual Meeting of Stockholders.

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Item 6. Selected Financial Data.

The following selected financial data should be read in conjunction with our Consolidated Financial Statements and the related Notes thereto appearing elsewhere in this Form 10-K, and Management s Discussion and Analysis of Financial Condition and Results of Operations. The balance sheet data as of December 31, 2005 and 2006 and the statement of operations data for the years ended December 31, 2004, 2005 and 2006 set forth below were derived from our audited consolidated financial statements included elsewhere in this Form 10-K. The balance sheet data as of December 31, 2002, 2003 and 2004, and the statement of operations data for the years ended December 31, 2002 and 2003 were derived from our audited consolidated financial statements not included herein.

	Year Ended December 31,				
	2002 (1)	2003	2004	2005	2006 (2)
	(In thousands, except per share data)				
Statement of Operations Data:					
Revenues	$ 57,445	$ 58,500	$ 84,248	$ 82,918	$ 201,168
Cost of revenues	33,576	33,214	44,595	44,390	103,726
Gross profit	23,869	25,286	39,653	38,528	97,442
Operating expenses:					
Research and development	11,828	13,390	15,847	11,901	27,560
In-process research and development	3,500				9,900
Selling, general and administrative	11,025	10,561	15,222	20,373	34,689
Amortization	412	877	876	876	4,048
Total operating expenses	26,765	24,828	31,945	33,150	76,197
Operating income (loss)	(2,896)	458	7,708	5,378	21,245
Interest income and other, net	2,050	1,610	1,899	1,388	3,191
Income (loss) before provision for income taxes	(846)	2,068	9,607	6,766	24,436
Provision for income taxes	585	298	2,855	1,789	11,730
Net income (loss)	$ (1,431)	$ 1,770	$ 6,752	$ 4,977	$ 12,706
Earnings (loss) per share:					
Basic	$ (0.09)	$ 0.11	$ 0.40	$ 0.29	$ 0.47
Diluted	$ (0.09)	$ 0.11	$ 0.40	$ 0.29	$ 0.46
Weighted average shares outstanding:					
Basic	16,215	16,409	16,746	16,899	27,276
Diluted	16,215	16,723	16,914	16,942	27,574

	December 31,				
	2002	2003	2004	2005	2006
Balance Sheet Data:					
Cash and cash equivalents	$ 42,047	$ 28,220	$ 12,627	$ 37,986	$ 72,479
Marketable securities	31,223	52,342	64,120	42,821	33,714

Working capital	106,051	111,251	120,115	125,294	200,440
Total assets	161,963	160,371	171,280	180,001	440,486
Retained earnings	6,692	8,462	15,214	20,191	32,897
Total stockholders equity	144,081	148,537	156,775	164,534	392,876

(1) Statement of operations data for 2002 reflects results of operations of Yield Metrology Group since September 25, 2002.

(2) Effective January 1, 2006, we adopted the provisions prescribed by the Financial Accounting Standards Board in Statement of Financial Accounting Standards No. 123 (revised 2004), Share-Based Payment. Consequently, we began recognizing compensation cost measured at fair value over the service period for stock awards expected to vest. In addition, Statement of Operations data for 2006 reflects the results of operations of August Technology since February 15, 2006.

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

Overview

We are a worldwide leader in the design, development, manufacture and support of high-performance process control metrology, defect inspection, 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 and integrated modules for both transparent and opaque thin film measurements and macro-defect inspection. All of these systems feature production-worthy automation and are backed by worldwide customer support.

On February 15, 2006, the merger with August Technology was completed. The combined company will continue to be known as Rudolph Technologies, Inc. Under the terms of the agreement, we paid an aggregate of $37.2 million in cash and issued an aggregate of 11,298,265 shares of our common stock to former August Technology shareholders. The results of operations of August Technology have been included in our consolidated financial statements since the date of the merger. Due to the size of August Technology and the effects of purchase accounting, our financial position, results of operations and cash flows may not be comparable to prior periods. The effects of purchase accounting were completed in 2006 with the exception of income taxes.

August Technology was a world-class provider of automated defect detection and product characterization systems for microelectronic device manufacturers. Their systems provided manufacturers with information that enables process-enhancing decisions, to ultimately lower manufacturing costs and decrease time-to-market. They had traditionally provided systems to address the automated inspection needs of the early stages of the final manufacturing or back-end of the microelectronic device manufacturing process. In addition, they had introduced new products for edge and backside inspection systems for advanced macro defect detection primarily in the front-end of the wafer manufacturing process. When used in conjunction with one another these systems allow a manufacturer to inspect the top, edge and back of a wafer s surface.

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 and cell phone sales. Current forecasts by industry analysts for the semiconductor device manufacturing industry project a year-over-year increase in capital spending of 5-10% for 2007. 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 above one 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 1.05 for the month of December 2006, increasing from the September 2006 book-to-bill ratio of 0.98. The book-to-bill ratio for the back-end micro electronic device manufacturers was 0.8 for the three month period ended December 31, 2006.

Historically, a significant portion of our revenues in each quarter and year has been derived from sales to relatively few end user customers, and we expect this trend to continue. For the years ended December 31, 2004, 2005 and 2006, sales to end user customers that individually represented at least five percent of our revenues accounted for 53.4%, 62.6%, and 40.9% of our revenues, respectively. For the years ended December 31, 2004, 2005 and 2006, sales to Intel accounted for 23.2%, 20.3% and 14.0% 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 transparent film measurement systems range in average selling price from approximately $250,000 to $1.0 million per system, our opaque film measurement systems range in average selling price from

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approximately $900,000 to $2.0 million per system and our macro-defect inspection systems range in average selling price from approximately $250,000 to $1.4 million per system. Accordingly, a small change in the number of systems we sell may also cause significant changes in our operating results. Because fluctuations in the timing of orders from our major customers or in the number of our individual systems we sell could cause our revenues to fluctuate significantly in any given quarter or year, we do not believe that period-to-period comparisons of our financial results are necessarily meaningful, and they should not be relied upon exclusively as an indication of our future performance.

A significant portion of our revenues has been derived from customers outside of the United States. In 2004, approximately 69.1% of our revenues were derived from customers outside of the United States, of which 59.6% were derived from customers in Asia and 9.5% were derived from customers in Europe. In 2005, approximately 77.5% of our revenues were derived from customers outside of the United States, of which 56.3% were derived from customers in Asia and 21.2% were derived from customers in Europe. In 2006, approximately 70.6% of our revenues were derived from customers outside of the United States, of which 59.9% were derived from customers in Asia and 10.7% 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.

Effective October 2004, we opened a direct sales and support operation in Japan. The operation offers our customers in Japan a direct link to us. We have established a main office in Takatsu, Japan, with branch operations in Osaka and on Kyushu Island. We currently have an installed base of more than 500 metrology tools in Japan. Tokyo Electron Limited previously served as our Japanese distributor for over twenty years. The transition from our distributor arrangement with Tokyo Electron Limited was completed in the fourth quarter of 2005. As part of the transition, our operations were staffed with some of the same support personnel that supported our products at Tokyo Electron Limited. As a result, our operations in Japan have increased our infrastructure costs and impact our gross profit and selling, general and administrative expenses.

The sales cycle for our systems typically ranges from six to 15 months, and can be longer when our customers are evaluating new technology. Due to the length of these cycles, we invest significantly in research and development and sales and marketing in advance of generating revenues related to these investments. Additionally, the rate and timing of customer orders may vary significantly from month to month. Accordingly, if sales of our products do not occur when we expect, our expenses and inventory levels may increase relative to revenues and total assets.

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,		
	2004	2005	2006
Revenues	100.0%	100.0%	100.0%
Cost of revenues	52.9	53.5	51.6
Gross profit	47.1	46.5	48.4
Operating expenses:			

Research and development	18.8	14.4	13.7
In-process research and development			4.9
Selling, general and administrative	18.1	24.6	17.3
Amortization	1.0	1.0	2.0
Total operating expenses	37.9	40.0	37.9
Operating income	9.2	6.5	10.5
Interest income and other, net	2.3	1.7	1.6
Income before provision for income taxes	11.5	8.2	12.1
Provision for income taxes	3.4	2.2	5.8
Net income	8.1%	6.0%	6.3%

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Results of Operations 2004, 2005 and 2006

Revenues. Our revenues are derived from the sale of our systems, services, spare parts and software licensing. Our revenues were $84.2 million, $82.9 million and $201.2 million in the years 2004, 2005 and 2006. These changes represent a decrease of 1.6% from 2004 to 2005 and an increase of 142.6% from 2005 to 2006. The 2006 increase is primarily related to the August Technology merger.

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

	Year Ended December 31,					
	2004		2005		2006	
Systems:						
Metrology	$ 66,896	79%	$ 52,596	63%	$ 68,035	34%
Inspection	1,775	2	11,644	14	100,666	50
Parts	7,275	9	9,188	11	14,217	7
Services	6,989	8	8,205	10	11,457	6
Software licensing	1,313	2	1,285	2	6,793	3
Total revenue	$ 84,248	100%	$ 82,918	100%	$ 201,168	100%

Systems revenue decreased from 2004 to 2005 due to a softening in demand in the semiconductor capital equipment manufacturing sector. The increase in systems revenue from 2005 to 2006 reflects additional revenues of $88.2 million related to the August Technology merger and an increase in metrology systems revenues of $15.4 million. Systems revenue generated by our latest product releases and major enhancements in each of our product families amounted to 39% of total revenue for 2004 compared to 32% of total revenue for 2005 and 31% of total revenue for 2006. Parts and services revenues increased from 2004 to 2005 as customers spent more on repair and maintenance of their existing equipment. In addition, parts and service revenue increased in 2005 as a result of our direct sales operations in Japan. The year-over-year increase in parts and services revenues in absolute dollars from 2005 to 2006 reflects additional parts and service revenues of $3.5 million related to the August Technology merger as well as customers continuing to spend more on repair and maintenance of their existing equipment. Parts and services revenues are generated from part sales, maintenance service contracts, system upgrades, as well as time and material billable service calls. Software licensing revenues increased from 2005 to 2006 due to the August Technology merger.

Deferred revenues of $11.9 million are recorded in other current liabilities at December 31, 2006 and primarily consist of $6.0 million for licensing agreements, $4.4 million for deferred maintenance agreements and $1.5 million for systems awaiting acceptance and outstanding deliverables.

Gross Profit. Our gross profit is 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, product sales mix, production volume, customization and reconfiguration of systems, international and domestic sales mix, and parts and service margins. Our gross profit was $39.7 million, $38.5 million and $97.4 million in 2004, 2005 and 2006, respectively. The decrease in gross profit as a percentage of revenue from 2004 to 2005 is primarily due to customer support and fixed manufacturing costs representing a larger component of cost of goods sold on a lower revenue base. The increase in gross profit as a percentage of revenue from 2005 to 2006 is primarily due to higher sales volume, partially offset by charges to cost of goods sold including a $3.7 million charge for the sale of inventory written-up to fair value

upon the merger and $2.6 million in charges related to duplicative inventory.

Research and Development. The thin film transparent, opaque process control and macro-defect inspection 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, the progression to 300 mm wafers, the continuous shrinkage in critical

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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 $15.8 million, $11.9 million and $27.6 million in 2004, 2005 and 2006, respectively. The year-over-year dollar decrease from 2004 to 2005 is primarily attributed to reduced headcount, the timing of our subcontractor programs and the timing of our new product releases. The year-over-year dollar increase from 2005 to 2006 primarily reflects additional research and development cost of $13.0 million related to the merged activities of August Technology and increased compensation costs including share-based compensation costs. We continue to maintain our commitment to investing in new product development and enhancement to existing products as we position ourselves for future growth.

