PDF SOLUTIONS INC
Form 10-K
March 17, 2008

**UNITED STATES SECURITIES AND EXCHANGE COMMISSION**
**Washington, D.C. 20549**

**Form 10-K**

(Mark One)

þ      **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
       **For the fiscal year ended December 31, 2007**

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

**(408) 280-7900**
**(Registrant   s telephone number, including area code)**

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

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

**Securities registered pursuant to Section 12(g) of the Act:**
**None**

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

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 þ

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 þ    No o

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

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

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

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

The aggregate market value of the voting stock held by non-affiliates of the Registrant was approximately $148,548,482 as of the last business day of the Registrant  s most recently completed second quarter, based upon the closing sale price on the Nasdaq National 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 29,132,999 and 27,746,891 shares of the Registrant  s Common Stock issued and outstanding, respectively, as of March 7, 2008.

**DOCUMENTS INCORPORATED BY REFERENCE**

Part III incorporates information by reference from the definitive Proxy Statement for our Annual Meeting of Stockholders to be held on May 22, 2008.

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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 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 12 months; and expectations of our future liquidity requirements. 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, c projected, expects, believes, intends, and assumes, the negative of these terms and similar expressions are used 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 which ends on December 31.*

## Item 1. *Business*

### Business Overview

We incorporated in 1992 and are a leading provider of infrastructure technologies and services to improve yield and optimize performance of integrated circuits. Our technologies and services enable semiconductor companies to improve profitability across the entire process lifecycle, which is the term we have coined for the time from the design of an integrated circuit ( IC ) through volume manufacturing of that IC. Our solutions enable this by improving our customer s time-to-market, increasing yield, and reducing total design and manufacturing costs. Our solutions combine proprietary software, physical intellectual property in the form of cell libraries for IC designs, test chips, an electrical wafer test system, proven methodologies, and professional services. We analyze yield loss mechanisms to identify, quantify, and correct the issues that cause yield loss. Our analysis drives IC design and manufacturing improvements to enable our customers to optimize the technology development process, to increase the 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 incorporating knowledge of the integration of the design and manufacturing processes into our software modules and physical intellectual property ( 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.

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*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 now 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 Lifecycle. To achieve this objective, we intend to:

*Extend Our Technology Leadership Position.*  We intend to extend our technology leadership position by leveraging our experienced engineering staff and codifying the knowledge that we acquire in our solution implementations. For example, we continue to expand and develop new technology that leverages our Characterization Vehicle® (CV®) methodology to embed test structures on product wafers; this provides valuable insight regarding product yield loss during mass production with minimal or no increase in test time and non-product wafers. In addition, we selectively acquire complementary businesses and technologies to increase the scope of our solutions. For example, in May 2007, we completed the acquisition of Fabbrix, Inc. ( Fabbrix ), a company with technology for creating physical IP building blocks for logic designers. This acquisition allows us to expand our Design-for-Manufacturability ( DFM ) offerings by leveraging our proprietary characterization of our customers  processes and providing them with process-optimized physical IP libraries.

*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, through which we will continue to use to generate market-driven improvements that add even more value to our solutions and to our customers. Those customers that choose to adopt the gainshare performance incentives model succeed in improving their yield and performance while reducing costs. We believe that we will generate expanded relationships with these customers and new customer accounts based on these successes.

*Focus on Key IC Product Segments.*  We intend to focus our solutions on high-volume, high-growth IC product segments such as system-on-a-chip, memory, CMOS image sensor, and high-performance central processing units. As a result, we will continue to expand our solutions for technology drivers such as high-k dielectrics, SOI, copper, and 300mm wafer fabs, which are all somewhat new and 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.

*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 manufacturing and test equipment vendors, electronic design automation vendors, silicon intellectual property providers, semiconductor foundries, and contract test and assembly houses. We believe that our integrated solution provides significant value because it is a comprehensive solution and

thus, we will continue to pursue strategic relationships that expand the benefits of our CV® infrastructure, our Integrated Yield Ramp, and our DFM and process control solutions. We expect these relationships to also serve as sales channels and to increase industry awareness of our solutions.

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**Industry Background**

Rapid technological innovation, with increasingly shorter product life cycles, now fuels the economic growth of the semiconductor industry. Previously, companies could afford to take months, or years in some cases, to integrate new IC designs with manufacturing processes. With longer product life cycles, 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.

Historically, yield loss resulted primarily from random contamination in the IC manufacturing process, for example from particles falling on the wafer during the manufacturing process. As the semiconductor industry has moved to 90-nanometer process technology and beyond, the primary drivers of yield loss with nanometer-era ICs has shifted from contamination to:

> systematic yield loss, or non-functioning ICs resulting from lack of compatibility between design and manufacturing processes; and

> performance yield loss, or functioning ICs that do not meet customer speed requirements.

Semiconductor manufacturers have traditionally addressed systematic yield loss and performance yield loss reactively and almost exclusively by implementing inefficient time consuming processes such as trial-and-error adjustments to the manufacturing process during volume production.

Disaggregation of the semiconductor industry has further complicated IC companies   ability to minimize systematic yield loss and performance yield loss. Historically, leading semiconductor companies designed, manufactured, and tested their ICs internally, thus retaining process-design integration knowledge. Today, the industry is more fragmented, comprised of separate organizations, as well as separate companies, that specialize in a particular phase of the IC design and manufacturing process. This has fragmented the knowledge related to the integration of IC design and manufacturing and resulted in great difficulty in making designs compatible with a manufacturing process prior to volume production.

**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.

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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, 2007, we held 34 patents worldwide, including 26 U.S. patents, and we had 67 additional patent applications currently pending worldwide, including 39 pending in the United States. We intend to prepare additional patent applications for submission to the United States Patent and Trademark Office and various foreign patent offices. In the future, we may seek additional patent protection when we feel it is necessary. Characterization Vehicle®, Circuit Surfer®, CV®, *dataPOWER*®, mæstria®, Optissimo®, pdFasTest®, pDfx®, PDF Solutions®, Proxecco®, the PDF Solutions logo, Yield Ramp Simulator®, and YRS® are our registered trademarks, and Design-to-Silicon-Yield™, *dP*-bitMAP™, *dP*-Defect™, *dP*-Mining™, *dP*-probeMAP™, *dP*-shotMAP™, *dP*-SSA™, *dP*-VUE™, pdBRIX™, and pdCV™ are our unregistered trademarks.

## Products and Services

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

### *Services and Solutions*

*Manufacturing Process Solutions.*  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.*  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. Optional software modules allow customers to perform rapid yield signature detection, characterization and diagnosis at all levels of map analysis from memory bits to wafers to final packaged parts with die identification traceability. Our process control software offering enables our customers to monitor and control process signals to detect and diagnose yield loss related to equipment performance.

*Design-for-Manufacturability 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, intellectual property, and services designed to make yield improvements by trading off density or performance, for example, in the logic portions of an

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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 intellectual property design building block elements.

> *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.

> *pdBRIXᵗᵐ Physical IP Solutions:* pdBRIXᵗᵐ 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 solutions incorporate the use of various elements of our software and other technologies depending on the customers needs. Our software 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.

