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

Form 10-K

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

(Mark One)

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

Commission File number 0-23621

MKS INSTRUMENTS, INC.
(Exact Name of Registrant as Specified in Its Charter)

Massachusetts	**04-2277512**
(State or other Jurisdiction of Incorporation or Organization)	*(IRS Employer Identification No.)*
2 Tech Drive, Suite 201, Andover, Massachusetts	**01810**
(Address of Principal Executive Offices)	*(Zip Code)*

Registrant's Telephone Number, including area code
(978) 645-5500

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

Title of Class	Name of Each Exchange on Which Registered
Common Stock, no par value	NASDAQ Global Market

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

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

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) 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 definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

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

(Do not check if a smaller reporting company)

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

Aggregate market value of the voting and non-voting common equity held by nonaffiliates of the registrant as of June 30, 2007 based on the closing price of the registrant's Common Stock on such date as reported by the Nasdaq Global Market: $1,252,682,585.

Number of shares outstanding of the issuer's Common Stock, no par value, as of February 15, 2008: 52,062,503

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive Proxy Statement for MKS' Annual Meeting of Stockholders to be held on May 5, 2008 are incorporated by reference into Part III of this Form 10-K.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

MKS' management believes that this Annual Report on Form 10-K contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act and Section 21E of the Securities Exchange Act. When used herein, the words "believe," "anticipate," "plan," "expect," "estimate," "intend," "may," "see," "will," "would" and similar expressions are intended to identify forward-looking statements. These forward-looking statements reflect management's current opinions and are subject to certain risks and uncertainties that could cause actual results to differ materially from those stated or implied. MKS assumes no obligation to update this information. Risks and uncertainties include, but are not limited to; those discussed in the section entitled "Risk Factors."

PART I

Item 1. *Business*

MKS Instruments, Inc. (the "Company" or "MKS") was founded in 1961 as a Massachusetts corporation. We are a leading worldwide provider of instruments, subsystems and process control solutions that measure, control, power, monitor and analyze critical parameters to improve process performance and productivity of advanced manufacturing processes.

We are managed as one operating segment. We group our products into three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum Products. Our products are derived from our core competencies in pressure measurement and control, materials delivery, gas composition analysis, electrostatic charge management, control and information technology, power and reactive gas generation and vacuum technology.

Our products are used in diverse markets, applications and processes. Our primary served markets are manufacturers of capital equipment for semiconductor devices and for other thin film applications including flat panel displays, solar cells, data storage media and other advanced coatings. We also leverage our technology in other markets with advanced manufacturing applications including medical equipment, pharmaceutical manufacturing and energy generation and environmental monitoring.

For over 45 years, we have focused on satisfying the needs of our customers by establishing long-term, collaborative relationships. We have a diverse base of customers that includes manufacturers of semiconductor capital equipment and semiconductor devices, thin film capital equipment used in the manufacture of flat panel displays, solar cells, data storage media and other coating applications; and other industrial, medical and manufacturing companies, and university, government and industrial research laboratories. Our top 10 customers for the year ended December 31, 2007 were Applied Materials, Hitachi, Lam Research, Novellus Systems, Oviso Manufacturing, Philips, PSK Tech, Samsung, Tokyo Electronics and Ultra Clean Technology.

We file reports, proxy statements and other documents with the Securities and Exchange Commission. You may read and copy any document we file at the SEC Headquarters at Office of Investor Education and Assistance, 100 F Street, NE, Washington, D.C. 20549. You should call 1-800-SEC-0330 for more information on the public reference room. Our SEC filings are also available to you on the SEC's Internet site at http://www.sec.gov.

Our internet address is www.mksinstruments.com. We are not including the information contained in our website as part of, or incorporating it by reference into, this annual report on Form 10-K. We make available free of charge through our web site our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, as soon as reasonably practicable after we electronically file such materials with the Securities and Exchange Commission.

Markets and Applications

We are focused on improving process performance and productivity by measuring, controlling, powering, monitoring and analyzing advanced manufacturing processes in semiconductor, thin film and other market sectors.