In-Process Research and Development. The merger with August Technology resulted in our recording of a one-time expense of $9.9 million for the write-off of in-process research and development, or IPRD. At the time of the merger, we determined that the IPRD had not reached technological feasibility and that it did not have an alternative future use. The purchased in-process technology projects, which are comprised of macro defect inspection and software projects, had a value assigned to them of $6.9 million and $3.0 million, respectively. The defect inspection projects, relate to the next generation of our AXi defect detection systems with enhanced defect capture capabilities, and were approximately 90% complete as of the date of merger. The estimated costs to complete these projects consisted primarily of internal engineering labor costs and were completed by the third quarter of 2006. The software projects, relate to new enhancement features to our next generation inspection products, and were approximately 50% complete as of the date of merger, with the remaining cost to complete consisting primarily of internal software development labor cost. The software projects will be completed in 2007. We generated revenue from the inspection project in the third quarter of 2006 and anticipate revenue to be generated from the software projects in 2007. If we are not successful in completing the software projects on a timely basis, the future sales of our inspection products may be adversely affected resulting in erosion of our market share.

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 $15.2 million, $20.4 million and $34.7 million in 2004, 2005 and 2006, respectively. The year-over-year dollar increase from 2004 to 2005 in selling, general and administrative expense was primarily due to a full year impact of our operations in Japan of $2.4 million, increased sales and administrative costs at our branch offices of $0.5 million, the consolidation of facilities of $0.6 million and increased cash and equity compensation costs of $0.7 million. The year-over-year dollar increase from 2005 to 2006 in selling, general and administrative expense was primarily due to $10.6 million related to merged activities of August Technology and increased compensation costs

Interest Income and Other, Net. Interest income and other, net was $1.9 million, $1.4 million and $3.2 million in 2004, 2005 and 2006, respectively. Interest income and other, net for 2006 consisted primarily of interest income of $3.3 million. The decrease in interest income and other, net of $0.5 million from 2004 to 2005 is primarily due to the litigation settlement income of $0.5 million received in 2004. The increase in interest income and other, net of $1.8 million from 2005 to 2006 is primarily due to higher invested cash balances and higher interest rates.

Income Taxes. Income tax expense was $2.9 million, $1.8 million and $11.7 million in 2004, 2005 and 2006, respectively. Our effective tax rate was 30%, 26% and 48.0% in 2004, 2005 and 2006, respectively. Our effective tax rate differs from the statutory rate of 35% primarily as a function of benefits realized from research and development tax credits, extraterritorial income exclusion and tax exempt interest. In addition, in 2006, our effective tax rate was impacted by the non-deductibility of the $9.9 million IPRD charge for tax purposes.

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Liquidity and Capital Resources

At December 31, 2004, we had $76.7 million of cash, cash equivalents and marketable securities and $120.1 million in working capital. At December 31, 2005, we had $80.8 million of cash, cash equivalents and marketable securities and $125.3 million in working capital. At December 31, 2006, our cash, cash equivalents and marketable securities totaled $106.2 million, while working capital amounted to $200.4 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, in 2005, as our revenues declined from $84.2 million to $82.9 million, our change in accounts receivables represented a use of cash. This was primarily due to longer collection times from our Japanese customers. Because of the lack of visibility in projected sales for 2007, we are uncertain as to the level of expected cash to be provided from operating activities in 2007.

In 2004, operating activities used $3.2 million in cash. Net cash provided by operating activities in 2005 and 2006 totaled $8.1 million and $20.6 million, respectively. Net cash used in operating activities in 2004 was primarily due to increases in accounts receivable and inventories of $12.7 million and $7.5 million, partially offset by profit before depreciation and amortization of $9.0 million, a decrease of $1.5 million in net deferred tax assets, an increase in accrued liabilities of $2.8 million, an increase in other current liabilities of $0.3 million, a decrease in prepaid expenses and other assets of $2.1 million and a decrease in income taxes receivable of $1.3 million. During 2005, cash provided by operating activities was primarily due to profit before depreciation and amortization, foreign currency exchange loss and net loss on sale of marketable securities of $9.4 million, a decrease in inventories of $3.7 million, an increase in other non-current liabilities of $0.7 million and a decrease in prepaid expenses and other assets of $0.6 million, partially offset by an increase in accounts receivable of $5.7 million and a decrease in accrued liabilities of $1.2 million. The increase in receivables is primarily due to the timing of shipments towards the end of the year and longer collection times in Japan. During 2006, cash provided by operating activities was primarily due to profit before depreciation, amortization, IPRD, provision for doubtful accounts and inventory valuation, deferred income taxes and share-based compensation of $42.4 million, an increase in deferred revenue of $7.9 million, an increase in other current liabilities of $1.0 million and an increase in accrued liabilities of $0.9 million, partially offset by an increase in accounts receivable of $25.1 million and an increase in inventories of $7.1 million.

Net cash used in investing activities was $14.1 million in 2004. Net cash provided by investing activities in 2005 and 2006 totaled $16.0 million and $3.6 million, respectively. In 2004, net cash used in investing activities included purchases of marketable securities of $24.0 million, partially offset by proceeds from sales of marketable securities of $11.7 million, costs incurred for capitalized software of $0.8 million and capital expenditures of $1.0 million. In 2005, net cash provided by investing activities included proceeds from sales of marketable securities of $70.4 million, partially offset by purchases of marketable securities of $50.0 million, capital expenditures of $2.7 million, costs incurred for capitalized software of $0.9 million and acquisition costs for business combinations of $0.9 million. Capital expenditures in 2005 were primarily related to our new facility in Mt. Olive, New Jersey. In 2006, net cash provided by investing activities included proceeds from sales of marketable securities of $93.4 million, partially offset by purchases of marketable securities of $70.8 million, capital expenditures of $4.7 million, costs incurred for capitalized software of $2.2 million and acquisition costs for the August Technology merger of $12.1 million net of cash acquired of $29.9 million. Capital expenditures over the next twelve months are expected to be approximately $6.2 million.

Net cash provided by financing activities was $1.6 million, $1.5 million and $10.1 million in 2004, 2005 and 2006, respectively. In 2004 and 2005, net cash provided by financing activities was a result of proceeds received from sales of shares through share-based compensation plans. In 2006, net cash provided by financing activities was a result of proceeds received from sales of shares through share-based compensation plans of $9.0 million and tax benefit from share-based compensation plans of $1.2 million.

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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. On February 15, 2006, we completed our merger with August Technology Corporation. Under the terms of the agreement, we paid an aggregate of $37.2 million in cash and issued an aggregate of 11,298,265 shares of our common stock to former August Technology shareholders.

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 foreseeable future. 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 is a summary of our contractual obligations at December 31, 2006.

	Payments due by period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Operating lease obligations	$ 12,571	$ 2,064	$ 3,434	$ 2,992	$ 4,081
Open and committed purchase orders	21,631	21,631			
Total	$ 34,202	$ 23,695	$ 3,434	$ 2,992	$ 4,081

Off-Balance Sheet Arrangements

The Company does not have any 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. When customer acceptance is subjective and not obtained prior to shipment, we defer

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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 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 items, 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.

The purchase price is preliminarily allocated based on estimates of the fair values of assets acquired and liabilities assumed. The final valuation of net assets is expected to be completed within one year from the acquisition or merger date. At the acquisition or merger date, we begin to formulate a plan to exit or restructure certain activities, if applicable. As we finalize our plans to exit or restructure activities, we may record additional liabilities for, among other things, severance and severance related costs, which would also increase the goodwill recorded.

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The developed technology acquired in connection with the merger with August Technology is separated into front-end and back-end automated macro defect inspection, and analysis software and is utilized in the manufacturing of semiconductor chips. This technology is designed to automate inspection processes that are performed by the human eye through the use of imaging technology and high-speed computers. The process of forming transistors directly on silicon wafers is commonly referred to as the front-end process. The front-end products provide high-speed automated inspection of chips, cracks and other defects that occur during the chip manufacturing process. The merged company s product offering in this area is the AXi series, which is an automated defect inspection system.

Once the various semiconductor devices have been created they must be interconnected to form the desired electrical circuits. This back-end process involves creating metal interconnecting wires that are separated by insulating materials. The back-end products provide inspection of the chips to detect defects created during the back-end manufacturing process. The back-end products include the NSX series, which are flexible automated wafer and die defect inspection systems for high-speed, consistent, reliable defect detection.

The software technology is used to analyze and process the data provided during front-end and back-end inspection. The software provides rapid classification of defects as well as providing possible correlation among them by creating a database of prior issues and defects. This aids our customers in making adjustments to the manufacturing processes to help reduce the number of defects and enable consistent performance among separate machines. The software products include fabrication-wide data management software, and tool specific defect review and process analysis software.

Paragraph 39 of Statement of Financial Accounting Standards (SFAS) No. 141 provides guidance concerning the recognition of value associated with intangible assets and refers to an illustrative list in Appendix A of SFAS No. 141 of commonly identifiable intangible assets that meet the criteria for recognition as assets apart from goodwill. This list includes technology-based intangible assets, such as patented technology and computer software. The developed technology acquired represents proprietary know-how that was technologically feasible as of the merger date and is supported by patents.

A useful life of nine years was assigned for each of the front-end, back-end and software developed technologies. The basis for assigning these lives was derived from a number of factors including the valuation of the developed technology, the expected life cycle of the technology, and the remaining lives of the underlying patents. The valuation, which was performed by an independent third party valuation firm, was based on projected cash flows for each of the developed technologies. After the ninth year, the cash flows generated from the developed technologies decline to a nominal amount. The life cycle of the technology is in its early stages of development due to advancements in computers and camera technology, and has only recently begun to achieve semiconductor industry acceptance. As such, risk of technology obsolescence is minimized until the later stages of the life cycle. In evaluating the patents underlying the acquired technology, the remaining lives of the patents range from 12 to 15 years. We determined that the decline in cash flows to a nominal amount was a principle factor in determining the life of the technology. As such, we believe that a life of nine years assigned to the developed technology is appropriate.

Goodwill. Our formal annual impairment testing date for goodwill is December 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 each reporting unit using market capitalization and a number of judgmental factors including projected future operating results and business plans, economic projections, anticipated future cash flows, discount rates and comparable marketplace fair value data from within a comparable industry grouping. We compare the estimated fair values of each reporting unit to the respective carrying values which includes allocated goodwill. 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

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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. We believe our estimates of the underlying components of fair value are reasonable. However, should actual results not meet our expectations or assumptions change in future years, our impairment assessment could result in a lower fair value estimate which could result in an impairment charge that may materially affect the carrying value of our assets and results from operations.

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.

Share-Based Compensation. Prior to fiscal 2006, we accounted for share-based compensation plans under the recognition and measurement provisions of Accounting Principles Board (APB) Opinion No. 25. Effective January 1, 2006, we adopted the provisions of SFAS No. 123 (revised 2004) Share-Based Payment (SFAS 123R) using the modified-prospective-transition method. SFAS 123R requires companies to recognize the fair- value of share-based compensation transactions in the statement of operations. 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, 2005, we had a valuation allowance of $0.5 million for a portion of the deferred tax assets attributable to foreign net operating loss carryforwards due to the uncertainty of future earnings of our subsidiaries in Europe and Japan. During 2006, the entire valuation allowance of $0.5 million was reversed as the net operating losses of our subsidiaries in Europe and Japan were utilized.