> *pdCVᵗᵐ 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 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.

*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

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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<sup>tm</sup> 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, stores it in databases, 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 that 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<sup>tm</sup>), memory analysis (*dP*-bitMAP<sup>tm</sup>), spatial signature analysis (*dP*-SSA<sup>tm</sup>), data-mining (*dP*-Mining<sup>tm</sup>), optimization of die on the wafer (*dP*-shotMAP<sup>tm</sup>), and probe-head optimization (*dP*-probeMAP<sup>tm</sup>), and web-based access (*dP*-VUE<sup>tm</sup>).

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

With the exception of *data*POWER, mæstria and pdBRIX, the primary distribution method for our software and technologies is through our manufacturing process solutions (   MPS   ) 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 (   IDM   ), 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 and International Business Machines Corporation represented 19% and 16%, respectively, of our total revenue for the year ended December 31, 2007. International Business Machines Corporation and Toshiba Corporation represented 25% and 12% respectively, of our total revenue for the year ended December 31, 2006. Texas Instruments, International Business Machines Corporation, Matsushita Electric Industrial Co., and Toshiba Corporation represented 15%, 13%, 11%, and 10%, respectively, of our total revenue for the year ended December 31, 2005. No other customer accounted for 10% or more of our revenue in years 2007, 2006, and 2005.

**Sales and Marketing**

Our sales strategy is to pursue targeted accounts through a combination of our direct sales force 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, we use our direct sales team and, for FDC offerings, we use a local distributor, Yamatake Corporation. In Taiwan, we use J.I.T. International Co., Ltd. as a sales representative and in Korea we use a combination of direct sales and local sales representatives and distributors. We expect to continue to

establish strategic alliances with vendors in the electronic design automation software, capital equipment for IC production, silicon intellectual property and mask-making software segments to create and take advantage of co-marketing opportunities. We believe that these relationships will also serve as sales channels for our Design-to-Silicon-Yield solutions and to increase industry awareness of our solutions.

In the year ended December 31, 2007, we derived 55% of total revenue from customers based in Asia compared to 50% and 55%, respectively, in the years ended December 31, 2006 and December 31, 2005. In the year ended December 31, 2007, 31% of our total revenue was derived from customers located in the United States as

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compared to 39% and 35%, respectively, in the years ended December 31, 2006 and December 31, 2005. 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.

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.

**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 $36.1 million, $27.6 million, and $22.2 million in 2007, 2006, and 2005, 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 IC companies  needs requires a unified system of yield models, design analysis software, CV test chips, physical IP creation, process control software, and yield management software. Currently, we are the only provider of comprehensive commercial solutions for integrating design and manufacturing processes. We face indirect competition from internal groups at IC companies that use an incomplete set of components not optimized to accelerate process-design integration. Some providers of yield management software, inspection equipment, electronic design automation, or design IP may seek to broaden their product offerings and compete with us.

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.), 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.), Triant Holdings Inc., Straatum Processware Ltd., and MKS. ARM Ltd. and Virage Logic Corporation provide standard cells in the physical IP space, which could compete with our pdBRIX solution. In

addition, Synopsys now appears to offer directly competing DFM, 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.

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## Employees

As of December 31, 2007, we had 382 employees, including 144 on client service teams, 147 in research and development, 33 in sales and marketing and 58 in general and administrative functions. 180 of these employees are located in San Jose/San Diego, California, 69 are located in France, 39 are located in China, 30 are located in Texas and other parts of the United States, 26 are located in Japan, 18 are located in Italy, 17 are located in Germany, 2 are located in Korea, and 1 employee is located in the Netherlands.

None of our employees is represented by a labor union or is subject to a collective bargaining agreement. 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. | 43 | Chief Executive Officer, President and Director |
| Keith A. Jones | 37 | Chief Financial Officer and Vice President, Finance |
| David A. Joseph | 54 | Chief Strategy Officer |
| Rebecca Baybrook, Ph.D. | 56 | Vice President, Human Resources |
| Cees Hartgring, Ph.D. | 54 | Vice President, Client Services and Sales |
| Andre Hawit | 46 | Vice President and General Manager, Yield Manufacturing Solutions |
| James Jensen | 55 | Vice President, Business Development |
| P. Steven Melman | 53 | Vice President, Investor Relations and Strategic Initiatives |
| Kimon Michaels, Ph.D. | 41 | Vice President, Design for Manufacturability |

*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. Mr. Kibarian has served as a director since December 1992. Mr. 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.

*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, from September 2001 to July 2003, he served as Assistant Controller for Interwoven, Inc., a provider of enterprise content management solutions. From May 2000 to July 2001, he served as Controller for eTime Capital, Inc., a financial software applications company. From July 1994 to April 2000, he 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, from February 1978 to October 1998, 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.

*Rebecca Baybrook, Ph.D.*, has served as Vice President, Human Resources since May 2002. Prior to joining PDF, from September 2001 to April 2002, Ms. Baybrook served as Sr. Director, Human Resources for Vitria Technologies, an integrated software company. From October 1999 to July 2001 she served as Director, Human Resources for 3Com, a telecommunications company. From January 1986 to September 1999, Ms. Baybrook served as Assistant Vice President of Human Resources for Knight Ridder, Inc., a publishing company. Ms. Baybrook received a B.A. degree from Westmont College and a Ph.D. in Organizational Psychology from University of South Florida.

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*Cees Hartgring, Ph.D.*, has served as Vice President, Client Services and Sales since June 2007. Mr. 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, from May 2000 to August 2001, Mr. Hartgring served as President and Chief Executive Officer of Trimedia Technologies, a Philips Semiconductor spinout. From August 1990 to April 2000, he held various executive positions at Philips Semiconductor, most recently as Vice President and General Manager of the Trimedia business unit. Mr. Hartgring has 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 and General Manager, Yield Manufacturing Solutions since January 2006. Mr. Hawit served 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. From October 1991 through August 2003, he 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, Business Development since June 2007. Mr. Jensen served 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, from July 1996 through February 2002, he served as General Manager of a semiconductor fabrication facility of Texas Instruments, a semiconductor products company. From November 1989 through June 1996, Mr. Jensen served as Fabrication 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, from April 1997 to June 1998, he served as Vice President, Finance and Administration with Animation Science Corporation, an animation company. From April 1995 to April 1997, he 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. Mr. 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. Mr. 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**

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.

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

*If semiconductor designers and manufacturers do not continue to adopt our Design-to-Silicon-Yield solutions, we may be unable to increase or maintain our revenue.*

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 could decline. To be successful, we will need to continue to enter into agreements covering a larger number of IC products and processes with existing customers and new customers. We need to develop new customer relationships with companies that are integrated device manufacturers, fabless semiconductor companies, and foundries, as well as system manufacturers so that we can continue to implement our Design-to-Silicon-Yield solutions and experience greater market acceptance of our solutions. Factors that may limit adoption of our Design-to-Silicon-Yield solutions by semiconductor companies include:

    our customers   failure to achieve satisfactory yield improvements using our Design-to-Silicon-Yield solutions;

    a decrease in demand for semiconductors generally or the slowing of demand for deep submicron semiconductors;

    our inability to develop, market, or sell effective solutions that are outside of our traditional MPS logic focus;

    our existing and potential customers   delay in their adoption of the next process technology;

    the development in the industry of alternative methods to enhance the integration between the semiconductor design and manufacturing processes due to a rapidly evolving market and the emergence of new technologies;

    our existing and potential customers   reluctance to understand and accept our innovative gainshare performance incentives fee component; and

    our customers   concern about our ability to keep highly competitive information confidential.

