PDF SOLUTIONS INC
Form 10-K
March 14, 2014

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)
ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2013

or
TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to

000-31311

(Commission file number)

PDF SOLUTIONS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**25-1701361**
(State or other jurisdiction of	*(I.R.S. Employer*
Incorporation or organization)	*Identification No.)*
333 West San Carlos Street, Suite 1000	**95110**
San Jose, California	*(Zip Code)*
(Address of Registrant's principal executive offices)	

(408) 280-7900

(Registrant's telephone number, including area code)

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

Title of Class	**Name of Each Exchange on Which Registered**
Common Stock, $0.00015 par value	The NASDAQ Stock Market LLC

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

None

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

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

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

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

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

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

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

The aggregate market value of the voting stock held by non-affiliates of the Registrant was approximately $346.7 million as of the last business day of the Registrant’s most recently completed second quarter, based upon the closing sale price on the NASDAQ Global Market reported for such date. Shares of Common Stock held by each officer and director and by each person who owns 10% or more of the outstanding Common Stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

There were 30,584,896 shares of the Registrant’s Common Stock outstanding as of March 10, 2014.

DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates certain information by reference from the definitive Proxy Statement to be filed within 120 days from December 31, 2013.

TABLE OF CONTENTS

SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K, particularly in Item 1 "Business" and Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations," includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 (the "Securities Act") and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements include, but are not limited to, statements concerning: expectations about the effectiveness of our business and technology strategies; expectations regarding stock market and global economic trends; expectations regarding previous and future acquisitions; current semiconductor industry trends; expectations of the success and market acceptance of our intellectual property and our solutions; expectations that our cash, cash equivalents and cash generated from operations will satisfy our business requirements for the next twelve months; expectations of our future liquidity requirements; and our ability to obtain additional financing when needed. Our actual results could differ materially from those projected in the forward-looking statements as a result of a number of factors, risks and uncertainties discussed in this Form 10-K, especially those contained in Item 1A of this Form 10-K. The words "may," "anticipate," "plan," "continue," "could," "projected," "expect," "believe," "intend," a negative of these terms and similar expressions are used to identify forward-looking statements. All forward-looking statements and information included herein is given as of the filing date of this Form 10-K with the Securities and Exchange Commission ("SEC") and based on information available to us at the time of this report and future events or circumstances could differ significantly from these forward-looking statements. Unless required by law, we undertake no obligation to update publicly any such forward-looking statements.

The following information should be read in conjunction with the Consolidated Financial Statements and notes thereto included in this Annual Report on Form 10-K. All references to fiscal year apply to our fiscal year that ends on December 31. All references to "we", "us", "our", "PDF", "PDF Solutions" or "the Company" refer to PDF Solutions, I

PART I

Item 1. ***Business***

Business Overview

PDF Solutions is a leading provider of infrastructure technologies and services to lower the cost of integrated circuit ("IC") design and manufacturing, enhance time to market, and improve profitability by addressing design and

manufacturing interactions from technology development and product design to initial process ramps and mature manufacturing operations. Our technologies and services target the entire "process life cycle," which is the term we have coined for the time from technology development and the design of an IC through volume manufacturing of that IC. Our solutions combine proprietary software, physical intellectual property in the form of cell libraries for IC designs, test chips, an electrical wafer test system, proven methodologies, and professional services. We analyze yield loss mechanisms to identify, quantify, and correct the issues that cause yield loss. Our analysis drives IC design and manufacturing improvements to enable our customers to optimize the technology development process, to increase initial yield when an IC design first enters a manufacturing line, to increase the rate at which yield improves, and to minimize excursions and process variability that cause yield loss throughout mass production. The result of successfully implementing our solutions is the creation of value that can be measured based on improvements to our customers' actual yield. Through our Gainshare performance incentives component, we have aligned our financial interests with the yield and manufacturing efficiency realized by our customers, and we receive revenue based on this value. Our technologies and services have been sold to leading integrated device manufacturers, fabless semiconductor companies, and foundries.

The key benefits of our solutions to our customers are:

Faster Time to Market. Our solutions are designed to accelerate our customers' time-to-market and increase product profitability. Our solutions, which can predict and improve product yield even before IC product design is complete, transform the traditional design-to-silicon sequence into a primarily concurrent process, thereby shortening our customers' time-to-market. Systematically incorporating knowledge of the integration of the design and manufacturing processes into our software modules and physical IP enables our customers to introduce products with higher initial yields faster. Our solutions are designed to decrease design and process iterations and reduce our customers' up-front costs, and thus provide our customers with early-mover advantages such as increased market share and higher selling prices.

Faster Time to Volume. After achieving higher initial yields and faster time-to-market, our solutions are designed to enable our customers to isolate and eliminate remaining yield issues to achieve cost efficient volume manufacturing. Once a manufacturing process has been modeled using our solutions, our customers are able to diagnose problems and simulate potential corrections more quickly than using traditional methods. In addition, if process changes are required, improvements can be verified more quickly using our technology than using traditional methods. Our solutions thus enable our customers to quickly reach cost efficient volume, so that they are able to increase margins, improve their competitive position, and capture higher market share.

Increased Manufacturing Efficiencies. Our solutions for product design, product introduction, yield ramp, and process control are designed to allow our customers to achieve a higher yield at mass production and therefore a lower cost of goods sold. In addition, our solutions, which also include fault detection and classification ("FDC") software, are designed to provide our customers with the ability to proactively monitor process health to avoid potential yield problems.

Our long-term business objective is to maximize IC yield by providing the industry standard in technologies and services for the Process Life Cycle. To achieve this objective, we intend to:

Extend Our Technology Leadership Position. We intend to extend our technology leadership position by leveraging our experienced engineering staff and codifying the knowledge that we acquire in our solution implementations. For example, we continue to expand and develop new technology that leverages our Characterization Vehicle® (CV®) methodology to embed test structures on product wafers. This provides valuable insight regarding product yield loss during mass production with minimal or no increase in test time and non-product wafers. In addition, we invest in research and development and selectively acquire complementary businesses and technologies to increase the scope of our solutions.

Leverage Our Gainshare Performance Incentives Business Model. We intend to continue expanding the Gainshare performance incentives component of our customer contracts. We believe this approach allows us to form collaborative and longer-term relationships with our customers by aligning our financial success with that of our customers. Working closely with our customers on their core technologies that implement our solutions, with a common focus on their business results, provides direct and real-time feedback for continual improvement of our solutions. We believe that we will generate expanded relationships with customers that engage us on terms that include a significant Gainshare performance incentive component.

Focus on Key IC Product Segments and High-Growth Adjacent Markets. We intend to focus our solutions on high-volume, high-growth IC product segments such as system-on-a-chip, memory, CMOS image sensor, and high-performance central processing units. As a result, we will continue to expand our solutions for technology drivers such as low-k dielectrics, high-k metal gates, immersion lithography, double patterning, SOI, Finfets, and 300mm wafer fabs. We believe that these product segments are particularly attractive because they include complex IC design and manufacturing processes where processed silicon is costly and yield is critical. In addition, we continue to consider opportunities in adjacent markets where we could leverage our solutions to meet the needs of these markets.

Expand Strategic Relationships. We intend to continue to extend and enhance our relationships with companies at various stages of the design-to-silicon process, such as process licensors, manufacturing and test equipment vendors, electronic design automation vendors, silicon IP providers, semiconductor foundries, and contract test and assembly houses.

Brief History

PDF Solutions was incorporated in Pennsylvania in November 1992, and we reincorporated in California in November 1995. In July 2000, we reincorporated in Delaware and in July 2001, we completed an initial public offering. Our shares of common stock are currently traded on NASDAQ Global Market. From 2000 through 2009, we expanded our technology footprint and our operations in various countries through acquisitions. From 2009 to the present, we have primarily focused on the pervasive application of our technology to leading edge logic manufacturing and achieving yield targets with our clients to maximize Gainshare performance incentive revenues. Headquartered in San Jose, California, PDF Solutions operates worldwide with additional entities and/or offices in Canada, China, France, Germany, Italy, Japan, Korea, Singapore, and Taiwan.

Industry Background

Rapid technological innovation, with increasingly shorter product life cycles, now fuels the economic growth of the semiconductor industry. IC companies historically ramped production slowly, produced at high volume once products gained market acceptance, and slowly reduced production volume when price and demand started to decrease near the end of the products' life cycles. Now, companies often need to be the first to market and the first to sell the most volume when a product is first introduced so that they have performance and pricing advantages over their competition, or else they lose market opportunity and revenue. Increased IC complexity and compressed product lifecycles create significant challenges to achieve competitive initial yields and optimized performance. For example, it is not uncommon for an initial manufacturing run to yield only 20%, which means that 80% of the ICs produced are wasted. Yield improvement and performance optimization are critical drivers of IC companies' financial results because they typically lead to cost reduction and revenue generation concurrently, causing a leveraged effect on profitability.

Technology and Intellectual Property Protection

We have developed proprietary technologies for yield simulation, analysis, loss detection, and improvement. The foundation for many of our solutions is our CV infrastructure ("CV*i*") that enables our customers to electrically characterize the manufacturing process, and establish fail-rate information needed to calibrate manufacturing yield models, prioritize yield improvement activities and speed-up process learning-cycles. Our CV*i* includes proprietary Characterization Vehicle® test chips, including designs of experiments and layout designs, and a proprietary and patented highly parallel electrical functional and parametric-test system, comprised of hardware and software designed to provide an order-of-magnitude reduction in the time required to test our Characterization Vehicle® test chips. In addition, our technology embodies many algorithms, which we have developed over the course of many years, and which are implemented in our products including Exensio™, *data*POWER®, pdCV™, Maestria®, and Library Analyzer™, among others. Further, our IP includes methodologies that our implementation teams use as guidelines to drive our customers' use of our CV® test chips and technologies, quantify the yield-loss associated with each process module and design block, simulate the impact of changes to the design and/or to the manufacturing process, and analyze the outcome of executing such changes. We continually enhance our core technologies through the codification of knowledge that we gain in our solution implementations.

Our future success and competitive position rely to some extent upon our ability to protect these proprietary technologies and IP, and to prevent competitors from using our systems, methods, and technologies in their products. To accomplish this, we rely primarily on a combination of contractual provisions, confidentiality procedures, trade secrets, and patent, copyright, mask work, and trademark laws. We license our products and technologies pursuant to non-exclusive license agreements that impose restrictions on customers' use. In addition, we seek to avoid disclosure of our trade secrets, including requiring employees, customers, and others with access to our proprietary information to execute confidentiality agreements with us and restricting access to our source code. We also seek to protect our software, documentation, and other written materials under trade secret and copyright laws. As of December 31, 2013, we held 63 U.S. patents, Our issued patents have expiration dates through 2032. We intend to prepare additional patent applications when we feel it is beneficial. Characterization Vehicle®, CV®, *data*POWER®, Maestria®, pdFasTest®, PDF Solutions®, the PDF Solutions logo, Yield Ramp Simulator®, and YRS® are registered trademarks of PDF Solutions, Inc. or its subsidiaries, and Design-to-silicon-yield™, *dP*-bitMAP™, *dP*-Defect™, *dP*-Mining™, *dP*-SSA™, *dP*-Variability Analysis™, *dP*-WorkFlow™, Exensio™, Library Analyzer™, VSF™, pdCV™, Template™, and YieldAware™-FDC are our common law trademarks

Products and Services

Our solutions consist of integration engineering services, proprietary software, and other technologies designed to address our customers' specific manufacturing and design issues.

Services and Solutions

Manufacturing Process Solutions ("MPS"). The IC manufacturing process typically involves four sequential phases: research and development to establish unit manufacturing processes, such as units for the metal CMP or lithography processes; integration of these unit processes into functional modules, such as metal or contact modules; a yield ramp of lead products through the entire manufacturing line; and volume manufacturing of all products through the life of the process. We offer solutions targeted to each of these phases designed to accelerate the efficiency of yield learning by shortening the learning cycle, learning more per cycle, and reducing the number of silicon wafers required. Our targeted offerings include:

- *Process R&D:* Our process R&D solutions are designed to help customers increase the robustness of their manufacturing processes by characterizing and reducing the variability of unit processes and device performance with respect to layout characteristics within anticipated process design rules.

- *Process Integration and Yield Ramp:* Our process integration and yield ramp solutions are designed to enable our customers to more quickly ramp the yield of new products early in the manufacturing process by characterizing the process-design interactions within each key process module, simulating product yield loss by process module, and prioritizing quantitative yield improvement by design block in real products.

Volume Manufacturing Solutions ("VMS"). Our volume manufacturing solutions are designed to enable our customers to extend our yield ramp services through the life of the process by continuing to collect test data and equipment signals during production and improving yield while reducing the overhead of manufacturing separate test wafers. Our Exensio™ YieldAware™ solution combines software and services to enable customers to collect and combine product test data and equipment signals during production to improve yield while simultaneously reducing the overhead of manufacturing.

Design-for-Manufacturability ("DFM") Solutions. Our DFM solutions are designed to enable our customers to optimize yields, improve parametric performance, and reduce product ramp time by integrating manufacturability considerations into the design cycle before a design is sent to the mask shop to more quickly and cost-effectively manufacture IC products. We target these solutions to customers' requirements by providing the following:

- *Logic DFM Solutions:* Logic DFM solutions include software, IP, CV® infrastructure, and services designed to validate customers' process design kit (PDK) and to maximize functional and parametric yield improvements while achieving requirements for density or performance, for example, in the logic portions of an IC design. A CV® test chip optimized to the design style of an IC design provides any necessary design-specific parametric and functional yield models for the design style. Our software helps designers optimize the yield of the logic portion by using process-specific and design style-specific yield models and technology files that enable identification and implementation of IP design building block improvements that result in enhanced yield.

- *Circuit Level DFM Solutions:* Circuit level DFM solutions include software and services designed to anticipate the effects of process variability during analog/mixed signal/RF circuit design to optimize the manufacturability of each block given a pre-characterized manufacturing process.

- *Memory DFM Solutions:* Memory DFM solutions include software and services designed to optimize the memory redundancy and bit cell usage given a pre-characterized manufacturing process.

- *Template™ Technology Physical IP Solutions:* Template™ physical IP solutions include Library Analyzer™ software and IP for first identifying and developing a set of layout patterns that are optimized to a given manufacturing process and target product application and second checking proposed product layout designs against this set of patterns for optimal manufacturability. A complete characterization of all transistor and layout patterns used in these Template™ layouts can be performed with the CV® infrastructure. These Template™ layouts serve as the building blocks for design organizations to construct standard cell libraries and larger physical IP blocks.

Products

Our Manufacturing Process, Volume Manufacturing, and DFM solutions incorporate the use of various elements of our software products and other technologies, depending on the customers' needs. Our software products and other technologies include the following:

Characterization Vehicle® Infrastructure. Our test chip design engineers develop a design of experiments ("DOEs") to determine how IC design building blocks interact with the manufacturing process. Our CV® software utilizes the DOE, as well as a library of building blocks that we know has potential yield and performance impact, to generate CV® test chip layouts. Our CV® infrastructure includes:

- *CV® Test Chips.* Our family of proprietary test chip products is run through the manufacturing process with intentional process modifications to explore the effects of potential process improvements given natural manufacturing variations. Our custom-designed CV test chips are optimized for our test hardware and analysis software and include DOEs tuned to each customer's process. Our full-reticle short-flow CV® test chips provide a fast learning cycle for specific process modules and are fully integrated with third-party failure analysis and inspection tools for complete diagnosis to root cause. Our Scribe CV® products are inserted directly on customers' product wafers and collect data from product wafers about critical layers. Our "direct probe" CV® test chips enable ultra fast yield learning for new product designs by allowing our clients to measure components of actual product layout.

- *pdCV™ Analysis Software.* Our proprietary software accumulates data from our CV® test chips, enabling models of the performance effects of process variations on these design building blocks to be generated for use with our Yield Ramp Simulator software.

- *pdFasTest® Electrical Wafer Test System.* Our proprietary system enables fast defect and parametric characterization of manufacturing processes. This automated system provides parallel functional testing, thus minimizing the time required to perform millions of electrical measurements to test our CV® test chips.

Yield Ramp Simulator® (YRS®) Software. Our YRS software analyzes an IC design to compute its systematic and random yield loss. YRS software allows design attribute extraction and feature-based yield modeling. YRS® software takes as input a layout that is typically in industry standard format and proprietary yield models generated by running and testing our CV® test chips. YRS® software is designed to estimate the yield loss due to optical proximity effects, etch micro-loading, dishing in CMP, and other basic process issues.

Template™ Technology. Our Template™ technology includes Library Analyzer™ software and IP for identifying and developing a set of layout patterns that are tailored to a given manufacturing process and target product application and checking proposed designs against this set of patterns for optimal manufacturability.

Exensio™ YieldAware™ Enterprise Platform. Our Exensio™ YieldAware™ platform links across YMS, FDC, and other factory-wide data types, including in-line and end-of-line metrology, yield, performance and tool level sensor data, and links across factories. This enables sensor level root cause diagnosis of yield and performance issues that impact manufacturing, through building process models of these relationships. These on-line models then enable proactive optimization decisions for process control, process adjustments, PM scheduling, tool corrective actions, and wafer dispatching. The in-line, real-time decision-making based on the models is designed to reduce product variability and cost simultaneously. Our Exensio YieldAware platform also enables more rapid diagnosis and understanding of yield loss and performance-limiting mechanisms identified at both in-line and end-of -line wafer processing, through application of the developed models.

dataPOWER® YMS Software. Our *data*POWER® YMS software can be leveraged into the Exensio™ YieldAware™ platform or used standalone to collect yield data, load and store it in an analysis-ready database, which enables product engineers to identify and analyze production yield, performance, reliability and other issues. Our YMS software is designed to handle very large data sets, to efficiently improve productivity, yield and time-to-market at our customers' sites. *data*POWER® VSF™ software contains powerful visualization and reporting tools, which provide flexibility to address our customers' requirements. The *data*POWER® VSF™ Advanced Module includes extra proprietary yield analysis software tools that aid in the diagnosis of more complex yield issues. This includes defect analysis (*dP*-Defecttm) tools, memory analysis (*dP*-bitMAPtm), spatial signature analysis (*dP*-SSAtm) and data-mining (*dP*-Miningtm) tools. Finally, *data*POWER® VSF™ Automation and Reporting module enables web-based visualization of analysis templates, as well as an engine to drive the automation of actions and reports.

Maestria® FDC Software. Our Maestria® software can be leveraged into the Exensio™ YieldAware™ platform or used standalone to provide FDC capabilities for monitoring and alarming of manufacturing tool sets. These capabilities include analyzing tool sensor trace data and summary indicators to rapidly identify sources of process variations and manufacturing excursions. This is achieved by monitoring these equipment parameters through proprietary data collection and analysis features.

With the exception of *data*POWER® and Maestria®, the primary distribution method for our software and technologies is through our manufacturing process and volume manufacturing solutions although, we have in the past and may in the future separately license these and other technologies. Though *data*POWER® and Maestria® are primarily licensed separately, they may also be distributed within these solutions.

Customers

Our current customers are foundries, integrated device manufacturers ("IDMs"), and fabless semiconductor design companies. Our customers' targeted product segments vary significantly, including microprocessors, memory, graphics, image sensor solutions, and communications. We believe that the adoption of our solutions by such companies for usage in a wide range of products validates the application of our Design-to-silicon-yield solutions to the broader semiconductor market.

Global Foundries Inc. ("Global Foundries"), Samsung Electronics ("Samsung") and International Business Machines Corporation ("IBM") represented 33%, 24% and 17%, respectively, of our revenues for the year ended December 31, 2013. Global Foundries, IBM and Samsung represented 40%, 20% and 13%, respectively, of our revenues for the year ended December 31, 2012 and 24%, 19% and 15%, respectively, of our revenues for the year ended December 31, 2011. No other customer accounted for 10% or more of our revenues in 2013, 2012, and 2011.