We estimate that approximately 68%, 70% and 71% of our net sales for the years ended December 31, 2007, 2006 and 2005, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers. Approximately 8%, 8% and 8% of our net sales in the years ended December 31, 2007, 2006 and 2005, respectively, were for other thin-film processing equipment applications, including flat panel displays; solar cells, data storage media, and other thin film coatings. Approximately 24%, 22% and 21% of our net sales in the years ended December 31, 2007, 2006 and 2005, respectively, were for other manufacturing applications. These include, but are not limited to, medical equipment; energy generation and environmental monitoring processes; pharmaceutical and other industrial manufacturing; and university, government and industrial research laboratories.

We estimate that approximately 39%, 34% and 37% of our net sales for the years ended December 31, 2007, 2006 and 2005, respectively, were to customers located in international markets. International sales include sales by our foreign subsidiaries, but exclude direct export sales. Please refer to Note 11 in the Notes to Consolidated Financial Statements for further geographical sales information.

Semiconductor Manufacturing Applications

The majority of our sales are derived from products sold to semiconductor capital equipment manufacturers and semiconductor device manufacturers. Our products are used in the major semiconductor processing steps such as depositing thin films of material onto silicon wafer substrates and etching and cleaning circuit patterns. In addition, we provide specialized instruments and software to monitor and analyze process performance.

We anticipate that the semiconductor manufacturing market will continue to account for a substantial portion of our sales. While the semiconductor device manufacturing market is global, major semiconductor capital equipment manufacturers are concentrated in Japan and the United States.

Other Thin Film Manufacturing Applications

Our products are used in the manufacture of flat panel displays, data storage media, solar cells and other coatings including architectural glass that require the same or similar thin film deposition processes as semiconductor manufacturing.

Flat Panel Display Manufacturing

Flat panel displays are used in electronic hand-held devices, laptop computers, desktop computer monitors, and television sets. We sell products to flat panel display equipment manufacturers and to end-users in the flat panel display market. Major manufacturers of flat panel displays are concentrated in Japan, Korea and Taiwan, and major manufacturers of flat panel display equipment are concentrated in Japan and the United States. The transition to larger panel sizes and higher display resolution is driving the need for improved process control to reduce defects.

Solar Cells

Our products are used in crystalline silicon and emerging thin film processes to manufacture photovoltaic (PV) cells. Crystalline silicon technology requires wafer based deposition systems and is currently the dominant manufacturing technology. Thin film deposition on a non-silicon substrate, such as glass, is the emerging technology.

Data Storage Media

Our products are used to manufacture storage media which store and read data magnetically; optical storage media which store and read data using laser technology; hard disks; data storage devices; and digital video discs.

The transition to higher density storage capacity requires manufacturing processes incorporating tighter process controls. Major manufacturers of storage media are concentrated in Japan and the Asia Pacific region, and major manufacturers of storage media capital equipment are concentrated in Europe, Japan and the United States.

Other Advanced Coatings

Thin film coatings for diverse applications such as architectural glass and packaging are deposited using processes similar to those used in semiconductor manufacturing. Thin film processing manufacturers are concentrated in Europe, Japan and the United States.

Other Advanced Applications

Our products are used in other energy generation and environmental monitoring processes such as nuclear fuel processing, fuel cell research, greenhouse gas monitoring and chemical agent detection; medical instrument sterilization; consumable medical supply manufacturing and pharmaceutical manufacturing. Our power delivery products are also incorporated into other end-market products such as medical imaging equipment. In addition, our products are sold to government, university and industrial laboratories for vacuum applications involving research and development in materials science, physical chemistry and electronics materials. Major equipment and process providers and research laboratories are concentrated in Europe, Japan and the United States.

Acquisitions

We completed three acquisitions in 2006. On January 3, 2006, we completed our acquisition of Ion Systems, Inc. ("Ion"), a leading provider of electrostatic management solutions located in Alameda, California. Ion's ionization technology monitors electrostatic charges to reduce process contamination and improve yields, which complements our process monitoring and control technologies. Additionally, on January 3, 2006, we completed our acquisition of Umetrics, AB ("Umetrics"), a leader in multivariate data analysis and modeling software located in Umea, Sweden. Umetrics' multivariate data analysis and modeling software converts process data into useable information for yield improvement, when linked with our open and modular platform of process sensors and data collection, integration, data storage and visualization capabilities. On October 11, 2006, we completed our acquisition of Novx Corp. ("Novx"), a provider of electrostatic charge monitoring technology for semiconductor, data storage, telecommunication, medical device and other markets. Novx's technology expands our capability to monitor, detect and control electrostatic charge in advanced process environments, such as semiconductor and hard disk drive manufacturing.

