PDF SOLUTIONS INC
Form 10-K
March 16, 2009

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)

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

For the fiscal year ended December 31, 2008

or

o **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 Incorporation or organization)	(I.R.S. Employer Identification No.)
333 West San Carlos Street, Suite 700 San Jose, California	**95110**
(Address of Registrant's principal executive offices)	(Zip Code)

(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 o No ý

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

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 ý No o

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

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

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

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

The aggregate market value of the voting stock held by non-affiliates of the Registrant was approximately $80.6 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 26,258,240 shares of the Registrant's Common Stock outstanding as of March 6, 2009.

DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates certain information by reference from the definitive Proxy Statement for our Annual Meeting of Stockholders to be held on May 21, 2009.

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PART I

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 concerning recent completed acquisitions; 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," "will," "anticipate," "continue," "could," "projected," "expects," "believes," "intends," and "assumes," the 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.

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 product design to initial process ramps to mature manufacturing operations. Our technologies and services target the entire "process life cycle," which is the term we have coined for the time from the design of an IC through volume manufacturing of that IC. Our solutions combine proprietary software, physical intellectual property ("IP") 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 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 performance improvements 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

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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:

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. For example, in February 2009, we announced an agreement with IBM to develop an IC design platform to mitigate the effects of escalating design and manufacturing process complexity at the 32-, 28-, and 22-nanometer (nm) dimensions. This *pd*BRIX -based platform will be designed to layer on top of IBM's world class manufacturing process so it can be used by a broad set of manufacturers and fabless firms.

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 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

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expand our solutions for technology drivers such as low-k dielectrics, high-k metal gates, SOI, copper, and 300mm wafer fabs, which are all still somewhat new and are relatively complex manufacturing technologies. 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 have expanded our efforts to penetrate high growth adjacent markets, such as photovoltaic manufacturing. We are leveraging our yield management system and FDC technology to create products that meet the needs of manufacturing customers in the rapidly growing solar markets.

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 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-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 *data*POWER®, pdCV , mæstria®, and pdBRIX , 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, 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, 2008, we held 31 U.S. patents. We intend to prepare additional patent applications when we feel it is necessary. Characterization Vehicle®, Circuit Surfer®, CV®, *dataPOWER*®, mæstria®, ModelWare®, Optissimo®, pdFasTest®, pDfx®,

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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 blocks 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. They enable the customer to collect test data and equipment signals during production to improve yield while simultaneously reducing the overhead of manufacturing. Optional software modules allow customers to perform rapid yield signature detection, characterization, and diagnosis. With this software, we enable mapping and analyzing data from memory bits to wafer to final packaged parts with die identification traceability. Our mæstria® and YA-FDC process control software offerings enable our customers to monitor and control process signals to detect and diagnose yield loss related to equipment performance.

Design-for-Manufacturability ("DFM") Solutions. Our DFM solutions are designed to enable our customers to optimize yields within 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, and services designed to make yield improvements by trading off density or performance, for example, in the logic portions of an IC design. Our software helps designers optimize the yield of the logic portion by using process-specific yield models and technology files that include yield enhanced extensions to IP design building block elements.

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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.

pdBRIX Physical IP Solutions: pdBRIX physical IP solutions include software, IP and services for identifying and developing a set of large, regularly patterned physical IP building blocks that are tailored to a given manufacturing process and target product application. This solution includes mapping software for inserting these physical IP building blocks into a design flow.

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 are 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.

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 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.

Circuit Surfer® Software. Our Circuit Surfer software estimates the parametric performance yield and manufacturability of analog/mixed-signal/RF blocks in a design, such as RF transmission, PLLs/DLLs and logic critical paths. Using our Circuit Surfer software, a design engineer is able to estimate how manufacturing process variations will impact circuit performance and yield and then optimizes the circuit to reduce or eliminate the impact of those variations.

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pDfx® Environment. Our pDfx environment, which is only offered to customers in a service format, improves the manufacturability of ICs by providing process-aware DFM. The environment incorporates our pDfx yield models with software tools previously incorporated into and subsequently distributed by commercial Electronic Design Automation ("EDA") tool providers to the IC Design community. These tools are either developed by PDF or frequently in partnership with commercial EDA vendors. Incorporating our pDfx modeling capability into the design flow allows designers to optimize yield, performance, power, and area trade-offs within the design flow before the IC is released to manufacturing. In this manner, customers can further optimize designs for yield within their specific guidelines.

pdBRIX Platform. Our pdBRIX platform includes software for identifying and developing a set of physical IP building blocks that are tailored to a given manufacturing process and target product application. This platform also includes mapper software for inserting these physical IP building blocks into a traditional design flow.

dataPOWER® YMS Platform. Our *data*POWER YMS platform collects yield data, loads and stores it in an integrated database and allows product engineers to identify and analyze production yield issues using proprietary yield analysis software tools. *data*POWER software contains powerful visualization and reporting tools, including web-based access through the *dP*-Monitor module included in the core product in the newest release, which are flexible to address customers' requirements. Our YMS platform is designed to handle very large data sets, to efficiently improve productivity, yield and time-to-market at our customers' sites. Optional modules extend the base platform to enable defect analysis (*dP*-Defect), memory analysis (*dP*- bitMAP), spatial signature analysis (*dP*-SSA), data-mining (*dP*-Mining), optimization of die on the wafer (*dP*-shotMAP), and probe-head optimization (*dP*-probeMAP), and web-based access (*dP*-VUE).

mæstria® FDC Software. Our mæstria product provides FDC capabilities to rapidly identify sources of process variations and manufacturing excursions by monitoring equipment parameters through proprietary data collection and analysis features.