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

Historically, we have had a small number of large customers for our core Design-to-Silicon-Yield solutions and we expect this to continue in the near term. In the year ended December 31, 2007, two customers accounted for 35% of our total net revenue, with Toshiba Corporation representing 19% and International Business Machines Corporation representing 16%. In the year ended December 31, 2006, two customers accounted for 37% of our total net revenue, with International Business Machines Corporation representing 25% and Toshiba Corporation representing 12%. 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.

*If integrated device manufacturers of logic integrated circuits reduce investment in new process technology as a result of a shift to a fabless manufacturing business model, the pool of potential logic customers for our yield ramp solutions will shrink and our results of operations may suffer.*

Historically, the majority of our revenue from integrated yield ramps has been derived from IDM of logic IC. If IDMs decide to discontinue or significantly cut 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, there may be fewer IDMs that are potential customers for our solutions that integrate product designs with in-house manufacturing processes. As a result, the revenue we are able to generate from integrated yield ramps for logic ICs could fall below levels that are currently expected. Also, because our expenses are fixed in the short term and it takes

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a long time for us to replace customers, such a reduction in revenue could cause significant fluctuations in results of operations.

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

We will need to continue to grow in all areas of operation and successfully integrate and support our existing and new employees into our operations, or we may be unable to implement our business strategy in the time frame we anticipate, if at all. 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 will need to expand our intranet to support new data centers to enhance our research and development efforts. Our intranet 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 may need to switch to a new accounting system in the near future, 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.

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

Our success depends largely on the proprietary nature of our technologies. 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. Also, patent protection in foreign countries may be limited or unavailable where we need such protection. Litigation may be necessary from time to time to enforce our intellectual property rights or to determine the validity and scope of the proprietary rights of others. As a result of any such litigation, we could lose our proprietary rights and incur substantial unexpected operating costs. Litigation could also divert our resources, including our managerial and engineering resources.

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

Competition in our market may intensify in the future, which could slow our ability to grow or execute our strategy and could lead to increased pricing pressure. Our current and potential customers may choose to develop their own solutions internally, particularly if we are slow in deploying our solutions. Many of these companies have the financial and technical capability to develop their own solutions. Also, competitors could establish non-domestic operations with a lower cost structure than our engineering organization, which, unless we also establish lower cost non-domestic operations, 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 (through its acquisition of Yield Dynamics, Inc.), Ponte Solutions, Syntricity Inc., TIBCO Software Inc. (through its acquisition of Spotfire Inc.), and Synopsys, and process control software, such as Applied Materials, Inc., Triant Holdings Inc., Straatum Processware

Ltd., and MKS. Further, ARM Ltd. and Virage Logic Corporation provide standard cells in the physical IP space, 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

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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 derive a majority of our revenue from international sales, principally from customers based in Asia. Revenue generated from customers in Asia accounted for 55% of total revenue in the year ended December 31, 2007 and 50% in the year ended December 31, 2006. We expect that a significant portion of our total future revenue will continue to be derived from companies based in Asia. In addition, we have expanded our non-U.S. operations recently and plan to continue such expansion by establishing overseas subsidiaries, offices, or contractor relationships in locations, and when, deemed appropriate by our management. The success of our business is subject to risks inherent in doing business internationally. These risks include:

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;

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, 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 protection of our intellectual property, and a wide variety of 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;

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, and the resulting disruption to economic activity and business operations.

In Japan, 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 the Japanese Yen, the cost of our solutions will be more expensive to existing and potential Japanese customers and therefore less competitive.

In the Middle East, we use a third-party service provider, whose operations are not located in a U.S. embargoed country, to provide certain software quality assurance and other services for certain of our software products. The

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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.

***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 could decline due to such fluctuations. The following factors may cause significant fluctuations in our future quarterly operating results:

the size and timing of sales volumes achieved by our customers products;

the loss of any of our large customers or an adverse change in any of our large customers businesses;

the size of improvements in our customers yield and the timing of agreement as to those improvements;

our long and variable sales cycle;

changes in the mix of our revenue;

changes in the level of our operating expenses needed to support our projected growth; and

delays in completing solution implementations for our customers.

***Revenue from our gainshare performance incentives is dependent on factors outside of our control, including the volume of integrated circuits 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. We have limited ability to predict the success or failure of our customers IC products. Further, our customers may 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; a decision which is beyond our control. In addition, we may commit a significant amount of time and resources to a customer who is ultimately unable to sell as many units as we had anticipated when contracting with them or who makes unplanned changes to their processes. 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 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. Further, decreased demand for semiconductor products decreases the volume of products our customers are able to sell, which may adversely affect our gainshare performance incentives revenue.

***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 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.

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***Changes in the structure of our customer contracts, including the mix between fixed and variable revenue and the mix of elements, can adversely affect the size 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 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. 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, which can result in uncertainty and delays in generating additional revenue.***

Because our gainshare performance incentives business model is unique and our Design-to-Silicon-Yield solutions are unfamiliar to some new customers, our sales cycle is lengthy 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.

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

We have experienced losses in the past and in the current fiscal year ended December 31, 2007. We may not achieve and thereafter maintain profitability if our revenue increases more slowly than we expect or not at all. 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 $16.9 million as of December 31, 2007. 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 of intangibles and stock-based compensation.

As a result, we will need to significantly increase revenue to maintain profitability on a quarterly or annual basis. Any of these factors could cause our stock price to decline.

*We may experience significant fluctuations in operating results due to the cyclical nature of the semiconductor industry.*

Our revenue is highly dependent upon the overall condition of the semiconductor industry, especially in light of our gainshare performance incentives revenue component. The semiconductor industry is highly cyclical and subject to rapid technological change and has been subject to significant economic downturns at various times,

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characterized by diminished product demand, accelerated erosion of average selling prices, and production overcapacity. The semiconductor industry also periodically experiences increased demand and production capacity constraints. As a result, we may experience significant fluctuations in operating results due to general semiconductor industry conditions and overall economic conditions.

***We must continually attract and retain highly talented executives, engineers, and research and development personnel or we will be unable to expand our business as planned.***

In order to stay competitive, we will need to continue to hire highly talented executives, engineers, and research and development personnel to support our planned growth. We have experienced, and we expect to continue to experience, delays and limitations in hiring and retaining highly skilled individuals with appropriate qualifications. We intend to continue to hire foreign nationals, particularly as we expand our operations internationally. We have had, and expect to continue to have, difficulty in obtaining visas permitting entry into the United States 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. Competition for executives and qualified engineers can be intense, especially in Silicon Valley where we are principally based.