We completed one acquisition in 2007. On November 7, 2007, we acquired Yield Dynamics, Inc. ("YDI"), a provider of yield management technology located in Sunnyvale, California. YDI's data and yield management software, along with MKS' portfolio of sensors that control critical processes, data collection and integration hardware, and real-time fault detection and classification software, provides a comprehensive offering for generating, collecting and analyzing process sensor data and correlating the data to wafers, chambers and tools across the semiconductor fab as well as other thin film manufacturing processes.

Product Groups

We group our products into three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum Products. Also, please refer to Note 11 in the Notes to Consolidated Financial Statements for further information.

1. Instruments and Control Systems

This product group includes pressure measurement and control, materials delivery, gas composition analysis, electrostatic charge management and control and information technology products.

Pressure Measurement and Control Products. Each of our pressure measurement and control product lines consists of products that are designed for a variety of pressure ranges and accuracies.

Baratron® Pressure Measurement Products. These products are typically used to measure the pressure of the gases being distributed upstream of the process chambers, to measure process chamber pressures and to measure pressures between process chambers, vacuum pumps and exhaust lines. We believe we offer the widest range of gas pressure measurement instruments in the semiconductor and advanced thin-film materials processing industries.

Automatic Pressure and Vacuum Control Products. These products enable precise control of process pressure by electronically actuating valves that control the flow of gases in and out of the process chamber to minimize the difference between desired and actual pressure in the chamber.

In most cases, Baratron pressure measurement instruments provide the pressure input to the automatic pressure control device. Together, these components create an integrated automatic pressure control subsystem. Our pressure control products can also accept inputs from other measurement instruments, enabling the automatic control of gas input or exhaust based on parameters other than pressure.

Materials Delivery Products. Each of our materials delivery product lines consists of products that are designed for a variety of flow ranges and accuracies.

Flow Measurement and Control Products. Flow measurement products include gas and vapor flow measurement products based upon thermal conductivity, pressure and direct liquid injection technologies. The flow control products combine the flow measurement device with valve control elements based upon solenoid, piezo-electric and piston pump technologies. These products measure and automatically control the mass flow rate of gases and vapors into the process chamber.

Gas Composition Analysis Products. Gas composition analysis instruments are sold to a variety of industries including the semiconductor industry.

Mass Spectrometry-Based Gas Composition Analysis Instruments. These products are based on quadrupole mass spectrometer sensors that separate gases based on molecular weight. These sensors include built-in electronics and are provided with software that analyzes the composition of background and process gases in the process chamber. These instruments are provided both as portable laboratory systems and as process gas monitoring systems used in the diagnosis of semiconductor manufacturing process systems.

Fourier Transform Infra-Red (FTIR) Based Gas Composition Analysis Products. FTIR-based products provide information about the composition of gases by measuring the absorption of infra-red light as it passes through the sample being measured. Gas analysis applications include measuring the compositions of mixtures of reactant gases; measuring the purity of individual process gases; measuring the composition of process exhaust gas streams to determine process health; monitoring gases to ensure environmental health and safety and monitoring combustion exhausts. These instruments are provided as portable laboratory systems and as process gas monitoring systems used in the diagnosis of manufacturing processes.

Mass spectrometry-based and FTIR-based gas monitoring systems can indicate out-of-bounds conditions, such as the presence of undesirable contaminant gases and water vapor or out-of-tolerance amounts of specific gases in the process, which alert operators to diagnose and repair faulty equipment.

Leak Detection Products. Helium leak detection is used in a variety of industries including semiconductor, HVAC, automotive and aerospace to ensure the leak integrity of both manufactured products and manufacturing equipment. We believe that our products are the smallest mass spectrometer-based helium leak detectors currently available.

Electrostatic Charge Management Products. Semiconductor, flat panel display and data storage industries are vulnerable to electrostatic charge-related contamination and yield problems. We design and manufacture products to control electrostatic attraction, electrostatic discharge and electromagnetic interference. In high throughput industrial applications such as plastics manufacture and printing, ionization is used to improve process control and productivity.

Control and Information Technology Products. We design and manufacture a suite of products that allow semiconductor and other manufacturing customers to better control their processes through computer-controlled automation. These products include digital control network products, process chamber and system controllers, connectivity products and data analysis/information products.