YA-FDC Service and Software Platform. YA-FDC allows online modeling to create real-time virtual measurements of final product attributes during processing. These models enable optimization decisions for process control, process adjustments, PM scheduling, tool corrective actions, and wafer dispatching. The real-time decision-making based on the models is designed to reduce product variability and cost simultaneously.

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

Customers

Our current customers are primarily integrated device manufacturers ("IDMs"), but also include fabless semiconductor design companies and foundries. 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.

Toshiba Corporation ("Toshiba") and IBM represented 18% and 16%, respectively, of our total revenue for the year ended December 31, 2008. Toshiba and IBM represented 19% and 16% respectively, of our total revenue for the year ended December 31, 2007. IBM and Toshiba represented 25% and 12%, respectively, of our total revenue for the year ended December 31, 2006. No other customer accounted for 10% or more of our revenue in years 2008, 2007, and 2006.

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Sales and Marketing

Our sales strategy is to pursue targeted accounts through a combination of our direct sales force, sales representatives in some local markets, and strategic alliances. For sales in the United States, we rely on our direct sales team, which primarily operates out of our San Jose, California headquarters. In Japan and Korea, we primarily use our direct sales team. In Taiwan, we use a combination of our direct sales team and a local sales representative, J.I.T. International Co., Ltd. In Singapore, Malaysia, and Indonesia, we use Kromax South Asia PTE LTD, a local sales representative. 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.

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.

In the year ended December 31, 2008, we derived 55% of total revenue from customers based in Asia compared to 55% and 50%, respectively, in the years ended December 31, 2007 and 2006. In the year ended December 31, 2008, 27% of our total revenue was derived from customers located in the United States as compared to 31% and 39%, respectively, in the years ended December 31, 2007 and 2006. 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.

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. At any given time, about one quarter of our research and development engineers are 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 $34.0 million, $36.1 million, and $27.6 million in 2008, 2007, and 2006, 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. While the market for process-design integration technologies and services is in its early stages, it is quickly evolving and we expect market competition to continue to develop and increase. 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

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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.

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, MKS Instruments, Inc. ("MKS") (through its acquisition of Yield Dynamics, Inc.), Mentor Graphics (through its acquisition of Ponte Solutions), Syntricity Inc., Synopsys, Inc. ("Synopsys"), and TIBCO Software Inc. (through its acquisition of Spotfire, Inc.), and process control software, such as Applied Materials, Inc. (through its acquisition of the software division of Brooks Automation, Inc.), BISTel Inc., and Trancom Technology, Inc., and MKS. ARM Ltd. and Virage Logic Corporation provide standard cells in the physical IP space and Tela provides software for standard cell synthesis, each of which could compete with our pdBRIX 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 the principal factors affecting competition in our market include demonstrated results and reputation, strength of core technology, ability to create innovative technology, and ability to implement solutions for new technology and product generations. We believe that our solutions compete favorably with respect to these factors.

Employees

As of December 31, 2008, we had 375 employees worldwide, including 174 on client service teams, 124 in research and development, 30 in sales and marketing, and 47 in general and administrative functions. Of these employees, 181 are located in the US, 114 in Asia, and 80 in Europe. Worldwide, we had 382 employees as of December 31, 2007 and 369 as of December 31, 2006.

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.

Executive Officers

The following table and notes set forth information about our current executive officers.

Name	Age	Position
John K. Kibarian, Ph.D.	44	President, Chief Executive Officer, and Director
Joy E. Leo	48	Chief Administration Officer
Keith A. Jones	38	Chief Financial Officer and Vice President, Finance
David A. Joseph	55	Chief Strategy Officer
Cees Hartgring, Ph.D.	55	Vice President, Client Services and Sales
Andre Hawit	47	Vice President, Volume Manufacturing Solutions
James Jensen	56	Vice President, Volume Manufacturing Solutions
P. Steven Melman	54	Vice President, Investor Relations and Strategic Initiatives
Kimon Michaels, Ph.D.	42	Vice President, Design for Manufacturability, and Director

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.

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Joy E. Leo has served as Chief Administration Officer since July 2008. Prior to joining PDF, Ms. Leo served as Senior Vice President, Chief Financial Officer and Secretary for Credence Systems Corporations, now known as LTX-Credence, a provider of focused, cost-optimized ATE solutions. Ms. Leo served as Vice President of Finance and Administration, Chief Financial Officer and Secretary for Artisan Components, Inc., now known as ARM Holdings PLC. Ms. Leo also served as Vice President of Finance and Administration and Chief Financial Officer for IMP, Inc., as Vice President of Finance, Operations and Administration for Innomedia Incorporated, and Vice President and Chief Financial Officer for Philips Components, a multi-billion dollar division of Royal Philips Electronics N.V. Ms. Leo received a B.A. in Business Administration and Finance from the University of Utah.