***If our products, technologies, services, and integrated solutions fail to keep pace with the rapid technological changes in the semiconductor industry, we could lose customers and revenue.***

We must continually devote significant engineering resources to enable us to keep up with the rapidly evolving technologies and equipment used in the semiconductor design and manufacturing processes. These innovations are inherently complex and require long development cycles. Not only do we need the technical expertise to implement the changes necessary to keep our technologies current, we also rely heavily on the judgment of our advisors and management to anticipate future market trends. Our customers expect us to stay ahead of the technology curve and expect that our products, technologies, services, and integrated solutions will support any new design or manufacturing processes or materials as soon as they are deployed. If we are not able to timely predict industry changes, or if we are unable to modify our products, technologies, services, and integrated solutions on a timely basis, our existing solutions will be rendered obsolete and we may lose customers. If we do not keep pace with technology, our existing and potential customers may choose to develop their own solutions internally as an alternative to ours and we could lose market share, which could adversely affect our operating results.

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

In order to establish and maintain strategic relationships with industry leaders at each stage of the IC design and manufacturing processes, we may need to expend significant resources and will need to commit a significant amount of management s time and attention, with no guarantee of success. 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. We may be unable to establish key industry strategic relationships if any of the following occur:

potential industry partners become concerned about our ability to protect their intellectual property;

potential industry partners develop their own solutions to address the need for yield improvement;

our potential competitors establish relationships with industry partners with which we seek to establish a relationship; or

potential industry partners attempt to restrict our ability to enter into relationships with their competitors.

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***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.

***Key executive officers are critical to our business and we cannot guarantee that they will remain with us indefinitely.***

Our future success will depend to a significant extent on the continued services of our key executive officers. If we lose the services of any of our key executive officers, it could slow execution of our business plan, hinder our product development processes and impair our sales efforts. Searching for replacements could divert our senior management s time and increase our operating expenses. In addition, our industry partners and customers could become concerned about our future operations, which could injure our reputation and cause our stock price to drop. We do not have long-term employment agreements with our executives and we do not maintain any key person life insurance policies on their lives.

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

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

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

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

***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, 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

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by us. If our software, hardware, or proprietary technologies contain errors or defects, it could require us to expend significant resources to alleviate 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 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 our 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 as 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 expand our business and proprietary technologies if we do not consummate potential acquisitions or investments or successfully integrate them with our business.***

To expand our proprietary technologies, we may acquire or make investments in complementary businesses, technologies, or products if appropriate opportunities arise. We may be unable to identify suitable acquisition or investment candidates at reasonable prices or on reasonable terms, or consummate future acquisitions or investments, each of which could slow our growth strategy. We may have difficulty integrating the acquired products, personnel or technologies of any acquisitions we might make. These difficulties could disrupt our ongoing business, distract our management and employees and increase our expenses.

***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 any necessary funds on terms favorable to us, or at all.

***Recent 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 incorporating into PDF the operations of recently acquired businesses, including Si Automation S.A. ( SiA ), a French company, acquired in October 2006, and Fabbrix, acquired in May 2007, depend upon our ability to successfully integrate those businesses. The integration of acquired businesses is a complex, costly and time-consuming process. The difficulties of combining our existing operations associated with acquired businesses include:

consolidating research and development operations;

retaining key employees;

incorporating 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.

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***If we were required to write down all or part of our goodwill, our net earnings and net worth could be materially adversely affected.***

We had $65.2 million of goodwill recorded on our consolidated balance sheet as of December 31, 2007. Goodwill represents the excess of cost over the fair market value of net assets acquired in business combinations. If our market capitalization drops significantly below the amount of net equity recorded on our balance sheet, it would indicate a decline in the fair value of the Company and would require us to further evaluate whether our goodwill has been impaired. We also perform an annual review, at December 31, of our goodwill to determine if it has become impaired, in which case we would write down the impaired portion of our goodwill. If we were required to write down all or a significant part of our goodwill, our net earnings and net worth could be materially adversely affected.

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

We conduct our business globally, 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.

***The uncertainty in the credit markets might impact the value of certain auction-rate securities we held at December 31, 2007 and we might have to record impairment charges 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. As of December 31, 2007, we held auction-rate securities with a par value of $4.5 million. Auction-rate securities are variable rate debt instruments whose interest rates are reset through a   dutch   auction process at regular intervals, typically every 28 days. A portion of these securities are insured by third party bond insurers and are collateralized by student loans guaranteed by governmental agencies and private entities. Subsequent to December 31, 2007, the Company sold $3.0 million of auction rate securities at par during auctions. Since then, the liquidity of the remaining securities has been negatively impacted by the uncertainty in the credit markets and the exposure of these securities to the financial condition of bond insurance companies. In February and March 2008, the remaining $1.5 million in auction-rate securities we held failed to sell at auction due to an insufficient number of bidders. We will further review the value of these securities impairment. If we determine that these securities have been impaired, this will negatively affect our results from operations. 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 charges.

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

None.

**Item 2.**   *Properties*

Our principal executive offices are located in San Jose, California where we lease approximately 49,800 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 March 2008. We lease other sales offices and laboratory spaces in Pennsylvania, Texas, and New Hampshire in the United States. In addition, we have offices overseas in France,

Germany, Italy, China, Japan, and Korea with an aggregate of square footage approximately 38,000 square feet under various leases that expire 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 2007.

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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 has traded on the Nasdaq National Market under the symbol   PDFS  . As of February 25, 2008 we had approximately 248 stockholders of record and the closing price of our common stock was $5.25 per share as reported by the Nasdaq National 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 National Market:

| 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 |

| 2006 | High | Low |
|---|---|---|
| First Quarter | $  19.85 | $  16.50 |
| Second Quarter | $  19.36 | $  11.00 |
| Third Quarter | $  13.35 | $   9.50 |
| Fourth Quarter | $  15.70 | $  10.79 |

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The following graph compares the cumulative total stockholder return data for our stock since December 31, 2002 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, 2002. The graph further assumes that such amount was initially invested in the Common Stock of the Company at a per share price of $6.93 (closing price on December 31, 2002) and reinvestment of any dividends. 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.

**COMPARISON OF 5 YEARS CUMULATIVE TOTAL RETURNS***
Among PDF Solutions, Inc., The NASDAQ Composite Index
And The RDG Technology Composite Index

* $100 invested on 12/31/02 in stock or index-including reinvestment of dividends.

Fiscal year ending December 31.

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.

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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, 2007:

## 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) | Maximum Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs(1) |
|---|---|---|---|---|
| Month #1 (October 1, 2007 through October 31, 2007) | | | | $ 10,000,000 |
| Month #2 (November 1, 2007 through November 30, 2007) | 201,300 | $ 7.57 | 201,300 | $ 8,477,152 |
| Month #3 (December 1, 2007 through December 31, 2007) | | | | $ 8,477,152 |
| Total | 201,300 | $ 7.57 | 201,300 | |

(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 987,808 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 of repurchase stock under this program will expire on October 29, 2010. As of December 31, 2007, 201,300 shares had been repurchased under this program and $8.5 million remained available for repurchases.