Although a substantial portion of our total revenue is concentrated in a small number of customers, the total revenues for each of these customers in any period is the result of Design-to-silicon-yield solutions and Gainshare performance incentives revenues recognized in the period under multiple, separate contracts, with no interdependent performance obligations. These contracts were all entered into in the ordinary course of our business and contain general terms and conditions that are standard across most of our yield improvement solutions customers, including providing services typically targeted to one manufacturing process node, for example the 28 or 20 nanometer node. With respect to two of these customers, a portion of the total revenue attributable to them is pursuant to contracts that provided a general framework for services across multiple manufacturing process nodes. These multiple-node contracts also provide agreement as to the expected timing of delivery of services for some of the customers' process nodes. Under the multiple-node contract with one of these customers, the timing of delivery of services could change based on the customer's requirements and mutual agreement between us and the customer, however, the total revenue consideration, contract deliverable and labor hours required to deliver the services remain fixed. Accordingly, we recognize revenue under this contract as services are performed using the cost-to-cost percentage of completion method of contract accounting. The multiple-node contract with the other of these two customers provides a minimum quarterly resource commitment and a fixed price per quarter for each increment of resource. We mutually agree with the customer on a quarterly basis the resources, if any, that we will provide over the contractual minimum. The customer has the right under the contract to further reduce its quarterly resource commitment for a defined period, if and when, the customer's business is adversely impacted, based on contractually agreed terms. We recognize revenue from this contract under the proportional performance method in each quarter as services are performed. Based on the above, for both of these multiple-node contracts, we use the information available considering the minimum quarterly resource commitment and the timing of delivery of services for each calendar quarter for internal business planning purposes. Both of these multiple-node contracts also contain contingent variable fees. However, we do not depend on these fees for internal business planning because the potential Gainshare performance incentive revenue under the contracts is subject to many inherent risks, including our ability to achieve target performance objectives and future manufacturing volumes resulting in such Gainshare performance incentives. The Gainshare performance incentive revenue we recognize in any period is the result of many factors which are outside our control and are not known in advance of the acknowledgement of the Gainshare performance incentives amount we receive from our customers. See the discussion in "Revenue Recognition" included in Part II, Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations" for further information. Additional discussion regarding the risks associated with Gainshare performance incentives revenue can be found under Item 1A, "Risk Factors."

International revenues accounted for approximately 62% of our total revenues for the year ended December 31, 2013 compared to 60% for the year ended December 31, 2012 and 68% for the year ended December 31, 2011. We base these calculations on the geographic location of where the work is performed. Additional discussion regarding the risks associated with international operations can be found under Item 1A, “Risk Factors”.

See our “Notes to Consolidated Financial Statements”, included under Part II, Item 8. “Financial Statements and Supplementary Data” for additional geographic information.

Sales and Marketing

Our sales strategy is to pursue targeted accounts through a combination of our direct sales force, our solution implementation teams, and strategic alliances. After we are engaged by a customer and early in the solution implementation, our engineers seek to establish relationships in the organization and gain an understanding of our customers’ business issues. Our direct sales and solution implementation teams combine their efforts to deepen our customer relationships by expanding our penetration across the customer’s products, processes and technologies. This close working relationship with the customer has the added benefit of helping us identify new product areas and technologies in which we should next focus our research and development efforts. We expect to continue to establish strategic alliances with process licensors, vendors in the electronic design automation software, capital equipment for IC production, silicon IP and mask-making software segments to create and take advantage of sales channel and co-marketing opportunities.

Research and Development

Our research and development focuses on developing and introducing new proprietary technologies, software products and enhancements to our existing solutions. We use a rapid-prototyping paradigm in the context of the customer engagement to achieve these goals. We have made, and expect to continue to make, substantial investments in research and development. The complexity of our Design-to-silicon-yield technologies requires expertise in physical IC design and layout, transistor design and semiconductor physics, semiconductor process integration, numerical algorithms, statistics and software development. We believe that our team of engineers will continue to advance our market and technological leadership. We conduct in-house training for our engineers in the technical areas, as well as focusing on ways to enhance client service skills. Although it fluctuates, we can have up to one quarter of our research and development engineers operating in the field, partnered with solution implementation engineers in a deliberate strategy to provide direct feedback between technology development and customer needs. Our research and development expenses were $13.3 million, $13.3 million and $14.0 million in 2013, 2012 and 2011, respectively.

Competition

The semiconductor industry is highly competitive and driven by rapidly changing design and process technologies, evolving standards, short product life cycles, and decreasing prices. We expect market competition to continue to develop and increase as the market for process-design integration technologies and services continues to evolve. We believe the solution to address the needs of IC companies requires a unified system of yield models, design analysis software, CV test chips, physical IP creation, process control software, and yield management software. Currently, we are the only provider of comprehensive commercial solutions for integrating design and manufacturing processes. We face indirect competition from internal groups at IC companies that use an incomplete set of components not optimized to accelerate process-design integration. Some providers of yield management software, inspection equipment, electronic design automation, or design IP may seek to broaden their product offerings and compete with us. In each of our product markets, we face competition from established and potential competitors, some of which may have greater financial, research, engineering, manufacturing and marketing resources than we have.

We face competition for some of the point applications of our solutions including some of those used by the internal groups at IC companies. Specifically there are several suppliers of yield management and/or prediction systems, such as KLA-Tencor, Mentor Graphics (through its acquisition of Ponte Solutions), Rudolph Technologies Inc. ("Rudolph") (through its acquisition of the Yield Dynamics group), Synopsys, Inc. ("Synopsys"), and process control software, such as Applied Materials, Inc. (through its acquisition of the software division of Brooks Automation, Inc.), BISTel Inc., Rudolph, and Trancom Technology, Inc., MKS Instruments, Inc. ARM Ltd. and Synopsys (through its acquisition of Virage Logic Corporation) provide standard cells in the physical IP space and Tela Innovations, Inc. provides software for standard cell synthesis, each of which could compete with our Template™ technology solution. In addition, Synopsys now appears to offer directly competing DFM solutions, while other EDA suppliers provide alternative DFM solutions that may compete for the same budgetary funds.

We believe that our solutions compare favorably with respect to competition because we have demonstrated results and reputation, strong core technology, ability to create innovative technology, and ability to implement solutions for new technology and product generations.

Employees

As of December 31, 2013, we had 363 employees worldwide, including 258 on client service teams, 54 in research and development, 17 in sales and marketing, and 34 in general and administrative functions. Of these employees, 160 are located in the United States and Canada, 166 in Asia, and 37 in Europe.

None of our employees are represented by a labor union. Our employees in France and Italy are subject to collective bargaining agreements in those countries. We believe our relationship with our employees is good. Competition is intense in the recruiting of personnel in our industry. We believe that our future success will depend, in part, on our continued ability to hire and retain qualified management, marketing and technical employees.

Executive Officers

The following table and notes set forth information about our current executive officers as of March 1, 2014.

Name	Age	Position
John K. Kibarian, Ph.D.	49	President, Chief Executive Officer, and Director
Gregory C. Walker	60	Vice President, Finance and Chief Financial Officer
Cees Hartgring, Ph.D.	60	Vice President, Client Services and Sales

Kimon Michaels, Ph.D.	47	Vice President, Products and Solutions
Kwang-Hyun Kim, Ph.D.	57	Vice President, Business Development

John K. Kibarian, Ph.D., one of our founders, has served as President since November 1991 and has served as our Chief Executive Officer since July 2000. Dr. Kibarian has served as a director since December 1992. Dr. Kibarian received a B.S. in Electrical Engineering, an M.S. E.C.E. and a Ph.D. E.C.E. from Carnegie Mellon University.

Gregory C. Walker has served as a Chief Financial Officer and Vice President, Finance since November 2011. Prior to joining the Company, Mr. Walker served as Sr. Vice President and Chief Financial Officer at InnoPath Software since 2007. Prior to that, Mr. Walker served as Sr. Vice President & Chief Financial Officer of Magma Design Automation, Inc. from 2002 through 2007. Earlier in his career, he held various financial roles at technology companies, including Synopsys, Inc., Integrated Device Technology, Inc., International Business Machines Corporation and Xerox Corporation. Mr. Walker received an M.B.A. from the University of Rochester in Rochester, New York and a B.A. in economics and history from Union College in Schenectady, New York.

Cees Hartgring, Ph.D., has served as Vice President, Client Services and Sales since June 2007. Dr. Hartgring served as Vice President and General Manager, Manufacturing Process Solutions from January 2004 through May 2007, as Vice President, Worldwide Sales and Strategic Business Development from April 2003 through December 2003 and as Vice President of Sales from September 2002 through March 2003. Prior to joining PDF, Dr. Hartgring served as President and Chief Executive Officer of Trimedia Technologies, a Philips Semiconductor spinout. Dr. Hartgring also held various executive positions at Philips Semiconductor, most recently as Vice President and General Manager of the Trimedia business unit. Dr. Hartgring received an undergraduate degree from the Technical University Delft and an M.S.E.E. and a Ph.D. in Electrical Engineering and Computer Science from the University of California at Berkeley.

Kimon Michaels, Ph.D., one of our founders, has served as Vice President, Products and Solutions since July 2010. Mr. Michaels served as Vice President, Design for Manufacturability from June 2007 through June 2010. Prior to that, Dr. Michaels served as Vice President, Field Operations for Manufacturing Process Solutions from January 2006 through May 2007, and has been a Director since November 1995. From March 1993 through December 2005, he served in various vice presidential capacities. He also served as Chief Financial Officer from November 1995 to July 1998. Dr. Michaels received a B.S. in Electrical Engineering, an M.S. E.C.E. and a Ph.D. E.C.E. from Carnegie Mellon University.

Kwang-Hyun Kim, *Ph. D.,* has served as a Vice President, Business Development since February 2014. Prior to joining PDF, Dr. Kim served as Executive Vice President of Samsung Electronics' Foundry Business from 2010 through 2013, and was Senior Vice President of Sales & Marketing for Samsung Electronics' SLSI group from 2005 through 2010. From 1989 through 2005, he held various executive positions within Samsung Electronics' ASIC Library/IP and Design Methodology Development and Communication & Custom SOC Development groups. Dr. Kim received an M.S. and Ph.D. in Electrical Engineering from Virginia Tech and a B.S. in Electrical Engineering from Sogang University in Korea.

Available Information

We file or furnish various reports, such as registration statements, periodic and current reports, proxy statements and other materials with the SEC. Our Internet website address is www.pdf.com. You may obtain, free of charge on our website, copies of our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The Company's website address provided is not intended to function as a hyperlink, and the information on the Company's website is not, and should not be considered, part of this Annual Report on Form 10-K and is not incorporated by reference herein.

In addition to the materials that are posted on our website, you may read and copy any materials we file with the SEC at the SEC’s Public Reference Room at 100 F Street, NE, Washington, DC 20549-0120. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a Web site (http://www.sec.gov) that contains reports, proxy and information statements and other information regarding issuers, such as us, that file electronically with the SEC.

Item 1A. Risk Factors.

We generate a large percentage of our revenues from a limited number of customers, so the loss of any one of these customers could significantly reduce our revenue and results of operations below expectations.

Historically, we have had a small number of large customers for our core Design-to-silicon-yield solutions and contributing significant Gainshare performance incentives revenue and we expect this to continue in the near term. In the year ended December 31, 2013, three customers accounted for 74% of our revenues, with Global Foundries representing 33%, Samsung representing 24% and IBM representing 17% . We could lose a customer due to its decision not to engage us on future process nodes, its decision not to develop its own future process node, or as a result of industry factors, including consolidation. The loss of any of these customers could significantly reduce our total revenue below expectations. Further, if any of these customers default, declare bankruptcy or otherwise delay or fail to pay amounts owed, our results of operations would be negatively affected in the short term and possibly the long term. These customers may seek to renegotiate pre-existing contractual commitments due to adverse changes in their own businesses or, in some cases, take advantage of contractual provisions that permit the suspension of contracted work for some period if their business experiences a financial hardship, which would harm our operating results. In particular, these events could cause significant fluctuations in results of operations because our expenses are fixed in the short term and it takes us a long time to replace customers or reassign resources.

Decreases in wafer volumes at our customers' manufacturing sites or the volume of ICs that some of our customers are able to sell to their customers would cause our Gainshare performance incentives revenue to suffer.

Our Gainshare performance incentives revenue is largely determined by wafer volumes at manufacturing sites covered by our contracts and, in some cases, the volume of an IC product that our customer is able to sell to its customers. Both of these factors are outside of our control. Further, some of our manufacturing customers' business is largely dependent on single-source customers. If those customers reduce orders, consolidate and/or otherwise move the orders to manufacturing facilities not covered by our contracts, or suspend its manufacturing at covered facilities for any reason, including consolidation, our Gainshare revenue will decrease. Reduced demand for semiconductor products decreases the volume of wafers and, in some cases, products our customers are able to sell, which would also directly decrease our Gainshare revenue. Also, our customers may unilaterally decide to implement changes to their manufacturing processes during the period that is covered by Gainshare, which could negatively affect yield results and our revenue. Since we currently work on a small number of large projects at a specified manufacturing sites and, in some cases, on specific IC products, our results of operations are adversely affected by negative changes at those sites or in those products. For example, if wafer orders from sites covered by our contracts are not secured by our customers, if an end product does not achieve commercial viability, if a process line or, in some cases, a specific product, do not achieve significant increases in yield or sustain significant volume manufacturing during the time we receive Gainshare, revenues associated with such volumes or products would be negatively impacted. This could significantly reduce our revenue and results of operations below expectations. In addition, if we work with two directly competitive manufacturing facilities or products, volume in one may offset volume, and thus any of our related Gainshare, in the other facility or product.

If semiconductor designers and manufacturers do not continue to adopt, or they significantly delay adoption of, our Design-to-silicon-yield solutions, our revenues will suffer.

If semiconductor designers and manufacturers do not continue to adopt our Design-to-silicon-yield solutions, both as currently comprised and as we may offer them in the future, our revenues will decline. We may not be successful if we do not continue to enter into agreements with existing customers and new customers that cover a larger number of IC products and processes and manufacturing facilities. If we do not continue to develop customer relationships with companies that are integrated device manufacturers ("IDMs"), fabless semiconductor companies, and foundries, as well as system manufacturers, the market acceptance of our solutions will suffer. Factors that may limit adoption of our Design-to-silicon-yield solutions by semiconductor companies include:

- our existing and potential customers' delay in their adoption of the current or next process technology;
- IDMs of logic ICs discontinuing or significantly cutting back their investment in the development of new process technology as a result of a shift to a model of outsourcing a larger proportion, or all, of the mass production of their ICs;
- our inability to keep pace with the rapidly evolving technologies and equipment used in the semiconductor design and manufacturing processes;
- our customers' failure to achieve satisfactory yield improvements using our Design-to-silicon-yield solutions;
- the lack of proven results with new technologies and solutions that we may develop;
- fewer processes being developed at our customers and, therefore, a reduction in the potential impact our solutions can add at any single customer; and
- our inability to develop, market, or sell effective solutions that are outside of our traditional logic focus of manufacturing process solutions.

The semiconductor market is volatile and unpredictable and is exacerbated by economic uncertainty, which limits our ability to forecast our business and could negatively impact our results of operations.

The semiconductor industry historically has been volatile with up cycles and down cycles, due to sudden changes in customers' manufacturing capacity requirements and spending, which depend in part on capacity utilization, demand for customers' IC products by consumers, inventory levels relative to demand, and access to affordable capital. As a result of the various factors that affect this volatility, the timing and length of any cycles can be difficult to predict. Economic uncertainty exacerbates negative trends in consumer spending and can cause some of our customers to delay or refrain altogether from entering into new engagements, licensing new or additional software products, or renewing maintenance and support for existing licensed software. Difficulties in obtaining capital and deteriorating market conditions may also lead to the inability of some customers to obtain affordable financing for other purchases, which could tie up funds otherwise budgeted for purchases of our solutions and technologies. This could negatively affect our revenues and make it challenging for us to forecast our operating results, make business decisions, and identify the risks that may affect our business, financial condition and results of operations. Customers with liquidity issues may also lead to additional bad debt expense.

Our solution implementations may take longer than budgeted, which could cause us to lose customers and may result in adjustments to our operating results.

Our solution implementations require a team of engineers to collaborate with our customers to address complex yield loss issues by using our software and other technologies. We must estimate the amount of resources needed to complete an existing solution implementation in order to estimate when the engineers will be able to commence a new solution implementation. In addition, our accounting for solution implementation contracts, which generate fixed fees, sometimes require adjustments to profit (loss) based on revised estimates during the performance of the contract. These adjustments may have a material effect on our results of operations in the period in which they are made. The estimates giving rise to these risks, which are inherent in fixed-price contracts, include the forecasting of costs and schedules, and contract revenues related to contract performance.

It typically takes us a long time to enter into agreements for new engagements with our customers, to sell our unique solutions to new customers and into new markets, and that can result in uncertainty and delays in generating revenues.

The timing and length of negotiations required to enter into agreements with our customers is difficult to predict. Further, our customers sometimes delay starting negotiations until they begin developing a new process, need to insert a new product, or experience specific yield issues. This means that on occasion we may begin providing technology and services under preliminary documentation before executing the final contract. In these cases, we could not take revenue and would defer associated costs until execution of the final contract, which, if significant, could negatively impact our results of operations in the periods before we execute the final contract. Further, if we were to incur significant effort and then fail to enter into a final contract, we would have to write-off such deferred costs in the period in which the negotiations ended, which would decrease our gross margin and could result in significant operating losses. Also, some of our new products may not have proven results and our Gainshare performance incentives business model is unique and unfamiliar to new customers. Any of these factors could result in a long sales cycle. On-going negotiations and evaluation projects for new products, with new customers or in new markets may not result in significant revenues for us if we are unable to close new engagements on terms favorable to us, in a timely manner, or at all. Unexpected delays in our sales cycle could cause our revenues to fall short of expectations.

If we are not able to attract, retain, motivate, and strategically locate talented employees, including some key executives, our business may suffer.

Our success and competitiveness depend on our ability to attract, retain, motivate, and strategically locate in our offices around the globe, talented employees, including some of our key executives. Achieving this objective may be difficult due to many factors, including fluctuations in global economic and industry conditions, changes in our management or leadership, the hiring practices at our competitors or customers, cost reduction activities, and the effectiveness of our compensation programs, including equity-based programs. Further, we have had, and expect to continue to have, difficulty in obtaining visas permitting entry for some of our employees that are foreign nationals into the United States, and delays in obtaining visas permitting entry into other key countries, for several of our key personnel, which disrupts our ability to strategically locate our personnel. If we lose the services of any of our key executives or a significant number of our engineers, it could disrupt our ability to implement our business strategy. If we do not successfully attract, retain, and motivate key employees, including key executives, we may be unable to realize our business objectives and our operating results may suffer.

If we do not effectively manage, support, and safeguard our worldwide information systems, and integrate recent and planned growth, our business strategy may fail.

We have experienced in the past, and may experience in the future, interruptions in our information systems on which our global operations depend. Further, we may face attempts by others to gain unauthorized access through the

Internet to our information technology systems, to intentionally hack, interfere with, or cause physical or digital damage to or failure of such systems (such as significant viruses or worms), which attempts we may be unable to prevent. We could be unaware of an incident or its magnitude and effects until after it is too late to prevent it and the damage it may cause. The theft, unauthorized use, or a cybersecurity attack that results in the publication of our trade secrets and other confidential business information as a result of such an incident could negatively affect our competitive position, the value of our investment in product or research and development, and third parties might assert against us or our customers claims related to resulting losses of confidential or proprietary information or end-user data and/or system reliability. In any such event, our business could be subject to significant disruption, and we could suffer monetary and other losses, including reputational harm. In addition, we must frequently expand our internal information system to meet increasing demand in storage, computing and communication. Our internal information system is expensive to expand and must be highly secure due to the sensitive nature of our customers' information that we transmit. Building and managing the support necessary for our growth places significant demands on our management and resources. These demands may divert these resources from the continued growth of our business and implementation of our business strategy. Further, we must adequately train our new personnel, especially our client service and technical support personnel, to effectively and accurately, respond to and support our customers. If we fail to do this, it could lead to dissatisfaction among our customers, which could slow our growth.

Our stock price has been volatile in the past, and our earnings per share and other operating results may be unusually high in a given quarter, thereby raising investors' expectations, and then unusually low in the next quarter, thereby disappointing investors, which could cause our stock price to drop again and increase potential dilution to our stockholders.