Keith A. Jones has served as Chief Financial Officer and Vice President, Finance since January 2006. Mr. Jones served as Director of Finance and SEC Compliance from July 2003 to December 2005. Prior to joining PDF, Mr. Jones served as Assistant Controller for Interwoven, Inc., a provider of enterprise content management solutions, and as Controller for eTime Capital, Inc., a financial software applications company. Prior to that, Mr. Jones served in various positions at Deloitte & Touche LLP, most recently as an Audit Manager. Mr. Jones received a B.S. in Business Administration from California State University, Fresno and is a Certified Public Accountant.

David A. Joseph has served as Chief Strategy Officer since April 2003. Mr. Joseph served as Executive Vice President Sales, Marketing, and Business Development from August 2001 through March 2003, as Vice President, Products and Methods from July 1999 through August 2001 and as Vice President, Business Development from November 1998 through June 1999. Prior to joining PDF, Mr. Joseph served KLA-Tencor, a semiconductor manufacturing company, in various positions, including Japan Business Manager, Vice President Customer Satisfaction and General Manager of Yield Analysis Software. Mr. Joseph received a B.S. in Mathematical Science from Stanford University.

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.

Andre Hawit has served as Vice President, Volume Manufacturing Solutions since July 2008. Mr. Hawit served as Vice President, Yield Manufacturing Systems from January 2006 through June 2008, and as Vice President, Software Development from September 2003 through December 2005. Prior to joining PDF, Mr. Hawit was the founder of IDS Software Systems Inc. ("IDS"), a yield management systems software and solutions company. He also held various positions within IDS including President and Chief Executive Officer, and most recently Chief Technology Officer. Mr. Hawit received a B.S. in Electronics and Computer Engineering from San Francisco State University and an M.B.A. from National University School of Business.

James Jensen has served as Vice President, Volume Manufacturing Solutions since July 2008. Mr. Jensen served as Vice President, Business Development from June 2007 through July 2008, as Vice President, Engineering Services for Manufacturing Process Solutions from January 2006 through May 2007, as Co-Vice President, Client Services from November 2003 through December 2005 and as Director of Business Development, Integrated Yield Ramp Solutions, from March 2002 through October 2003. Prior to joining PDF, Mr. Jensen served as General Manager of a semiconductor fabrication facility of Texas Instruments, a semiconductor products company. Prior to that, Mr. Jensen served as Fabrication

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Operations Director for Silicon Systems Inc., a semiconductor products company. Mr. Jensen received a B.S. in Physics from the University of Utah and an M.S. in Management from Purdue University.

P. Steven Melman has served as Vice President, Investor Relations and Strategic Initiatives since January 2006. Mr. Melman served as Chief Financial Officer and Vice President, Finance and Administration from July 1998 to December 2005. Prior to joining PDF, Mr. Melman served as Vice President, Finance and Administration with Animation Science Corporation, an animation company. Prior to that, Mr. Melman served as Vice President, Finance and Chief Financial Officer with Business Resource Group, a facilities management and commercial furnishings company. Mr. Melman received a B.S. in Business Administration from Boston University and is a Certified Public Accountant.

Kimon Michaels, Ph.D., one of our founders, has served as Vice President, Design for Manufacturability since June 2007. 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.

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 Internet website, copies of our annual report 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 information we post is intended for reference purposes only; none of the information posted on our website is part of this report or 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. 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 an Internet site that contains reports, proxy and other information statements, and other information regarding issuers, including us, that file electronically with the SEC. The Internet address of that site is http://www.sec.gov.

Item 1A. ***Risk Factors***

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

The semiconductor industry has experienced significant challenges in 2008 and may continue to face challenges in 2009 as a result of the decline in the macroeconomic environment. As a provider to global semiconductor companies, we are subject to business cycles, the timing, length and volatility of which can be difficult to predict. The semiconductor industry historically has been cyclical due to sudden changes in customers' manufacturing capacity requirements and spending, which depend in part on capacity utilization, demand for customers' IC products, inventory levels relative to demand, and access to affordable capital. These changes have affected the timing and amounts of customers' purchases and investments in our Design-to-Silicon-Yield solutions, and continue to affect our sales, operating expenses and net income. If we are not able to make adjustments to our business quickly to appropriately align our cost structure with prevailing market conditions in periods of low demand, or if we do not have sufficient resources to meet customers' demands in periods of high demand, results could be negatively impacted and could differ greatly from our expectations.

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Our business is subject to risks associated with the ongoing financial crisis and weakening global economy.

The recent severe tightening of the credit markets, turmoil in the financial markets, and weakening global economy are contributing to slowdowns in the semiconductor industry, which impacts our ability to make sales. These slowdowns are expected to worsen if these economic conditions are prolonged or deteriorate further. The markets for semiconductors depend largely on consumer spending. Economic uncertainty exacerbates negative trends in consumer spending and may 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 at historical levels. This will negatively affect our revenues. 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. Customers with liquidity issues may also lead to additional bad debt expense. Further, these conditions and uncertainty about future economic conditions 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. If we are not able to timely and appropriately adapt to changes resulting from the difficult macroeconomic environment, our business, financial condition, and results of operations may be significantly negatively affected.