Control Products. Digital control network products are used to connect sensors, actuators and subsystems to the chamber and system control computers. They support a variety of industry-standard connection methods as well as conventional discrete digital and analog signals. Chamber and system control computers process these signals in real time and allow customers to precisely manage the process conditions.

Connecting sensors, chambers and tools to the factory network is essential for improving quality and productivity. Our connectivity products allow information to flow from the process sensors and subsystems and from the process tool control computer to the factory network. By enabling this information flow, we believe that we help customers optimize their processes through Advanced Process Control (“APC”), and diagnose equipment problems from a remote location (“e-diagnostics”).

Information Technology Products: We design on-line and off-line software products to analyze data to improve the quality and yield of semiconductor, thin film, biopharmaceutical, injection molding and other manufacturing processes.

2. ***Power and Reactive Gas Products***

This product group includes power delivery products and reactive gas generation products used in semiconductor and other thin film applications and in medical imaging equipment applications.

Power Delivery Products. We design and manufacture microwave, DC and RF power delivery systems as well as RF matching networks and metrology products. In the semiconductor and thin film markets, our power supplies are used to provide energy to various etching, stripping and deposition processes. Our power amplifiers are also used in medical imaging equipment.

Reactive Gas Generation Products. Reactive gases are used to process and clean substrates and to clean process chambers to reduce particle contamination. A reactive gas is created when energy is added to a stable gas to break apart its molecules. When the resulting dissociated gas comes into contact with other matter it produces rapid chemical reactions which result in processing of thin films (deposition of films, etching and cleaning of films and surface modifications) or equipment cleaning.

Processing Thin Films: Our reactive gas products include ozone generators and subsystems used for deposition of insulators onto semiconductor devices, ozonated water delivery systems for advanced semiconductor wafer and flat panel display cleaning, microwave plasma based products for photo resist removal and a new line of remote plasma generators which provide reactive gases for a wide range of semiconductor, flat panel and other thin film process applications.

Equipment Cleaning: As materials are deposited on wafers, films, or solar cells, the deposited material also accumulates on the walls of the vacuum process chamber. Our atomic fluorine generators are used to clean the process chambers between deposition steps to reduce particulates and contamination caused by accumulated build up on the chamber walls.

3. ***Vacuum Products***

This product group consists of vacuum technology products, including vacuum gauges, effluent management subsystems, valves and components.

Vacuum Gauging Products. We offer a wide range of vacuum instruments consisting of vacuum measurement sensors and associated power supply and readout units. These vacuum gauges measure phenomena that are related to the level of pressure in the process chamber and downstream of the process chamber between the chamber and the pump. These gauges complement our Baratron capacitance manometers for lower pressure ranges and where less accuracy is required. Our indirect pressure gauges use thermal conductivity and ionization gauge technologies to measure pressure from atmospheric pressure to one trillionth of atmospheric pressure.

Vacuum Valves and Process Solutions. Our vacuum valves are used on the gas lines between the process chamber and the pump downstream of the process chamber. Our vacuum process solutions consist of flanges, fittings, traps and heated lines that are used downstream from the process chamber to control process effluent gasses by preventing condensable materials from depositing particles near or back into the chamber.

Customers

Our largest customers include leading semiconductor capital equipment manufacturers such as Applied Materials, Lam Research, Novellus Systems, and Tokyo Electronics. Sales to our top ten customers accounted for approximately 46%, 49% and 48% of net sales for the years ended December 31, 2007, 2006 and 2005, respectively. Applied Materials accounted for approximately 20%, 21% and 18% of our net sales for the years ended December 31, 2007, 2006 and 2005, respectively.

Sales, Marketing and Support

Our worldwide sales, marketing and support organization is critical to our strategy of maintaining close relationships with semiconductor capital equipment manufacturers and semiconductor device manufacturers. We sell our products primarily through our direct sales force. As of December 31, 2007, we had 203 sales employees worldwide, located in China, France, Germany, Japan, Korea, the Netherlands, Singapore, Sweden, Taiwan, the United Kingdom and the United States. We also maintain sales representatives and agents in a number of countries, which supplement this direct sales force. We maintain a marketing staff that identifies customer requirements, assists in product planning and specifications, and focuses on future trends in semiconductor and other markets.