**Dividend Policy**

No cash dividends were declared or paid in 2007 or 2006. 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, | | | | |
| --- | --- | --- | --- | --- | --- |
| | 2007(3) | 2006(2) | 2005 | 2004 | 2003(1) |
| | (In thousands, except per share data) | | | | |
| **Consolidated Statements of Operations Data:** | | | | | |
| Revenue: | | | | | |
| Design-to-silicon-yield solutions: | | | | | |
| Services | $ 63,731 | $ 45,382 | $ 52,719 | $ 49,573 | $ 28,060 |
| Software licenses | 6,645 | 10,774 | 9,319 | 4,971 | 7,569 |
| Gainshare performance incentives | 24,087 | 20,028 | 11,890 | 7,802 | 6,897 |
| Total revenue | 94,463 | 76,184 | 73,928 | 62,346 | 42,526 |
| Cost of design-to-silicon-yield solutions: | | | | | |
| Direct costs of design-to-silicon-yield solutions: | | | | | |
| Services | 32,279 | 27,418 | 24,319 | 21,811 | 14,734 |
| Software licenses | 191 | 209 | 293 | 83 | 23 |
| Amortization of acquired technology | 5,148 | 5,270 | 5,064 | 5,209 | 2,168 |
| Total direct costs of design-to silicon-yield solutions | 37,618 | 32,897 | 29,676 | 27,103 | 16,925 |
| Gross margin | 56,845 | 43,287 | 44,252 | 35,243 | 25,601 |
| Operating expenses: | | | | | |
| Research and development | 36,074 | 27,613 | 22,204 | 20,999 | 19,540 |
| Selling, general and administrative | 24,891 | 19,814 | 16,146 | 15,243 | 12,770 |
| Amortization of other acquired intangible assets | 3,422 | 1,459 | 940 | 1,406 | 547 |
| Write-off of in-process research and development | | 800 | | | 800 |
| Total operating expenses | 64,387 | 49,686 | 39,290 | 37,648 | 33,657 |
| Income (loss) from operations | (7,542) | (6,399) | 4,962 | (2,405) | (8,056) |
| Interest and other income, net | 1,891 | 2,827 | 1,658 | 675 | 1,195 |
| Income (loss) before taxes | (5,651) | (3,572) | 6,620 | (1,730) | (6,861) |
| Income tax provision (benefit) | (2,724) | (3,133) | 96 | (1,116) | (2,345) |
| Net income (loss) | $ (2,927) | $ (439) | $ 6,524 | $ (614) | $ (4,516) |

| Net income (loss) per share: | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Basic | $ | (0.10) | $ | (0.02) | $ | 0.25 | $ | (0.02) | $ | (0.19) |
| | | | | | | | | | |
| Diluted | $ | (0.10) | $ | (0.02) | $ | 0.24 | $ | (0.02) | $ | (0.19) |
| | | | | | | | | | |
| Weighted average common shares: | | | | | | | | | |
| Basic | | 28,066 | | 26,885 | | 25,983 | | 25,330 | | 23,278 |
| | | | | | | | | | |
| Diluted | | 28,066 | | 26,885 | | 27,473 | | 25,330 | | 23,278 |

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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 2003 through 2005 and under Statement of Financial Accounting Standards ( SFAS ) No. 123 (revised 2004), *Share-Based Paymen*t ( SFAS No. 123(R) ) for the years 2006 through 2007.

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

| | 2007(3) | 2006(2) | December 31, 2005 (In thousands) | 2004 | 2003(1) |
|---|---|---|---|---|---|
| **Consolidated Balance Sheets Data:** | | | | | |
| Cash and cash equivalents | $ 35,315 | $ 36,451 | $ 60,506 | $ 45,660 | $ 39,110 |
| Short-term investments | 9,949 | 16,402 | | | |
| Working capital | 72,456 | 66,586 | 68,534 | 51,312 | 42,613 |
| Total assets | 179,351 | 168,857 | 139,892 | 125,407 | 123,967 |
| Total stockholders  equity | 156,470 | 148,219 | 122,681 | 108,798 | 106,552 |

(1) In May 2003, we completed our acquisition of certain assets and liabilities of WaferYield, Inc., which related to wafer shot map optimization technology. The aggregate purchase price was $4.1 million, which included cash payments of $2.6 million and the recognition of $1.5 million in other liabilities associated with future payments that were contingent upon the attainment of certain revenue performance objectives.

In September 2003, we completed our acquisition of all the outstanding stock of IDS which developed and sold yield management software applications and services. The aggregate purchase price was $51.0 million which included the payment in cash of $23.0 million, the issuance of 2.0 million shares of PDF common stock valued at $25.0 million, the assumption of stock options valued at $1.7 million and acquisition costs of $1.3 million.

(2) In October 2006, we completed our acquisition of all the outstanding stock of SiA which developed and licensed fault detection and classification software applications and services. The aggregate purchase price of $36.6 million included the payment in cash of $25.5 million, the issuance of 699,298 shares of PDF common stock valued at $9.4 million and acquisition costs of $1.7 million.

(3) In May 2007, we completed our acquisition of all the outstanding stock of Fabbrix which developed DFM software applications. The aggregate purchase price of $6.2 million included the payment in cash of $2.7 million, the issuance of 271,531 shares of PDF common stock valued at $2.9 million and acquisition costs of $674,000.

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

**Overview**

Our technologies and services enable semiconductor companies to improve profitability across the entire  process lifecycle , which is the term we have coined for the time from the IC design through that IC s volume manufacturing. Our solutions improve profitability by improving a semiconductor company s time-to-market, increasing yield and reducing total design and manufacturing costs. Our solutions combine proprietary software, physical IP in the form of

cell libraries for IC designs, test chips, an electrical 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. This drives IC design and manufacturing improvements that enable our customers to optimize the technology development process, increase the initial yield when an IC design first enters a manufacturing line, increase the rate at which yield improves, and 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

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receive revenue based on this value. Our technologies and services have been sold to leading integrated device manufacturers, fabless semiconductor companies and foundries.

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 added intellectual property building blocks for logic design technology to our solution portfolio by acquiring Fabbrix.

*Industry Trend*

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

*Financial Highlights*

The following were our financial highlights for the year ended December 31, 2007.

Total revenue for the year ended December 31, 2007 was $94.5 million, an increase of 24% compared to the year ended December 31, 2006. Revenue from Design-to-Silicon-Yield solutions for the year ended December 31, 2007 increased to $70.4 million compared to $56.2 million for the year ended December 31, 2006. The increase, compared to the year ended December 31, 2006, was primarily the result of increases in services revenue of $18.3 million, partially offset by a decrease in revenue from software licenses of $4.1 million. The revenue derived from the gainshare performance incentives component for the year ended December 31, 2007 increased 20%, to $24.1 million from $20.0 million for the year ended December 31, 2006. Our gainshare performance incentives revenue may continue to fluctuate from quarter-to-quarter as a result of each customer  s individual contractual performance measures for achieving gainshare performance incentives as well as each customer  s production volumes in any given period.

Net loss of $2.9 million was reported for the year ended December 31, 2007, compared to net loss of $439,000 for the year ended December 31, 2006. The increase in net loss was primarily attributable to increases in operating expenses and amortization of acquired intangible assets, both primarily the result of the acquisitions of SiA in October 2006 and Fabbrix in May 2007. Net loss for the year ended December 31, 2007 included $16.9 million in stock-based compensation, amortization of acquired intangible assets and the

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write-off of acquired in-process research and development compared to $14.9 million for the year ended December 31, 2006.