If semiconductor designers and manufacturers do not continue to adopt, or they significantly delay adoption of, our Design-to-Silicon-Yield solutions, our revenue 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 revenue 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. If we do not develop new customer relationships with companies that are 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 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; and
- our inability to develop, market, or sell effective solutions that are outside of our traditional MPS logic focus.

Revenue from our gainshare performance incentives is dependent on factors outside of our control, including the volume of ICs that our customers are able to sell to their customers.

Our gainshare performance incentives fee component ties the profits of our customers to our own. Through this component, revenue for a particular product is largely determined by the volume of that product that our customer is able to sell to its customers, which is outside of our control. Decreased demand for semiconductor products decreases the volume of products our customers are able to sell,

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which directly decreases our gainshare performance incentives revenue. Important factors that could cause demand for semiconductor products to negatively fluctuate include:

- changes in business and economic conditions, including the current downturn in the semiconductor industry and the overall economy; and

- decreases in consumer confidence caused by changes in market conditions, including changes in the credit market.

Also, our customers may unilaterally decide to implement changes to their manufacturing processes during the period that is covered by gainshare performance incentives component, which could negatively affect yield results. Since we currently work on a small number of large projects, any product that does not achieve commercial viability or a significant increase in yield, or sustain significant volume manufacturing during the time we receive gainshare performance incentives revenue from such customers, could significantly reduce our revenue and results of operations below expectations. In addition, if we work with two directly competitive products, volume in one may offset volume, and thus any of our related gainshare performance incentives, in the other product.

We may not be able to effectively implement our restructuring plans, and our restructuring plans may not result in the expected benefits on our planned schedule, or at all, which could negatively impact our future results of operations.

During the year end December 31, 2008, we initiated restructuring plans in an effort to align our cost structure with expected revenue. We may not be able to successfully complete and realize the expected benefits of our restructuring plans, such as improvements in operating margins and cash flows, in the restructuring periods contemplated or at all. The restructuring plans may involve higher costs or a longer timetable than we currently anticipate, mainly due to the timing and execution of some plans and programs subject to local labor law requirements, and consultation with appropriate work councils. Our inability to realize these benefits may result in an inefficient business structure that could negatively impact our results of operations. We also expect our restructuring plans to cause us to incur substantial costs related to severance and other employee-related costs. Our restructuring plans may also subject us to litigation risks and expenses. In addition, our restructuring plans may have other consequences, such as attrition beyond our planned reduction in workforce or a negative impact on employee morale, and our competitors may seek to gain a competitive advantage over us. The restructuring plans could also cause our remaining employees to be less productive, which in turn may negatively affect our revenue and other operating results in the future.

We generate a large percentage of our total revenue from a limited number of customers, so decreased volumes at any one of these customers, or 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 we expect this to continue in the near term. In the year ended December 31, 2008, two customers accounted for 34% of our total net revenue, with Toshiba Corporation representing 18% and IBM representing 16%. In the year ended December 31, 2007, two customers accounted for 35% of our total net revenue, with Toshiba Corporation representing 19% and IBM representing 16%. 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 consolidation. The loss of any of these customers or a decrease in the sales volumes of their products could significantly reduce our total revenue below expectations. In particular, such a loss 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.

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If we do not effectively manage and support our operations and integrate recent and planned growth, our business strategy may fail.

We have in the past, and may in the future, experienced interruptions in our information systems on which our global operations depend. Further, physical damage to, failure of, or digital damage (such as significant viruses or worms) to, our information systems could disrupt and delay time-sensitive services or computing operations that we perform for our customers, which could negatively impact our business results and reputation. 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. In addition, we are in the process of switching to a new accounting system, which could disrupt our business operations and distract management. 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 may be volatile, and our common stock could decline in value, increasing potential dilution to our stockholders, or we may be delisted from the NASDAQ Global Market.

Our stock price has fluctuated widely during the last few years from a low closing price of $1.41 per share in December 2008 to a high of $19.36 per share in April 2006. This 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. Additionally, in order for our common stock to continue to be quoted on the NASDAQ Global Market ("Nasdaq"), we must satisfy various listing maintenance standards established by Nasdaq, including, among other things, the general requirement, should Nasdaq choose to enforce such requirements again after the April 2009 end date of the current extension of suspension of any such enforcement, that our stock price consistently trades at or above $1.00 per share and that the total market value of our common stock exceed $50,000,000. We may have periods when our stock does not trade at, or the market value of our common stock has been below, the levels required by Nasdaq rules. If we were to be delisted from the Nasdaq and move to an alternative market, which may be less efficient and less broad-based, we may have difficulty accessing capital markets for additional funding, and the ability of our stockholders to sell any of our common stock at all would be severely, if not completely, limited, which could cause our stock price to decline further. Delisting 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 IP 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. We currently rely primarily on contractual, patent, copyright, trademark, and trade secret protection. 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