Our stock price has fluctuated widely during the last few years, from a low closing price of $0.97 per share during March 2009 to recent highs, including the closing price of $26.41 per share during January 2014. A factor in the volatility may be that our historical quarterly operating results have fluctuated. Our future quarterly operating results will likely fluctuate from time to time and may not meet the expectations of securities analysts and investors in some future period, which could cause our stock price to decrease again. A significant reduction in our stock price negatively impacts our ability to raise equity capital in the public markets and increases the cost to us, as measured by dilution to our existing shareholders, of equity financing. In addition, the reduced stock price also increases the cost to us, in terms of dilution, of using our equity for employee compensation or for acquisitions of other businesses. A greatly reduced stock price could also have other negative results, including the potential loss of confidence by employees, the loss of institutional investor interest, and fewer business development opportunities. Also, significant volatility in the stock price could be followed by a securities class action lawsuit, which could result in substantial costs and a diversion of our management's attention and resources.

If we fail to protect our intellectual property rights, customers or potential competitors may be able to use our technologies to develop their own solutions which could weaken our competitive position, reduce our revenue, or increase our costs.

Our success depends largely on the proprietary nature of our technologies. Our contractual, patent, copyright, trademark, and trade secret protection may not be effective against any particular threat or in any particular location. Our pending patent applications may not result in issued patents, and even if issued, they may not be sufficiently broad to protect our proprietary technologies. Litigation may be necessary from time to time to enforce our IP rights or to determine the validity and scope of the proprietary rights of others. As a result of any such litigation, we could lose our proprietary rights and incur substantial unexpected operating costs. Litigation could also divert our resources, including our managerial and engineering resources.

Competition in the market for yield improvement solutions and increased integration between IC design and manufacturing may intensify in the future, which could impede our ability to grow or execute our strategy.

Competition in our market may intensify in the future, which could slow our ability to grow or execute our strategy and could lead to increased pricing pressure, negatively impacting our revenues. Our current and potential customers may choose to develop their own solutions internally, particularly if we are slow in deploying our solutions or improving them to meet market needs. These and other competitors may be able to operate with a lower cost structure than our engineering organization, which would give any such competitor's products a competitive advantage over our

solutions. We currently face indirect competition from the internal groups at IC companies and some direct competition from providers of yield management or prediction software such as KLA-Tencor, Mentor Graphics (through its acquisition of Ponte Solutions), Rudolph Technologies, Inc. (“Rudolph”) (through its acquisition of Yield Dynamics), and Synopsys, Inc., and process control software, such as Applied Materials, Inc. (through its acquisition of the software division of Brooks Automation), BISTel Inc., MKS Instruments, Inc., Rudolph and Trancom Technology, Inc. Further, ARM Ltd. and Synopsys (through its acquisition of Virage Logic Corporation) provide standard cells in the physical IP space and Tela Innovations, Inc. provides software for standard cell synthesis, each of which could compete with our Template™ technology solution. In addition, electronic design automation suppliers provide alternative DFM solutions that may compete for the same budgetary funds. There may be other providers of commercial solutions for systematic IC yield and performance enhancement of which we are not aware. Further, some providers of yield management software or inspection equipment may seek to broaden their product offerings and compete with us. In addition, we believe that the demand for solutions that address the need for better integration between the silicon design and manufacturing processes may encourage direct competitors to enter into our market. For example, large integrated organizations, such as IDMs, electronic design automation software providers, IC design service companies or semiconductor equipment vendors, may decide to spin-off a business unit that competes with us. Other potential competitors include fabrication facilities that may decide to offer solutions competitive with ours as part of their value proposition to their customers. If these potential competitors change the pricing environment or are able to attract industry partners or customers faster than we can, we may not be able to grow and execute our strategy as quickly or at all.

We face operational and financial risks associated with international operations that could negatively impact our revenue.

We have in the past expanded and reorganized, at different times, our non-U.S. operations and may in the future continue such expansion or reorganization by establishing or restructuring international subsidiaries, offices, or contractor relationships in locations, if and when, deemed appropriate by our management. Thus, the success of our business is subject to risks inherent in doing business internationally, including in particular:

- some of our key engineers and other personnel are foreign nationals and they may not be permitted access to certain technical information under U.S. export laws or by certain of our customers and may have difficulty gaining access to the United States and other countries in which our customers or our offices may be located and it may be difficult for us to recruit and retain qualified technical and managerial employees in foreign offices;

- greater difficulty in collecting account receivables resulting in longer collection periods;

- language and other cultural differences may inhibit our sales and marketing efforts and create internal communication problems among our U.S. and foreign teams, increasing the difficulty of managing multiple, remote locations performing various development, quality assurance, and yield ramp analysis projects;

14

- compliance with, inconsistencies among, and unexpected changes in, a wide variety of foreign laws and regulatory environments with which we are not familiar, including, among other issues, with respect to employees, personal data, protection of our IP, and a wide variety of operational regulations and trade and export controls under domestic, foreign, and international law;

- currency risk due to the fact that certain of our payables for our international offices are denominated in the local currency, including the Euro, Yen, and RMB, while virtually all of our revenues is denominated in U.S. dollars;

- quarantine, private travel limitation, or business disruption in regions affecting our operations, stemming from actual, imminent or perceived outbreak of human pandemic or contagious disease;

- in the event a larger portion of our revenues becomes denominated in foreign currencies, we would be subject to a potentially significant exchange rate risk;

- economic or political instability, including but not limited to armed conflict, terrorism, interference with information or communication of networks or systems, and the resulting disruption to economic activity and business operations;

International revenues accounted for approximately 62% of our total revenues for the year ended December 31, 2013 compared to 60% for the year ended December 31, 2012 and 68% for the year ended December 31, 2011. Thus, we face the following additional risks:

- a downturn in the local economies of our customers, which could limit our ability to retain existing customers and attract new ones in such locations; and

- if the U.S. dollar increases in value relative to local currencies the cost of our solutions will be more expensive to existing and potential local customers and therefore less competitive.

Further, our employees and contractors include professionals located in various international locations, including Shanghai, China, who provide primarily CV test chip-related services, and Ramallah, Palestine, who provide software-related development, quality assurance, maintenance, and other technical support services for certain of our software products. Political changes, including policies regarding export control, that affect these or other international operations could disrupt or limit the work our employees and contractors are able to perform, and thus negatively affect the range of services we are able to provide our customers or our cost for such services.

Measurement of our Gainshare performance incentives requires data collection and is subject to customer agreement, which can result in uncertainty and cause quarterly results to fluctuate.

We can only recognize revenue based on Gainshare performance incentives once we have reached agreement with our customers on their level of yield performance improvements and volume results each quarter. Because measuring the amount of yield improvement is inherently complicated and dependent on our customers' internal information systems, there may be uncertainty as to some components of measurement. This could result in our recognition of less revenue than expected. In addition, any delay in measuring revenue attributable to Gainshare could cause all of the associated revenue to be delayed until the next quarter. Since we currently have only a few large customers and we are relying on Gainshare as a significant component of our total revenues, any delay could significantly harm our quarterly results.

Changes in the structure of our customer contracts, including the mix between fixed and variable revenue and the mix of elements, including perpetual and term-based licenses, can adversely affect the amount and timing of our total revenues.

Our long-term success is largely dependent upon our ability to structure our future customer contracts to include a larger Gainshare performance incentives component relative to the fixed fee component. We typically recognize the fixed fee component earlier than the Gainshare component so if we are successful in increasing the Gainshare component of our customer contracts, we will experience an adverse impact on our operating results in the short term as we reduce the fixed fee component. Due to acquisitions and expanded business strategies, the mix of elements in some of our contracts has changed recently and the relative importance of the software component in some of our contracts has increased. We have experienced, and may in the future experience, delays in the expected recognition of revenue associated with generally accepted accounting principles regarding the timing of revenue recognition in multi-element software arrangements, including the effect of acceptance criteria as a result of the change in our contracts. If we fail to meet contractual acceptance criteria on time or at all, the total revenues we receive under a contract could be delayed or decline. Further, if we mix term-based licenses with perpetual licenses, it will impact the timing of the recognition of revenue from that customer. In addition, by increasing the Gainshare or the software component, we may increase the variability or timing of recognition of our revenue, and therefore increase the risk that our total future revenues will be lower than expected and fluctuate significantly from period to period.

We have experienced losses in the past and we may be unable to maintain profitability and incur losses in the future.

We have experienced losses in the past and we may not maintain profitability if our costs increase more quickly than we expect or if revenues decrease. In addition, virtually all of our operating expenses are fixed in the short term, so any shortfall in anticipated revenue in a given period could significantly reduce our operating results below expectations. Our accumulated deficit was $70.6 million as of December 31, 2013. We expect to continue to incur significant expenses in connection with:

- funding for research and development;
- expansion of our solution implementation teams;
- expansion of our sales and marketing efforts; and
- additional non-cash charges relating to amortization and stock-based compensation.

As a result, if we do not significantly increase revenues to maintain profitability on a quarterly or annual basis, we would incur losses and our stock price could decline. Further, if we incur losses in the future, we may be subject to further decreases to earnings associated with the corresponding impairment of our long-lived assets.

Inadvertent disclosure of our customers' confidential information could result in costly litigation and cause us to lose existing and potential customers.

Our customers consider their product yield information and other confidential information, which we must gather in the course of our engagement with the customer, to be extremely competitively sensitive. If we inadvertently disclosed or were required to disclose this information, we would likely lose existing and potential customers and could be subject to costly litigation. In addition, to avoid potential disclosure of confidential information to competitors, some of our customers may, in the future, ask us not to work with key competitive products, which could limit our revenue opportunities.

Our technologies could infringe the intellectual property rights of others, causing costly litigation and the loss of significant rights.

Significant litigation regarding intellectual property rights exists in the semiconductor industry. It is possible that a third party may claim that our technologies infringe their intellectual property rights or misappropriate their trade secrets. Any claim, even if without merit, could be time consuming to defend, result in costly litigation, or require us to enter into royalty or licensing agreements, which may not be available to us on acceptable terms, or at all. A successful claim of infringement against us in connection with the use of our technologies could adversely affect our business.

Our ability to sell our products may depend on the quality of our support and services offerings, and our failure to offer high-quality support and services could negatively affect our sales and results of operations.

Once our software products are integrated within our customers' hardware and software systems, our customers may depend on our support organization to resolve any issues relating to our products. A high level of support is critical for the successful marketing and sale of our products. If we do not effectively assist our customers in deploying our products, succeed in helping our customers quickly resolve post-deployment issues, and provide effective ongoing support, our ability to sell our software products to existing customers may be negatively affected, and our reputation with potential customers could be harmed. If our software customers have a poor perception of our support and services offerings, they may choose not to renew software support and maintenance when the current period expires. In addition, due to our international operations, our support organization faces challenges associated with delivering support, training, and documentation where the user's native language may not be English. If we fail to maintain high-quality support and services, our customers may choose our competitors' products instead of ours in the future, which would negatively affect our revenues and results of operations.

Defects in our proprietary technologies, hardware and software tools, and the cost of support to remedy any such defects could decrease our revenue and our competitive market share.

If the software, hardware, or proprietary technologies we provide to a customer contain defects that increase our customer's cost of goods sold and time-to-market or damage our customer's property, these defects could significantly decrease the market acceptance of our solutions. Further, the cost of support resources required to remedy any defects in our technologies, hardware, or software tools could exceed our expectations. Any actual or perceived defects with our software, hardware, or proprietary technologies may also hinder our ability to attract or retain industry partners or customers, leading to a decrease in our revenue. These defects are frequently found during the period following introduction of new software, hardware, or proprietary technologies or enhancements to existing software, hardware, or proprietary technologies. Our software, hardware, and proprietary technologies may contain errors not discovered until after customer implementation of the silicon design and manufacturing process recommended by us. If our software, hardware, or proprietary technologies contain errors or defects, it could require us to expend significant resources to remedy these problems, which could reduce margins and result in the diversion of technical and other resources from our other customer implementations and development efforts.

Failing to maintain the effectiveness of our internal controls over financial reporting could impede our ability to provide accurate and timely financial information, which could cause our investors to lose confidence in the accuracy and completeness of our financial reports and could cause our stock price to decline.

In the past, we identified material weaknesses in connection with the evaluation of the effectiveness of our internal control over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act ("Section 404"). These control deficiencies resulted in adjustments during the 2009 audit to our consolidated financial statements for the year ended December 31, 2009, and during the 2010 audit to our consolidated financial statements for the year ended December 31, 2010. In the future, our management may identify additional deficiencies regarding the design and operating effectiveness of our system of internal control and we may not be able to remediate such deficiencies in time to meet the continuing reporting deadlines imposed by Section 404. Further, any costs of remediation may be substantial. A material weakness in our internal controls could result in a material misstatement not being prevented or detected, which could result in the need for a restatement of past periods. Moreover, our independent registered public accounting firm may deem that we did not maintain, in all material respects, effective internal control over financial reporting if we are unable to remediate deficiencies on a timely basis. If we fail to remediate material weaknesses, fail to implement required new or improved controls, encounter difficulties in their implementation, or are unable at any time to assert that we maintain effective internal controls, it could harm our operating results, cause us to fail to meet our SEC reporting obligations on a timely basis, result in material misstatements, and our investors could lose confidence in the accuracy and completeness of our financial reports and our stock price could decline.

Changes in effective tax rates could negatively affect our operating results and we may not be able to use tax credits before their expiration if we fail to have sufficient future income.

We conduct our business globally and, as a result, are subject to taxation in the United States and foreign countries. Our future tax rates could be affected by numerous factors, including changes in tax laws or the interpretation of such tax laws and changes in accounting policies. Our filings are subject to reviews or audit by the Internal Revenue Service and state, local and foreign taxing authorities. We cannot be sure that any final determination in an audit would not be materially different than the treatment reflected in our historical income tax provisions and accruals. If additional taxes are assessed as a result of an audit, there could be a significant negative effect on our income tax provision and our operating results in the period or periods for which that determination is made. Any changes in our geographical earnings mix in various tax jurisdictions, including those resulting from transfer pricing adjustments, could materially increase our effective tax rate. Furthermore, we maintain deferred tax assets related to federal, foreign and certain state tax credits. Our ability to use these credits prior to their expiration is dependent upon having sufficient future income.

Item 1B. ***Unresolved Staff Comments***

None.

Item 2. ***Properties***

Our principal executive offices are located in San Jose, California. Our lease is currently for approximately 28,600 square feet of office space and approximately 2,400 square feet of laboratory space and terminates at the end of September 2018. We lease other office space in Pennsylvania and Texas in the United States. In addition, we have offices in France, Germany, Italy, China, Japan, Korea, and Taiwan with an aggregate of approximately 41,000 square feet under various leases that expire at different times through 2017. We believe our existing facilities are adequate to meet our current needs and are being utilized consistently with our past practice. We consistently look for opportunities to minimize costs related to office space through improved efficiencies and intend to make changes to leased facilities in the future as appropriate to reflect changes in worldwide operations and headcount.

Item 3. ***Legal Proceedings***

From time to time, we are subject to various claims and legal proceedings that arise in the ordinary course of business. We accrue for losses related to litigation when a potential loss is probable and the loss can be reasonably estimated in accordance with FASB requirements. With respect to the matter below, we determined a potential loss was not probable as of December 31, 2013 and, accordingly, no amount was accrued at such time.

Philip Steven Melman filed a complaint against us and our Chief Executive Officer on December 7, 2009 in the Superior Court for Santa Clara County, California. In the complaint, Mr. Melman alleged wrongful discharge based on discrimination, fraud, breach of contract and similar theories, in connection with the termination of Mr. Melman's employment with us. The complaint sought compensatory and punitive damages, any other available remedies, as well as attorney's fees and costs. Summary judgment in the favor of both the Company and Dr. Kibarian was entered by the court on October 27, 2011 and November 15, 2011, respectively. Mr. Melman appealed both orders in the Sixth District Court of Appeal in Santa Clara County, California. On March 22, 2013, the Court released its opinion affirming in full the grant of summary judgment in favor of the Company and Dr. Kibarian, which decision became final on April 22, 2013.

Item 4. ***Mine Safety Disclosures***

None.

PART II

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

Our common stock trades on the NASDAQ Global Market under the symbol "PDFS". As of March 10, 2014, we had approximately 54 stockholders of record. The number of stockholders of record does not include individuals whose stock is in nominee or "street name" accounts through brokers.

The following table sets forth for the periods indicated the high and low closing sale prices for our common stock as reported by the NASDAQ Global Market:

2013	**High**	**Low**
First Quarter	$16.96	$13.84
Second Quarter	$18.99	$14.95
Third Quarter	$22.06	$18.34

Fourth Quarter	$25.62	$20.74

2012	**High**	**Low**
First Quarter	$8.44	$6.30
Second Quarter	$10.54	$7.35
Third Quarter	$13.66	$8.75
Fourth Quarter	$14.72	$13.00

Dividend Policy

No cash dividends were declared or paid in 2013 or 2012. We currently intend to retain all available funds to finance future internal growth and product development and therefore do not anticipate paying any cash dividends on our common stock for the foreseeable future.

Stock Performance Graph

The following graph and tables compare the cumulative total stockholder return data for our stock since December 31, 2008 to the cumulative return over such period of (i) The NASDAQ Composite Index and (ii) the RDG Technology Composite Index. The graph assumes that $100 was invested on December 31, 2008. The graph and tables further assume that such amount was initially invested in the Common Stock of the Company at a per share price of $1.44 (closing price on December 31, 2008) and that of any dividends were reinvested. This performance graph and the corresponding tables are not “soliciting material,” is not deemed filed with the SEC and is not to be incorporated by reference in any filing by us under the Securities Act or the Exchange Act whether made before or after the date hereof and irrespective of any general incorporation language in any such filing. The stock price performance on the following graph and tables is not necessarily indicative of future stock price performance.

	12/08	12/09	12/10	12/11	12/12	12/13
PDF Solutions, Inc.	100.00	267.36	334.72	484.03	956.94	1,779.17
NASDAQ Composite Index	100.00	144.88	170.58	171.30	199.99	283.39
RDG Technology	100.00	160.94	181.64	181.83	208.18	274.77

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

On November 8, 2012, the Board of Directors adopted a program to repurchase up to $20.0 million of the Company's common stock on the open market over the next two years. As of December 31, 2013, 36,100 shares had been repurchased at the average price of $13.23 per share under this program, at a total purchase price of $0.5 million, and $19.5 million remained for future repurchases.

There were no purchases made by or on behalf of the Company or any "affiliated purchaser" (as the term is defined in Rule 10b-18(a)(3) under the Exchange Act) of our common stock during the fourth quarter ended December 31, 2013.

Item 6. ***Selected Financial Data.***

The following selected consolidated financial information has been derived from the audited consolidated financial statements. The information set forth below is not necessarily indicative of results of future operations and should be read in conjunction with Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements and notes to those statements included therein and in Part IV of this Form 10-K.