Net loss per basic and diluted share was $0.10 for the year ended December 31, 2007 compared to net loss per basic and diluted share of $0.02 for the year ended December 31, 2006.

Cash, cash equivalents and short-term investments decreased $7.6 million to $45.3 million during the year ended December 31, 2007. Net cash provided by operating activities for the year ended December 31, 2007 totaled $1.4 million. Net cash used in investing activities for the year ended December 31, 2007 included $1.9 million as final payments for our acquisition of SiA, a $2.7 million payment for our acquisition of Fabbrix, and $2.2 million to purchase property and equipment. Net cash used in financing activities for the year ended December 31, 2007 totaled $3.7 million which primarily related to $6.0 million in purchase of treasury stock, partially offset by the exercise of employee stock options and purchases under the employee stock purchase plan of $2.9 million.

*Acquisitions*

On October 31, 2006, we completed our acquisition of all the outstanding capital stock of SiA, a privately held company based in Montpellier, France. SiA developed and licensed fault detection and classification software applications and provided services dedicated to the semiconductor industry that enable customers to rapidly identify sources of process variations and manufacturing excursions by monitoring equipment parameters through its proprietary data collection and analysis applications. The acquisition of SiA allowed us to provide our customers greater capabilities for managing product yield improvement as a result of these process control solutions and services. At the closing of the acquisition, SiA became our wholly owned subsidiary and its name was changed to PDF Solutions S.A., and then to PDF Solutions S.A.S. in 2007. The aggregate purchase price was $37.0 million which included the payment in cash of $25.5 million, the issuance of 699,298 shares of our common stock valued at $9.4 million, and acquisition costs of $2.2 million. Included in the acquisition costs above, $2.7 million in cash and approximately 119,000 shares of common stock were held in escrow as security against certain financial contingencies. The cash and shares held in escrow, less amounts deducted to satisfy contingencies, will be released upon the 18-month anniversary of the acquisition. Any remaining cash and shares held in escrow after satisfying contingencies will be released no later than the 36-month anniversary of the acquisition. In connection with the acquisition, we recorded $21.0 million in goodwill, including subsequent adjustments related to certain accruals and tax liabilities recognized in the acquisition and excluding the impact of changes in exchange rate. Goodwill reflects the excess of the purchase price paid over the identifiable assets assumed in the acquisition.

On May 24, 2007, we completed the acquisition of Fabbrix, a provider of silicon intellectual property designed to create highly manufacturable and area-efficient designs targeted for advanced technology nodes. With this acquisition, we have enhanced our strength in silicon characterization to enable a true co-optimization of the manufacturing fabric and the logic elements. Total cost for the acquisition was $6.2 million, which includes $2.7 million cash, 271,531 shares of our common stock valued at $2.9 million, and $674,000 in acquisition costs. Included in the acquisition costs above, approximately $405,000 in cash and 41,000 shares of common stock were held in escrow as security against certain financial contingencies. The cash and shares held in escrow, less amounts deducted to satisfy contingencies will be released no later than on the 18 month anniversary of the acquisition. The remaining amounts in cash and shares have been paid to the selling stockholders as of December 31, 2007. In connection with the acquisition, we recorded $2.2 million of goodwill and $7.8 million of identifiable intangible assets with a weighted average life of 5.4 years. The consolidated financial statements for the year ended December 31, 2007 include the results of Fabbrix since the date of acquisition.

**Critical Accounting Policies**

Financial Reporting Release No. 60 requires all companies to include a discussion of critical accounting policies or methods used in the preparation of financial statements. Note 1 of   Notes to Consolidated Financial Statements includes a summary of the significant accounting policies and methods used in the preparation of our consolidated financial statements. The following is a brief discussion of the more significant accounting policies and methods that we use.

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*General*

Our discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in conformity with accounting principles generally accepted in the United States of America. Our preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of revenues and expenses during the reporting periods. We based our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. The most significant estimates and assumptions relate to revenue recognition, software development costs, recoverability of goodwill and acquired intangible assets, estimated useful lives of acquired intangibles and the realization of deferred tax assets. Actual amounts may differ from such estimates under different assumptions or conditions.

*Revenue Recognition*

We derive revenue from two sources: Design-to-Silicon-Yield Solutions, which includes Services and Software Licenses, and Gainshare Performance Incentives. We recognize revenue in accordance with the provisions of American Institute of Certified Public Accountants Statement of Position ( SOP ) No. 81-1, *Accounting for Performance of Construction-Type and Certain Production-Type Contracts* and SOP No. 97-2, *Software Revenue Recognition*, as amended.

*Design-to-Silicon-Yield Solutions* Revenue that is derived from Design-to-Silicon-Yield solutions comes from services and software licenses. We recognize revenue for each element of Design-to-Silicon-Yield solutions as follows:

*Services* We generate a significant portion of our Design-to-Silicon-Yield revenue from fixed-price solution implementation service contracts delivered over a specific period of time. These contracts require accurate estimation of the cost to perform obligations and the overall scope of each engagement. Revenue under contracts for solution implementation services is recognized as the services are performed using the cost-to-cost percentage of completion method of contract accounting. Losses on solution implementation contracts are recognized when determined. Revisions in profit estimates are reflected in the period in which the conditions that require the revisions become known and can be estimated. If we do not accurately estimate the resources required or the scope of work to be performed, or do not manage the projects properly within the planned period of time or satisfy our obligations under contracts, resulting contract margins could be materially different than those anticipated when the contract was executed. Any such reductions in contract margin could have a material negative impact on our operating results.

On occasion, we have licensed our software products as a component of our fixed price services contracts. In such instances, the software products are licensed to the customer over the specified term of the agreement with support and maintenance to be provided over the license term. Under these arrangements, where vendor-specific objective evidence of fair value ( VSOE ) exists for the support and maintenance element, the support and maintenance revenue is recognized separately over the term of the supporting period. The remaining fee is recognized as the services are performed using the cost-to-cost percentage of completion method of contract accounting. VSOE for maintenance, in these instances, is generally established based upon a negotiated renewal rate. Under arrangements where software products are licensed as a component of its fixed-price service contract and where VSOE does not exist to allocate a portion of the total fixed-price to the undelivered elements, revenue is recognized for the total fixed-price as the lesser of either the percentage of completion method of contract accounting or ratably over the term of the agreement. Costs incurred under these arrangements are deferred and recognized in proportion to revenue recognized under these arrangements.

Revenue from related support and maintenance services is recognized ratably over the term of the support and maintenance contract, generally one year, while revenue from consulting, installation and training services is recognized as services are performed. When bundled with software licenses in multiple element arrangements, support and maintenance, consulting (other than for our fixed price solution implementations), installation, and training revenue is allocated to each element of a transaction based upon its fair value as determined by our VSOE. VSOE is generally established for maintenance based upon negotiated renewal rates

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while VSOE for consulting, installation, and training is established based upon our customary pricing for such services when sold separately. When VSOE does not exist to allocate a portion of the total fee to the undelivered elements, revenue is recognized ratably over the term of the underlying element for which VSOE does not exist.