As semiconductor device manufacturers have become increasingly sensitive to the significant costs of system downtime, they have required that suppliers offer comprehensive local repair service and close customer support. Manufacturers require close support to enable them to repair, modify, upgrade and retrofit their equipment to improve yields and adapt new materials or processes. To meet these market requirements, we maintain a worldwide sales and support organization in 17 countries. Technical support is provided from offices in China, France, Germany, Japan, Korea, the Netherlands, Singapore, Taiwan, the United Kingdom and the United States. Repair and calibration services are provided at 30 service depots located worldwide. We typically provide warranties from one to three years, depending upon the type of product.

Research and Development

Our products incorporate sophisticated technologies to power, measure, control and monitor increasingly complex gas-related semiconductor manufacturing processes, thereby enhancing uptime, yield and throughput for our semiconductor device manufacturing customers. Our products have continuously advanced as we strive to meet our customers’ evolving needs. We have developed, and continue to develop, new products to address industry trends, such as the shrinking of integrated circuit critical dimensions to 65 nanometers and below. In addition, we have developed, and continue to develop, products that support the migration to new classes of materials and ultra-thin layers, such as copper for low resistance conductors, high-k dielectric materials for capacitors and gates and low-k dielectric materials for low loss insulators that are used in small geometry manufacturing. We have undertaken an initiative to involve our marketing, engineering, manufacturing and sales personnel in the concurrent development of new products in order to reduce the time to market for new products. Our employees also work closely with our customers’ development personnel helping us to identify and define future technical needs on which to focus research and development efforts. We support research at academic institutions targeted at advances in materials science and semiconductor process development. As of December 31, 2007, we had 486 research and development employees, primarily located in the United States. Our research and development expenses were $72.2 million, $69.7 million and $55.9 million for the years ended December 31, 2007, 2006 and 2005, respectively. Our research and development efforts include numerous projects, none of which are individually material, and generally have a duration of 12 to 30 months.

Manufacturing

Our manufacturing facilities are located in China, Germany, Israel, Japan, Mexico, the United Kingdom and the United States. Manufacturing activities include the assembly and testing of components and subassemblies, which are integrated into products. We outsource some of our subassembly work. We purchase a wide range of electronic, mechanical and electrical components, some of which are designed to our specifications. We consider our lean manufacturing techniques and responsiveness to customers’ significantly fluctuating product demands to be a competitive advantage.

Competition

The market for our products is highly competitive. Principal competitive factors include:

- historical customer relationships;
- product quality, performance and price;
- breadth of product line;
- manufacturing capabilities; and
- customer service and support.

Although we believe that we compete favorably with respect to these factors, there can be no assurance that we will continue to do so.

We encounter substantial competition in most of our product lines, although no single competitor competes with us across all product lines. Certain of our competitors may have greater financial and other resources than us. In some cases, competitors are smaller than we are, but well established in specific product niches. Celerity offers products that compete with our pressure and materials delivery products. Advanced Energy and Horiba offer materials delivery products that compete with our product line of mass flow controllers. Nor-Cal Products and VAT offer products that compete with our vacuum components. Inficon offers products that compete with our vacuum measurement and gas analysis products. Brooks Automation and Inficon offer products that compete with our vacuum gauging products. Advanced Energy offers products that compete with our power delivery and reactive gas generator products.

Patents and Other Intellectual Property Rights

We rely on a combination of patent, copyright, trademark and trade secret laws and license agreements to establish and protect our proprietary rights. As of December 31, 2007, we owned 327 U.S. patents, 237 foreign patents and had 126 pending U.S. patent applications. Foreign counterparts of certain of these applications have been filed or may be filed at the appropriate time.

We require each of our employees, including our executive officers, to enter into standard agreements pursuant to which the employee agrees to keep confidential all of our proprietary information and to assign to us all inventions while they are employed by us.

For a discussion of litigation relating to our intellectual property, see “Item 3. Legal Proceedings.”

Employees

As of December 31, 2007, we employed 2,924 persons. We believe that our ongoing success depends upon our continued ability to attract and retain highly skilled employees for whom competition is intense. None of our employees are represented by a labor union or are party to a collective bargaining agreement. We believe that our employee relations are good.

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

Our business depends substantially on capital spending in the semiconductor industry which is characterized by periodic fluctuations that may cause a reduction in demand for our products.