	Year Ended December 31,				
	2013	2012	2011	2010	2009
	(In thousands, except per share amounts)				
Consolidated Statements of Operations Data:					
Revenues:					
Design-to-silicon-yield solutions	$61,710	$59,061	$51,633	$43,080	$32,662
Gainshare performance incentives	39,743	30,479	15,079	18,570	15,776
Total revenues	101,453	89,540	66,712	61,650	48,438
Cost of Design-to-silicon-yield solutions:					
Direct costs of Design-to-silicon-yield solutions	39,470	36,236	29,416	26,900	25,087
Amortization and impairment of acquired technology	—	261	626	1,285	1,439
Total cost of Design-to-silicon-yield solutions	39,470	36,497	30,042	28,185	26,526
Gross profit	61,983	53,043	36,670	33,465	21,912
Operating expenses:					
Research and development	13,314	13,251	13,972	14,955	17,906
Selling, general and administrative	17,025	18,599	18,358	16,002	16,551
Amortization of other acquired intangible assets	74	174	204	295	349
Restructuring charges	197	1,889	(110)	885	4,512
Total operating expenses	30,610	33,913	32,424	32,137	39,318
Income (loss) from operations	31,373	19,130	4,246	1,328	(17,406)
Interest and other income (expense), net	(64)	(248)	73	20	237
Income (loss) before taxes	31,309	18,882	4,319	1,348	(17,169)
Income tax provision	10,380	(18,329)	2,439	1,326	903
Net income (loss)	$20,929	$37,211	$1,880	$22	$(18,072)
Net income (loss) per share:					
Basic	$0.70	$1.30	$0.07	$0.00	$(0.69)
Diluted	$0.67	$1.25	$0.07	$0.00	$(0.69)
Weighted average common shares:					
Basic	29,826	28,700	28,086	27,257	26,377
Diluted	31,393	29,809	28,431	27,471	26,377

	December 31,				
	2013	2012	2011	2010	2009
	(In thousands)				
Consolidated Balance Sheets Data:					
Cash and cash equivalents	$89,371	$61,637	$46,041	$38,154	$34,899
Working capital	120,915	82,900	57,236	50,849	44,887
Total assets	151,164	124,260	74,384	68,392	63,432
Long-term obligations	3,584	3,502	4,156	4,949	5,120
Total stockholders' equity	134,712	101,060	56,843	50,832	45,689

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

Overview

We analyze our customers' IC design and manufacturing processes to identify, quantify, and correct the issues that cause yield loss to improve our customers' profitability by improving time-to-market, increasing yield and reducing total design and manufacturing costs. We package our solutions in various ways to meet our customers' specific business and budgetary needs, each of which provides us various revenue streams. We receive a mix of fixed fees and variable, performance-based fees for the vast majority of our yield improvement solutions. The fixed fees are typically reflective of the length of time and the resources needed to characterize a customer's manufacturing process and receive preliminary results of proposed yield improvement suggestions. The variable fee, or what we call Gainshare, usually depends on our achieving certain yield targets by a deadline. Variable fees are currently typically tied to wafer volume on the node size of the manufacturing facility where we performed the yield improvement solutions. We receive license fees and service fees for related installation, integration, training, and maintenance and support services for our software that we license on a stand-alone basis.

Industry Trend

We believe that the largest logic foundries increased their investment in leading edge nodes and capacity in 2013, and will continue their investment in 2014, consistent with the trend since 2010. Leading foundries are also investing in new technologies such as multi-patterned lithography and 3-D transistor architecture. These trends resulted in an increase in our business, and improved results of operations in 2011, 2012 and 2013.

Generally, the demand for consumer electronics and communications devices continues to drive technological innovation in the semiconductor industry as the need for products with greater performance, lower power consumption, reduced costs and smaller size continues to grow with each new product generation. In addition, advances in computing systems and mobile devices have fueled demand for higher capacity memory chips. To meet these demands, IC manufacturers and designers are constantly challenged to improve the overall performance of their ICs by designing and manufacturing ICs with more embedded applications to create greater functionality while lowering cost per transistor. As a result, both logic and memory manufacturers have migrated to more and more advanced manufacturing nodes, capable of integrating more devices with higher performance, higher density, and lower power. As this trend continues, companies will continually be challenged to improve process capabilities to optimally produce ICs with minimal random and systematic yield loss, which is driven by the lack of compatibility between the design and its respective manufacturing process. We believe that as volume production of deep submicron ICs continues to grow, the difficulties of integrating IC designs with their respective processes and ramping new manufacturing processes will create a greater need for products and services that address the yield loss and escalating cost issues the semiconductor industry is facing today and will face in the future.

Financial Highlights

The following were our financial highlights for the year ended December 31, 2013:

- Total revenues were $101.5 million, which was an increase of $11.9 million, or 13%, compared to the year ended December 31, 2012. Design-to-silicon-yield solutions revenues were $61.7 million, which was an increase of $2.6 million, or 4%, compared to the year ended December 31, 2012. The increase in Design-to-silicon-yield solutions revenue was primarily due to an increase in fixed fee integrated solutions, the result of more billable hours to revenue-generating projects in the period due to increased business activity. Gainshare performance incentives revenue was $39.7 million, an increase of $9.3 million, or 30%, compared from the year ended December 31, 2012. The increase in revenue from Gainshare performance incentives was primarily the result of a higher number of projects reaching performance measures for achieving Gainshare and higher wafer volumes at customers' manufacturing facilities.

- Net income was $20.9 million, compared to $37.2 million for the year ended December 31, 2012. The decrease in net income was primarily attributable to an increase in income tax provision of $28.7 million, offset by the increase in gross margin of $8.9 million, mainly due an increase in revenues and a more favorable product mix and a decrease in operating expense of $3.3 million. The increase in income tax provision was due to the reversal of valuation allowance of $19.9 million related to deferred tax assets that resulted in an income tax benefit for the fiscal year of 2012 and the increase in income tax provision due to an increase in level of income, increase in foreign withholding taxes and utilization of tax credits.

- Net income per basic and diluted share was $0.70 and $0.67, respectively, for the year ended December 31, 2013 compared to net income per basic and diluted share of $1.30 and $1.25, respectively, for the year ended December 31, 2012, a decrease of $0.60 and $0.58 per basic and diluted share, respectively.

- Cash, cash equivalents and investments increased $27.8 million to $89.4 million at December 31, 2013 from $61.6 million at December 31, 2012, primarily due to cash generated from operating activities during the period.

Critical Accounting Policies

The preparation of financial statements and related disclosures in conformity with accounting principles generally accepted in the United States requires us to make judgments, assumptions, and estimates that affect the amounts reported in the Consolidated Financial Statements and accompanying notes. Note 1 of Notes to Consolidated Financial Statements describes the significant accounting policies and methods used in the preparation of the Consolidated Financial Statements. We consider the accounting policies described below to be our critical accounting policies. These critical accounting policies are impacted significantly by judgments, assumptions, and estimates used in the preparation of the Consolidated Financial Statements and actual results could differ materially from the amounts reported based on these policies.

Revenue Recognition

We derive revenues from two sources: Design-to-silicon-yield Solutions and Gainshare Performance Incentives.

Design-to-silicon-yield solutions — Revenues that are derived from Design-to-silicon-yield solutions come from services and software licenses. We recognize revenue for each element of Design-to-silicon-yield solutions as follows:

We generate a significant portion of our Design-to-silicon-yield solutions revenue from fixed-price solution implementation service contracts delivered over a specific period of time. These contracts require reliable estimation of costs to perform obligations and the overall scope of each engagement. Revenue under project–based contracts for solution implementation services is recognized as services are performed using the cost-to-cost percentage of completion method of contract accounting. Losses on fixed-price solution implementation contracts are recognized in the period when they become probable. Revisions in profit estimates are reflected in the period in which the conditions that require the revisions become known and can be estimated. Revenue under time and materials contracts for solution implementation services are recognized as the services are performed. On occasion, we license our software products as a component of our fixed-price service contracts. In such instances, the software products are licensed to customers over a specified term of the agreement with support and maintenance to be provided at each customer's option over the license term. The amount of product and service revenue recognized in a given period is affected by our judgment as to whether an arrangement includes multiple deliverables and, if so, our determination of the fair value of each deliverable. In general, vendor-specific objective evidence of selling price (“VSOE”) does not exist for our solution implementation services and software products and because our services and products include our unique technology, we are not able to determine third-party evidence of selling price (“TPE”). Therefore, in such circumstances we use best estimated selling prices (“BESP”) in the allocation of arrangement consideration. In determining BESP, we apply significant judgment as we weigh a variety of factors, based on the facts and circumstances of the arrangement. We typically arrive at BESP for a product or service that is not sold separately by considering company-specific factors such as geographies, internal costs, gross margin objectives, pricing practices used to establish bundled pricing, and existing portfolio pricing and discounting. After fair value is established for each deliverable, the total transaction amount is allocated to each deliverable based upon its relative fair value. Fees allocated to solution implementation services are recognized using the cost-to-cost percentage of completion method of contract accounting. Fees allocated to software and related support and maintenance are recognized under software revenue recognition guidance.

We also license our software products separately from our solution implementations. For software license arrangements that do not require significant modification or customization of the underlying software, software license revenue is recognized under the residual method when (1) persuasive evidence of an arrangement exists, (2) delivery has occurred, (3) the fee is fixed or determinable, (4) collectability is probable, and (5) the arrangement does not require services that are essential to the functionality of the software. When arrangements include multiple elements such as support and maintenance, consulting (other than for its fixed price solution implementations), installation, and training, revenue is allocated to each element of a transaction based upon its fair value as determined by our VSOE and such services are recorded as services revenue. VSOE for maintenance is generally established

based upon negotiated renewal rates while VSOE for consulting, installation, and training services is established based upon our customary pricing for such services when sold separately. Revenue for software licenses with extended payment terms is not recognized in excess of amounts due. For software license arrangements that require significant modification or customization of the underlying software, the software license revenue is recognized as services are performed using the cost-to-cost percentage of completion method of contract accounting, and such revenue is recorded as services revenue.

Gainshare Performance Incentives — When we enter into a contract to provide yield improvement services, the contract usually includes two components: (1) a fixed fee for performance by us of services delivered over a specific period of time; and (2) a Gainshare performance incentive component where the customer may pay a contingent variable fee, usually after the fixed fee period has ended. Revenue derived from Gainshare performance incentives represents profit sharing and performance incentives earned contingent upon our customers reaching certain defined operational levels established in related solution implementation service contracts. Gainshare performance incentives periods are usually subsequent to the delivery of all contractual services and therefore have no cost to us. Due to the uncertainties surrounding attainment of such operational levels, we recognize Gainshare performance incentives revenue (to the extent of completion of the related solution implementation contract) upon receipt of performance reports or other related information from the customer supporting the determination of amounts and probability of collection.

Income Taxes

We are required to assess the likelihood that our deferred tax assets will be recovered from future taxable income and if we believe that they are not likely to be realizable before the expiration dates applicable to such assets then, to the extent we believe that recovery is not likely, establish a valuation allowance. Changes in the net deferred tax assets, less offsetting valuation allowance, in a period are recorded through the income tax provision in the consolidated statements of operations. During the year ended December 31, 2013, based on our evaluation and weighting of the positive and negative evidence available, we concluded that it was more likely than not that our deferred tax assets would be realizable with the exception of California R&D tax credits that have not met the "more likely than not" realization threshold criteria because on an annual basis and pursuant to current law, we generate more California credits than California tax. At December 31, 2013, the remaining balance of valuation allowance, which is primarily related to California R&D tax credits, was $5.1 million. During the year ended December 31, 2012, based on our evaluation and weighting of the positive and negative evidence available, we concluded that it was more likely than not that our deferred tax assets would be realizable before the applicable expiration dates, with the exception of California R&D tax credits, and determined that valuation allowances aggregating to $19.9 million were no longer needed. This has been reported as a component of income tax benefit in the accompanying Consolidated Statement of Operations.

Our income tax calculations are based on application of the respective U.S. federal, state or foreign tax law. Our tax filings, however, are subject to audit by the respective tax authorities. Accordingly, we recognize tax liabilities based upon our estimate of whether, and the extent to which, additional taxes will be due when such estimates are more-likely-than-not to be sustained. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained. To the extent the final tax liabilities are different than the amounts originally accrued, the increases or decreases are recorded as income tax expense or benefit in the consolidated statements of operations. At December 31, 2013, no deferred taxes have been provided on undistributed earnings of approximately $4.0 million from the Company's international subsidiaries since these earnings have been, and under current plans will continue to be, permanently reinvested outside the United States. It is not practicable to determine the amount of the unrecognized tax liability at this time.

Stock-Based Compensation

Stock-based compensation is estimated at the grant date based on the award's fair value and is recognized on a straight-line basis over the vesting period, generally four years. As stock-based compensation expense recognized is based on awards ultimately expected to vest, it has been reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

We have elected to use the Black-Scholes-Merton option-pricing model, which incorporates various assumptions including volatility, expected life and interest rates. The expected volatility is based on the historical volatility of our

common stock over the most recent period commensurate with the estimated expected life of stock options. The expected life of an award is based on historical experience and on the terms and conditions of the stock awards granted to employees. The interest rate assumption is based upon observed Treasury yield curve rates appropriate for the expected life of stock options.

Recent Accounting Pronouncements and Accounting Changes

See our Note 1, “Business and Significant Accounting Policies” of “Notes to Consolidated Financial Statements” included under Part IV, Item 15 of this Form 10-K for a description of recent accounting pronouncements and accounting changes, including the expected dates of adoption and estimated effects, if any, on our consolidated financial statements.

Results of Operations

The following table sets forth, for the years indicated, the percentage of total revenues represented by the line items reflected in our consolidated statements of operations:

	Years Ended December 31,		
	2013	**2012**	**2011**
Revenues:			
Design-to-silicon-yield solutions	61 %	66 %	77 %
Gainshare performance incentives	39	34	23
Total revenues	100	100	100
Cost of Design-to-silicon-yield solutions:			
Direct costs of Design-to-silicon-yield solutions	39	41	44
Amortization of acquired technology	—	—	1
Total cost of Design-to silicon-yield solutions	39	41	45
Gross profit	61	59	55
Operating expenses:			
Research and development	13	15	21
Selling, general and administrative	17	21	27
Amortization of other acquired intangible assets	—	—	—
Restructuring charges	—	2	—
Total operating expenses	30	38	48
Income (loss) from operations	31	21	7
Interest and other income, net	—	—	—
Income (loss) before taxes	31	21	7
Income tax provision (benefit)	10	(21)	4
Net income (loss)	21 %	42 %	3 %

Years Ended December 31, 2013 and 2012

Revenues	**2013**	**2012**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Design-to-silicon-yield solutions	$61,710	$59,061	$2,649	4 %
Gainshare performance incentives	39,743	30,479	9,264	30
Total	$101,453	$89,540	$11,913	13 %

Design-to-silicon-yield solutions. Design-to-silicon-yield solutions revenue is derived from services (including solution implementations, software support and maintenance, consulting, and training) and software licenses provided during our customer yield improvement engagements as well as during solution product sales. Design-to-silicon-yield solutions revenue increased $2.6 million for the year ended December 31, 2013 compared to the year ended December 31, 2012, primarily due to an increase in revenue from fixed fee integrated solutions, the result of more billable hours to revenue-generating projects in the period and an increase in revenue from time and material contracts for solution implementation services, due to increased business activities. During the year ended December 31, 2013, we recognized favorable changes in one project's profitability from revisions in estimates that resulted in a net increase of $1.0 million on gross profit. The changes were primarily due to customer directed scope changes. Our Design-to-silicon-yield solutions revenue may fluctuate in the future and is dependent on a number of factors, including the semiconductor industry's continued acceptance of our solutions, the timing of purchases by existing customers, and our ability to attract new customers and penetrate new markets including photovoltaic and LED, and further penetration of our current customer base. Fluctuations in future results may also occur if any of our significant customers renegotiate pre-existing contractual commitments due to adverse changes in their own business or, in the case of a time and materials contract, may take advantage of contractual provisions that permit the suspension of contracted work for a period if their business experiences a financial hardship.

Gainshare Performance Incentives. Gainshare performance incentives revenue represents profit sharing and performance incentives earned contingent upon our customers reaching certain defined operational levels and typically depending on volumes of wafers manufactured by our customers. Revenue derived from Gainshare performance incentives increased $9.3 million for the year ended December 31, 2013 compared to the year ended December 31, 2012. The increase was primarily the result of a higher number of projects reaching performance measures for achieving Gainshare combined with higher wafer volumes at customers' manufacturing facilities. Our Gainshare performance incentives revenue may continue to fluctuate from period to period. Gainshare performance incentives revenue is dependent on many factors that are outside our control, including among others, continued production of ICs by our customers at facilities at which we generate Gainshare, sustained yield improvements by our customers, and our ability to enter into new Design-to-silicon-yield solutions contracts containing provisions for Gainshare performance incentives.

Cost of Design-to-silicon-yield solutions	**2013**	**2012**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Direct costs of Design-to-silicon-yield solutions	$39,470	$36,236	$3,234	9 %
Amortization of acquired technology	—	261	(261)	(100)
Total	$39,470	$36,497	$2,973	8 %

Costs of Design-to-silicon-yield solutions. Costs of Design-to-silicon-yield solutions consist of costs incurred to provide and support our services, costs recognized in connection with licensing our software, and amortization of acquired technology.

24

Direct Costs of Design-to-silicon-yield solutions. Direct costs of Design-to-silicon-yield solutions consist of services costs and software licenses costs. Services costs consist of material, employee compensation and related benefits, overhead costs, travel and allocated facilities-related costs. Software license costs consist of costs associated with licensing third-party software used by our employees in providing services to our customers in solution engagements, or sold in conjunction with our software products. Direct costs of Design-to-silicon-yield solutions increased $3.2 million for the year ended December 31, 2013 compared to the year ended December 31, 2012. The increase was primarily due to increases of $1.2 million in personnel-related expense, $1.3 million in deferred cost recognized during the period (primarily associated with closing a large engagement in the current year), $0.6 million in depreciation expense of test equipment, $0.4 million in third-party software royalty expense, and $0.4 million in allocated facility expense, offset by decreases of $0.4 million in outside service expense and $0.3 million in travel expense. The increase in personnel-related expense includes increases due to additional headcount needed to support the growth in revenue-generating engagements and increases in stock-based compensation expense, partially offset by decreases in variable compensation.

Amortization of Acquired Technology. Amortization of acquired technology consists of amortization of intangibles acquired as a result of certain business combinations. Amortization of acquired technology decreased $0.3 million for the year ended December 31, 2013 compared to the year ended December 31, 2012, primarily due to certain intangible assets becoming fully amortized. All acquired technology intangible assets were fully amortized as of December 31, 2012.

Research and Development	**2013**	**2012**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Research and Development	$13,314	$13,251	63	— %

Research and Development. Research and development expenses consist primarily of personnel-related costs to support product development activities, including compensation and benefits, outside development services, travel, facilities cost allocations, and stock-based compensation charges. Research and development expenses remained flat for the year ended December 31, 2013 compared to the year ended December 31, 2012. We anticipate our expenses in research and development will fluctuate in absolute dollars from period to period as a result of the size and the timing of product development projects and revenue generating activity requirements.

Selling, General and Administrative	**2013**	**2012**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Selling, general and administrative	$17,025	$18,599	(1,574)	(8)%

Selling, General and Administrative. Selling, general and administrative expenses consist primarily of compensation and benefits for sales, marketing and general and administrative personnel, legal and accounting services, marketing communications, travel and facilities cost allocations, and stock-based compensation charges. Selling, general and administrative expenses decreased $1.6 million for the year ended December 31, 2013 compared to the year ended December 31, 2012, primarily due to a $1.1 million decrease in personnel-related expense due to a decrease in headcount and a decrease in variable compensation, a $0.2 million decrease in accounting and legal services, a $0.2 million decrease in travel expense and a $0.1 million decrease in the provision for doubtful accounts. We anticipate our selling, general and administrative expenses will fluctuate in absolute dollars from period to period as a result of cost control initiatives and to support increased selling efforts in the future.

Amortization of Other Acquired Intangible Assets	**2013**	**2012**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Amortization of other acquired intangible assets	$ 74	$174	(100)	(57)%

Amortization of Other Acquired Intangible Assets. Amortization of other acquired intangible assets consists of the amortization of intangibles acquired as a result of certain business combinations. Amortization of other acquired intangible assets for the year ended December 31, 2013 decreased $0.1 million compared to the year ended December 31, 2012, primarily the result of certain intangible assets becoming fully amortized. We anticipate amortization of existing other acquired intangible assets to be $31,000 in 2014.

Restructuring Charges (Credits)	**2013**	**2012**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Restructuring charges (credits)	$197	$1,889	(1,692)	(90)%

Restructuring Charges (Credits). Restructuring charges (credits) for the year ended December 31, 2013 decreased $1.7 million compared to the year ended December 31, 2012. Restructuring charges for the year ended December 31, 2013 and 2012 was primarily related to the restructuring plan announced on October 24, 2012 as part of the Company’s continuing efforts to simplify the organization, leverage cross-training and learning, and reduce annual operations expenses.