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Impact of Recent Accounting Pronouncements

In September 2006, the Securities and Exchange Commission (SEC) issued Staff Accounting Bulletin No. 108 (SAB 108), Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements. Due to diversity in practice among registrants, SAB 108 expresses SEC staff views regarding the process by which misstatements in financial statements are evaluated for purposes of determining whether financial statement restatement is necessary. SAB 108 is effective for fiscal years ending after November 15, 2006, and early application is encouraged. The adoption of SAB 108 as of December 31, 2006 did not have a material impact on our consolidated financial position or results from operations.

In September 2006, the Financial Accounting Standards Board (FASB) issued SFAS No. 157 (SFAS 157), Fair Value Measurements. SFAS 157 defines fair value, establishes a framework for measuring fair value and expands disclosures about fair value measurements. SFAS 157 is effective for fiscal years beginning after November 15, 2007. We are currently evaluating the potential impact of adopting SFAS 157.

In July 2006, the FASB issued Interpretation No. 48 (FIN 48), Accounting for Uncertainty in Income Taxes, which is effective January 1, 2007. The purpose of FIN 48 is to clarify and set forth consistent rules for accounting for uncertain tax positions in accordance with FAS 109, Accounting for Income Taxes. The cumulative effect of applying the provisions of this interpretation are required to be reported separately as an adjustment to retained earnings in the year of adoption. We are in the process of reviewing and evaluating FIN 48, and therefore the ultimate impact of its adoption is not yet known.

In November 2005, the FASB issued FASB Staff Position No. FAS 123(R)-3 Transition Election Related to Accounting for Tax Effects of Share-Based Payment Awards (FSP 123(R)-3). We adopted the alternative transition method provided in the FASB Staff Position for calculating the tax effects of stock-based compensation pursuant to SFAS 123R in fiscal year 2006. The alternative transition method includes simplified methods to establish the beginning balance of the additional paid-in capital pool (APIC pool) related to the tax effects of employee stock-based compensation, and to determine the subsequent impact on the APIC pool and consolidated cash flows of the tax effects of employee stock-based compensation awards that are outstanding upon adoption of SFAS 123R.

In November 2005, the FASB issued FASB Staff Position No. FAS 115-1 and FAS 124-1, The Meaning of Other-Than-Temporary Impairment and Its Application to Certain Investments (the FSP). The FSP addresses the determination as to when an investment is considered impaired, whether the impairment is other than temporary, and the measurement of an impairment loss. This FSP also includes accounting considerations subsequent to the recognition of an other-than-temporary impairment and requires certain annual disclosures about unrealized losses that have not been recognized as other-than temporary impairments. The guidance in this FSP amends SFAS No. 115, Accounting for Certain Investments in Debt and Equity Securities, SFAS No. 124, Accounting for Certain Investments Held by Not-for-Profit Organizations, and APB Opinion No. 18, The Equity Method of Accounting for Investments in Common Stock. The adoption of this position on January 1, 2006 did not have a material impact on our consolidated financial position and results of operations.

In November 2004, the FASB issued SFAS No. 151, Inventory Costs, an amendment of ARB No. 43, Chapter 4 , which is the result of its efforts to converge U.S. accounting standards for inventories with International Financial Reporting Standards. SFAS No. 151 requires idle facility expenses, freight, handling costs, and wasted material (spoilage) costs to be recognized as current-period charges. It also requires that the allocation of fixed production overheads to the costs of conversion be based on the normal capacity of the production facilities. The adoption of this statement on January 1, 2006 did not have a material impact on our consolidated financial position and results of operations.

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

Interest Rate Risk

We are exposed to changes in interest rates primarily from our investments in certain available-for-sale securities. Our available-for-sale securities consist primarily of fixed income investments (U.S. Treasury and Agency securities and corporate bonds). We continually monitor our exposure to changes in interest rates and credit ratings of issuers from our available-for-sale securities. It is possible that we are at risk if interest rates 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 sensitivity analysis performed on our financial investments held as of December 31, 2006, an immediate adverse change of 10% in interest rates (e.g. 3.00% to 3.30%) would result in a $0.1 million decrease in the fair value of our available-for-sale securities.

Foreign Currency Risk

We have branch operations in Taiwan, Singapore, China and Korea and wholly-owned subsidiaries in Europe and Japan. 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 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, 2005 and 2006, we had eight and fifteen forward contracts outstanding, respectively. The total notional contract value of these outstanding forward contracts at December 31, 2005 and 2006 was $4.1 million and $6.4 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

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of our disclosure controls and procedures, as such term is defined under Rules 13a-15(e) and 15d-15(e) promulgated under the Securities Exchange Act of 1934, as amended (the Exchange Act). Based on this evaluation, our principal executive officer and our principal financial officer concluded that, as of December 31, 2006, our disclosure controls and procedures are effective in providing assurance that material information required to be disclosed in our reports filed with or submitted to the Securities and Exchange Commission under the Exchange Act is made known to management, including our principal executive officer and our principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

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

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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. Based on our evaluation under the framework in *Internal Control Integrated Framework* , our management concluded that our internal control over financial reporting was effective as of December 31, 2006.

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 management s assessment of the effectiveness of our internal control over financial reporting as of December 31, 2006 has been audited by KPMG LLP, the independent registered public accounting firm that audited our consolidated financial statements included in this annual report, as stated in their report which is included herein.

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Changes in Internal Control Over Financial Reporting

There were no changes to the Company s internal control over financial reporting that occurred during the fourth quarter ended December 31, 2006, that have materially affected, or are reasonably likely to materially affect, the Company s internal control over financial reporting.

Date: February 21, 2007

By: /s/ PAUL F. MCLAUGHLIN
Paul F. McLaughlin

Chairman and Chief Executive Officer

Date: February 21, 2007

By: /s/ STEVEN R. ROTH
Steven R. Roth

Senior Vice President and Chief Financial Officer

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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 24, 2007, 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 is incorporated by reference to the Proxy Statement. 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 is incorporated by reference to the Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management.

The information required by this Item is incorporated by reference to the Proxy Statement.

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

The information required by this Item is incorporated by reference to the Proxy Statement.

Item 14. Principal Accounting Fees and Services.

The information required by this Item is incorporated by reference to the Proxy Statement.

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PART IV

Item 15. Exhibits and Financial Statement Schedules.

(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 Firm appear on pages F-2 and 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 Company s Schedule 13D filed with the SEC 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 filed with the SEC on December 9, 2005).
3.1	Restated Certificate of Incorporation of Registrant (incorporated herein 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	Amended and Restated Bylaws of Registrant (incorporated herein by reference to Exhibit (3.2(b)) to the Registrant s Registration Statement on Form S-1, as amended (SEC File No. 333-86871), filed on September 9, 1999).
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 with the Commission on February 15, 2006, 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 with the Commission 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 with the Commission on March 11, 2004, No. 000-30637).
10.1+	License Agreement, dated June 28, 1995, between the Registrant and Brown University Research Foundation (incorporated herein 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 herein 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).

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Exhibit No.	Description
10.3	Amended 1996 Non-Qualified Stock Option Plan (incorporated herein by reference to Exhibit 10.15 to Registrant s quarterly report on Form 10-Q, filed on November 14, 2001).
10.4	Form of 1999 Stock Plan (incorporated herein by reference to Exhibit (10.4) 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 herein 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).
10.6	Management Agreement, dated as of July 24, 2000, by and between Rudolph Technologies, Inc. and Paul F. McLaughlin (incorporated herein by reference to Exhibit 10.12 to Registrant s quarterly report on Form 10-Q, filed on November 3, 2000).
10.7	Management Agreement, dated as of July 24, 2000, by and between Rudolph Technologies, Inc. and Robert Loiterman (incorporated herein by reference to Exhibit 10.13 to Registrant s quarterly report on Form 10-Q, filed on November 3, 2000).
10.8	Management Agreement, dated as of July 24, 2000 by and between Rudolph Technologies, Inc. and Steven R. Roth (incorporated herein by reference to Exhibit 10.14 to Registrant s quarterly report on Form 10-Q, filed on November 3, 2000).
10.9	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 herein 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).
10.10	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 herein 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).
10.11	Form of option agreement under 1999 Stock Plan (incorporated herein by reference to Exhibit 10.12 to Registrant s quarterly report on Form 10-Q, filed on November 5, 2004).
10.12	Form of Restricted Stock Award pursuant to the Rudolph Technologies, Inc. 1999 Stock Plan (filed with Rudolph Technologies, Inc. s Current Report on Form 8-K filed on June 21, 2005 and incorporated herein by reference).
10.13	Form of Company Shareholder Voting Agreement (incorporated by reference to Exhibit 99.2 to the Company s Schedule 13D filed with the SEC on July 7, 2005).
14.1	Rudolph Technologies Code of Business Conduct and Ethics (incorporated herein by reference to Exhibit 14.1 to Registrant s annual report on Form 10-K, filed on March 16, 2006).
14.2	Rudolph Technologies Financial Code of Ethics (incorporated herein by reference to Exhibit 14.1 to Registrant s annual report on Form 10-K, filed on March 16, 2006).
21.1	Subsidiaries.
23.1	Consent of KPMG 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).

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Exhibit No.	Description
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.

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS AND

FINANCIAL STATEMENT SCHEDULE

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Report of Independent Registered Public Accounting Firm

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

We have audited the consolidated financial statements of Rudolph Technologies, Inc. and subsidiaries as listed in the accompanying index. In connection with our audits of the consolidated financial statements, we also have audited the consolidated financial statement schedule as listed in the accompanying index. These consolidated financial statements and the financial statement schedule are the responsibility of the Company s management. Our responsibility is to express an opinion on these consolidated financial statements and the financial statement schedule based on our audits.

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

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Rudolph Technologies, Inc. and subsidiaries as of December 31, 2006 and 2005, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2006, 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 consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

As discussed in Note 2 to the consolidated financial statements, the Company adopted Statement of Financial Accounting Standards No. 123(R), Share-Based Payment , effective January 1, 2006.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the effectiveness of Rudolph Technologies, Inc. and subsidiaries internal control over financial reporting as of December 31, 2006, based on criteria established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated February 21, 2007, expressed an unqualified opinion on management s assessment of, and the effective operation of, internal control over financial reporting.

/s/ KPMG LLP

Short Hills, New Jersey

February 21, 2007

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Report of Independent Registered Public Accounting Firm

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

We have audited management s assessment, included in Management s Report on Internal Control Over Financial Reporting in Item 9A of the Company s Annual Report on Form 10-K, that Rudolph Technologies, Inc. and subsidiaries maintained effective internal control over financial reporting as of December 31, 2006, based on criteria established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Rudolph Technologies, Inc. s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting. Our responsibility is to express an opinion on management s assessment and an opinion on the effectiveness of 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, evaluating management s assessment, testing and evaluating the design and operating effectiveness of internal control, 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, management s assessment that Rudolph Technologies, Inc. and subsidiaries maintained effective internal control over financial reporting as of December 31, 2006, is fairly stated, in all material respects, based on criteria established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Also, in our opinion, Rudolph Technologies, Inc. and subsidiaries maintained, in all material respects, effective internal control over financial reporting as of December 31, 2006, based on criteria established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements of Rudolph Technologies, Inc. and subsidiaries listed in the accompanying index, and our report dated February 21, 2007 expressed an unqualified opinion on those consolidated financial statements.