We estimate that approximately 68%, 70% and 71% of our net sales for the years ended December 31, 2007, 2006 and 2005, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers, and we expect that sales to such customers will continue to account for a substantial majority of our sales. Our business depends upon the capital expenditures of semiconductor device manufacturers, which in turn depend upon the demand for semiconductors. Periodic reductions in demand for the products manufactured by semiconductor capital equipment manufacturers and semiconductor device manufacturers may adversely affect our business, financial condition and results of operations.

Historically, the semiconductor market has been highly cyclical and has experienced periods of overcapacity, resulting in significantly reduced demand for capital equipment which may result in lower gross margins due to reduced absorption of manufacturing overhead. In addition, many semiconductor manufacturers have operations and customers in Asia, a region that in past years has experienced serious economic problems including currency devaluations, debt defaults, lack of liquidity and recessions. We cannot be certain of the timing or magnitude of future semiconductor industry downturns. A decline in the level of orders as a result of any downturn or slowdown in the semiconductor capital equipment industry could have a material adverse effect on our business, financial condition and results of operations.

Our quarterly operating results have fluctuated, and are likely to continue to vary significantly, which may result in volatility in the market price of our common stock.

A substantial portion of our shipments occurs shortly after an order is received and therefore we operate with a low level of backlog. As a result, a decrease in demand for our products from one or more customers could occur with limited advance notice and could have a material adverse effect on our results of operations in any particular period. A significant percentage of our expenses is relatively fixed and based in part on expectations of future net sales. The inability to adjust spending quickly enough to compensate for any shortfall would magnify the adverse impact of a shortfall in net sales on our results of operations. Factors that could cause fluctuations in our net sales include:

- the timing of the receipt of orders from major customers;
- shipment delays;
- disruption in sources of supply;
- seasonal variations in capital spending by customers;
- production capacity constraints; and
- specific features requested by customers.

In addition, our quarterly operating results may be adversely affected due to charges incurred in a particular quarter, for example, relating to inventory obsolescence, warranty or asset impairments.

As a result of the factors discussed above, it is likely that we may in the future experience quarterly or annual fluctuations and that, in one or more future quarters, our operating results may fall below the expectations of public market analysts or investors. In any such event, the price of our common stock could decline significantly.

The loss of net sales to any one of our major customers would likely have a material adverse effect on us.

Our top ten customers accounted for approximately 46%, 49% and 48% of our net sales for the years ended December 31, 2007, 2006 and 2005, respectively. The loss of a major customer or any reduction in orders by these customers, including reductions due to market or competitive conditions, would likely have a material adverse effect on our business, financial condition and results of operations. During the years ended December 31, 2007, 2006 and 2005, one customer, Applied Materials, accounted for approximately 20%, 21% and 18%, respectively, of our net sales. None of our significant customers, including Applied Materials, has entered into an agreement requiring it to purchase any minimum quantity of our products. The demand for our products from our semiconductor capital equipment customers depends in part on orders received by them from their semiconductor device manufacturer customers.

Attempts to lessen the adverse effect of any loss or reduction of net sales through the rapid addition of new customers could be difficult because prospective customers typically require lengthy qualification periods prior to placing volume orders with a new supplier. Our future success will continue to depend upon:

- our ability to maintain relationships with existing key customers;
- our ability to attract new customers;
- our ability to introduce new products in a timely manner for existing and new customers; and

- the successes of our customers in creating demand for their capital equipment products that incorporate our products.

As part of our business strategy, we have entered into and may enter into or seek to enter into business combinations and acquisitions that may be difficult and costly to integrate, may be disruptive to our business, may dilute stockholder value or may divert management attention.

We made several acquisitions in the years 2000 through 2002 and, more recently in 2006 and 2007. As a part of our business strategy, we may enter into additional business combinations and acquisitions. Acquisitions are typically accompanied by a number of risks, including the difficulty of integrating the operations, technology and personnel of the acquired companies, the potential disruption of our ongoing business and distraction of management, possible internal control weaknesses of the acquired companies, expenses related to the acquisition and potential unknown liabilities associated with acquired businesses. If we are not successful in completing acquisitions that we may pursue in the future, we may be required to reevaluate our growth strategy, and we may incur substantial expenses and devote significant management time and resources in seeking to complete proposed acquisitions that will not generate benefits for us.