Interest and Other Income (Expense), Net	2013	2012	$ Change	% Change
(In thousands, except for percentages)				
Interest and other income (expense), net	$(64)	$(248)	184	74 %

Interest and Other Income (Expense), Net. Interest and other income (expense), net, primarily consists of interest income (expense) and foreign currency exchange gain (loss). The interest and other income (expense), net for the year ended December 31, 2013 and 2012 was primarily related to gains (losses) related to EURO to U.S. Dollar exchange rate. For the year ended December 31, 2013 and 2012, interest and other income (expense) was an expense of $0.1 million and $0.3 million, respectively, or a decrease of $0.2 million in expense year over year. The decrease was primarily due to us entering into a foreign currency forward contract during the year ended December 31, 2013 to reduce our exposure to foreign currency rate changes. We anticipate interest and other income (expense), net will fluctuate in future periods as a result of our projected use of cash and fluctuations of foreign exchange rates.

Income Tax Provision (benefit)	2013	2012	$ Change	% Change
(In thousands, except for percentages)				
Income tax provision (benefit)	$10,380	$(18,329)	28,709	(157)%

Income Tax Provision (benefit). Our effective tax rate was 33.15% for 2013 which was slightly lower than the statutory federal income tax rate of 35% primarily due to the benefit of lower tax rates on earnings of foreign subsidiaries and the application of tax incentives for research and development. The change in income tax provision (benefit) to $10.4 million from ($18.3) million was primarily due to the release of a valuation allowance on deferred tax assets and $0.5 million of foreign withholding tax refund benefits recognized during the year of 2012. Our future effective income tax rate depends on various factors, such as tax legislation, the geographic composition of our pre-tax income, the amount of our pre-tax income as business activities fluctuate, research and development credits as a percentage of aggregate pre-tax income, the tax effects of employee stock activity and the effectiveness of our tax planning strategies.

Years Ended December 31, 2012 and 2011

Revenues	2012	2011	$ Change	% Change
(In thousands, except for percentages)				
Design-to-silicon-yield solutions	$59,061	$51,633	$7,428	14 %

Gainshare performance incentives	30,479	15,079	15,400	102	
Total	$89,540	$66,712	$22,828	34	%

Design-to-silicon-yield solutions. Design-to-silicon-yield solutions revenue increased $7.4 million for the year ended December 31, 2012 compared to the year ended December 31, 2011, primarily due to an increase in fixed fee integrated solutions, the result of more billable hours to revenue-generating projects in the period due to increased business activity.

Gainshare Performance Incentives. Gainshare revenue derived from Gainshare performance incentives increased $15.4 million for the year ended December 31, 2012 compared to the year ended December 31, 2011. The increase was primarily the result of a higher number of projects reaching performance measures for achieving Gainshare combined with higher wafer volumes at customers' manufacturing facilities.

Cost of Design-to-silicon-yield solutions	**2012**	**2011**	**$ Change**	**% Change**	
(In thousands, except for percentages)					
Direct costs of Design-to-silicon-yield solutions	$36,236	$29,416	$6,820	23	%
Amortization of acquired technology	261	626	(365)	(58)	)
Total	$36,497	$30,042	$6,455	21	%

Costs of Design-to-silicon-yield solutions.

Direct Costs of Design-to-silicon-yield solutions. Direct costs of Design-to-silicon-yield solutions increased $6.8 million for the year ended December 31, 2012 compared to the year ended December 31, 2011. The increase was primarily due to $3.2 million in personnel expense for additional headcount needed to support the growth in revenue-generating engagements and $3.2 million in variable compensation recorded in connection with increased profitability in the year ended December 31, 2012, and also as a result of increases of $0.7 million in travel expense and $0.5 million in outside services related to increased project activity. The total increase was only slightly offset by decreases of $0.5 million in equipment cost and $0.3 million in third-party software royalty expense.

Amortization of Acquired Technology. Amortization of acquired technology decreased $0.4 million for the year ended December 31, 2012 compared to the year ended December 31, 2011, primarily due to certain intangible assets becoming fully amortized. All acquired technology intangible assets were fully amortized as of December 31, 2012.

Research and Development	**2012**	**2011**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Research and Development	$13,251	$13,972	(721)	(5)%

Research and Development. Research and development expenses decreased $0.7 million for the year ended December 31, 2012 compared to the year ended December 31, 2011, primarily due to the decrease in outside services.

Selling, General and Administrative	**2012**	**2011**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Selling, general and administrative	$18,599	$18,358	241	1 %

Selling, General and Administrative. Selling, general and administrative expenses increased $0.2 million for the year ended December 31, 2012 compared to the year ended December 31, 2011, primarily due to an increase of $0.9 million in personnel-related expense as a result of higher variable compensation, an increase of $0.4 million in stock-based compensation expense, which was mainly due to the impact of awards granted to our non-employee directors and an increase of $0.2 million in travel expense, offset by a decrease of $0.8 million in accounting and legal services, a decrease of $0.3 million in allocated facility expense and a decrease of $0.1 million in recruiting expense.

Amortization of Other Acquired Intangible Assets	**2012**	**2011**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Amortization of other acquired intangible assets	$174	$204	(30)	(15)%

Amortization of Other Acquired Intangible Assets. Amortization of other acquired intangible assets for the year ended December 31, 2012 decreased $30,000 compared to the year ended December 31, 2011, primarily the result of certain intangible assets becoming fully amortized.

Restructuring Charges (Credits)	**2012**	**2011**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Restructuring charges (credits)	$1,889	$(110)	1,999	1,817 %

Restructuring Charges (Credits). Restructuring charges (credits) for the year ended December 31, 2012 increased $2.0 million compared to the year ended December 31, 2011. Restructuring charges for the year ended December 31, 2012 is primarily related to the restructuring plan announced on October 24, 2012 as part of the Company's efforts to simplify the organization, leverage cross-training and learning, and reduce annual operations expenses. Restructuring credits for the year ended December 31, 2011 is primarily due to the sublease of certain previously restructured facilities that occurred earlier than previously estimated.

Interest and Other Income (Expense), Net	**2012**	**2011**	**$ Change**	**% Change**
(In thousands, except for percentages)				
Interest and other income (expense), net	$(248)	$ 73	(321)	(440)%

Interest and Other Income (Expense), Net. For the year ended December 31, 2012, we recorded interest and other expense, net of $0.2 million as compared to interest and other income, net of $73,000 for the year ended December 31, 2011. The interest and other income (expense), net for the year ended December 31, 2012 and 2011 was primarily related to gains (losses) related to the EURO to U.S. Dollar exchange rate.

Income Tax Provision (benefit)	2012	2011	$ Change	% Change
(In thousands, except for percentages)				
Income tax provision (benefit)	$(18,329)	$2,439	(20,768)	(851)%

Income Tax Provision (benefit). The change in income tax provision (benefit) to $18.3 million of income tax benefit from $2.4 million of income tax expense was primarily due to the release of deferred tax asset valuation allowance of $19.9 million and $0.5 million of foreign withholding tax refund benefits recognized during the year. Income tax provision for the years ended December 31, 2011 and 2010 primarily consisted of foreign withholding taxes, statutory taxes associated with our foreign subsidiaries and changes in unrecognized tax benefits.

Liquidity and Capital Resources

Operating Activities

Cash flows provided by operating activities was $25.4 million for the year ended December 31, 2013. This resulted from net income of $20.9 million, non-cash charges of $12.4 million, partially offset by the cash decrease of $7.9 million reflected in the net change of operating assets and liabilities. Non-cash charges consisted primarily of stock-based compensation of $6.7 million, deferred taxes of $5.5 million, depreciation of $1.4 million and amortization of acquired intangible assets of $0.1 million, tax benefit related to stock-based compensation plan of $0.4 million, partially offset by treasury stock withheld by the Company in the amount $1.3 million for employee income tax withholding due upon vesting of restricted stock units in the period and excess tax benefit from stock-based compensation of $0.4 million. Cash flow decreases resulting from the net change in operating assets and liabilities was primarily the result of decreases of $3.2 million in accrued compensation and related benefits (primarily driven by the decrease in variable compensation), $1.1 million in deferred revenue, $0.9 million in accrued and other liabilities, $0.6 million in accounts payable, and $0.5 million in billings in excess of recognized revenue, offset by increases of $1.0 million in prepaid expense and other assets, and $0.6 million in accounts receivable. The $2.2 million combined cash flow decrease resulting from the increase in accounts receivable and decrease in billings in excess of recognized revenues and deferred revenue was primarily due to the timing of billing milestones and payments received.

Cash flows provided by operating activities was $14.8 million for the year ended December 31, 2012. This resulted from net income of $37.2 million, partially offset by non-cash charges of $14.5 million and the cash decrease of $8.0 million reflected in the net change of operating assets and liabilities. Non-cash charges consisted primarily of deferred taxes of $20.1 million driven by the reversal of valuation allowance, treasury stock in the amount of $0.5 million withheld by the Company for employee income tax withholding due upon vesting of restricted stock units in the period, partially offset by stock-based compensation of $4.9 million, amortization of acquired intangible assets of $0.4 million and depreciation of $0.5 million. Cash flow decreases resulting from the net change in operating assets and liabilities was primarily the result of increases of $12.2 million in accounts receivable, $1.3 million in prepaid

expense and other assets, and a decrease of $1.3 million in billings in excess of recognized revenue, all partially offset by increases of $5.7 million in accrued compensation and related benefits (primarily driven by the increase in variable compensation), $0.7 million in accounts payable and a $0.4 million in deferred revenue. The $13.1 million combined cash flow decrease resulted from the increases in deferred revenue and accounts receivable and decrease in billings in excess of recognized revenues was primarily due to the timing of billing milestones and payments received.

Investing Activities

Cash flows used in investing activities of $4.6 million for the year ended December 31, 2013 consisted of payments for capital expenditures. Cash flows used in investing activities of $1.3 million for the year ended December 31, 2012 consisted of $2.3 million payments for capital expenditures, offset by $1.0 million of proceeds from the sale of investments.

Financing Activities

Cash flows provided by financing activities of $7.0 million for the year ended December 31, 2013 consisted of $5.3 million of proceeds from the exercise of stock options, $1.3 million of proceeds from our Employee Stock Purchase Plan and excess tax benefit from stock-based compensation of $0.4 million.

Cash flows provided by financing activities of $2.3 million for the year ended December 31, 2012 consisted primarily of $5.6 million of proceeds from the exercise of stock options, $1.0 million of proceeds from our Employee Stock Purchase Plan and excess tax benefit from stock-based compensation of $0.1 million, offset by repurchases of 425,000 shares of our common stock for $4.4 million on the open market during the period.

Liquidity

As of December 31, 2013, our working capital, defined as total current assets less total current liabilities, was $120.9 million, compared to $82.9 million as of December 31, 2012. Cash and cash equivalents were $89.4 million as of December 31, 2013, compared to $61.6 million as of December 31, 2012. As of both December 31, 2013 and 2012, cash and cash equivalents held by our foreign subsidiaries were $2.0 million. We anticipate that our overall expenses, as well as planned capital expenditures, may constitute a material use of our cash resources. In addition, we may use cash resources to continue to fund our R&D efforts, repurchase common stock or fund potential investments in, or acquisitions of complementary products, technologies or businesses or acquire new office space for our headquarters. We believe that our existing cash resources and anticipated funds from operations will satisfy our cash requirements to fund our operating activities, capital expenditures and other obligations for at least the next twelve months.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements, investments in special purpose entities or undisclosed borrowings or debt.

Contractual Obligations

The following table summarizes our known contractual obligations (in thousands):

	Payments Due by Period					
Contractual Obligations	**2014**	**2015**	**2016**	**2017**	**2018**	**Total**
Operating lease obligations	1,713	1,628	1,632	1,350	735	7,058
Purchase obligations(1)	1,786	7	—	—	—	1,793
Total(2)	$ 3,499	$ 1,635	$ 1,632	1,350	735	$ 8,851

(1) Purchase obligations consist of agreements to purchase goods and services entered in the ordinary course of business.

(2) The contractual obligation table above excludes liabilities for uncertain tax positions of $3.0 million, which are not practicable to assign to any particular years, due to the inherent uncertainty of the tax positions. See Note 9 of

"Notes to Consolidated Financial Statements" for further discussion.

Operating lease amounts include minimum rental payments under our operating leases for our office facilities, as well as computers, office equipment, and vehicles that we utilize under lease agreements. These agreements expire at various dates through 2018.

We indemnify certain customers from third-party claims of intellectual property infringement relating to the use of our products. Historically, costs related to these guarantees of indemnification have not been significant. We are unable to estimate the maximum potential impact of these guarantees on our future results of operations.

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

The following discusses our exposure to market risk related to changes in interest rates and foreign currency exchange rates. We do not currently own any equity investments, nor do we expect to own any in the foreseeable future. This discussion contains forward-looking statements that are subject to risks and uncertainties. Actual results could vary materially as a result of a number of factors.

Interest Rate Risk. As of December 31, 2013, we had cash and cash equivalents of $89.4 million. Cash and cash equivalents consisted of cash and highly liquid money market instruments. We would not expect our operating results or cash flows to be affected to any significant degree by the effect of a sudden change in market interest on our portfolio. A hypothetical increase in market interest rates of 100 basis points from the market rates in effect at December 31, 2013 would cause the fair value of these investments to decrease by an immaterial amount which would not have significantly impacted our financial position or results of operations. Declines in interest rates over time will result in lower interest income and interest expense.

Foreign Currency and Exchange Risk. Certain of our payables for our international offices are denominated in the local currency, including the Euro, Yen and RMB. Therefore, a portion of our operating expenditures is subject to foreign currency risks. We enter into foreign currency forward contracts to reduce the exposure to foreign currency exchange rate fluctuations on certain foreign currency denominated monetary assets and liabilities. We do not use foreign currency forward contracts for speculative or trading purposes. We record these forward contracts at fair value. The counterparty to these foreign currency forward contracts is a large global financial institution that we believe is creditworthy, and therefore, we believe the credit risk of counterparty non-performance is not significant. The change in fair value of these contracts is recorded into earnings as a component of other income (expense), net and offsets the change in fair value of foreign currency denominated monetary assets and liabilities, which is also recorded in other income (expense), net. On December 31, 2013, we entered into a forward contract to buy EUR 5.5 million at 1.3807. As of December 31, 2013, the notional amount of this outstanding forward contract was $7.6 million. The foreign currency exchange rate movement of plus-or-minus 10% will result in the change in fair value of this contract of plus-or-minus $0.8 million.

Item 8. ***Financial Statements and Supplementary Data***

The consolidated financial statements and supplementary data required by this Item 8 are listed in Item 15(a)(1) of this 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

Our management, with the participation of our principal executive officer and principal financial and accounting officer, evaluated the effectiveness of our "disclosure controls and procedures" as defined in Exchange Act Rules 13a-15(e) and 15d-15(e) as of December 31, 2013 in connection with the filing of this Annual Report on Form 10-K. Based on that evaluation as of December 31, 2013, our principal executive officer and principal financial and accounting officer concluded that our disclosure controls and procedures were effective to ensure that information

we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in rules and forms of the SEC and accumulated and communicated to our management 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 defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, for the Company. Our management, with the participation of our principal executive officer and principal financial and accounting officer, assessed the effectiveness of our internal control over financial reporting as of December 31, 2013. This evaluation was based on the framework established in *Internal Control—Integrated Framework (1992)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on our assessment under the COSO framework, our management concluded that our internal control over financial reporting was effective as of December 31, 2013.

Our management’s assessment of the effectiveness of our internal control over financial reporting as of December 31, 2013 has been audited by PricewaterhouseCoopers LLP, the Company's independent registered public accounting firm, as stated in their report which appears in this Annual Report on Form 10-K.

Changes in Internal Control over Financial Reporting

There were no changes in internal control over financial reporting during the fourth quarter ended December 31, 2013, which has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. ***Other Information.***

None.

PART III

Pursuant to Paragraph (3) of the General Instructions to Form 10-K, certain of the information required by Part III of this Form 10-K is incorporated by reference from our Proxy Statement as set forth below. The Proxy Statement is expected to be filed within 120 days of December 31, 2013.

Item 10. ***Directors, Executive Officers and Corporate Governance.***

Information with respect to our directors appears in our Proxy Statement under “Proposal No. 1 — Election of Directors — Nominees for the Board of Directors” and is incorporated herein by reference. Information with respect to our executive officers appears in Part I, Item 1 — “Executive Officers” of this Form 10-K.

Information with respect to compliance with Section 16(a) of the Exchange Act, appears in our Proxy Statement under “Section 16 Beneficial Ownership Reporting Compliance” and is incorporated herein by reference.

Our Board of Directors has adopted a Code of Ethics (“Code of Ethics”) which is applicable to our principal executive officer, our principal financial officer and employees of the Company. Our Code of Ethics is available on our website at www.pdf.com, on the investor relations page. The Company's website address provided is not intended to function as a hyperlink, and the information on the Company's website is not, and should not be considered, part of this Annual Report on Form 10-K and is not incorporated by reference herein. You may also request a copy of our Code of Ethics in writing by sending your request to PDF Solutions, Inc., Attention: Investor Relations, 333 West San Carlos Street, Suite 1000, San Jose, California 95110. If we make any substantive amendments to the Code of Ethics or grant any waiver, including any implicit waiver, from a provision of the Code of Ethics to our Chief Executive Officer or Chief Financial Officer, we will disclose the nature of such amendment or waiver on our website or in a current report on Form 8-K.

Item 11. ***Executive Compensation.***

The information required by this item is incorporated herein by reference to the section entitled “Compensation of Executive Officers and Other Matters — Executive Compensation” in our Proxy Statement.

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

The information required by this item is incorporated herein by reference to the section entitled “Security Ownership of Certain Beneficial Owners and Management” in our Proxy Statement. Also incorporated by reference is the information in the table under the heading "Equity Compensation Plan Information" in our Proxy Statement.

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

The information required by this item is incorporated herein by reference to the section entitled “Certain Relationships and Related Transactions and Directors Independence” in our Proxy Statement.

Item 14. ***Principal Accountant Fees and Services.***

Information with respect to Principal Accountant Fees and Services is incorporated by reference from our Proxy Statement.

PART IV

Item 15. ***Exhibits and Financial Statement Schedules.***

(a) The following documents are filed as part of this report:

(1) Consolidated Financial Statements and Reports of Independent Registered Public Accounting Firms

See Index to Consolidated Financial Statements.

See the Report of Independent Registered Public Accounting Firm.

PDF SOLUTIONS, INC.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of PDF Solutions, Inc.

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations and comprehensive income, stockholders' equity, and cash flows present fairly, in all material respects, the financial position of PDF Solutions, Inc. and its subsidiaries at December 31, 2013 and 2012, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2013 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2013, based on criteria established in *Internal Control - Integrated Framework (1992)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements and on the Company's internal control over financial reporting based on our integrated 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 audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) 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 (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the 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.

/s/ PricewaterhouseCoopers LLP

San Jose, California

March 13, 2014

PDF SOLUTIONS, INC.

CONSOLIDATED BALANCE SHEETS

	December 31,	
	2013	2012
	(In thousands, except par values)	
ASSETS		
Current assets:		
Cash and cash equivalents	$89,371	$61,637
Accounts receivable, net of allowances of $354 and $351, respectively	34,860	33,959
Deferred tax assets - current portion	5,920	3,589
Prepaid expenses and other current assets	3,632	3,413
Total current assets	133,783	102,598
Property and equipment, net	7,064	3,898
Intangible assets, net	31	104
Deferred tax assets - long-term portion	8,599	16,471
Other non-current assets	1,687	1,189
Total assets	$151,164	$124,260
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$1,129	$2,054
Accrued compensation and related benefits	7,707	10,723
Accrued and other current liabilities	1,593	2,882
Deferred revenues - current portion	2,096	3,232
Billings in excess of recognized revenues	343	807
Total current liabilities	12,868	19,698
Long-term income taxes payable	2,956	3,222
Other non-current liabilities	628	280
Total liabilities	16,452	23,200
Commitments and contingencies (Note 6)		
Stockholders' equity:		
Preferred stock, $0.00015 par value, 5,000 shares authorized, no shares issued and outstanding	—	—
Common stock, $0.00015 par value, 70,000 shares authorized; shares issued 35,285 and 34,027, respectively; shares outstanding 30,437 and 29,226, respectively	5	4
Additional paid-in capital	233,813	220,361
Treasury stock, at cost, 4,848 and 4,801 shares, respectively	(28,905)	(27,778)
Accumulated deficit	(70,649)	(91,578)
Accumulated other comprehensive income	448	51
Total stockholders' equity	134,712	101,060
Total liabilities and stockholders' equity	$151,164	$124,260

See accompanying notes to consolidated financial statements.