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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. 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. Many of these companies have the financial and technical capability to develop their own solutions. Also, 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. There may be other providers of commercial solutions for systematic IC yield and performance enhancement of which we are not aware. 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, MKS Instruments, Inc. ("MKS") (through its acquisition of Yield Dynamics, Inc.), Mentor Graphics (through its acquisition of Ponte Solutions), Syntricity Inc., TIBCO Software Inc. (through its acquisition of Spotfire Inc.), and Synopsys, Inc., and process control software, such as Applied Materials, Inc., BISTel Inc., and Trancom Technology, Inc., and MKS. Further, ARM Ltd. and Virage Logic Corporation provide standard cells in the physical IP space and Tela provides software for standard cell synthesis, each of which could compete with our pdBRIX solution. Some providers of yield management software or inspection equipment may seek to broaden their product offerings and compete with us. For example, KLA-Tencor has announced adding the use of test structures to one of their inspection product lines. 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. In addition, Synopsys, Inc. now appears to offer directly competing DFM, while other EDA suppliers provide alternative DFM solutions that may compete for the same budgetary funds. 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. In addition, customer preferences may shift away from our solutions as a result of the increase in competition.

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

We have in the past expanded our non-U.S. operations and may in the future continue such expansion by establishing overseas 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 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;

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

- compliance with, inconsistencies among, and unexpected changes in, a wide variety of foreign laws and regulatory environments with which we are not familiar, including, among other issues, with respect to employees, protection of our 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 expenses for our international offices are denominated in the local currency, including the Euro, while virtually all of our revenue is denominated in U.S. dollars;

- currency risk associated with cash denominated in foreign currencies, including the Euro, held by foreign subsidiaries we have acquired;

- 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 revenue becomes denominated in foreign currencies, we would be subject to a potentially significant exchange rate risk; and

- 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.

Revenues generated from customers in Asia accounted for 55% of total revenue in the years ended December 31, 2008 and 2007. Thus, in Asia, in particular, we face the following additional risks:

- a downturn in Asian economies which could limit our ability to retain existing customers and attract new ones in Asia; and

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

In the Middle East, we use a third-party service provider, whose headquarters are not located in a U.S. embargoed country, to provide software quality assurance and other services for certain of our software products. The political uncertainty surrounding the region could disrupt our third-party service provider's operations and thus negatively affect the range of services we are able to provide or our cost for such services.

Our earnings per share and other key 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.

Historically, our 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. The price of our common stock has declined significantly in the recent past and may continue to decline if we fail to meet expectations about our revenue or expenses.

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. Because measuring the amount of yield improvement is inherently complicated and dependent on our

customers' internal

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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 our gainshare performance incentives 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 performance incentives as a significant component of our total revenue, 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 revenue.

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 performance incentives component so if we are successful in increasing the gainshare performance incentives 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 revenue 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 performance incentives 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 revenue will be lower than expected and fluctuate significantly from period to period.

It typically takes us a long time to sell our unique solutions to new customers and into new markets, and that can result in uncertainty and delays in generating revenue.

Our gainshare performance incentives business model is unique and our Design-to-Silicon-Yield solutions are often unfamiliar to new customers. This results in a lengthier sales cycle compared to some of our competitors and requires a significant amount of our senior management's time and effort. Furthermore, we need to target those individuals within a customer's organization who have overall responsibility for the profitability of an IC. These individuals tend to be senior management or executive officers. We may face difficulty identifying and establishing contact with such individuals. Even after initial acceptance, due to the complexity of structuring the gainshare performance incentives component, the negotiation and documentation processes can be lengthy. It can take nine months or more to reach a signed contract with a customer. Unexpected delays in our sales cycle could cause our revenue to fall short of expectations. By way of example, one of the industries that we have recently targeted that we believe would greatly benefit from our yield management system and FDC technology is the rapidly growing solar panel industry. Our efforts to leverage our products in this industry may not be successful. Further, ongoing negotiations and evaluation projects with photovoltaic manufacturers may not result in significant revenue for us if we are unable to close new engagements in these markets on terms favorable to us, in a timely manner, or at all, or if we are unable to successfully deliver our products and services to such markets.

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We have a history of losses, we may incur losses in the future and we may be unable to reach, or thereafter maintain, profitability.

We have experienced losses in the past and in the current fiscal year ended December 31, 2008. We may not achieve, and thereafter maintain, profitability if our revenue increases more slowly than we expect or if it decreases. 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 $112.6 million as of December 31, 2008. 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 revenue to reach or maintain profitability on a quarterly or annual basis, our stock price could decline. We may be subject to additional impairment of our long-lived assets.

We intend to pursue additional strategic relationships, which are necessary to maximize our growth, but could substantially divert management attention and resources.

We have in the past, and may in the future, sought to establish and maintain strategic relationships with industry leaders at each stage of the IC design and manufacturing processes, This requires us to expend significant resources and to commit a significant amount of management's time and attention, although any such relationship may not be successful. If we are unable to enter into strategic relationships with these companies, we will not be as effective at modeling existing technologies or at keeping ahead of the technology curve as new technologies are introduced. In the past, the absence of an established working relationship with key companies in the industry has meant that we have had to exclude the effect of their component parts from our modeling analysis, which reduces the overall effectiveness of our analysis and limits our ability to improve yield.