/s/ KPMG LLP

Short Hills, New Jersey

February 21, 2007

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

(In thousands, except per share data)

	December 31,	
	2005	2006
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 37,986	$ 72,479
Marketable securities	42,821	33,714
Accounts receivable, less allowance of $230 in 2005 and $299 in 2006	26,046	65,373
Inventories	30,073	55,433
Deferred income taxes	2,119	7,950
Prepaid expenses and other current assets	974	1,795
Total current assets	140,019	236,744
Property, plant and equipment, net	8,599	16,882
Goodwill	13,245	145,176
Identifiable intangible assets, net	8,628	37,401
Deferred income taxes	4,190	
Capitalized software	1,688	3,607
Other assets	3,632	676
Total assets	$ 180,001	$ 440,486
LIABILITIES AND STOCKHOLDERS EQUITY		
Current liabilities:		
Accounts payable	$ 4,751	$ 8,054
Accrued liabilities:		
Payroll and related expenses	3,115	6,910
Royalties	852	1,831
Warranty	1,234	2,171
Income taxes payable	1,080	2,113
Deferred revenue	2,463	11,928
Other current liabilities	1,230	3,297
Total current liabilities	14,725	36,304
Deferred income taxes		10,647
Other non-current liabilities	742	659
Total liabilities	15,467	47,610
Commitments and contingencies (Note 8)		
Stockholders equity:		
Preferred stock, $0.001 par value, 5,000 shares authorized, no shares issued and outstanding at December 31, 2005 and 2006		

Common stock, $0.001 par value, 50,000 shares authorized, 16,941 and 28,977 issued and outstanding at December 31, 2005 and 2006, respectively	17	29
Additional paid-in capital	147,278	361,128
Accumulated other comprehensive loss	(928)	(1,178)
Retained earnings	20,191	32,897
Unearned compensation	(2,024)	
Total stockholders equity	164,534	392,876
Total liabilities and stockholders equity	$ 180,001	$ 440,486

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

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except per share data)

	Year Ended December 31,		
	2004	2005	2006
Revenues	$ 84,248	$ 82,918	$ 201,168
Cost of revenues	44,595	44,390	103,726
Gross profit	39,653	38,528	97,442
Operating expenses:			
Research and development	15,847	11,901	27,560
In-process research and development			9,900
Selling, general and administrative	15,222	20,373	34,689
Amortization	876	876	4,048
Total operating expenses	31,945	33,150	76,197
Operating income	7,708	5,378	21,245
Interest income and other, net	1,899	1,388	3,191
Income before provision for income taxes	9,607	6,766	24,436
Provision for income taxes	2,855	1,789	11,730
Net income	$ 6,752	$ 4,977	$ 12,706
Earnings per share:			
Basic	$ 0.40	$ 0.29	$ 0.47
Diluted	$ 0.40	$ 0.29	$ 0.46
Weighted average number of shares outstanding:			
Basic	16,746	16,899	27,276
Diluted	16,914	16,942	27,574

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

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS EQUITY

AND COMPREHENSIVE INCOME

For the years ended December 31, 2004, 2005 and 2006

(In thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Unearned Compensation	Retained Earnings	Total	Comprehensive Income
	Shares	Amount						
Balance at December 31, 2003	16,661	$ 17	$ 141,154	$ (1,096)	$	$ 8,462	$ 148,537	
Proceeds from sales of shares through employee stock plans	156		1,629				1,629	
Net income						6,752	6,752	$ 6,752
Tax benefit for sale of shares through share-based compensation plans			203				203	
Currency translation				60			60	60
Unrealized loss on investments, net of income tax benefit of $317				(406)			(406)	(406)
Comprehensive income								$ 6,406
Balance at December 31, 2004	16,817	$ 17	$ 142,986	$ (1,442)	$	$ 15,214	$ 156,775	
Proceeds from sales of shares through employee stock plans	124		1,503				1,503	
Net income						4,977	4,977	$ 4,977
Share-based compensation			75		556		631	
Unearned compensation			2,580		(2,580)			
Tax benefit for sale of shares through share-based compensation plans			134				134	
Currency translation				518			518	518
Unrealized loss on investments, net of income tax benefit of $12				(4)			(4)	(4)
Comprehensive income								$ 5,491
Balance at December 31, 2005	16,941	$ 17	$ 147,278	$ (928)	$ (2,024)	$ 20,191	$ 164,534	
Proceeds from sales of shares through employee stock plans	738	1	8,957				8,958	
Net income						12,706	12,706	$ 12,706
Share-based compensation			1,936				1,936	
Adoption of SFAS 123R			(2,024)		2,024			
Tax benefit for sale of shares through share-based compensation plans			1,167				1,167	
Common stock issued in merger	11,298	11	197,822				197,833	
Assumed August Technology options			6,040				6,040	
Tax benefit on tax deductible transaction costs			(48)				(48)	
Currency translation				(401)			(401)	(401)
Unrealized gain on investments, net of income tax expense of $93				151			151	151

Comprehensive income								$ 12,456
Balance at December 31, 2006	28,977	29	361,128	(1,178)		32,897	392,876	

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

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands)

	Year Ended December 31,		
	2004	2005	2006
Cash flows from operating activities:			
Net income	$ 6,752	$ 4,977	$ 12,706
Adjustments to reconcile net income to net cash and cash equivalents provided by (used in) operating activities:			
Amortization	876	876	4,372
Depreciation	1,335	1,773	4,300
In-process research and development			9,900
Foreign currency exchange (gain) loss	(62)	885	55
Net loss on sale of marketable securities	192	856	162
Tax benefit for sale of shares through share-based compensation plans	203	134	
Share-based compensation		631	1,936
Provision for doubtful accounts and inventory valuation	327	394	3,497
Deferred income taxes	1,489	(109)	5,718
Decrease (increase) in assets excluding effects of business combination:			
Accounts receivable	(12,669)	(5,669)	(25,096)
Income taxes receivable	1,332		
Inventories	(7,518)	3,702	(7,079)
Prepaid expenses and other assets	2,053	626	323
Increase (decrease) in liabilities excluding effects of business combination:			
Accounts payable	(202)	(207)	(438)
Accrued liabilities	2,830	(1,156)	872
Income taxes payable	77	(312)	610
Deferred revenue	(464)	4	7,873
Other current liabilities	250	(70)	1,017
Other non-current liabilities		742	(83)
Net cash and cash equivalents provided by (used in) operating activities	(3,199)	8,077	20,645
Cash flows from investing activities:			
Purchases of marketable securities	(24,036)	(49,965)	(70,803)
Proceeds from sales of marketable securities	11,660	70,404	93,410
Purchases of property, plant and equipment	(963)	(2,677)	(4,664)
Capitalized software	(806)	(882)	(2,230)
Purchase of business, net of cash acquired		(863)	(12,109)
Net cash and cash equivalents (used in) provided by investing activities	(14,145)	16,017	3,604
Cash flows from financing activities:			
Proceeds from sales of shares through share-based compensation plans	1,629	1,503	8,957
Tax benefit for sale of shares through share-based compensation plans			1,167

Net cash and cash equivalents provided by financing activities	1,629	1,503	10,124
Effect of exchange rate changes on cash and cash equivalents	122	(238)	120
Net (decrease) increase in cash and cash equivalents	(15,593)	25,359	34,493
Cash and cash equivalents at beginning of year	28,220	12,627	37,986
Cash and cash equivalents at end of year	$ 12,627	$ 37,986	$ 72,479
Supplemental disclosure of cash flow information:			
Net cash (refunded) paid during the period for:			
Income taxes	$ (616)	$ 1,959	$ 4,097
Non-cash investing activities:			
Acquisition costs for business combinations	$	$ 2,138	$ 203,872

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

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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 offices in China, Korea, Taiwan and Singapore and wholly-owned subsidiaries in Bloomington, Minnesota, Europe, Japan and Richardson, Texas. The Company operates in a single segment and supports a wide variety of applications in the areas of diffusion, etch, lithography, CVD, PVD, CMP and macro-defect detection and classification.

The Company sells its products to the semiconductor device industry and believes that changes in any of the following areas could have a material adverse effect on the Company s financial position, results of operations or cash flows: advances and trends in new technologies and industry standards; competitive pressures in the form of new products or price reductions on current products; changes in product mix; changes in the overall demand for products and services offered by the Company; changes in customer relationships; litigation or claims against the Company based on intellectual property, patent, product, regulatory or other factors; risks associated with changes in domestic and international economic and/or political conditions or regulations; dependency on suppliers and availability of necessary product components and the Company s ability to attract and retain employees necessary to support its growth.

On February 15, 2006, the Company completed its merger with August Technology Corporation. August Technology was a world-class provider of automated defect detection and product characterization systems for microelectronic device manufacturers. Their systems provided manufacturers with information that enables process-enhancing decisions, ultimately lowering manufacturing costs and decreasing time-to-market. They had traditionally provided systems to address the automated inspection needs of the early stages of the final manufacturing or back-end of the microelectronic device manufacturing process. In addition, they had introduced new products for edge and backside inspection systems for advanced macro defect detection primarily in the front-end of the wafer manufacturing process. When used in conjunction with one another these systems allow a manufacturer to inspect the top, edge and back of a wafer s surface.

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. When 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

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

installation, training and other services is generally 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 contingencies and share-based payments, including forfeitures. Actual results could differ from those estimates.

D. Cash and Cash Equivalents:

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

E. Marketable Securities:

The Company has evaluated its investment policies consistent with the Financial Accounting Standards Board s (FASB) Statement of Financial Accounting Standards (SFAS) No. 115, Accounting for Certain Investments in Debt and Equity Securities, 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, 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 as 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.

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

F. Allowance for Doubtful Accounts:

The Company evaluates the collectibility 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.

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 furnitures 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 in accordance with the provisions of SFAS No. 142, Goodwill and Other Intangibles. Under SFAS No. 142, goodwill impairment is deemed to exist if the net book value of a reporting unit exceeds its estimated fair value. The Company performed an assessment to determine whether goodwill was impaired as of December 31, 2004, 2005 and 2006, and determined that there was no impairment to its goodwill balance at these dates. The Company tests for goodwill impairment at December 31 each year.

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

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

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 financial institutions and monitors the amount of credit exposure to any one financial institution.

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.

N. Translation of Foreign Currencies:

The Company s international subsidiaries and branch offices operate primarily using local functional currencies. 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. Net foreign exchange rate gains and losses included in operating results are not material for all periods presented. The Company had accumulated exchange losses resulting from the translation of foreign operation financial statements of $609 and $1,010 as of December 31, 2005 and 2006, respectively.

O. Share-based Compensation:

Prior to January 1, 2006, the Company s share-based compensation plans were accounted for in accordance with Accounting Principles Board Opinion No. 25, Accounting for Stock Issued to Employees (APB 25) and related interpretations. Under this method, no compensation expense for stock options was recognized as long as the exercise price equaled or exceeded the market price of the underlying stock on the date of the grant. Compensation cost for restricted stock units issued to employees and directors was based upon the market value on the date grant. Such compensation costs were charged to unearned compensation in stockholders equity and amortized to expense over the requisite service period. The Company elected the disclosure-only alternative permitted under SFAS No. 123, Accounting for Stock-Based Compensation (SFAS 123), as amended by SFAS No. 148, Accounting for Stock-Based Compensation Transition and Disclosure (SFAS 148), for fixed stock-based awards to employees.