34

PDF SOLUTIONS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME

	Year Ended December 31,		
	2013	2012	2011
	(In thousands, except per share amounts)		
Revenues:			
Design-to-silicon-yield solutions	$61,710	$59,061	$51,633
Gainshare performance incentives	39,743	30,479	15,079
Total revenues	101,453	89,540	66,712
Cost of Design-to-silicon-yield solutions:			
Direct costs of Design-to-silicon-yield solutions	39,470	36,236	29,416
Amortization of acquired technology	—	261	626
Total cost of Design-to-silicon-yield solutions	39,470	36,497	30,042
Gross profit	61,983	53,043	36,670
Operating expenses:			
Research and development	13,314	13,251	13,972
Selling, general and administrative	17,025	18,599	18,358
Amortization of other acquired intangible assets	74	174	204
Restructuring charges (credits)	197	1,889	(110)
Total operating expenses	30,610	33,913	32,424
Income from operations	31,373	19,130	4,246
Interest and other income (expense), net	(64)	(248)	73
Income before taxes	31,309	18,882	4,319
Income tax provision (benefit)	10,380	(18,329)	2,439
Net income	$20,929	$37,211	$1,880
Net income per share			
Basic	$0.70	$1.30	$0.07
Diluted	$0.67	$1.25	$0.07
Weighted average common shares			
Basic	29,826	28,700	28,086
Diluted	31,393	29,809	28,431
Net income	$20,929	$37,211	$1,880
Other comprehensive income:			
Foreign currency translation adjustments, net of tax	397	134	(294)
Reclassification adjustment for other-than-temporary impairment on auction-rate-securities recognized in earnings, net of tax	—	216	—
Unrealized gain on investments, net of tax	—	—	66
Comprehensive income	$21,326	$37,561	$1,652

See accompanying notes to consolidated financial statements.

PDF SOLUTIONS, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Common Stock			Treasury Stock			Accumulated Other	
	Shares	Amount	Additional Paid-In Capital	Shares	Amount	Accumulated Deficit	Comprehensive Income (Loss)	Total
	(In Thousands)							
Balances, January 1, 2011	27,603	$ 4	$ 200,866	3,673	$ (19,298)	$ (130,669)	$ (71)	$ 50,832
Issuance of common stock in connection with employee stock purchase plan	414	-	865	-	-	-	-	865
Issuance of common stock in connection with exercise of options	531	-	2,304	-	-	-	-	2,304
Vesting of restricted stock units	414	-	-	-	-	-	-	-
Purchases of treasury stock in connection with tax withholdings on restricted stock grants	(114)	-	-	114	(652)	-	-	(652)
Purchases of treasury stock	(544)	-	-	544	(2,949)	-	-	(2,949)
Stock-based compensation expense	-	-	4,791	-	-	-	-	4,791
Comprehensive income	-	-	-	-	-	1,880	(228)	1,652
Balances, December 31, 2011	28,304	$ 4	$ 208,826	4,331	$ (22,899)	$ (128,789)	$ (299)	$ 56,843
Issuance of common stock in connection with employee stock purchase plan	201	-	978	-	-	-	-	978
Issuance of common stock in connection with exercise of options	1,019	-	5,528	-	-	-	-	5,528
Vesting of restricted stock units	172	-	-	-	-	-	-	-
Purchases of treasury stock in connection with tax withholdings on restricted stock grants	(45)	-	-	45	(511)	-	-	(511)
Purchases of treasury stock	(425)	-	-	425	(4,368)	-	-	(4,368)
	-	-	4,880	-	-	-	-	4,880

Stock-based compensation expense								
Tax benefit from employee stock plans			149					149
Comprehensive income	-	-	-	-	-	37,211	350	37,561
Balances, December 31, 2012	29,226	$ 4	$ 220,361	4,801	$ (27,778)	$ (91,578)	$ 51	$ 101,060
Issuance of common stock in connection with employee stock purchase plan	184	-	1,317	-	-	-	-	1,317
Issuance of common stock in connection with exercise of options	871	1	5,338	-	-	-	-	5,339
Vesting of restricted stock units	217	-	-	-	-	-	-	-
Purchases of treasury stock in connection with tax withholdings on restricted stock grants	(61)	-	-	61	(1,283)	-	-	(1,283)
Issuance of treasury stock		-	(156)	(14)	156	-	-	-
Stock-based compensation expense	-	-	6,591	-	-	-	-	6,591
Tax benefit from employee stock plans			362					362
Comprehensive income	-	-	-	-	-	20,929	397	21,326
Balances, December 31, 2013	30,437	$ 5	$ 233,813	4,848	$ (28,905)	$ (70,649)	$ 448	$ 134,712

See accompanying notes to consolidated financial statements.

PDF SOLUTIONS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2013	2012	2011
	(In thousands)		
Operating activities:			
Net income	$20,929	$37,211	$1,880
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	1,385	515	459
Stock-based compensation expense	6,693	4,891	4,791
Amortization of acquired intangible assets	74	434	830
Deferred taxes	5,539	(20,060)	21
Purchases of treasury stock in connection with tax withholdings on restricted stock grants	(1,283)	(511)	(652)
Provision for doubtful accounts	3	97	—
Loss on disposal of assets	(7)	45	—
Gain on sale of investments	—	(50)	—
Net impairment of investments	—	75	—
Tax benefit related to stock-based compensation expense	362	149	—
Excess tax benefit from stock-based compensation expense	(353)	(114)	—
Changes in operating assets and liabilities:			
Accounts receivable, net of allowances	(636)	(12,150)	1,268
Prepaid expenses and other assets	(1,053)	(1,250)	(210)
Accounts payable	(566)	722	(367)
Accrued compensation and related benefits	(3,216)	5,669	1,074
Accrued and other liabilities	(913)	13	(1,136)
Deferred revenues	(1,131)	352	(32)
Billings in excess of recognized revenues	(464)	(1,282)	287
Net cash provided by operating activities	25,363	14,756	8,213
Investing activities:			
Proceeds from the sale of investments	—	975	—
Purchases of property and equipment	(4,628)	(2,334)	(405)
Net cash used in investing activities	(4,628)	(1,359)	(405)
Financing activities:			
Exercise of stock options	5,339	5,527	2,304
Proceeds from employee stock purchase plan	1,317	977	865
Purchases of treasury stock	—	(4,368)	(2,949)
Excess tax benefit from stock-based compensation expense	353	114	—
Principal payments on long-term obligations	—	—	(112)
Net cash provided by financing activities	7,009	2,250	108
Effect of exchange rate changes on cash and cash equivalents	(10)	(51)	(29)
Net increase in cash and cash equivalents	27,734	15,596	7,887
Cash and cash equivalents, beginning of year	61,637	46,041	38,154
Cash and cash equivalents, end of year	$89,371	$61,637	$46,041

Supplemental disclosure of cash flow information:			
Cash paid during the year for:			
Taxes	$4,747	$1,665	$2,065
Interest	$—	$—	$7
Property and equipment received and accrued in accounts payable and accrued and other liabilities	$312	$486	$34

See accompanying notes to consolidated financial statements.

PDF SOLUTIONS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Business and Significant Accounting Policies

PDF Solutions, Inc. (the "Company" or "PDF"), provides infrastructure technologies and services to improve yield and optimize performance of integrated circuits. The Company's approach includes manufacturing simulation and analysis, combined with yield improvement methodologies to increase product yield and performance.

Basis of Presentation — The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries after the elimination of all significant intercompany balances and transactions.

Use of Estimates — The preparation of financial statements in conformity with generally accepted accounting principles in the United States ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the 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 in these financial statements include revenue recognition for fixed-price solution implementation service contracts, stock-based compensation expense and accounting for income taxes. Actual results could differ from those estimates.

Concentration of Credit Risk — Financial instruments that potentially expose the Company to concentrations of credit risk consist primarily of cash and cash equivalents and accounts receivable. The Company maintains its cash and cash equivalents with what it considers high credit quality financial institutions.

The Company primarily sells its technologies and services to companies in Asia, Europe and North America within the semiconductor industry. As of December 31, 2013, three customers accounted for 76% of the Company's gross accounts receivable and three customers accounted for 74% of the Company's revenues for 2013. As of December 31, 2012, three customers accounted for 71% of the Company's gross accounts receivable and three customers accounted for 73% of the Company's revenues for 2012. See Note 11 for further details. The Company does not require collateral or other security to support accounts receivable. To reduce credit risk, management performs ongoing credit evaluations of its customers' financial condition. The Company maintains allowances for potential credit losses. The allowance for doubtful accounts, which was based on management's best estimates, could be adjusted in the near term from current estimates depending on actual experience. Such adjustments could be material to the consolidated financial statements.

Cash, Cash Equivalents and Short-term Investments — The Company considers all highly liquid investments with an original maturity of 90 days or less or investments with a remaining maturity of 90 days or less at the time of purchase to be cash equivalents. Investments with maturities greater than three months and less than one year are classified as short-term investments.

Property and Equipment — Property and equipment are stated at cost and are depreciated using the straight-line method over the estimated useful lives of the related asset as follows:

Computer equipment (years)	3
Software (years)	3
Furniture, fixtures, and equipment (years)	5 - 7
Leasehold improvements	Shorter of estimated useful life or term of lease

Long-lived Assets — The Company's long-lived assets, excluding goodwill, consist of property and equipment and other acquired intangibles. The Company periodically reviews its long-lived assets for impairment. For assets to be held and used, the Company initiates its review whenever events or changes in circumstances indicate that the carrying amount of a long-lived asset group may not be recoverable. Recoverability of an asset group is measured by comparison of its carrying amount to the expected future undiscounted cash flows that the asset group is expected to generate. If it is determined that an asset group is not recoverable, an impairment loss is recorded in the amount by which the carrying amount of the asset group exceeds its fair value.

As discussed in Note 11, the Company considers itself to be in one operating segment. In addition, the Company has determined that its operating segment is also its reporting unit as the operating segment comprises only a single component. To determine the reporting unit's fair value, the Company used the income valuation approach. In determining its overall conclusion of reporting unit's fair value, the Company also considers the estimated value derived from the market valuation approach as compared to the valuation under the income approach as one measure that the estimated fair value is reasonable.

The income approach provides an estimate of fair value based on discounted expected future cash flows. Estimates and assumptions with respect to the determination of the fair value of the Company's reporting unit using the income approach include the Company's operating forecasts, revenue growth rates, and risk-commensurate discount rates and costs of capital. The Company's estimates of revenues and costs are based on historical data, various internal estimates and a variety of external sources, and are developed as part of the Company's routine long-range planning process.

The market approach provides an estimate of the fair value of the Company's reporting unit using various prices or market multiples applied to the reporting unit's operating results and then applying an appropriate control premium, which is determined by considering control premiums offered as part of acquisitions in both the Company's market segment and comparable market segments.

Revenue Recognition — The Company derives revenue from two sources: Design-to-silicon-yield solutions and Gainshare performance incentives.

Design-to-silicon-yield solutions — Revenues that are derived from Design-to-silicon-yield solutions come from services and software licenses. The Company recognizes revenue for each element of Design-to-silicon-yield solutions as follows:

The Company generates a significant portion of its Design-to-silicon-yield solutions revenue from fixed-price solution implementation service contracts delivered over a specific period of time. These contracts require reliable estimation of costs to perform obligations and the overall scope of each engagement. Revenue under project–based contracts for solution implementation services is recognized as services are performed using the cost-to-cost percentage of completion method of contract accounting. Losses on fixed-price solution implementation contracts are recognized in the period when they become probable. Revisions in profit estimates are reflected in the period in which the conditions that require the revisions become known and can be estimated. Revenue under time and materials contracts for solution implementation services are recognized as the services are performed. On occasion, the Company licenses its software products as a component of its fixed-price service contracts. In such instances, the software products are licensed to customers over a specified term of the agreement with support and maintenance to be provided at each customer's option over the license term. The amount of product and service revenue recognized in a given period is affected by the Company's judgment as to whether an arrangement includes multiple deliverables and, if so, the Company's determination of the fair value of each deliverable. In general, vendor-specific objective evidence of selling price ("VSOE") does not exist for the Company's solution implementation services and software products and because the Company's services and products include our unique technology, the Company is not able to determine third-party evidence of selling price ("TPE"). Therefore, in such circumstances the Company uses best estimated selling prices ("BESP") in the allocation of arrangement consideration. In determining BESP, the Company applies significant judgment as the Company's weighs a variety of factors, based on the facts and circumstances of the arrangement. The Company typically arrives at BESP for a product or service that is not sold separately by considering company-specific factors such as geographies, internal costs, gross margin objectives, pricing practices used to establish bundled pricing, and existing portfolio pricing and discounting. After fair value is established for each deliverable, the total transaction amount is allocated to each deliverable based upon its relative fair value. Fees

allocated to solution implementation services are recognized using the cost-to-cost percentage of completion method of contract accounting. Fees allocated to software and related support and maintenance are recognized under software revenue recognition guidance.

The Company also licenses its software products separately from its solution implementations. For software license arrangements that do not require significant modification or customization of the underlying software, software license revenue is recognized under the residual method when (1) persuasive evidence of an arrangement exists, (2) delivery has occurred, (3) the fee is fixed or determinable, (4) collectability is probable, and (5) the arrangement does not require services that are essential to the functionality of the software. When arrangements include multiple elements such as support and maintenance, consulting (other than for its fixed price solution implementations), installation, and training, revenue is allocated to each element of a transaction based upon its fair value as determined by the Company's VSOE and such services are recorded as services revenue. VSOE for maintenance is generally established based upon negotiated renewal rates while VSOE for consulting, installation, and training services is established based upon the Company's customary pricing for such services when sold separately. Revenue for software licenses with extended payment terms is not recognized in excess of amounts due. For software license arrangements that require significant modification or customization of the underlying software, the software license revenue is recognized as services are performed using the cost-to-cost percentage of completion method of contract accounting, and such revenue is recorded as services revenue.

Gainshare Performance Incentives — When the Company enters into a contract to provide yield improvement services, the contract usually includes two components: (1) a fixed fee for performance by the Company of services delivered over a specific period of time; and (2) a Gainshare performance incentive component where the customer may pay a contingent variable fee, usually after the fixed fee period has ended. Revenue derived from Gainshare performance incentives represents profit sharing and performance incentives earned contingent upon the Company's customers reaching certain defined operational levels established in related solution implementation service contracts. Gainshare performance incentives periods are usually subsequent to the delivery of all contractual services and therefore have no cost to the Company. Due to the uncertainties surrounding attainment of such operational levels, the Company recognizes Gainshare performance incentives revenue (to the extent of completion of the related solution implementation contract) upon receipt of performance reports or other related information from the customer supporting the determination of amounts and probability of collection.

Accounts Receivable — Accounts receivable includes amounts that are unbilled at the end of the period. Unbilled accounts receivable are determined on an individual contract basis and were approximately $8.0 million and $7.7 million at December 31, 2013 and 2012, respectively. The Company performs ongoing credit evaluations of its customers' financial condition. An allowance for doubtful accounts is maintained for probable credit losses based upon the Company's assessment of the expected collectability of the accounts receivable. The allowance for doubtful accounts is reviewed on a quarterly basis to assess the adequacy of the allowance.

Allowance for doubtful accounts are summarized below:

	Balance at Beginning of Period	**Charged to Costs and Expenses**	**Deductions/ Write-offs of Accounts**	**Balance at End of Period**
Allowance for doubtful accounts				
2013	$ 351	$ 3	$ —	$ 354
2012	$ 254	$ 97	$ —	$ 351
2011	$ 254	$ —	$ —	$ 254

Software Development Costs — Costs for the development of new software products and substantial enhancements to existing software products are expensed as incurred until technological feasibility has been established, at which time any additional costs would be capitalized. Because the Company believes its current process for developing software is essentially completed concurrently with the establishment of technological feasibility, no costs have been capitalized to date.

Research and Development — Research and development expenses are charged to operations as incurred.

Stock-Based Compensation — Stock-based compensation is estimated at the grant date based on the award's fair value and is recognized on a straight-line basis over the vesting periods, generally four years. As stock-based compensation expense recognized is based on awards ultimately expected to vest, it has been reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The Company has elected to use the Black-Scholes-Merton option-pricing model, which incorporates various assumptions including volatility, expected life and interest rates. The expected volatility is based on the historical volatility of the Company's common stock over the most recent period commensurate with the estimated expected life of the Company's stock options. The expected life of an award is based on historical experience and on the terms and conditions of the stock awards granted to employees. The interest rate assumption is based upon

observed Treasury yield curve rates appropriate for the expected life of the Company’s stock options.

Income Taxes – The Company's provision for income tax comprises its current tax liability and change in deferred tax assets and liabilities. Deferred tax assets and liabilities are recognized for the expected tax consequences of temporary differences between the tax bases of assets and liabilities. The measurement of current and deferred tax assets and liabilities is based on provisions of enacted tax laws; the effect of future changes in tax laws or rates are not anticipated. Valuation allowances are provided to reduce deferred tax assets to an amount that in management’s judgment is more likely than not to be recoverable against future taxable income. No U.S. taxes are provided on earnings of non-U.S. subsidiaries, to the extent such earnings are deemed to be permanently invested. The Company's income tax calculations are based on application of the respective U.S. federal, state or foreign tax laws. The Company’s tax filings, however, are subject to audit by the respective tax authorities. Accordingly, the Company recognizes tax liabilities based upon its estimate of whether, and the extent to which, additional taxes will be due when such estimates are more-likely-than-not to be sustained. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained. To the extent the final tax liabilities are different than the amounts originally accrued, the increases or decreases are recorded as income tax expense or benefit in the consolidated statements of operations.

Net Income Per Share – Basic net income per share is computed by dividing net income by weighted average number of common shares outstanding for the period (excluding outstanding stock options and shares subject to repurchase). Diluted net income per share is computed using the weighted-average number of common shares outstanding for the period plus the potential effect of dilutive securities which are convertible into common shares (using the treasury stock method), except in cases in which the effect would be anti-dilutive. Dilutive potential common shares consist of incremental common shares issuable upon exercise of stock options, upon vesting of restricted stock units, contingently issuable shares for all periods and assumed issuance of shares under employee stock purchase plan. No dilutive potential common shares are included in the computation of any diluted per share amount when a loss from continuing operations was reported by the Company.

Foreign Currency Translation — The functional currency of the Company's foreign subsidiaries is the local currency for the respective subsidiary. The assets and liabilities are translated at the period-end exchange rate, and statements of operations are translated at the average exchange rate during the year. Gains and losses resulting from foreign currency translations are included as a component of other comprehensive income (loss). Gains and losses resulting from foreign currency transactions are included in the consolidated statement of operations.

Derivative Financial Instruments — The Company operates internationally and is exposed to potentially adverse movements in foreign currency exchange rates. The Company enters into foreign currency forwards contracts to reduce the exposure to foreign currency exchange rate fluctuations on certain foreign currency denominated monetary assets and liabilities. The Company does not use foreign currency contracts for speculative or trading purposes. The Company records these forward contracts at fair value. The counterparty to these foreign currency forward contracts is a large global financial institution that the Company believes is creditworthy, and therefore, we believe the credit risk of counterparty non-performance is not significant. These foreign currency forward contracts are not designated for hedge accounting treatment. Therefore, the change in fair value of these derivatives is recorded into earnings as a component of other income (expense), net and offsets the change in fair value of the foreign currency denominated monetary assets and liabilities, which are also recorded in other income (expense), net. The duration of these forward contracts is usually between two to three months.

Litigation — The Company is involved in certain legal proceedings. The Company records the estimated liability in its consolidated financial statements if the Company believes that a loss arising from such matters is probable and can be reasonably estimated. If only a range of estimated losses can be determined, the Company records an amount within the range that, in its judgment, reflects the most likely outcome; if none of the estimates within that range is a better estimate than any other amount, the Company records the low end of the range. Any such accrual would be charged to expense in the appropriate period. The Company recognizes litigation expenses in the period in which the litigation services were provided.