Our solution implementations may take longer than we anticipate, 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 time 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 and 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.

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,

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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.

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 IP 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.

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 development efforts.

Failing to maintain the effectiveness of our internal control over financial reporting could cause the cost related to remediation to increase and could cause our stock price to decline.

In the future, our management may identify deficiencies regarding the design and effectiveness of our system of internal control over financial reporting that we engage in pursuant to Section 404 of the Sarbanes-Oxley Act ("Section 404") as part of our Form 10-K. Such deficiencies could include those arising from turnover of qualified personnel or arising as a result of acquisitions, which we may not be able

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to remediate in time to meet the continuing reporting deadlines imposed by Section 404 and the costs of which may harm our results of operations. In addition, if we fail to maintain the adequacy of our internal controls, as such standards are modified, supplemented or amended from time to time, we may not be able to ensure that our management can conclude on an ongoing basis that we have effective internal controls. We also may not be able to retain an independent registered public accounting firm with sufficient resources to attest to and report on our internal controls in a timely manner. Moreover, our registered public accounting firm may not agree with our management's future assessments and may deem our controls ineffective if we are unable to remediate on a timely basis. If in the future we are unable to assert that we maintain effective internal controls, our investors could lose confidence in the accuracy and completeness of our financial reports that in turn could cause our stock price to decline.

We may not be able to raise necessary funds to support our growth or execute our strategy.

Unanticipated efforts to support more rapid expansion, develop or enhance Design-to-Silicon-Yield solutions, respond to competitive pressures or acquire complementary businesses or technologies could impact our future capital requirements and the adequacy of our available funds. In such event, we may need to raise additional funds through public or private financings, strategic relationships or other arrangements. We may not be able to raise necessary funds on terms favorable to us, or at all.

Recent or potential acquisitions may adversely affect our business by diverting management's attention, increasing our expenses or by being more difficult to integrate than expected.

Our success in realizing the strategic benefits, the timing of this realization, and growth opportunities to be gained from acquiring technology or companies and incorporating into PDF the operations of recently acquired businesses, including Si Automation S.A. ("SiA"), a French company, acquired in October 2006, and Fabbrix, Inc. ("Fabbrix"), a U.S. company, acquired in May 2007, including those acquired in October 2008 from Triant Holdings, Inc. and Triant Technologies (2005) Inc. ("Triant"), both Canadian companies, depend upon our ability to successfully identify the technology or company, negotiate favorable terms, close the related transaction in a timely manner, and integrate those businesses or assets. We may be unable to identify suitable acquisition or investment candidates at reasonable prices or on reasonable terms, or consummate future acquisitions or investments at all or in a timely manner, each of which could slow our growth strategy. Further, the integration of acquired businesses or assets is a complex, costly and time-consuming process. The difficulties of combining our existing operations associated with acquired businesses or assets include:

consolidating research and development operations;

integrating acquired products and business technology into our existing product lines;

coordinating effective sales and marketing functions;

preserving research and development, marketing, customer and other important relationships; and

minimizing the diversion of management's attention from ongoing business concerns.

Changes in effective tax rates could negatively affect our operating results.

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 net income in the period or periods for which that determination is made.

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The uncertainty in the credit markets might impact the value of certain auction-rate securities we have and we might have to record impairment in the future.

Credit concerns in the capital markets have significantly reduced our ability to liquidate auction-rate securities that we classify as available-for-sale securities on our balance sheet. The liquidity of the securities has been reduced by the uncertainty in the credit markets and the exposure of these securities to the financial condition of bond insurance companies. All auction-rate securities we hold have been failing to sell at auction since February 2008 due to an insufficient number of bidders. We reviewed the value of these securities for impairment as of December 31, 2008, concluded that these securities were temporarily impaired, and recorded an unrealized loss of $282,000. In future periods, the estimated fair value of our auction-rate securities could decline further based on market conditions, which could result in additional impairment.

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

None.

Item 2. ***Properties***

Our principal executive offices are located in San Jose, California where we lease approximately 39,300 square feet under a lease that expires in August 2013. We lease 11,200 square feet of office and laboratory space in San Diego, California under a lease that expires in July 2013. We lease other sales offices and laboratory spaces in Pennsylvania, Texas, and New Hampshire in the United States. In addition, we have offices in France, Germany, Italy, China, Japan, Korea, Singapore, and Taiwan with an aggregate of square footage of approximately 33,200 square feet each under various leases that expire at different times through 2013. We believe our existing facilities and those in negotiation are adequate to meet our current needs and are being utilized consistently with our past practice.

Item 3. ***Legal Proceedings***

We are not currently party to any material legal proceedings.

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

No matters were submitted to a vote of security holders during the fourth quarter of 2008.