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

On January 1, 2006, the Company adopted SFAS No. 123 (revised 2004), Share-Based Payment (SFAS 123R) using the modified prospective method, which requires measurement of compensation cost for all stock awards at fair value on date of grant and recognition of compensation cost over the service period for awards expected to vest. The fair value of stock options is determined using the Black-Scholes valuation model, which is consistent with the Company s valuation model previously utilized for options in footnote disclosures required under SFAS 123, as amended by SFAS 148. The Black-Scholes valuation calculation requires the Company 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 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 rate is based on the U.S. Treasury yield curve in effect at the time of grant. The Company has never paid cash dividends, and does not currently intend to pay cash dividends, and thus has assumed a 0% dividend yield. Such value is recognized as expense over the service period, net of estimated forfeitures. The estimation of stock awards that will ultimately vest requires significant judgment. The Company considers many factors when estimating expected forfeitures, including types of awards, employee class, and historical experience. Actual results, and future changes in estimates, may differ substantially from the Company s current estimates. Prior to the adoption of SFAS 123R, the Company recorded forfeitures as incurred. Upon adoption of SFAS 123R, 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. The impact of this change on prior period compensation cost was immaterial. Additionally, the unearned compensation of $2,024 at the SFAS 123R adoption date relating to previous restricted stock unit grants was offset against additional paid-in capital. Results for prior periods have not been restated.

Results for prior periods have not been restated to reflect the effects of implementing SFAS 123R. The following table illustrates the effect on net income and earnings per share if the Company had applied the fair value recognition provisions of SFAS 123, as amended by SFAS 148, to stock options granted under the Company s stock-based employee compensation plans for years ended December 31, 2004 and 2005. For purposes of this pro forma disclosure, the value of the stock options was estimated using a Black-Scholes option-pricing formula and amortized to expense over the options vesting periods, with option forfeitures accounted for as they occurred:

	Year Ended December 31,	
	2004	2005
Net income, as reported	$ 6,752	$ 4,977
Add: Share-based employee compensation expense included in reported net income, net of related income tax benefits		396
Deduct: Share-based employee compensation expense determined under fair value based method, net of related income tax benefits	(5,654)	(8,902)
Pro forma net income (loss)	$ 1,098	$ (3,529)
Net income (loss) per share:		
Basic-as reported	$ 0.40	$ 0.29
Basic-pro forma	$ 0.07	$ (0.21)

Diluted-as reported	$ 0.40	$ 0.29
Diluted-pro forma	$ 0.07	$ (0.21)

Effective April 14, 2005, the Company accelerated the vesting of all unvested stock options awarded to employees, officers and other eligible participants under the Company s 1999 Stock Plan. A total of 959 options

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

to purchase shares of Rudolph stock became immediately exercisable as a result of the vesting acceleration, however only 87 of the stock options, or 9% of the total accelerated shares, were in the money . These options were typically scheduled to incrementally vest beginning on the first anniversary of their respective grant date. The Company recognized a de minimus charge in the second quarter of 2005 as a result of the acceleration. The Company took this action because it produces a more favorable impact on the Company s results of operations following the adoption of SFAS No. 123R, effective January 1, 2006. By accelerating the vesting of these options, the Company believes it will save approximately $7.0 million in future compensation expense that would have been required to be expensed, beginning January 1, 2006, over the remaining option lives. In addition, effective May 1, 2005, the Company amended its ESPP. The amendment removed the look back provision, that was previously a part of the ESPP and reduced the discount for purchasing shares of the Company s stock to five percent. These modifications to the ESPP were also made as a result of the Company s anticipated adoption of SFAS No. 123R.

For additional information on the Company s share-based compensation plans, see Note 10 of Notes to the Consolidated Financial Statements.

P. Research and Development and Software Development Costs:

Expenditures for research and development are expensed as incurred. The Company accounts for software development costs in accordance with SFAS No. 86, Accounting for Costs of Computer Software to Be Sold, Leased or Marketed. SFAS No. 86 requires that certain software product development costs incurred after technological feasibility has been established, be 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. 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, 2005 and 2006, capitalized software development costs were $1,688 and $3,607, respectively. There was no amortization of software development cost during the years ended December 31, 2004 and 2005. During the year ended December 31, 2006, $345 of software development costs was amortized. These costs will be amortized over the next seven years.

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 reports derivatives and hedging activities in accordance with SFAS No. 133, Accounting for Derivative Instruments and Hedging Activities. This statement requires that all derivative instruments be recorded on the balance sheet at fair value. Changes in the fair value of derivatives are recorded each period in current earnings or accumulated other comprehensive loss, depending on whether the derivative is designated as part of a hedge transaction, and if it is, depending on the type of hedge transaction.

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, 2005 and 2006, these contracts included the sale of Japanese Yen to purchase U.S. dollars. The foreign currency forward contracts

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

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 US dollar forward contracts and related fair values as of December 31, 2005 and 2006 were as follows:

	December 31,	
	2005	2006
Notional amount	$ 4,055	$ 6,439
Fair value of asset (liability)	$ (83)	$ 144

The Company recognized a gain of $172 and $106 with respect to forward contracts which matured during 2005 and 2006, respectively. The aggregate notional amount of these contracts was $1,736 and $6,277, respectively.

S. Reclassifications:

Certain prior year amounts have been reclassified to conform to the 2006 financial statement presentation.

T. Recent Accounting Pronouncements:

In September 2006, the Securities and Exchange Commission (SEC) issued Staff Accounting Bulletin No. 108 (SAB 108), Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements. Due to diversity in practice among registrants, SAB 108 expresses SEC staff views regarding the process by which misstatements in financial statements are evaluated for purposes of determining whether financial statement restatement is necessary. SAB 108 is effective for fiscal years ending after November 15, 2006, and early application is encouraged. The adoption of SAB 108 as of December 31, 2006 did not have a material impact on the Company s consolidated financial position or results from operations.

In September 2006, the Financial Accounting Standards Board (FASB) issued SFAS No. 157 (SFAS 157), Fair Value Measurements. SFAS 157 defines fair value, establishes a framework for measuring fair value and expands disclosures about fair value measurements. SFAS 157 is effective for fiscal years beginning after November 15, 2007. The Company is currently evaluating the potential impact of adopting SFAS 157.

In July 2006, the FASB issued Interpretation No. 48 (FIN 48), Accounting for Uncertainty in Income Taxes, which is effective January 1, 2007. The purpose of FIN 48 is to clarify and set forth consistent rules for accounting for uncertain tax positions in accordance with FAS 109, Accounting for Income Taxes. The cumulative effect of applying the provisions of this interpretation are required to be reported separately as an adjustment to the retained earnings in the year of adoption. The Company is in the process of reviewing and evaluating FIN 48, and therefore the ultimate impact of its adoption is not yet known.

In November 2005, the FASB issued FASB Staff Position No. FAS 123(R)-3 Transition Election Related to Accounting for Tax Effects of Share-Based Payment Awards (FSP 123(R)-3). The Company adopted the alternative transition method provided in the FASB Staff Position for calculating the tax effects of stock-based compensation pursuant to SFAS 123R in fiscal year 2006. The alternative transition method includes simplified methods to establish the beginning balance of the additional paid-in capital pool (APIC pool) related to the tax effects of employee stock-based compensation, and to determine the subsequent impact on the APIC pool and consolidated cash flows of the tax effects of employee stock-based compensation awards that are outstanding upon adoption of SFAS 123R.

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

In November 2005, the FASB issued FASB Staff Position No. FAS 115-1 and FAS 124-1, The Meaning of Other-Than-Temporary Impairment and Its Application to Certain Investments (the FSP). The FSP addresses the determination as to when an investment is considered impaired, whether the impairment is other than temporary, and the measurement of an impairment loss. This FSP also includes accounting considerations subsequent to the recognition of an other-than-temporary impairment and requires certain annual disclosures about unrealized losses that have not been recognized as other-than temporary impairments. The guidance in this FSP amends SFAS No. 115, Accounting for Certain Investments in Debt and Equity Securities, SFAS No. 124, Accounting for Certain Investments Held by Not-for-Profit Organizations, and APB Opinion No. 18, The Equity Method of Accounting for Investments in Common Stock. The adoption of this position on January 1, 2006 did not have a material impact on the Company s consolidated financial position and results of operations.

In November 2004, the FASB issued SFAS No. 151, Inventory Costs, an amendment of ARB No. 43, Chapter 4 , which is the result of its efforts to converge U.S. accounting standards for inventories with International Financial Reporting Standards. SFAS No. 151 requires idle facility expenses, freight, handling costs, and wasted material (spoilage) costs to be recognized as current-period charges. It also requires that the allocation of fixed production overheads to the costs of conversion be based on the normal capacity of the production facilities. The adoption of this statement on January 1, 2006 did not have a material impact on the Company s consolidated financial position and results of operations.

3. Business Combinations:

The merger with August Technology was approved by its shareholders, and the issuance of shares of Rudolph common stock was approved by Rudolph s stockholders, at their respective special meetings held on February 15, 2006. The combined company is known as Rudolph Technologies, Inc. The aggregate purchase price of $246,739, consisting of $37,200 in cash, 11,298 shares of common stock valued at $197,833, the fair value of assumed August Technology options of $6,040 and transaction costs of $5,666. The measurement date was determined to be the date that the merger was consummated since the aggregate amount of cash and the number of shares to be distributed in the merger was not determinable until that date. The market price used to value the Rudolph shares issued as consideration for August Technology was $17.51, which represents the average of the closing market price of Rudolph s common stock for the three day period ended February 15, 2006.

The transaction was accounted for using the purchase method of accounting for business combinations and, accordingly, the results of operations of August Technology have been included in the Company s consolidated financial statements since the date of merger. The following table summarizes the estimated fair value of the assets acquired and liabilities assumed at the date of merger:

Cash	$ 29,893
Marketable securities	13,418
Accounts receivable	14,283
Inventories	23,582
Property, plant and equipment	6,075
Goodwill	131,931
Identifiable intangible assets	42,700

Other assets	1,585
Accounts payable and accrued liabilities	(11,733)
Deferred taxes	(3,404)
Other liabilities	(1,591)
	$ 246,739

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

The above purchase price has been allocated based on estimates of the fair values of assets acquired and liabilities assumed. The final valuation of net assets, with the exception of income taxes, was completed during 2006. The fair value of inventories includes a step-up of $3,842, of which, $3,699 was recognized in cost of revenues for the year ended December 31, 2006. In connection with the merger, at the merger date, the Company formulated a plan to exit or restructure certain activities. The Company recorded $173 for these activities during the year ended December 31, 2006.

Of the $42,700 of acquired identifiable intangible assets, the following table reflects the allocation of the acquired identifiable intangible assets and related estimates of useful lives:

Developed technology	$ 25,000	9 years estimated useful life
Customer relationships	4,400	9 years estimated useful life
Trade names	3,400	13.6 years weighted average estimated useful life
In-process research and development	9,900	
	$ 42,700	

The developed technology is separated into front-end and back-end automated macro defect inspection, and analysis software and is utilized in the manufacturing of semiconductor chips. This technology is designed to automate inspection processes that are performed by the human eye through the use of imaging technology and high-speed computers. The process of forming transistors directly on silicon wafers is commonly referred to as the front-end process. The front-end products provide high-speed automated inspection of chips, cracks and other defects that occur during the chip manufacturing process. The Company s product offering in this area is the AXi series, which is an automated defect inspection system.

Once the various semiconductor devices have been created they must be interconnected to form the desired electrical circuits. This back-end process involves creating metal interconnecting wires that are separated by insulating materials. The back-end products provide inspection of the chips to detect defects created during the back-end manufacturing process. The back-end products include the NSX series, which are flexible automated wafer and die defect inspection systems for high-speed, consistent, reliable defect detection.