Recent Accounting Pronouncements —

In July 2013, the Financial Accounting Standards Board ("FASB") amended its guidance related to the presentation of unrecognized tax benefits. The standard provides that an unrecognized tax benefit, or a portion of an unrecognized tax benefit, should be presented in the financial statements as a reduction to a deferred tax asset for a net operating loss carryforward, a similar tax loss, or a tax credit carryforward, except as follows. To the extent a net operating loss carryforward, a similar tax loss, or a tax credit carryforward is not available at the reporting date under the tax law of the applicable jurisdiction to settle any additional income taxes that would result from the disallowance of a tax position or the tax law of the applicable jurisdiction does not require the entity to use, and the entity does not intend to use, the deferred tax asset for such purpose, the unrecognized tax benefit should be presented in the financial statements as a liability and should not be combined with deferred tax assets. This guidance is effective for annual reporting periods beginning on or after December 15, 2013, and interim periods within those annual periods. The guidance is to be applied prospectively to all unrecognized tax benefits that exist at the effective date. Retrospective application is permitted. The Company is currently assessing the impacts of this guidance.

In December 2011, the FASB amended its guidance related to the disclosures about offsetting assets and liabilities. The standard requires the Company to disclose information about offsetting and related arrangements to enable users of its financial statements to understand the effect of those arrangements on its financial position. The guidance is effective for annual reporting periods beginning on or after January 1, 2013, and interim periods within those annual periods. The disclosures are to be applied retrospectively for all comparative periods presented. The adoption of this guidance did not have a material impact on the Company's consolidated financial statements as it is disclosure-only in nature.

2. Property and Equipment

Property and equipment consist of (in thousands):

	December 31,	
	2013	**2012**
Computer equipment	$9,969	$10,319
Software	3,441	3,552
Furniture, fixtures, and equipment	734	971
Leasehold improvements	1,052	1,021
Test equipment	4,928	2,005
Construction-in-progress	1,421	864
	21,545	18,732
Accumulated depreciation and amortization	(14,481)	(14,834)
	$7,064	$3,898

Depreciation and amortization expense for years ended December 31, 2013, 2012 and 2011 was $1.4 million, $0.5 million and $0.5 million, respectively.

3. Intangible Assets

The following tables provide information relating to the intangible assets contained within the Company's consolidated balance sheet as of December 31, 2013 and 2012 (in thousands):

	December 31, 2013		
	Amortization Period (Years)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Acquired identifiable intangibles:				
Acquired technology	4 - 5	$11,800	$ (11,800)	$ —
Brand name	4	510	(510)	—
Customer relationships and backlog	1 - 6	3,420	(3,420)	—
Patents and applications	7	1,400	(1,369)	31
Other acquired intangibles	4	255	(255)	—
Total		$17,385	$ (17,354)	$ 31

	December 31, 2012		
	Amortization Period (Years)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Acquired identifiable intangibles:				
Acquired technology	4 - 5	$11,800	$ (11,800)	$ —
Brand name	4	510	(510)	—
Customer relationships and backlog	1 - 6	3,420	(3,420)	—
Patents and applications	7	1,400	(1,296)	104
Other acquired intangibles	4	255	(255)	—
Total		$17,385	$ (17,281)	$ 104

Intangible asset amortization expense for the years ended December 31, 2013, 2012 and 2011 was $0.1 million, $0.4 million and $0.8 million, respectively. The Company expects the annual amortization of its existing intangible assets to be $31,000 in 2014.

Intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset or asset group may not be recoverable. During the years ended December 31, 2013, 2012 and 2011, there were no indicators of impairment related to the Company's intangible assets.

4. Accrued and Other Current Liabilities

Accrued and other current liabilities consist of (in thousands):

	December 31,	
	2013	**2012**
Current portion of accrued restructuring	$13	$1,344
Other current liabilities	1,580	1,538
Total accrued and other current liabilities	$1,593	$2,882

5. Other Non-Current Liabilities

Other non-current liabilities consist of (in thousands):

	December 31,	
	2013	**2012**
Non-current portion of deferred rent	$384	$41
Non-current portion of deferred revenues	244	239
Total other non-current liabilities	$628	$280

6. Commitments and Contingencies

Leases — The Company leases administrative and sales offices and certain equipment under noncancelable operating leases, which contain various renewal options and, in some cases, require payment of common area costs, taxes and utilities. These operating leases expire at various times through 2018. Rent expense was $2.0 million, $2.2 million and $2.4 million in 2013, 2012 and 2011, respectively.

Future minimum lease payments under noncancelable operating leases at December 31, 2013 are as follows (in thousands):

Year Ending December 31,	
2014	$1,713
2015	1,628
2016	1,632
2017	1,350
2018	735
Total future minimum lease payments	$7,058

Indemnifications — The Company generally provides a warranty to its customers that its software will perform substantially in accordance with documented specifications typically for a period of 90 days following delivery of its products. The Company also indemnifies certain customers from third-party claims of intellectual property infringement relating to the use of its products. Historically, costs related to these guarantees have not been significant. The Company is unable to estimate the maximum potential impact of these guarantees on its future results of operations.

Purchase obligations — The Company has purchase obligations with certain suppliers for the purchase of goods and services entered in the ordinary course of business. As of December 31, 2013, total outstanding purchase obligations were $1.8 million which are primarily due within the next 12 months.

Indemnification of Officers and Directors — As permitted by the Delaware general corporation law, the Company has included a provision in its certificate of incorporation to eliminate the personal liability of its officers and directors for monetary damages for breach or alleged breach of their fiduciary duties as officers or directors, other than in cases of fraud or other willful misconduct.

In addition, the Bylaws of the Company provide that the Company is required to indemnify its officers and directors even when indemnification would otherwise be discretionary, and the Company is required to advance expenses to its officers and directors as incurred in connection with proceedings against them for which they may be indemnified. The Company has entered into indemnification agreements with its officers and directors containing provisions that are in some respects broader than the specific indemnification provisions contained in the Delaware general corporation law. The indemnification agreements require the Company to indemnify its officers and directors against liabilities that may arise by reason of their status or service as officers and directors other than for liabilities arising from willful misconduct of a culpable nature, to advance their expenses incurred as a result of any proceeding against them as to which they could be indemnified, and to obtain directors' and officers' insurance if available on reasonable terms. The Company has obtained directors' and officers' liability insurance in amounts comparable to other companies of the Company's size and in the Company's industry. Since a maximum obligation of the Company is not explicitly stated in the Company's Bylaws or in its indemnification agreements and will depend on the facts and circumstances that arise out of any future claims, the overall maximum amount of the obligations cannot be reasonably estimated.

Litigation — From time to time, the Company is subject to various claims and legal proceedings that arise in the ordinary course of business. The Company accrues for losses related to litigation when a potential loss is probable and the loss can be reasonably estimated in accordance with FASB requirements. With respect to the matter below, the Company determined a potential loss was not probable at December 31, 2013 and, accordingly, no amount was accrued at such time.

Philip Steven Melman filed a complaint against the Company and the Company's Chief Executive Officer on December 7, 2009 in the Superior Court for Santa Clara County, California. In the complaint, Mr. Melman alleged wrongful discharge based on discrimination, fraud, breach of contract and similar theories, in connection with the termination of Mr. Melman's employment with the Company. The complaint sought compensatory and punitive damages, any other available remedies, as well as attorney's fees and costs. Summary judgment in the favor of both the Company and Dr. Kibarian was entered by the court on October 27, 2011 and November 15, 2011, respectively. Mr. Melman appealed both orders in the Sixth District Court of Appeal in Santa Clara County, California. On March 22, 2013, the Court released its opinion affirming in full the grant of summary judgment in favor of the Company and Dr. Kibarian, which decision became final on April 22, 2013.

7. Stockholders' Equity

Stock-based compensation expenses related to the Company's employee stock purchase plan and stock plans were allocated as follows (in thousands):

	Years Ended December 31,		
	2013	2012	2011
Cost of Design-to-silicon-yield solutions	$2,736	$1,786	$1,923
Research and development	1,583	1,083	1,197
Selling, general and administrative	2,374	2,022	1,671
Stock-based compensation expense	$6,693	$4,891	$4,791

The stock-based compensation expense for the year ended December 31, 2013 and 2012 in the table above includes expense related to cash-settled stock appreciation rights ("SARs") granted to certain employees in 2012 which totaled $102,000 and $11,000, respectively. The Company accounted for these awards as a liability and the amount was included in accrued compensation and related benefits.

Stock-based compensation is estimated at the grant date based on the award's fair value and is recognized on a straight-line basis over the vesting periods, generally four years. As stock-based compensation expense recognized is based on awards ultimately expected to vest, it has been reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

The Company has elected to use the Black-Scholes-Merton option-pricing model, which incorporates various assumptions including volatility, expected life and interest rates. The expected volatility is based on the historical volatility of the Company's common stock over the most recent period commensurate with the estimated expected life of the Company's stock options. The expected life of an award is based on historical experience and on the terms and conditions of the stock awards granted to employees. The interest rate assumption is based upon observed Treasury yield curve rates appropriate for the expected life of the Company's stock options.

The fair value of equity awards granted was estimated on the date of grant with the following weighted average assumptions:

	Stock Plans			Employee Stock Purchase Plan		
	2013	2012	2011	2013	2012	2011
Expected life (in years)	4.8	4.8	4.9	1.25	1.25	1.25
Volatility	54.1%	59.2%	61.1%	45.3%	51.6%	57.7%
Risk-free interest rate	1.03%	0.77%	1.52%	0.19%	0.18%	0.46%
Expected dividend	—	—	—	—	—	—

On December 31, 2013, the Company had in effect the following stock-based compensation plans:

Stock Plans — At the annual meeting of stockholders on November 16, 2011, the Company's stockholders approved the 2011 Stock Incentive Plan , which was amended and restated at the 2013 annual meeting of stockholders on May 28, 2013, when the Company's stockholders approved the First Amended and Restated 2011 Stock Incentive Plan (as amended, the "2011 Plan"). Under the 2011 Plan, the Company may award stock options, stock appreciation rights, stock grants or stock units covering shares of the Company's common stock to employees, directors, non-employee directors and contractors. The aggregate number of shares reserved for awards under this plan is 4,800,000 shares, plus up to 3,500,000 shares previously issued under the 2001 Plan that are forfeited or repurchased by the Company or shares subject to awards previously issued under the 2001 Plan that expire or that terminate without having been exercised or settled in full on or after November 16, 2011. In case of awards other than options or stock appreciation rights, the aggregate number of shares reserved under the plan will be decreased at a rate of 1.33 shares issued pursuant to such awards. The exercise price for stock options must generally be at prices no less than the fair market value at the date of grant. Stock options generally expire ten years from the date of grant and become vested and exercisable over a four-year period.

In 2001, the Company adopted a 2001 Stock Plan (the "2001 Plan"). In 2003, in connection with its acquisition of IDS Systems Inc., the Company assumed IDS' 2001 Stock Option / Stock Issuance Plan (the "IDS Plan"). Both of the 2001 and the IDS Plans expired in 2011. Stock options granted under the 2001 and IDS Plans generally expire ten years from the date of grant and become vested and exercisable over a four-year period. Although no new awards may be granted under the 2001 or IDS Plans, awards made under the 2001 and IDS Plans that are currently outstanding remain subject to the terms of each such plan.

As of December 31, 2013, 5.2 million shares of common stock were reserved to cover stock-based awards under the 2011 Plan, of which 2.8 million shares were available for future grant. The number of shares reserved and available under the 2011 Plan includes 0.4 million shares that were subject to awards previously made under the 2001 Plan and were forfeited, expired or repurchased by the Company after adoption of the 2011 Plan through December 31, 2013. As of December 31, 2013, there were no outstanding awards that had been granted outside of the 2011, 2001 or the IDS Plans (collectively, the "Stock Plans").

Additional information with respect to options under the Plans is as follows:

	Outstanding Options			
	Number of Options (in thousands)	Weighted Average Exercise Price per Share	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (in thousands)
Outstanding, January 1, 2011	3,453	5.60		
Granted (weighted average fair value of $3.15 per share)	1,165	6.09		
Exercised	(531)	4.33		
Canceled	(162)	4.59		
Expired	(53)	9.02		
Outstanding, December 31, 2011	3,872	5.91		
Granted (weighted average fair value of $4.38 per share)	1,216	8.80		
Exercised	(1,019)	5.42		
Canceled	(216)	6.34		
Expired	(43)	9.78		
Outstanding, December 31, 2012	3,810	6.91		
Granted (weighted average fair value of $7.75 per share)	77	17.12		
Exercised	(871)	6.13		
Canceled	(114)	8.76		
Expired	(22)	5.98		
Outstanding, December 31, 2013	2,880	7.35	6.57	$ 52,613
Vested and expected to vest, December 31, 2013	2,805	7.31	6.52	$ 51,352
Exercisable, December 31, 2013	1,838	6.79	5.70	$ 34,615

The aggregate intrinsic value in the table above represents the total intrinsic value based on the Company's closing stock price of $25.62 as of December 31, 2013, which would have been received by the option holders had all option holders exercised their options as of that date. The total intrinsic value of options exercised during the year ended December 31, 2013, 2012 and 2011 was $11.9 million, $5.8 million and $0.6 million.

As of December 31, 2013, there was $4.1 million of total unrecognized compensation cost net of forfeitures related to unvested stock options. That cost is expected to be recognized over a weighted average period of 2.07 years. The total fair value of options vested during the year ended December 31, 2013 was $2.9 million. As of December 31, 2012, there was $6.0 million of total unrecognized compensation cost net of forfeitures related to unvested stock options. That cost is expected to be recognized over a weighted average period of 2.76 years. The total fair value of options vested during the year ended December 31, 2012 was $2.7 million.

Nonvested shares (restricted stock units) were as follows:

	Shares (in thousands)	Weighted-Average Grant-Date Fair Value
Nonvested, January 1, 2011	453	7.29
Granted	292	6.18
Vested	(414)	6.12
Forfeited	(28)	6.89
Nonvested, December 31, 2011	303	7.82
Granted	359	8.97
Vested	(172)	9.87
Forfeited	(40)	7.66
Nonvested, December 31, 2012	450	7.97
Granted	562	18.25
Vested	(217)	11.01
Forfeited	(36)	11.08
Nonvested, December 31, 2013	759	14.44

As of December 31, 2013, there was $9.4 million of total unrecognized compensation cost related to restricted stock rights. That cost is expected to be recognized over a weighted average period of 2.81 years. Restricted stock units do not have rights to dividends prior to vesting.

Employee Stock Purchase Plan — In July 2001, the Company adopted a ten-year Employee Stock Purchase Plan (“Purchase Plan”) under which eligible employees can contribute up to 10% of their compensation, as defined in the Purchase Plan, towards the purchase of shares of PDF common stock at a price of 85% of the lower of the fair market value at the beginning of the offering period or the end of the purchase period. The Purchase Plan consists of twenty-four-month offering periods with four six-month purchase periods in each offering period. Under the Purchase Plan, on January 1 of each year, starting with 2002, the number of shares reserved for issuance will automatically increase by the lesser of (1) 675,000 shares, (2) 2% of the Company’s outstanding common stock on the last day of the immediately preceding year, or (3) the number of shares determined by the board of directors. At the annual meeting of stockholders on May 18, 2010, the Company's stockholders approved an amendment to the Purchase Plan to extend it through May 17, 2020. As of December 31, 2013, 4.5 million shares of the Company’s common stock have been reserved for issuance under the Purchase Plan. During 2013, 2012 and 2011, the number of shares issued were

184,000, 201,000 and 414,000, respectively, at a weighted average price of $7.16, $4.86 and $2.09 per share, respectively. As of December 31, 2013, 1.3 million shares were available for future issuance under the Purchase Plan. The weighted average estimated fair value of shares granted under the Purchase Plan during 2013, 2012 and 2011 was $5.56, $3.00 and $1.64 per share, respectively. For the year ended December 31, 2013, 2012 and 2011, the Purchase Plan compensation expense was $0.6 million, $0.4 million and $0.4 million, respectively. As of December 31, 2013, there was $0.6 million of unrecognized compensation cost related to the Purchase Plan. That cost is expected to be recognized over a weighted average period of 1.2 years.

Stock Repurchase Program — On October 29, 2007, the Board of Directors adopted a program to repurchase up to $10.0 million of the Company's common stock on the open market. The initial program was for three years, but on October 19, 2010, the Board of Directors authorized an extension of, and an increase in, the program and the aggregate amount available to repurchase between October 19, 2010 and October 29, 2012 was reset to $10.0 million of the Company's common stock, meaning a total of $19.3 million was available. The program expired on October 29, 2012, as of which date, 3.8 million shares had been repurchased at the average price of $4.53 per share and a total purchase price of $17.0 million. On November 8, 2012, the Board of Directors adopted a new program to repurchase up to $20.0 million of the Company's common stock on the open market over the next two years. As of December 31, 2013, 36,100 shares had been repurchased at the average price of $13.23 per share under this new program, at a total purchase of $0.5 million, and $19.5 million remained available for future repurchases.

8. Restructuring

The Company implemented restructuring plans during fiscal years 2012 and 2008, and recorded total restructuring charges (credits) of $0.2 million, $1.8 million and $(0.1) million for the year ended on December 31, 2013, 2012 and 2011, respectively. As of December 31, 2013, the remaining restructuring accrual was immaterial and the Company expects to substantially pay out such balance by the end of the first quarter of 2014. This remaining accrual balance was included in accrued and other current liabilities in the accompanying consolidated balance sheets.

October 2012 Plan

On October 24, 2012, the Company announced a restructuring plan as part of the Company's efforts to simplify the organization, leverage cross-training and learning, and reduce annual operations expenses. Under this plan, the Company has recorded restructuring charges of $2.1 million, which primarily consisted of employee severance costs of $2.0 million. The following table summarizes the activities of these restructuring liabilities (in thousands):

	Severance	Professional and Other Fees	Total
Balances, January 1, 2012	$ —	$ —	$—
Restructuring charges	1,733	73	1,806
Payments	(848)	(62)	(910)
Balances, December 31, 2012	$ 885	$ 11	$896
Restructuring charges	249	51	300
Payments	(1,121)	(62)	(1,183)
Balances, December 31, 2013	$ 13	$ —	$13

October 2008 Plan

On October 28, 2008, the Company announced a restructuring plan to better allocate its resources to improve its operational results in light of the market conditions. Under this plan, the Company has recorded restructuring charges of $7.4 million, primarily consisting of employee severance costs of $4.7 million and facility exit costs of $2.7 million. The following table summarizes the activities of these restructuring liabilities (in thousands):

	Severance	Facility Exit	Professional and Other Fees	Total
Balances, January 1, 2011	$ 110	$1,264	$ 5	$1,379
Restructuring credits	—	(105)	(5)	(110)
Adjustments	—	32	—	32
Payments	(7)	(566)	—	(573)
Balances, December 31, 2011	$ 103	$625	$ —	$728

Restructuring charges	—	83	—	83
Adjustments	—	173	—	173
Payments	—	(536)	—	(536)
Balances, December 31, 2012	$ 103	$ 345	$ —	$ 448
Restructuring credits	(103)	—	—	(103)
Adjustments	—	4	—	4
Payments	—	(349)	—	(349)
Balances, December 31, 2013	$ —	$ —	$ —	$ —

9. Income Taxes

	Year Ended December 31,		
	2013	2012	2011
	(In thousands)		
U.S.			
Current	$ 719	$ 271	$ (237)
Deferred	5,432	(19,863)	—
Foreign			
Current	291	512	207
Withholding	3,830	948	2,448
Deferred	108	(197)	21
Total provision (benefit)	$ 10,380	$ (18,329)	$ 2,439

During the years ended December 31, 2013, 2012 and 2011, income before taxes from U.S. operations was $29.6 million, $17.7 million and $2.9 million, respectively, and income before taxes from foreign operations was $1.7 million, $1.2 million and $1.4 million, respectively.