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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 February 25, 2009 we had approximately 205 stockholders of record and the closing price of our common stock was $1.10 per share as reported by the NASDAQ Global Market. 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:

2008	**High**	**Low**
First Quarter	$9.01	$4.70
Second Quarter	$6.24	$4.30
Third Quarter	$6.79	$4.55
Fourth Quarter	$5.41	$1.41

2007	**High**	**Low**
First Quarter	$14.82	$10.00
Second Quarter	$12.16	$ 9.87
Third Quarter	$12.49	$ 9.36
Fourth Quarter	$10.22	$ 7.21

The following graph compares the cumulative total stockholder return data for our stock since December 31, 2003 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, 2003. The graph further assumes that such amount was initially invested in the Common Stock of the Company at a per share price of $14.90 (closing price on December 31, 2003) and that of any dividends were reinvested. This performance graph is 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 is not necessarily indicative of future stock price performance.

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COMPARISON OF 5 YEARS CUMULATIVE TOTAL RETURNS*

Among PDF Solutions, Inc., The NASDAQ Composite Index
And The RDG Technology Composite Index

*

$100 invested on 12/31/03 in stock or index-including reinvestment of dividends.
Fiscal year ending December 31.

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The information under the heading "Equity Compensation Plan Information" in our definitive Proxy Statement (our "Proxy Statement") to be filed with the SEC in connection with our 2008 Annual Meeting of Stockholders is incorporated into Item 5 of this report by reference.

The table below sets forth the information with respect to 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 of the year ended December 31, 2008 (in thousands except per share amounts):

ISSUER PURCHASES OF EQUITY SECURITIES

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs(1)	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs(1)
Month #1 (October 1, 2008 through October 31, 2008)		$		$ 5,369
Month #2 (November 1, 2008 through November 30, 2008)	715	$ 2.36	715	$ 3,683
Month #3 (December 1, 2008 through December 31, 2008)	950	$ 2.19	950	$ 1,599
Total	1,665	$ 2.26	1,665	

(1) On March 26, 2003, our Board of Directors approved a share repurchase program to purchase up to $10.0 million of our outstanding common stock. The program was completed in August 2007 with 988,000 shares repurchased at the average price of $10.12. On October 29, 2007, the Board of Directors approved a new program to repurchase up to an additional $10.0 million of the Company's common stock on the open market. The right to repurchase stock under this program will expire on October 29, 2010. As of December 31, 2008, 2,428,000 shares had been repurchased under this program and $1.6 million remained available for repurchases.

Dividend Policy

No cash dividends were declared or paid in 2008 or 2007. 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.

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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,				
	2008(3)(4)	2007(2)	2006(1)	2005	2004
	(In thousands, except per share amounts)				
Consolidated Statements of Operations Data:					
Revenue:					
Design-to-silicon-yield solutions:					
Services	$ 50,273	$63,731	$45,382	$52,719	$49,573
Software licenses	4,840	6,645	10,774	9,319	4,971
Gainshare performance incentives	18,924	24,087	20,028	11,890	7,802
Total revenue	74,037	94,463	76,184	73,928	62,346
Cost of design-to-silicon-yield solutions:					
Services	28,926	32,279	27,418	24,319	21,811
Software licenses	185	191	209	293	83
Amortization and impairment of acquired technology	6,012	5,148	5,270	5,064	5,209
Total costs of design-to silicon-yield solutions	35,123	37,618	32,897	29,676	27,103
Gross margin	38,914	56,845	43,287	44,252	35,243
Operating expenses:					
Research and development	33,994	36,074	27,613	22,204	20,999
Selling, general and administrative	21,778	24,891	19,814	16,146	15,243
Amortization of other acquired intangible assets	893	3,422	1,459	940	1,406
Restructuring charges	3,401				
Impairment on goodwill and other acquired intangible assets	66,830				
Write-off of in-process research and development			800		
Total operating expenses	126,896	64,387	49,686	39,290	37,648
Income (loss) from operations	(87,982)	(7,542)	(6,399)	4,962	(2,405)
Interest and other income, net	353	1,891	2,827	1,658	675
Income (loss) before taxes	(87,629)	(5,651)	(3,572)	6,620	(1,730)
Income tax provision (benefit)	8,099	(2,724)	(3,133)	96	(1,116)
Net income (loss)	$ (95,728)	$ (2,927)	$ (439)	$ 6,524	$ (614)
Net income (loss) per share:					
Basic	$ (3.48)	$ (0.10)	$ (0.02)	$ 0.25	$ (0.02)
Diluted	$ (3.48)	$ (0.10)	$ (0.02)	$ 0.24	$ (0.02)
Weighted average common shares:					

Basic	27,514	28,066	26,885	25,983	25,330
Diluted	27,514	28,066	26,885	27,473	25,330

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Stock-based compensation expense included in these consolidated statements of operations was recorded under Accounting Principles Board ("APB") Opinion No. 25, *Accounting for Stock Issued to Employees* ("APB No. 25") for the years 2004 through 2005 and under Statement of Financial Accounting Standards ("SFAS") No. 123 (revised 2004), *Share-Based Payment* ("SFAS No. 123(R)") for the years 2006 through 2008.