The software technology is used to analyze and process the data provided during front-end and back-end inspection. The software provides rapid classification of defects as well as providing possible correlation among them by creating a database of prior issues and defects. This aids the Company s customers in making adjustments to the manufacturing processes to help reduce the number of defects and enable consistent performance among separate machines. The software products include fabrication-wide data management software, and tool specific defect review and process analysis software.

Paragraph 39 of Statement of Financial Accounting Standards (SFAS) No. 141, Business Combinations, provides guidance concerning the recognition of value associated with intangible assets and refers to an illustrative list in Appendix A of SFAS No. 141 of commonly identifiable intangible assets that meet the criteria for recognition as assets apart from goodwill. This list includes technology-based intangible assets, such as patented technology and computer software. The developed technology acquired represents proprietary know-how that was technologically feasible as of the merger date and is supported by patents.

A useful life of nine years was assigned for each of the front-end, back-end and software developed technologies. The basis for assigning these lives was derived from a number of factors including the valuation of the developed technology, the expected life cycle of the technology, and the remaining lives of the underlying

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patents. The valuation, which was performed by an independent third party valuation firm, was based on projected cash flows for each of the developed technologies. After the ninth year, the cash flows generated from the developed technologies decline to a nominal amount. The life cycle of the technology is in its early stages of development due to advancements in computers and camera technology, and has only recently begun to achieve semiconductor industry acceptance. As such, risk of technology obsolescence is minimized until the later stages of the life cycle. In evaluating the patents underlying the acquired technology, the remaining lives of the patents range from 12 to 15 years. The Company determined that the decline in cash flows to a nominal amount was a principle factor in determining the life of the technology. As such, the Company believes that a life of nine years assigned to the developed technology is appropriate.

Approximately $9.9 million of the acquired identifiable intangible assets represents the estimated fair value of in-process research and development (IPRD) projects that had not yet reached technological feasibility and had no alternative future use. Accordingly, this amount was immediately expensed in the Consolidated Statement of Operations at the merger date. The purchased in-process technology projects are comprised of next generation automated macro defect inspection systems with enhanced defect capture capabilities and software projects which improve the tools capabilities. The defect inspection and software projects had a value assigned to them of $6.9 million and $3.0 million, respectively. The defect inspection projects relate to the next generation of the Company s AXi defect detection systems with enhanced defect capture capabilities and were completed by the third quarter of 2006. The software projects, relate to new enhancement features to the Company s next generation inspection products and will be completed in 2007. The Company generated revenue from the inspection project in the third quarter of 2006 and anticipates revenue to be generated from the software projects in 2007.

The estimated fair value of these projects was determined using an income approach, then discounting the forecasted cash flows directly related to the IPRD. The discount rate was derived after giving consideration to the additional risks associated with an unproved technology.

Identifiable intangible assets include developed technology, customer relationships, trade names and IPRD. The Company is amortizing the intangible assets of $32,800 on a straight-line basis over their estimated remaining useful lives. The amount allocated to IPRD of $9,900 is related to defect inspection technology. The excess of the purchase price over the fair value of the net assets acquired and liabilities assumed was allocated to goodwill, none of which is deductible for tax purposes.

Factors that contributed to a purchase price that resulted in recognition of goodwill include:

- the combination of August Technology s defect inspection technology with Rudolph s MetaPULSE metrology products is expected to improve copper metrology process controls and should allow the combined company to offer a more comprehensive and better integrated set of tools to its customers and enhance its ability to compete more effectively;

- the combination of August Technology s defect inspection experience and technology with Rudolph s complementary defect inspection experience and technology should allow the combined company to offer its customers a more comprehensive suite of tools more quickly, thus enhancing the company s ability to compete more effectively;

consolidation of territorial sales activities and common marketing programs;

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redeployment or elimination of duplicative functional and facilities costs;

reduction of customer service costs as a result of the consolidation of the companies global customer service and regional support networks;

creation of a larger sales and service organization worldwide, the expansion of the companies dedicated sales teams and a higher profile with customers, which is expected to present greater opportunities for potential revenue enhancements by marketing and cross-selling the products of the combined company;

avoidance of incurring certain costs that the companies would expect to incur on a stand-alone basis in furtherance of their growth strategies;

the combined company is expected to have greater prominence within the financial community, providing improved access to capital;

the direct sales and service presence of the combined company in the important Japanese semiconductor manufacturing market (where Rudolph has three offices with over 20 employees) may increase opportunities for product orders;

the combined experience, financial resources, development expertise, size and breadth of product offerings of the combined company may allow it to respond more quickly and effectively to technological change, increased consolidation and industry demands; and

the ability of the assembled workforce to continue to deliver value-added solutions and develop new products and industry leading production technologies that solve customer problems.

The following unaudited pro forma consolidated financial information presents the combined results of operations of the Company and August Technology as if the merger occurred at the beginning of the periods presented, after giving effect to certain adjustments, including amortization expense, merger costs and inventory step-up. Due to the non-recurring nature of the $9,900 IPRD and $3,699 inventory step-up charges, these amounts have not been included in the unaudited pro forma consolidated financial information. The unaudited pro forma consolidated financial information does not necessarily reflect the results of operations that would have occurred had the merger been completed as of the dates indicated or of the results that may be obtained in the future.

	Year Ended December 31,	
	2005	2006
	(Unaudited)	

Revenues	$ 174,148	$ 213,692
Net income	$ 9,951	$ 25,455
Earnings per share:		
Basic	$ 0.35	$ 0.89
Diluted	$ 0.35	$ 0.88

4. Marketable Securities:

At December 31, 2005, marketable securities are categorized as follows:

	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Fair Value
Treasury notes and obligations of U.S. Government agencies	$ 20,432	$ 13	$ (302)	$ 20,143
Tax-free auction rate securities	10,465			10,465
Asset-backed securities	2,483		(45)	2,438
Corporate bonds	7,994		(148)	7,846
Mortgage-backed securities	1,966	1	(38)	1,929
Total marketable securities	$ 43,340	$ 14	$ (533)	$ 42,821

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At December 31, 2006, marketable securities are categorized as follows:

	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Fair Value
Treasury notes and obligations of U.S. Government agencies	$ 8,058	$ 2	$ (154)	$ 7,906
Tax-free auction rate securities	19,675			19,675
Asset-backed securities	1,654		(28)	1,626
Corporate bonds	3,689		(73)	3,616
Mortgage-backed securities	913	1	(23)	891
Total marketable securities	$ 33,989	$ 3	$ (278)	$ 33,714

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, 2005 and 2006:

	December 31, 2005		December 31, 2006	
	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Due within one year	$ 22,444	$ 22,345	$ 22,358	$ 22,339
Due after one through five years	16,068	15,748	9,966	9,749
Due after five through ten years	2,663	2,606	457	447
Due after ten years	2,165	2,122	1,208	1,179
Total marketable securities	$ 43,340	$ 42,821	$ 33,989	$ 33,714

Net realized losses of $192, $856 and $162 were included in the Consolidated Statement of Operations for 2004, 2005 and 2006, respectively.

The following table summarizes the estimated fair value and gross unrealized holding losses of marketable securities, aggregated by investment instrument and period of time in an unrealized loss position at December 31, 2005:

	In Unrealized Loss Position for less than 12 Months		In Unrealized Loss Position for 12 Months or Greater		Total in Unrealized Loss Position	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Treasury notes and obligations of U.S. Government agencies	$ 6,922	$ (106)	$ 10,243	$ (196)	$ 17,165	$ (302)
Tax-free auction rate securities						
Asset-backed securities	2,016	(43)	187	(2)	2,203	(45)
Corporate bonds	6,186	(111)	1,509	(37)	7,695	(148)
Mortgage-backed securities	1,197	(15)	680	(23)	1,877	(38)
Total marketable securities	$ 16,321	$ (275)	$ 12,619	$ (258)	$ 28,940	$ (533)

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The following table summarizes the estimated fair value and gross unrealized holding losses of marketable securities, aggregated by investment instrument and period of time in an unrealized loss position at December 31, 2006:

	In Unrealized Loss Position for less than 12 Months		In Unrealized Loss Position for 12 Months or Greater		Total in Unrealized Loss Position	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Treasury notes and obligations of U.S. Government agencies	$	$	$ 7625	$ (154)	$ 7,626	$ (154)
Tax-free auction rate securities						
Asset-backed securities	31	(1)	1,506	(27)	1,537	(28)
Corporate bonds			3,689	(73)	3,689	(73)
Mortgage-backed securities	22		818	(23)	840	(23)
Total marketable securities	$ 53	$ (1)	$ 13,638	$ (277)	$ 13,692	$ (278)

The gross unrealized losses related to marketable securities are primarily due to a decrease in the fair value of debt securities as a result of an increase in interest rates during 2005 and 2006. The Company has determined that the gross unrealized losses on its marketable securities at December 31, 2005 and 2006 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.

5. Inventories:

Inventories are comprised of the following:

	December 31,	
	2005	2006

Materials	$ 15,422	$ 33,347
Work-in-process	7,250	12,687
Finished goods	7,401	9,399
Total inventories	$ 30,073	$ 55,433

The Company has established reserves of $1,787 and $2,805 at December 31, 2005 and 2006, respectively, for slow moving and obsolete inventory. During 2005, the Company recorded a charge of $480 for the write-down of inventory for excess parts, for older product lines and for parts that design and engineering advancements rendered obsolete. During 2006, the Company recorded a charge of $3,585 for excess parts, for older product lines and for parts that design and engineering advancements rendered obsolete, of which $2,567 was written off.

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6. Property, Plant and Equipment:

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

	December 31,	
	2005	2006
Land and building	$ 5,175	$ 5,180
Machinery and equipment	3,422	9,471
Furniture and fixtures	1,375	2,425
Computer equipment	3,289	5,207
Leasehold improvements	3,081	5,945
	16,342	28,228
Accumulated depreciation	(7,743)	(11,346)
Property, plant and equipment, net	$ 8,599	$ 16,882

Depreciation expense amounted to $1,335, $1,773 and $4,300 for the years ended December 31, 2004, 2005, and 2006, respectively.

7. Identifiable Intangible Assets and Goodwill:

Identifiable intangible assets as of December 31, 2005 are as follows:

	Gross Carrying Amount	Accumulated Amortization	Net
Developed technology	$ 12,991	$ 4,363	$ 8,628
Total identifiable intangible assets	$ 12,991	$ 4,363	$ 8,628

Identifiable intangible assets as of December 31, 2006 are as follows:

	Gross Carrying Amount	Accumulated Amortization	Net
Developed technology	$ 37,991	$ 7,669	$ 30,322
Customer relationships	4,400	429	3,971
Trade names	3,400	292	3,108
Total identifiable intangible assets	$ 45,791	$ 8,390	$ 37,401

Intangible asset amortization expense amounted to $876, $876 and $4,027 for the years ended December 31, 2004, 2005 and 2006, respectively. Assuming no change in the gross carrying value of identifiable intangible assets, estimated amortization expense amounts to $4,476 for 2007, $4,442 for 2008, $4,101 for 2009, $4,085 for 2010 and $4,085 for 2011.

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

Balance as of December 31, 2004	$ 13,245
Changes in goodwill	
Balance as of December 31, 2005	13,245
Goodwill acquired (Note 3)	131,931
Balance as of December 31, 2006	$ 145,176

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8. 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,		
	2004	2005	2006
Balance, beginning of the year	$ 950	$ 1,209	$ 1,234
Accruals	1,540	1,945	2,298
Warranty liability assumed in merger			1,244
Settlements	(1,281)	(1,920)	(2,605)
Balance, end of the year	$ 1,209	$ 1,234	$ 2,171

Legal Matters

From time to time the Company is subject to legal proceedings and claims in the ordinary course of business. The Company is not aware of any legal proceedings or claims that management believes would have a material adverse effect on the Company s consolidated financial statements taken as a whole.