*Software Licenses*    We also license our software products separate from our services. In such cases revenue is recognized under the residual method when (1) persuasive evidence of an arrangement exists, (2) delivery has occurred, (3) the fee is fixed or determinable, (4) collectibility is probable, and (5) the arrangement does not require services that are essential to the functionality of the software. When arrangements include multiple elements such as support and maintenance, consulting (other than for our fixed price solution implementations), installation, and training, revenue is allocated to each element of a transaction based upon its fair value as determined by our VSOE and such services are recorded as services. VSOE is generally established for maintenance based upon negotiated renewal rates while VSOE for consulting, installation and training services is established based upon our customary pricing for such services when sold separately. When VSOE does not exist to allocate a portion of the total fee to the undelivered elements, revenue is recognized ratably over the term of the underlying element for which VSOE does not exist. No revenue has been recognized for software licenses with extended payment terms in excess of amounts due.

*Gainshare Performance Incentives*    When we enter into a contract to provide yield improvement services, the contract usually includes two components: (1) a fixed fee for performance by us of services delivered over a specific period of time; and (2) a gainshare performance incentives component where the customer may pay a variable fee, usually after the fixed fee period has ended. Revenue derived from gainshare performance incentives represents profit sharing and performance incentives earned based upon our customers reaching certain defined operational levels established in related solution implementation service contracts. Gainshare performance incentives periods are usually subsequent to the delivery of all contractual services and therefore have no cost to us. Due to the uncertainties surrounding attainment of such operational levels, we recognize gainshare performance incentives revenue (to the extent of completion of the related solution implementation contract) upon receipt of performance reports or other related information from our customers supporting the determination of amounts and probability of collection. Gainshare performance incentives revenue is dependent on many factors which are outside our control, including among others, continued production of the related ICs by our customers, sustained yield improvements by our customers and our ability to enter into new Design-to-Silicon-Yield solutions contracts containing provisions for gainshare performance incentives.

### Software Development Costs

Costs for the development of new software products and substantial enhancements to existing software products are expensed as incurred until technological feasibility has been established, at which time any additional costs would be capitalized in accordance with SFAS No. 86, *Computer Software to be Sold, Leased or Otherwise Marketed*. Because we believe our current process for developing software is essentially completed concurrently with the establishment of technological feasibility, no costs have been capitalized to date.

### Goodwill and Acquired Intangible Assets

As of December 31, 2007, we had $65.2 million of goodwill and $12.8 million of intangible assets. In valuation of our goodwill and intangible assets, we must make assumptions regarding estimated future cash flows to be derived from the acquired assets. If these estimates or their related assumptions change in the future, we may be required to record impairment charges for these assets, which would have a material adverse effect on our operating results. We evaluate goodwill for impairment pursuant to the provisions of SFAS No. 142, *Goodwill and Other Intangible Assets*. We have selected December 31 as the date upon which to perform our annual testing for impairment. As of December 31, 2007, we completed our annual testing requirements and determined that the carrying value of goodwill had not been impaired.

We are currently amortizing our acquired intangible assets over estimated useful lives of one to seven years, which are based on the estimated period of benefit to be delivered from such assets. However, a decrease in the

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estimated useful lives of such assets would cause additional amortization expense or an impairment of such asset in future periods.

### *Income Taxes*

Realization of deferred tax assets is dependent on our ability to generate future taxable income and utilize tax planning strategies. We have recorded a deferred tax asset in the amount that is more likely than not to be realized based on current estimations and assumptions. We evaluate the valuation allowance on a quarterly basis. Any resulting changes to the valuation allowance will result in an adjustment to income in the period the determination is made.

In June, 2006, the Financial Accounting Standard Board ( FASB ) issued Financial Interpretation No. 48, *Accounting for Uncertainty in Income Taxes An Interpretation of FASB Statement No. 109* ( FIN No. 48 ), which clarifies the accounting for uncertainty in income taxes recognized in an enterprise s financial statements in accordance with SFAS No. 109. Additionally, the Interpretation provides guidance on measurement, de-recognition, classification, interest and penalties, accounting for interim periods, disclosure and transition. The Interpretation is effective for fiscal years beginning after December 15, 2006. We adopted the provisions of FIN No. 48 on January 1, 2007. See Note 9 to the consolidated financial statements for a further discussion on the income taxes.

### *Stock-Based Compensation*

Effective January 1, 2006, we adopted the provisions of SFAS No. 123(R). The statement eliminates the ability to account for share-based compensation transactions using APB No. 25 and requires that the cost of share-based payment transactions (including those with employees and non-employees) be recognized in the financial statements based on estimated fair values. SFAS No. 123(R) applies to all share-based payment transactions in which we acquire goods or services by issuing our shares, share options, or other equity instruments or by incurring liabilities based on the price of our shares or that require settlement by the issuance of equity instruments. We elected to use the modified prospective transition method upon adopting this statement and accordingly prior periods have not been restated to reflect the impact of SFAS No. 123(R). Under this transition method, stock-based compensation expense for the years ended December 31, 2006 and 2007 include compensation expense for all stock-based compensation awards granted prior to, but not yet vested as of January 1, 2006, based on the grant date fair value estimated in accordance with the original provision of SFAS No. 123, *Accounting for Stock-Based Compensation* ( SFAS No. 123 ). Stock-based compensation expense for all stock-based compensation awards granted after January 1, 2006 is based on the grant-date fair value estimated in accordance with the provisions of SFAS No. 123(R). We recognize the compensation costs of options granted after January 1, 2006 on a straight-line basis over the vesting periods of the applicable stock purchase rights and stock options, generally four years. Prior to adoption of SFAS No. 123(R), we presented all tax benefits resulting from stock options as operating cash flow in our statement of cash flows. In accordance with SFAS No. l23(R), the cash flows resulting from excess tax benefits are classified as financing cash flows.

Prior to the adoption of SFAS No. 123(R), we accounted for stock-based compensation in accordance with APB No. 25, and complied with the disclosure provisions of SFAS No. 123 as amended by SFAS No. 148, *Accounting for Stock-Based Compensation Transition and Disclosures*. Deferred compensation recognized under APB No. 25 was amortized to expense using the graded vesting method. In March 2005, the SEC issued Staff Accounting Bulletin No. 107 ( SAB 107 ) regarding the SEC s interpretation of SFAS No. 123(R) and the valuation of share-based payments for public companies. We have applied the provisions of SAB 107 in its adoption of SFAS No. 123(R). In December 2007, the SEC issued Staff Accounting Bulletin No. 110 ( SAB 110 ) to amend the SEC s views discussed in SAB 107 regarding the use of the simplified method in developing an estimate of expected life of share options in accordance with SFAS No. 123(R). SAB 110 is effective for us beginning in the first quarter of fiscal year 2008. See Note 7 to the Consolidated Financial Statements for a further discussion on stock-based compensation.