The income tax provision (benefit) differs from the amount estimated by applying the statutory federal income tax rate (35%) for the following reasons (in thousands):

	Year Ended December 31,		
	2013	2012	2011
Federal statutory tax provision	$10,958	$6,609	$1,511
State tax provision (benefit)	581	(925)	19
Stock compensation expense	393	644	186
Tax credits	(5,424)	(722)	(3,297)
Foreign tax, net	3,884	906	2,171
Change in valuation allowance	—	(25,223)	1,794
Other	(12)	382	55
Tax provision (benefit)	$10,380	$(18,329)	$2,439

As of December 31, 2013, the Company had California net operating loss carry-forwards ("NOLs") of approximately $7.4 million. The California NOLs begin expiring after 2031.

The Company's 2012 tax provision did not include the benefit of the 2012 federal R&D credit. On January 2, 2013, the President of the United States signed into law The American Taxpayer Relief Act of 2012. Under prior U.S. law, a taxpayer was entitled to a research tax credit for qualifying amounts paid or incurred on or before December 31, 2011. The 2012 Taxpayer Relief Act extended the research tax credit for two years to December 31, 2013. The extension of the research tax credit was retroactive to January 1, 2012 and included amounts paid or incurred after December 31, 2011. As of December 31, 2013, the Company had federal and state research and experimental and other tax credit ("R&D credits") carry-forwards of approximately $10.6 million and $11.6 million, respectively. The federal credits begin to expire after 2022, while the California credits have no expiration. The extent to which the federal and state credit carry forwards can be used to offset future tax liabilities, respectively, may be limited, depending on the extent of ownership changes within any three-year period as provided in the Tax Reform Act of 1986 and the California Conformity Act of 1987.

The Company assesses its deferred tax assets for recoverability on a regular basis, and where applicable, a valuation allowance is recorded to reduce the total deferred tax asset to an amount that will, more likely than not, be realized in the future. In fiscal year 2008, management concluded that it was more likely than not that the Company's net deferred tax assets would not be fully realizable. As a result of management's evaluation, the Company recorded valuation allowances against substantially all of its net deferred tax assets at that time. The Company evaluates positive and negative evidence at each financial reporting period to determine whether it is more likely than not that the Company's deferred tax assets would be realizable. In accordance with such process, at December 31, 2012, the Company again evaluated the available objective evidence, both positive and negative, and concluded that it was more likely than not at that time that a portion of its deferred tax assets would be realizable, and accordingly, the Company determined that valuation allowances aggregating to $19.9 million were no longer needed. This amount released from the valuation

allowance has been reported as a component of income tax benefit in the accompanying Consolidated Statement of Operations for the year ended December 31, 2012. The remaining balance of the valuation allowance primarily relates to California R&D tax credits that have not met the “more-likely-than-not” realization threshold criteria. Under current tax law, the Company on an annual basis generates more California credits than California tax. As a result, at December 31, 2013 and 2012, the excess credits of $5.1 million and $4.7 million, respectively continued to be subject to a full valuation allowance. The Company will continue to review its deferred tax assets in accordance with the applicable accounting standards. Net deferred tax assets balance as of December 31, 2013 and 2012 was $14.5 million and $20.1 million respectively. The balance as of December 31, 2013 consists of $5.9 million net deferred tax assets-current portion and $8.6 million net deferred tax assets-long-term portion. The balance as of December 31, 2012 consists of $3.6 million net deferred tax assets-current portion and $16.5 million net deferred tax assets-long-term portion.

Tax attributes related to stock option windfall deductions are not recorded until they result in a reduction of cash tax payable. Federal tax credits and state net operating losses from windfall deductions were excluded from the deferred tax asset balance as of December 31, 2013. As of December 31, 2013, the benefit of the federal credits and state net operating loss deferred tax assets of $4.9 million and $78,000, respectively, will be recorded to additional paid-in capital when they reduce cash taxes payable. As of December 31, 2012, the excluded windfall deductions for federal and state purposes were $1.7 million and $23,000, respectively.

The components of the net deferred tax assets are comprised of (in thousands):

	December 31,	
	2013	**2012**
Net operating loss carry forward	$621	$704
Research and development and other credit carry forward	6,938	10,839
Foreign tax credit carry forward	—	135
Accruals deductible in different periods	3,453	3,897
Intangible assets	6,105	6,996
Stock-based compensation	2,491	2,198
Valuation allowance	(5,087)	(4,708)
Total	$14,521	$20,061

In accordance with the provisions of the accounting standard relating to accounting for uncertain tax positions, the Company classifies its liabilities for income tax exposures as long-term. The Company includes interest and penalties related to unrecognized tax benefits within the Company’s income tax provision. As of December 31, 2013 and 2012, the Company had accrued interest and penalties related to unrecognized tax benefits of $466,000 and $426,000, respectively. In the years ended December 31, 2013, 2012 and 2011, the Company recognized charges (credits) for interest and penalties related to unrecognized tax benefits in the consolidated statements of operations of $39,000, $(16,000) and $(19,000), respectively.

The Company’s total amount of unrecognized tax benefits, excluding interest and penalties, as of December 31, 2013 was $10.2 million, of which $6.3 million, if recognized, would affect the Company’s effective tax rate. The Company’s total amount of unrecognized tax benefits, excluding interest and penalties, as of December 31, 2012 was $9.6 million, of which $6.0 million, if recognized, would affect the Company's effective tax rate. As of December 31, 2013, the Company has recorded unrecognized tax benefits of $3.0 million, including interest and penalties, as long-term income taxes payable in its consolidated balance sheet. The remaining $7.7 million has been recorded net of our deferred tax assets, of which $3.9 million is subject to a full valuation allowance. The Company does not expect the change in unrecognized tax benefits over the next twelve months to materially impact its results of operations and financial position.

The Company conducts business globally and, as a result, files numerous consolidated and separate income tax returns in the U.S. federal, various state and foreign jurisdictions. Because the Company used some of the tax attributes carried forward from previous years to tax years that are still open, statutes of limitation remain open for all tax years to the extent of the attributes carried forward into tax year 2002 for federal and California tax purposes. The Company’s France income tax examinations for 2009 were closed during the fiscal year of 2012 with immaterial adjustments. The Company is not subject to income tax examinations in any other of its major foreign subsidiaries’ jurisdictions.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	Amount
Gross unrecognized tax benefits, January 1, 2011	$9,407
Increases in tax positions for current year	777
Increase in tax positions for prior years	38
Lapse in statute of limitations	(578)
Gross unrecognized tax benefits, December 31, 2011	9,644
Increases in tax positions for current year	616
Increases in tax positions for prior years	—
Lapse in statute of limitations	(707)
Gross unrecognized tax benefits, December 31, 2012	9,553
Increases in tax positions for current year	1,052
Increases in tax positions for prior years	—
Lapse in statute of limitations	(389)
Gross unrecognized tax benefits, December 31, 2013	$10,216

Undistributed earnings of the Company’s foreign subsidiaries of $4.0 million are considered to be indefinitely reinvested and accordingly, no provision for federal and state income taxes has been provided thereon. Determination of the amount of unrecognized deferred tax liability related to these earnings is not practicable at this time.

Valuation allowance for deferred tax assets is summarized:

	Balance at Beginning of Period	Charged to Costs and Expenses	Deductions/ Write-offs of Accounts	Balance at End of Period
Valuation allowance for deferred tax assets				
2013	$ 4,708	$ 379	$ —	$5,087
2012	30,731	—	(26,023)	4,708
2011	30,837	—	(106)	30,731

10. Net Income Per Share

Basic net income per share is computed by dividing net income by weighted average number of common shares outstanding for the period (excluding outstanding stock options and shares subject to repurchase). Diluted net income per share is computed using the weighted-average number of common shares outstanding for the period plus the potential effect of dilutive securities which are convertible into common shares (using the treasury stock method), except in cases in which the effect would be anti-dilutive. Under the treasury stock method, the amount that the employee must pay for exercising stock options, the amount of compensation cost for future service that the Company has not yet recognized, and the amount of the tax benefits that would be recorded in additional paid-in capital when the award becomes deductible are assumed to be used to repurchase shares. The following is a reconciliation of the numerators and denominators used in computing basic and diluted net income per share (in thousands except per share amount):

	Year Ended December 31,		
	2013	2012	2011
Numerator:			
Net income	$20,929	$37,211	$1,880
Numerator:			
Basic weighted-average shares outstanding	29,826	28,700	28,086
Effect of dilutive options and restricted stock	1,567	1,109	345
Diluted weighted-average shares outstanding	31,393	29,809	28,431
Net income per share - Basic	$0.70	$1.30	$0.07
Net income per share - Diluted	$0.67	$1.25	$0.07

The following table sets forth potential shares of common stock that are not included in the diluted net loss per share calculation above because to do so would be anti-dilutive for the periods indicated (in thousands):

	December 31,	
	2013	2012
Outstanding options	49	1,275
Nonvested shares of restricted stock units	4	20
Employee Stock Purchase Plan	7	—
Total	60	1,295

11. Customer and Geographic Information

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker, or group, in deciding how to allocate resources and in assessing performance.

The Company's chief operating decision maker, the chief executive officer, reviews discrete financial information presented on a consolidated basis for purposes of regularly making operating decisions and assessing financial performance. Accordingly the Company considers itself to be in one operating segment, specifically the licensing and implementation of yield improvement solutions for integrated circuit manufacturers.

The Company had revenues from individual customers in excess of 10% of total revenues as follows:

	Year Ended December 31,		
Customer	2013	2012	2011
A	33%	40 %	24 %
B	24%	13 %	15 %
C	17%	20 %	19 %

* represents less than 10%

50

The Company had accounts receivable balances from individual customers in excess of 10% of the gross accounts receivable balance as follows:

	December 31,	
Customer	**2013**	**2012**
A	36%	42%
B	23%	11%
C	17%	18%

Revenues from customers by geographic area based on the location of the customers' work sites are as follows (in thousands):

	Year Ended December 31,								
	2013			**2012**			**2011**		
	Revenues	**Percentage of Revenues**		**Revenues**	**Percentage of Revenues**		**Revenues**	**Percentage of Revenues**	
North America	$39,058	38	%	$35,533	40	%	$21,391	32	%
Germany	22,431	22		25,928	29		12,039	18	
South Korea	20,953	21		9,160	10		11,407	17	
Japan	8,340	8		8,514	10		8,354	13	
Rest of Asia	6,920	7		6,302	7		7,601	11	
Rest of Europe	3,751	4		4,103	4		5,920	9	
Total revenue	$101,453	100	%	$89,540	100	%	$66,712	100	%

Long-lived assets, net by geographic area is as follows (in thousands):

	December 31,	
	2013	**2012**
North America	$6,578	$3,527
Asia	364	295
Europe	122	76
Total long-lived assets, net	$7,064	$3,898

12. Financial Instruments

Fair value is the exit price, or the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants as of the measurement date. The multiple assumptions used to value financial instruments are referred to as inputs, and a hierarchy for inputs used in measuring fair value is established, that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the most observable inputs be used when available. Observable inputs reflect assumptions market participants would use in pricing an asset or liability based on market data obtained from independent sources while unobservable inputs reflect a reporting entity's pricing based upon its own market assumptions. These inputs are ranked according to a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels.

Level 1 - Inputs are quoted prices in active markets for identical assets or liabilities.

Level 2 - Inputs are quoted prices for similar assets or liabilities in an active market, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable and market-corroborated inputs which are derived principally from or corroborated by observable market data.

Level 3 - Inputs are derived from valuation techniques in which one or more significant inputs or value drivers are unobservable.

The following table represents the Company's assets measured at fair value on a recurring basis as of December 31, 2013 and the basis for that measurement (in thousands):

Assets	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Money market mutual funds	$26,353	$26,353	$ —	$ —

The following table represents the Company's assets measured at fair value on a recurring basis as of December 31, 2012 and the basis for that measurement (in thousands):

Assets	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Money market mutual funds	$26,341	$26,341	$ —	$ —

The Company enters into foreign currency forward contracts to reduce the exposure to foreign currency exchange rate fluctuations on certain foreign currency denominated monetary assets and liabilities, primarily on third-party accounts payables and intercompany balances. The primary objective of the Company's hedging program is to reduce volatility of earnings related to foreign currency exchange rate fluctuations. The counterparty to these foreign currency forward contracts is a large global financial institution that the Company believes is creditworthy, and therefore, the Company believes the credit risk of counterparty nonperformance is not significant. These foreign currency forward contracts

are not designated for hedge accounting treatment. Therefore, the change in fair value of these contracts is recorded into earnings as a component of other income (expense), net, and offsets the change in fair value of the foreign currency denominated assets and liabilities, which is also recorded in other income (expense), net. For the year ended December 31, 2013, the Company recognized a gain of $0.1 million on the contracts, which is recorded in other income (expense), net in the Company's Statement of Operations.

The Company carries these derivatives financial instruments on its Consolidated Balance Sheets at their fair values. The Company's foreign currency forward contracts are classified as Level 2 because it is not actively traded and the valuation inputs are based on quoted prices and market observable data of similar instruments. As of December 31, 2013 The Company had one outstanding forward contract with a notional amount of $7.6 million. As the Company signed the forward contract on December 31, 2013, the fair value of this foreign currency forward contract is zero, thus as of December 31, 2013, the Company did not record any other current assets or current liabilities associated with this outstanding forward contract.

13. Employee Benefit Plan

During 1999, the Company established a 401(k) tax-deferred savings plan, whereby eligible employees may contribute up to 15% of their eligible compensation with a maximum amount subject to IRS guidelines in any calendar year. Company contributions to this plan are discretionary; no such Company contributions have been made since the inception of this plan.

14. Selected Quarterly Financial Data (Unaudited)

The following is a summary of the Company's quarterly consolidated results of operations (unaudited) for the fiscal years ended December 31, 2013 and 2012.

	Year Ended December 31, 2013			
	Q1	**Q2**	**Q3**	**Q4**
	(In thousands, except for per share amounts)			
Total revenues	$24,110	$24,776	$25,489	$27,078
Gross profit	$14,453	$15,035	$14,982	$17,513
Net income	$4,731	$4,552	$4,824	$6,822
Net income per share:				
Basic	$0.16	$0.15	$0.16	$0.23
Diluted	$0.15	$0.15	$0.15	$0.21

52

	Year Ended December 31, 2012			
	Q1	Q2	Q3	Q4
	(In thousands, except for per share amounts)			
Total revenues	$20,643	$22,531	$22,551	$23,815
Gross profit	$11,915	$13,625	$13,094	$14,409
Net income	$3,499	$4,820	$4,993	$23,899
Net income per share:				
Basic	$0.12	$0.17	$0.17	$0.82
Diluted	$0.12	$0.16	$0.17	$0.78

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.

PDF SOLUTIONS, INC.

By: /s/ John K. Kibarian
John K. Kibarian
President and Chief Executive Officer
(principal executive officer)

By: /s/ Gregory C. Walker
Gregory C. Walker
Vice President, Finance and Chief Financial Officer
(principal financial and accounting officer)
Date: March 13, 2014

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.

Date	Signature	Title
March 13, 2014	/s/ JOHN K. KIBARIAN John K. Kibarian	Director, President and Chief Executive Officer (principal executive officer)
March 13, 2014	/s/ GREGORY C. WALKER Gregory C. Walker	Vice President, Finance and Chief Financial Officer (principal financial and accounting officer)
March 13, 2014	s/ KIMON MICHAELS /Kimon Michaels	Director, Vice President, Products and Solutions
March 13, 2014	/s/ LUCIO L. LANZA Lucio L. Lanza	Chairman of the Board of Directors
March 13, 2014	/s/ R. STEPHEN HEINRICHS R. Stephen Heinrichs	Director

March 13, 2014	/s/ TOM CAULFIELD Tom Caulfield	Director
March 13, 2014	/s/ ALBERT Y. C. YU Albert Y. C. Yu	Director

INDEX TO EXHIBITS

Exhibit Number	Description
3.01	Third Amended and Restated Certificate of Incorporation of PDF Solutions, Inc. (incorporated herein by reference to registrant's Registration Statement on Form S-1/A filed July 9, 2001)
3.02	Amended and Restated Bylaws of PDF Solutions, Inc. (incorporated herein by reference to registrant's Quarterly Report on Form 10-Q filed August 9, 2005)
4.01	Specimen Stock Certificate (incorporated herein by reference to registrant's Quarterly Report on Form 10-Q filed September 6, 2001)
10.01	Form of Indemnification Agreement between PDF Solutions, Inc. and certain of its executive officers and directors (incorporated herein by reference to registrant's Registration Statement on Form S-1 filed August 7, 2000)
10.02	Form of Indemnification Agreement between PDF Solutions, Inc. and certain of its senior executive officers and directors (incorporated herein by reference to the registrant's Annual Report on Form 10-K filed March 16, 2009)*
10.03	PDF Solutions, Inc. 2001 Stock Plan (incorporated herein by reference to registrant's Quarterly Report on Form 10-Q filed May 10, 2007) and related agreements (incorporated herein by reference to registrant's Quarterly Report on Form 10-Q filed August 9, 2011) *
10.04	PDF Solutions, Inc. 2001 Employee Stock Purchase Plan (incorporated herein by reference to registrant's proxy statement dated April 6, 2010)
10.05	IDS Software, Inc. 2001 Stock Option/Stock Issuance Plan and related agreements (incorporated herein by reference to registrant's Registration Statement on Form S-8 filed October 17, 2003)*
10.06	PDF Solutions, Inc. 2011 Stock Incentive Plan (incorporated herein by reference to registrant's proxy statement dated October 7, 2011)
10.07	Form of Stock Option Agreement (Non-statutory) under PDF Solutions, Inc. 2011 Stock Incentive Plan (incorporated herein by reference to registrant's Annual Report on Form 10-K filed March 15, 2012)*
10.08	Form of Stock Unit Agreement under PDF Solutions, Inc. 2011 Stock Incentive Plan (incorporated herein by reference to registrant's Annual Report on Form 10-K filed March 15, 2012)*
10.09	Form of Stock Appreciation Right Agreement under PDF Solutions, Inc. 2011 Stock Incentive Plan (incorporated herein by reference to registrant's filing on Form 10-Q filed November 9, 2012)
10.10	Employment confirmation to John Kibarian from PDF Solutions, Inc. dated October 13, 2009 (incorporated herein by reference to registrant's Annual Report on Form 10-K filed March 15, 2012)*
10.11	Employment confirmation to Kimon Michaels from PDF Solutions, Inc. dated October 13, 2009 (incorporated herein by reference to registrant's Annual Report on Form 10-K filed March 15, 2012)*
10.12	Offer Letter to Gregory Walker from PDF Solutions, Inc. dated November 1, 2011 (incorporated herein by reference to registrar's Quarterly Report on Form 10-Q filed November 9, 2011)*
10.13	Offer letter to Cornelius D. Hartgring from PDF Solutions, Inc. dated August 29, 2002 (incorporated herein by reference to registrant's Annual Report on Form 10-K filed March 26, 2003)*
10.14	Carmel Corporate Plaza Office Lease between PDF Solutions, Inc. and 15015 Avenue of Science Associates LLC dated as of April 1, 2003 (incorporated by reference to registrant's Quarterly Report on Form 10-Q filed May 14, 2003)
10.15	Riverpark Tower Office Lease between PDF Solutions, Inc. and Legacy Partners I Riverpark I, LLC, dated June 29, 2007 (incorporated herein by reference to registrant's Annual Report on Form 10-K filed March 17, 2008)

10.16	First Amendment to Office Lease dated June 1, 2012 (incorporated herein by reference to registrant's filing on Form 8-K filed August 22, 2012)
21.01	Subsidiaries of Registrant †
23.01	Consent of Independent Registered Public Accounting Firm†
31.01	Certifications of the principal executive officer and principal financial and accounting officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002†
31.02	Certifications of the principal executive officer and principal financial and accounting officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002†
32.01	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002†
32.02	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002†
101.INS	XBRL Instance Document

101.SCH XBRL Taxonomy Extension Schema Document
101.CAL XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF XBRL Taxonomy Extension Definition Linkbase Document
101.LAB XBRL Taxonomy Extension Labels Linkbase Document
101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

---

* Indicates management contract or compensatory plan or arrangement.
† filed herewith.