Lease Agreements

On June 9, 2005, the Company entered into a ten year and six month lease agreement with Mount Olive Industrial Realty Company LLC to lease approximately 83,500 square feet of manufacturing and office space. This location replaces leased space in Mt. Arlington and Ledgewood, New Jersey and serves as the metrology business unit s manufacturing, engineering, customer support and training facility. The Company began occupying the space in the fourth quarter of 2005. The Company received landlord incentives of $820 to offset the costs of constructing structural components for the leased space. These incentives are recorded as deferred rent in current and non-current liabilities to be amortized over the lease term as a decrease to rent expense. Total

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future minimum rent payments will be approximately $696 for 2007, $768 for 2008, $809 for 2009, $834 for 2010, $859 for 2011 and $3,865 for all periods thereafter. The Company recognizes expense on a straight-line basis.

In connection with this relocation, the Company incurred an early termination fee of $397 in exercising its right to terminate the lease at its Ledgewood, New Jersey location. This charge was recognized in selling, general and administrative expense in the Company s Consolidated Statement of Operations in the fourth quarter of 2005.

The Company rents space for its manufacturing and service operations and sales offices. Total rent expense for these facilities amounted to $1,149, $1,550 and $2,162 for the years ended December 31, 2004, 2005 and 2006, respectively.

The Company also leases certain equipment pursuant to operating leases, which expire through 2010. Rent expense related to these leases amounted to $47, $42 and $165 for the years ended December 31, 2004, 2005 and 2006, respectively.

Total future minimum lease payments under noncancelable operating leases as of December 31, 2006 amounted to $2,064 for 2007, $1,819 for 2008, $1,615 for 2009, $1,486 for 2010, $1,506 for 2011 and $4,081 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 $2,755, $2,071 and $2,990 for the years ended December 31, 2004, 2005 and 2006, respectively.

Open and Committed Purchase Orders

The Company has open and committed purchase orders of $21.6 million as of December 31, 2006.

9. 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 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 will expire in 2015. The adoption of the Rights Plan had no impact on the financial position or results of operations of the Company.

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10. 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.

In 1996, the Company adopted the 1996 Stock Option Plan (the Option Plan). Under the Option Plan, the Company was authorized to grant options to purchase up to 1,070 shares of common stock. All of the outstanding options became 100% vested upon the initial public offering of the Company on November 12, 1999. As of December 31, 2005 and 2006, there were no shares of common stock reserved for future grants under the Option Plan.

The Company established the 1999 Stock Plan (the 1999 Plan) effective August 31, 1999. The 1999 Plan provides 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 vest over a five-year period and expire ten years from the date of grant. Restricted stock units granted under the 1999 Plan typically vest over a five-year period for employees and one year for directors. As of December 31, 2005 and 2006, there were 714 and 892 shares of common stock reserved for future grants under the 1999 Plan, respectively.

The Company assumed the August Technology Corporation 1997 Stock Plan (the 1997 Plan) at the merger date. Stock options granted under the 1997 Plan vest over periods that range from immediate to five-years and expire in either seven or ten years from the date of grant. As of December 31, 2006, there were 666 shares of common stock reserved for future grants under the 1997 Plan.

The following table reflects share-based compensation expense by type of award recorded during the year ended December 31, 2006 in accordance with SFAS 123R:

	Year Ended December 31, 2006

Share-based compensation expense:		
Stock options	$	750
Restricted stock units		1,186
Total share-based compensation		1,936
Tax effect on share-based compensation		757
Net effect on net income	$	1,179
Tax effect on:		
Cash flows from financing activities	$	1,167
Effect on earnings per share basic	$	(0.04)
Effect on earnings per share diluted	$	(0.04)

Valuation Assumptions for Stock Options

For the years ended December 31, 2004 and 2005, there were 379 and 2 stock options granted, respectively. For the year ended December 31, 2006, there were 5 stock options granted and 369 unvested

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options and 1,049 vested options assumed from the August Technology merger. The fair value of the vested options assumed pursuant to the August Technology merger was $6,040, the fair value at the merger date. The fair value of each option was estimated on the date of grant for the granted options and the merger date for the unvested options assumed from the August Technology merger, using the Black-Scholes option-pricing model with the following assumptions:

	Year Ended December 31,		
	2004	2005	2006
Expected life (years)	5.0	5.0	3.4
Expected volatility	67.2%	50.9%	55.1%
Expected dividend yield	0.0%	0.0%	0.0%
Risk-free interest rate	3.1%	3.9%	4.6%
Weighted average fair value per option	$ 13.34	$ 7.55	$ 8.99

Stock Option Activity

The following table summarizes stock option activity:

	Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Outstanding at December 31, 2003	2,529	$ 22.11		
Granted	379	22.88		
Exercised	(64)	7.66		
Expired	(25)	30.98		
Forfeited	(81)	19.43		
Outstanding at December 31, 2004	2,738	22.55		
Granted	2	15.30		
Exercised	(61)	13.13		
Expired	(106)	25.85		
Forfeited	(59)	21.12		
Outstanding at December 31, 2005	2,514	22.67		

Granted	5	16.72		
Assumed from August Technology	1,418	14.02		
Exercised	(674)	12.84		
Expired	(113)	22.27		
Forfeited	(42)	13.56		
Outstanding at December 31, 2006	3,108	$ 20.98	5.1	$ 2,879
Vested or expected to vest at December 31, 2006	3,032	$ 21.16	5.0	$ 2,722
Exercisable at December 31, 2006	2,878	$ 21.54	4.8	$ 2,418

The total intrinsic value of the stock options exercised during 2004, 2005 and 2006 was $1,030, $233 and $3,472, respectively. In connection with these exercises, the tax benefits realized by the Company for 2004, 2005 and 2006 were $203, $134 and $1,167, respectively.

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The options outstanding and exercisable at December 31, 2006 were in the following exercise price ranges:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Shares	Weighted Average Remaining Contractual Life (years)	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
$ 0.56 - $ 14.75	648	5.6	$ 11.70	552	$ 11.63
$ 14.76 - $ 16.00	681	4.4	$ 15.76	575	$ 15.90
$ 16.11 - $ 21.13	651	5.8	$ 17.64	624	$ 17.68
$ 21.56 - $ 30.75	622	5.6	$ 24.56	621	$ 24.56
$ 31.81 - $ 50.75	506	3.9	$ 39.79	506	$ 39.79
$ 0.56 - $ 50.75	3,108	5.1	$ 20.98	2,878	$ 21.54

As of December 31, 2006, there was $1,344 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 2.9 years.

The Company recognized a tax benefit of $569 for stock options exercised during the year ended December 31, 2006, which were assumed in the purchase price of the August Technology merger. This benefit reduced goodwill.

Restricted Stock Unit Activity

A summary of the Company s restricted stock unit activity with respect to the years ended December 31, 2005 and 2006 follows:

	Number of Shares	Weighted Average Grant Date Fair Value

Nonvested at December 31, 2004		$
Granted	161	$ 16.60
Vested		$
Forfeited		$
Nonvested at December 31, 2005	161	$ 16.60
Granted	228	$ 16.61
Vested	(48)	$ 16.23
Forfeited	(5)	$ 14.97
Nonvested at December 31, 2006	336	$ 16.68

As of December 31, 2006, there was $2,808 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 3.6 years.

Employee Stock Purchase Plan

The Company established an Employee Stock Purchase Plan (the ESPP) effective August 31, 1999 and amended on May 1, 2005. Under the terms of the ESPP, eligible employees may have up to 15% of eligible

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compensation deducted from their pay and applied to the purchase of shares of Rudolph common stock. The price the employee must pay for each share of stock will be 95% of the fair market value of the Rudolph 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 SFAS 123R. No stock-based compensation expense for the ESPP was recorded for the year ended December 31, 2006. As of December 31, 2005 and 2006, there were 1,447 and 1,727 shares available for issuance under the ESPP, respectively.

401(k) Savings Plan

The Company has a 401(k) savings plan to provide retirement and incidental benefits for its employees. As allowed under Section 401(k) of the Internal Revenue Code, the Plan provides tax-deferred salary deductions for eligible employees. Employees may contribute up to 100% of their annual compensation to the Plan, limited to a maximum annual amount as set periodically by the Internal Revenue Service. The Plan provides a 50% match of all employee contributions up to 6 percent of the employee s salary. Company matching contributions to the Plan totaled $393, $393 and $693 for the years ended December 31, 2004, 2005 and 2006, 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, 2004, 2005 and 2006.

11. Interest Income and Other, Net:

	Year Ended December 31,		
	2004	2005	2006
Interest income	$ 1,525	$ 2,234	$ 3,345
Realized losses on sale of marketable securities	(192)	(856)	(162)
Rental income	63	10	8
Litigation settlement	503		
Total interest income and other, net	$ 1,899	$ 1,388	$ 3,191

12. Income Taxes:

The components of income tax expense are as follows:

	Year Ended December 31,		
	2004	2005	2006
Current:			
Federal	$ 387	$ (89)	$ 2,253
State	392	387	1,840
Foreign	270	1,536	1,920
	1,049	1,834	6,013
Deferred:			
Federal	2,436	(349)	5,456
State	(659)	(53)	173
Foreign	29	357	88
	1,806	(45)	5,717
Total income tax expense	$ 2,855	$ 1,789	$ 11,730

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Income before income tax of $6,528 and $3,079 was generated by domestic and foreign operations, respectively, in 2004. Income before income tax of $1,988 and $4,778 was generated by domestic and foreign operations, respectively, in 2005. Income before income tax of $13,532 and $10,904 was generated by domestic and foreign operations, respectively, in 2006.

Deferred tax assets are comprised of the following:

	December 31,	
	2005	2006
Research and development credit carryforward	$ 2,389	$ 2,978
Reserves and accruals not currently deductible	1,415	1,489
Deferred revenue		1,004
Domestic net operating loss carryforwards	523	
Foreign net operating loss and credit carryforwards	1,538	
Amortization of intangibles	3,397	2,956
Tax deductible transaction costs		780
Share-based compensation	40	573
Inventory obsolescence reserve	689	2,455
Other	207	161
Gross deferred tax assets	10,198	12,396
Valuation allowance for deferred tax assets	(524)	
Deferred tax assets after valuation allowance	9,674	12,396
Amortization of intangibles	(3,119)	(14,592)
Other	(246)	(501)
Total deferred tax liabilities	(3,365)	(15,093)
Net deferred tax assets (liabilities)	$ 6,309	$ (2,697)

The provision for income taxes differs from the amount of income tax determined by applying the applicable U.S. federal income tax rate of 34% for the years ended December 31, 2004 and 2005 and 35% for the year ended December 31, 2006 to income before provision for income taxes as follows:

	Year Ended December 31,		
	2004	2005	2006
Federal income tax provision at statutory rate	$ 3,266	$ 2,310	$ 8,553
State taxes, net of federal effect	372	351	1,290
In-process research and development write-off			3,465
Research tax credit	(1,132)	(566)	(765)
Extraterritorial income exclusion	(221)	(174)	(296)
Domestic manufacturing benefit			(185)
Change in valuation allowance for deferred tax assets	629	(106)	(524)
Other	(59)	(26)	192
Provision for income taxes	$ 2,855	$ 1,789	$ 11,730
Effective tax rate	30%	26%	48%

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income, and tax planning strategies in making this assessment. Based upon the level of historical taxable income and projections for future taxable income over the periods in which the deferred tax assets are deductible, management believes it is more likely than not that the Company will realize the benefits of its deferred tax assets at December 31, 2006.