## Recent Accounting Pronouncements and Accounting Changes

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

## Results of Operations

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

|  | December 31, Years Ended | | |
| --- | --- | --- | --- |
|  | 2007 | 2006 | 2005 |
| Revenues: | | | |
| Design-to-silicon-yield solutions: | | | |
| Services | 67% | 60% | 71% |
| Software licenses | 7 | 14 | 13 |
| Gainshare performance incentives | 26 | 26 | 16 |
| Total revenues | 100% | 100% | 100% |
| Cost of design-to-silicon-yield solutions: | | | |
| Direct costs of design-to-silicon-yield solutions: | | | |
| Services | 34 | 36 | 33 |
| Software licenses | | | |
| Amortization of acquired technology | 6 | 7 | 7 |
| Total cost of design-to silicon-yield solutions | 40 | 43 | 40 |
| Gross margin | 60 | 57 | 60 |
| Operating expenses: | | | |
| Research and development | 38 | 37 | 30 |
| Selling, general and administrative | 26 | 26 | 22 |
| Amortization of other acquired intangible assets | 4 | 2 | 1 |
| Write-off of in-process research and development | | 1 | |
| Total operating expenses | 68 | 66 | 53 |
| Income (loss) from operations | (8) | (9) | 7 |
| Interest and other income, net | 2 | 4 | 2 |
| Income (loss) before taxes | (6) | (5) | 9 |
| Income tax provision (benefit) | (3) | (4) | |
| Net income (loss) | (3)% | (1)% | 9% |

*Years Ended December 31, 2007 and 2006*

| Revenue | 2007 | 2006 | $ Change | % Change | 2007 % of Revenue | 2006 % of Revenue |
|---|---|---|---|---|---|---|
| | | | (In thousands, except for % s) | | | |
| Design-to-silicon-yield solutions: | | | | | | |
| Services | $ 63,731 | $ 45,382 | $ 18,349 | 40% | 67% | 60% |
| Software licenses | 6,645 | 10,774 | (4,129) | (38) | 7 | 14 |
| Gainshare performance incentives | 24,087 | 20,028 | 4,059 | 20 | 26 | 26 |
| Total | $ 94,463 | $ 76,184 | $ 18,279 | 24% | 100% | 100% |

*Design-to-Silicon-Yield Solutions.* Design-to-Silicon-Yield solutions revenue is derived from services (including solution implementations, software support and maintenance, consulting, and training) and software licenses, provided during our customer yield improvement engagements and solution product sales.

*Services.* Services revenue increased $18.3 million for the year ended December 31, 2007 compared to the year ended December 31, 2006, primarily as a result of the acquisition of SiA in October 2006, and to a lesser extent due to an increase in fixed fee integrated solutions. Services revenue derived from the acquired business increased approximately $10.7 million for the year ended December 31, 2007 compared to the year ended December 31, 2006. Services revenues derived from our acquisition of SiA included $5.1 million in recognized revenue related to sales of licenses bundled with services for which VSOE did not exist for the year ended December 31, 2007 compared to $521,000 for the year ended December 31, 2006. Services revenue from fixed fee integrated solutions increased $7.1 million for the year ended December 31, 2007 compared to the year ended December 31, 2006 primarily due to new contracts signed during 2007. Our services revenue may fluctuate in the future and is dependent on a number of factors including our ability to obtain new customers at emerging technology nodes.

*Software licenses.* The decrease in software licenses revenue of $4.1 million for the year ended December 31, 2007 compared to the year ended December 31, 2006 was primarily due to weakness in attracting new customers in light of customer capital spending constraints. Software license revenue may fluctuate in the future and is dependent upon a number of factors including the semiconductor industry s acceptance of our products, our ability to attract new customers, further penetration of our current customer base and the degree to which we bundle software with services where there is no established VSOE for the undelivered services.

*Gainshare Performance Incentives.* Gainshare performance incentives revenue represents profit sharing and performance incentives earned based upon our customer reaching certain defined operational levels. Revenue derived from gainshare performance incentives increased $4.1 million for the year ended December 31, 2007 compared to the year ended December 31, 2006. The increase in revenue derived from gainshare performance incentives was primarily due to improved yields and volumes at our customers sites. Our gainshare performance incentives revenue may continue to fluctuate from period to period. Gainshare performance incentives revenue is dependent on many factors that are outside our control, including among others, continued production of ICs by our customers, sustained yield improvements by our customers and our ability to enter into new Design-to-Silicon-Yield solutions contracts containing provisions for gainshare performance incentives.

| Cost of Design-to-Silicon-Yield Solutions | 2007 | 2006 | $ Change | % Change | 2007 % of Revenue | 2006 % of Revenue |
|---|---|---|---|---|---|---|
| | | | (In thousands, except for % s) | | | |
| Direct costs of design-to-silicon-yield solutions: | | | | | | |
| Services | $ 32,279 | $ 27,418 | $ 4,861 | 18% | 34% | 36% |
| Software licenses | 191 | 209 | (18) | (9) | | |
| Amortization of acquired technology | 5,148 | 5,270 | (122) | (2) | 6 | 7 |
| Total | $ 37,618 | $ 32,897 | $ 4,721 | 14% | 40% | 43% |

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*Direct Costs of Design-to-Silicon-Yield Solutions.* Direct costs of Design-to-Silicon-Yield solutions consist of costs incurred to provide and support our services and costs recognized in connection with licensing our software.

*Services.* Services costs consist of material, labor, overhead costs, and stock-based compensation charges associated with our solution implementations. Costs include purchased materials, employee compensation and benefits, travel and facilities-related costs. Direct costs of Design-to-Silicon-Yield services increased $4.9 million for the year ended December 31, 2007 compared to the year ended December 31, 2006, primarily due to an increase of $2.0 million in expenses related to additional revenues driven by our acquisition of SiA in October 2006, and to an increase of $993,000 in costs associated with the deployment of our pdFasTest products at new engagements signed during the year ended December 31, 2007. If we do not accurately estimate the resources required or the scope of work to be performed, or we do not manage the projects properly within the planned period of time or satisfy our obligations under contracts, resulting contract margins could be materially different than those anticipated when the contract was executed. Any such reductions in contract margin could have a material negative impact on our operating results.

*Software Licenses.* Software license costs consist of costs associated with licensing third-party software sold in conjunction with our software products and expenses incurred to produce and distribute our product documentation. The direct costs of Design-to-Silicon-Yield solutions software licenses decreased $18,000 for the year ended December 31, 2007 as compared to the year ended December 31, 2006. We expect the cost of software licenses to fluctuate in the future as a result of royalties and license fees paid for third-party applications incorporated in our software products.

*Amortization of Acquired Technology.* Amortization of acquired technology consists of the amortization of intangibles acquired as a result of certain business combinations. For the year ended December 31, 2007, the amortization of acquired technology expense decreased $122,000 compared to the year ended December 31, 2006. Certain intangible assets became fully amortized during the fiscal year 2007 which resulted in a decrease of $1.9 million in amortization. The decrease was partially offset by an increase of $1.8 million in amortization of technology acquired from our acquisitions of SiA in October 2006 and Fabbrix in May 2007. We anticipate amortization of acquired technology to be $2.5 million in 2008, $2.5 million in 2009, $2.3 million in 2010, $1.3 million in 2011, and $536,000 in 2012.

| | 2007 | 2006 |
|---|---|---|
| $ | | |