For the years ended December 31, 2008, 2007, and 2006, the income tax provision includes income tax benefit from stock-based compensation.

	December 31,				
	2008(3)(4)	**2007(2)**	**2006(1)**	**2005**	**2004**
			(In thousands)		
Consolidated Balance Sheets Data:					
Cash and cash equivalents	$31,686	$ 35,315	$ 36,451	$ 60,506	$ 45,660
Short-term investments	9,051	9,949	16,402		
Working capital	56,331	72,456	66,586	68,534	51,312
Total assets	79,627	179,351	168,857	139,892	125,407
Total stockholders' equity	59,770	156,470	148,219	122,681	108,798

(1) In October 2006, we completed our acquisition of all the outstanding stock of SiA. SiA developed and licensed fault detection and classification ("FDC") software applications and services. The aggregate purchase price of $36.6 million included the payment in cash of $25.5 million, the issuance of 699,000 shares of PDF common stock valued at $9.4 million and acquisition costs of $1.7 million.

(2) In May 2007, we completed our acquisition of all the outstanding stock of Fabbrix. Fabbrix developed DFM software applications. The aggregate purchase price of $6.2 million included the payment in cash of $2.7 million, the issuance of 272,000 shares of PDF common stock valued at $2.9 million and acquisition costs of $674,000.

(3) In October 2008, we completed our acquisition of substantially all of the assets of Triant. Triant developed and licensed FDC software applications and services. The aggregate purchase price of $1.9 million included the payment in cash of $1.6 million and acquisition costs of $312,000.

(4) In the fourth fiscal quarter of 2008, the Company recorded an impairment of goodwill and intangible assets of $70.3 million.

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 Integrated Yield Ramp offerings. 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. 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.

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History

From our incorporation in 1992 through late 1995, we were primarily focused on research and development of our proprietary manufacturing process simulation and yield and performance modeling software. From late 1995 through late 1998, we continued to refine and sell our software, while expanding our offering to include yield and performance improvement consulting services. In late 1998, we began to sell our software and consulting services, together with our newly developed proprietary technologies, under the term Design-to-Silicon-Yield solutions, reflecting our current business model. In April 2000, we expanded our research and development team and gained additional technology by acquiring AISS. AISS now operates as PDF Solutions, GmbH, a German company, which continues to develop software and provide development services to the semiconductor industry. In July 2001, we completed the initial public offering of our common stock. In 2003, we enhanced our product and service offerings, including increased software applications, through the acquisitions of IDS and WaferYield. In 2006, we further complemented our technology offering by acquiring SiA and adding its FDC software capabilities to our integrated solution. In 2007, we increased our IP solutions portfolio, particularly in logic design technology, through the acquisition of Fabbrix. In 2008, we solidified our market leading position in the FDC software market, particularly in Korea, and now provide complementary technology to our mæstria product through the acquisition of certain assets of Triant.

Industry Trend

Subject to the current general economic downturn, 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 semiconductor industry is currently experiencing significant challenges, primarily due to a deteriorating macroeconomic environment, and it is unclear when a turnaround may occur. As a result of this downturn, some of our customers faced financial challenges in fiscal 2008 and may continue to face such challenges in fiscal 2009. The current economic downturn has contributed to the substantial reduction in our revenue and could continue to harm our business, operating results and financial condition.

Due to the current decline in our stock price and market capitalization, our fiscal 2008 net loss, expected future net losses, reduced future cash flow estimates, and slower growth rates in our industry, we recorded impairment totaling $64.0 million in fiscal 2008, representing all of our acquired goodwill. We also recorded impairment of $6.3 million relating to our acquired intangible assets, and valuation allowance on our deferred tax assets of $24.4 million.

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We plan operating expense levels primarily based on forecasted revenue levels. To partially offset the impact of our expected decrease in revenue, we have implemented cost savings initiatives, including reducing headcount and other discretionary spending. During the year ended December 31, 2008, we initiated two restructuring plans to improve our operating results and to align our cost structure with expected revenue.

The following were our financial highlights for the year ended December 31, 2008.

Total revenue was $74.0 million, which was a decrease of $20.4 million, or 22%, compared to the year ended December 31, 2007. Design-to-Silicon-Yield solutions revenue was $55.1 million, which was a decrease of $15.3 million, of 22%, from the year ended December 31, 2007. The decrease in Design-to-Silicon Yield solutions revenue was primarily the result of lower bookings, as customers have delayed purchases for capacity expansion and investment in leading-edge technology. The dramatic downturn in the semiconductor industry combined with weakness in worldwide economies has been the primary contributors to this reduction. Gainshare performance incentives revenue was $18.9 million, which was a decrease of $5.2 million, or 21%, from the year ended December 31, 2007. The decrease in revenue from gainshare performance incentives was primarily the result of reduced volumes in customer manufacturing facilities.

Net loss for the year ended December 31, 2008 was $95.7 million, an increase of $92.8 million compared to net loss of $2.9 million for the year ended December 31, 2007. The increase in net loss was primarily attributable to an impairment on goodwill and intangible assets, decreases in revenue, and the establishment of a valuation allowance against deferred tax assets, partially offset by decreases in