13. Segment Reporting and Geographic Information:

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 and its subsidiaries currently operate in a single reportable segment: the design, development, manufacture, sale and service of process control metrology systems used in semiconductor device manufacturing. The chief operating decision maker allocates resources and assesses performance of the business and other activities at the operating segment level.

The following table lists the different sources of revenue:

	2004	2005	2006
Revenue Type	**% of Revenue**	**% of Revenue**	**% of Revenue**
Systems:			
Metrology	79%	63%	34%
Inspection	2	14	50
Parts	9	11	7
Services	8	10	6
Software licensing	2	2	3
Total revenue	100%	100%	100%

For geographical reporting, revenues are attributed to the geographic location in which the customer is located. Revenue by geographic region is as follows:

	Year Ended December 31,		
	2004	2005	2006
Revenues from third parties:			
United States	$ 26,000	$ 18,675	$ 59,097
Asia	50,218	46,666	120,472
Europe	8,011	17,577	21,599
Other	19		
Total	$ 84,248	$ 82,918	$ 201,168
Customers comprising 10% or more of the Company s total revenue for the period indicated:			
A	23.2%	20.3%	14.0%
B	22.2%	5.2%	4.7%
C	2.4%	10.1%	2.9%

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

	Year Ended December 31,		
	2004	2005	2006
Accounts receivable of customers comprising 10% or more of the Company s total revenue for the period indicated:			
A	$ 7,363	$ 2,151	$ 7,094
B	$ 5,383	$ 598	$ 1,551
C	$	$ 5,600	$ 4,454

The majority of the Company s assets are within the United States of America.

14. Earnings Per Share:

Basic earnings per share is computed by dividing net income by the weighted average number of common shares outstanding during the period. Diluted earnings gives effect to all potential dilutive common shares outstanding during the period. The computation of diluted earnings per share does not assume conversion, exercise or contingent exercise of securities that would have an anti-dilutive effect.

The computations of basic and diluted earnings per share for the years ended December 31, 2004, 2005 and 2006 are as follows:

	Income (Numerator)	Shares (Denominator)	Per-Share Amount
For the year ended December 31, 2004			
Basic earnings per share:			
Net income	$ 6,752	16,746	$ 0.40
Effect of dilutive stock options		168	
Diluted earnings per share:			
Net income	$ 6,752	16,914	$ 0.40
For the year ended December 31, 2005			
Basic earnings per share:			
Net income	$ 4,977	16,899	$ 0.29

Effect of dilutive stock options and restricted stock units		43	
Diluted earnings per share:			
Net income	$ 4,977	16,942	$ 0.29
For the year ended December 31, 2006			
Basic earnings per share:			
Net income	$ 12,706	27,276	$ 0.47
Effect of dilutive stock options and restricted stock units		298	(0.01)
Diluted earnings per share:			
Net income	$ 12,706	27,574	$ 0.46

For the year ended December 31, 2004, the Company had outstanding options to purchase 1,375 shares of common stock, which were excluded from the calculation of diluted earnings per share due to the anti-dilutive

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RUDOLPH TECHNOLOGIES, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except per share data)

nature of these instruments. For the year ended December 31, 2005, the weighted average number of stock options and restricted stock units excluded from the computation of diluted earnings per share were 2,092 and 126, respectively. For the year ended December 31, 2006, the weighted average number of stock options and restricted stock units excluded from the computation of diluted earnings per share were 2,008 and 12, respectively.

15. Quarterly Consolidated Financial Data (unaudited):

The following tables present certain unaudited consolidated quarterly financial information for each of the eight quarters ended December 31, 2006. 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 and for the 2006 quarters reflect the merger effective February 15, 2006. 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.

	Quarters Ended				
	March 31, 2005	June 30, 2005	September 30, 2005	December 31, 2005	Total
Revenues	$ 23,057	$ 21,385	$ 20,201	$ 18,275	$ 82,918
Gross profit	10,762	10,119	9,529	8,118	38,528
Income before income taxes	2,274	2,476	1,736	280	6,766
Net income	1,749	1,861	1,161	206	4,977
Earnings per share:					
Basic	$ 0.10	$ 0.11	$ 0.07	$ 0.01	$ 0.29
Diluted	$ 0.10	$ 0.11	$ 0.07	$ 0.01	$ 0.29
Weighted average number of shares outstanding:					
Basic	16,841	16,896	16,922	16,936	16,899
Diluted	16,923	16,928	16,959	16,963	16,942

	Quarters Ended				
	March 31, 2006	June 30, 2006	September 30, 2006	December 31, 2006	Total

Revenues	$ 31,848	$ 56,692	$ 58,166	$ 54,462	$ 201,168
Gross profit	9,249	29,691	30,567	27,935	97,442
Income (loss) before income taxes	(12,907)	12,996	13,352	10,995	24,436
Net income (loss)	(11,746)	7,991	8,071	8,390	12,706
Earnings (loss) per share:					
Basic	$ (0.52)	$ 0.28	$ 0.28	$ 0.29	$ 0.47
Diluted	$ (0.52)	$ 0.28	$ 0.28	$ 0.29	$ 0.46
Weighted average number of shares outstanding:					
Basic	22,545	28,638	28,849	28,954	27,276
Diluted	22,545	28,943	29,119	29,342	27,574

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SCHEDULE OF VALUATION AND QUALIFYING ACCOUNTS

Column A	Column B	Column C		Column D	Column E
Description	Balance at Beginning of Period	Charged to (Recovery of) Costs and Expenses	Charged to Other Accounts (net)	Deductions	Balance at End of Period
Year 2004:					
Allowance for doubtful accounts	$ 249	$ 74	$	$	$ 323
Inventory valuation	1,967	265		925	1,307
Warranty	950	1,540		1,281	1,209
Deferred tax valuation allowance		629			629
Year 2005:					
Allowance for doubtful accounts	$ 323	$ (68)	$	$ 25	$ 230
Inventory valuation	1,307	480			1,787
Warranty	1,209	1,945		1,920	1,234
Deferred tax valuation allowance	629	258		363	524
Year 2006:					
Allowance for doubtful accounts	$ 230	$ 69	$	$	$ 299
Inventory valuation	1,787	3,585		2,567	2,805
Warranty	1,234	2,298	1,244	2,605	2,171
Deferred tax valuation allowance	524			524	

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SIGNATURES

PURSUANT TO THE REQUIREMENTS OF SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934, THE REGISTRANT HAS DULY CAUSED THIS REPORT TO BE SIGNED ON ITS BEHALF BY THE UNDERSIGNED, THEREUNTO DULY AUTHORIZED.

RUDOLPH TECHNOLOGIES, INC.

By: /s/ PAUL F. MCLAUGHLIN

Paul F. McLaughlin

Chairman and Chief Executive Officer

Date: February 21, 2007

PURSUANT TO THE REQUIREMENTS OF THE SECURITIES EXCHANGE ACT OF 1934, THIS REPORT HAS BEEN SIGNED BELOW BY THE FOLLOWING PERSONS ON BEHALF OF THE REGISTRANT AND IN THE CAPACITIES AND ON THE DATES INDICATED.

Signature	Title	Date
/s/ PAUL F. MCLAUGHLIN **Paul F. McLaughlin**	Chairman and Chief Executive Officer	February 21, 2007
/s/ STEVEN R. ROTH **Steven R. Roth**	Senior Vice President, Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 21, 2007
/s/ DANIEL H. BERRY **Daniel H. Berry**	Director	February 21, 2007
/s/ PAUL CRAIG **Paul Craig**	Director	February 21, 2007
/s/ THOMAS G. GREIG **Thomas G. Greig**	Director	February 21, 2007
/s/ JEFF L. O DELL **Jeff L. O Dell**	Director	February 21, 2007

/s/ Carl E. Ring, Jr.	Director	February 21, 2007
Carl E. Ring, Jr.		
/s/ Richard F. Spanier	Director	February 21, 2007
Richard F. Spanier		
/s/ Aubrey C. Tobey	Director	February 21, 2007
Aubrey C. Tobey		
/s/ John R. Whitten	Director	February 21, 2007
John R. Whitten		
/s/ Michael W. Wright	Director	February 21, 2007
Michael W. Wright		

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EXHIBIT INDEX

Exhibit No.	Description
2.1	Agreement and Plan of Merger, dated as of June 27, 2005, by and among the Registrant, NS Merger Sub, Inc. and August Technology Corporation (incorporated by reference to Exhibit 99.2 to the Company s Schedule 13D filed with the SEC 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 filed with the SEC on December 9, 2005).
3.1	Restated Certificate of Incorporation of Registrant (incorporated herein 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	Amended and Restated Bylaws of Registrant (incorporated herein by reference to Exhibit (3.2(b) to the Registrant s Registration Statement on Form S-1, as amended (SEC File No. 333-86871), filed on September 9, 1999.
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 with the Commission on February 15, 2006, 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 with the Commission 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 with the Commission on March 11, 2004, No. 000-30637).
10.1+	License Agreement, dated June 28, 1995, between the Registrant and Brown University Research Foundation (incorporated herein 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 herein 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 herein by reference to Exhibit 10.15 to Registrant s quarterly report on Form 10-Q, filed on November 14, 2001).
10.4	Form of 1999 Stock Plan (incorporated herein by reference to Exhibit (10.4) 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 herein 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).
10.6	Management Agreement, dated as of July 24, 2000, by and between Rudolph Technologies, Inc. and Paul F. McLaughlin (incorporated herein by reference to Exhibit 10.12 to Registrant s quarterly report on Form 10-Q, filed on November 3, 2000).
10.7	Management Agreement, dated as of July 24, 2000, by and between Rudolph Technologies, Inc. and Robert Loiterman (incorporated herein by reference to Exhibit 10.13 to Registrant s quarterly report on Form 10-Q, filed on November 3, 2000).

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Exhibit No.	Description
10.8	Management Agreement, dated as of July 24, 2000 by and between Rudolph Technologies, Inc. and Steven R. Roth (incorporated herein by reference to Exhibit 10.14 to Registrant s quarterly report on Form 10-Q, filed on November 3, 2000).
10.9	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 herein 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).
10.10	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 herein 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).
10.11	Form of option agreement under 1999 Stock Plan (incorporated herein by reference to Exhibit 10.12 to Registrant s quarterly report on Form 10-Q, filed on November 5, 2004).
10.12	Form of Restricted Stock Award pursuant to the Rudolph Technologies, Inc. 1999 Stock Plan (filed with Rudolph Technologies, Inc. s Current Report on Form 8-K filed on June 21, 2005 and incorporated herein by reference).
10.13	Form of Company Shareholder Voting Agreement (incorporated by reference to Exhibit 99.2 to the Company s Schedule 13D filed with the SEC on July 7, 2005).
14.1	Rudolph Technologies Code of Business Conduct and Ethics (incorporated herein by reference to Exhibit 14.1 to Registrant s annual report on Form 10-K, filed on March 16, 2006).
14.2	Rudolph Technologies Financial Code of Ethics (incorporated herein by reference to Exhibit 14.1 to Registrant s annual report on Form 10-K, filed on March 16, 2006).
21.1	Subsidiaries.
23.1	Consent of KPMG 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.