In addition, with future acquisitions, we could use substantial portions of our available cash as all or a portion of the purchase price. We could also issue additional securities as consideration for these acquisitions, which could cause significant stockholder dilution. Further, our prior acquisitions and any future acquisitions may not ultimately help us achieve our strategic goals and may pose other risks to us.

As a result of our previous acquisitions, we have added several different decentralized operating and accounting systems, resulting in a complex reporting environment. We will need to continue to modify our accounting policies, internal controls, procedures and compliance programs to provide consistency across all our operations. In order to increase efficiency and operating effectiveness and improve corporate visibility into our decentralized operations, we are currently implementing a worldwide Enterprise Resource Planning (“ERP”) system. We expect to continue to implement the ERP system in phases over the next few years. Although we have a plan to accomplish the ERP implementation, we may risk potential disruption of our operations during the conversion periods and the implementation could require significantly more management time and higher implementation costs than currently estimated.

An inability to convince semiconductor device manufacturers to specify the use of our products to our customers that are semiconductor capital equipment manufacturers would weaken our competitive position.

The markets for our products are highly competitive. Our competitive success often depends upon factors outside of our control. For example, in some cases, particularly with respect to mass flow controllers, semiconductor device manufacturers may direct semiconductor capital equipment manufacturers to use a specified supplier’s product in their equipment. Accordingly, for such products, our success will depend in part on our ability to have semiconductor device manufacturers specify that our products be used at their semiconductor fabrication facilities. In addition, we may encounter difficulties in changing established relationships of competitors that already have a large installed base of products within such semiconductor fabrication facilities.

If our products are not designed into successive generations of our customers’ products, we will lose significant net sales during the lifespan of those products.

New products designed by semiconductor capital equipment manufacturers typically have a lifespan of five to ten years. Our success depends on our products being designed into new generations of equipment for the semiconductor industry. We must develop products that are technologically advanced so that they are positioned to be chosen for use in each successive generation of semiconductor capital equipment. If customers do not choose our products, our net sales may be reduced during the lifespan of our customers’ products. In addition, we must make a significant capital investment to develop products for our customers well before our products are introduced and before we can be sure that we will recover our capital investment through sales to the customers in significant volume. We are thus also at risk during the development phase that our products may fail to meet our customers’ technical or cost requirements and may be replaced by a competitive product or alternative technology solution. If that happens, we may be unable to recover our development costs.

The semiconductor industry is subject to rapid demand shifts which are difficult to predict. As a result, our inability to expand our manufacturing capacity in response to these rapid shifts may cause a reduction in our market share.

Our ability to increase sales of certain products depends in part upon our ability to expand our manufacturing capacity for such products in a timely manner. If we are unable to expand our manufacturing capacity on a timely basis or to manage such expansion effectively, our customers could implement our competitors' products and, as a result, our market share could be reduced. Because the semiconductor industry is subject to rapid demand shifts which are difficult to foresee, we may not be able to increase capacity quickly enough to respond to a rapid increase in demand. Additionally, capacity expansion could increase our fixed operating expenses and if sales levels do not increase to offset the additional expense levels associated with any such expansion, our business, financial condition and results of operations could be materially adversely affected.

We operate in a highly competitive industry.

The market for our products is highly competitive. Principal competitive factors include:

- historical customer relationships;
- product quality, performance and price;
- breadth of product line;
- manufacturing capabilities; and
- customer service and support.

Although we believe that we compete favorably with respect to these factors, we may not be able to continue to do so. We encounter substantial competition in most of our product lines. Certain of our competitors may have greater financial and other resources than we have. In some cases, competitors are smaller than we are, but well established in specific product niches. We may encounter difficulties in changing established relationships of competitors with a large installed base of products at such customers' fabrication facilities. In addition, our competitors can be expected to continue to improve the design and performance of their products. Competitors may develop products that offer price or performance features superior to those of our products. If our competitors develop superior products, we may lose existing customer and market share.

Sales to foreign markets constitute a substantial portion of our net sales; therefore, our net sales and results of operations could be adversely affected by downturns in economic conditions in countries outside of the United States.

International sales include sales by our foreign subsidiaries, but exclude direct export sales. International sales accounted for approximately 39%, 34% and 37%, of net sales for the years ended December 31, 2007, 2006 and 2005, respectively, a significant portion of which were sales to Japan.

We anticipate that international sales will continue to account for a significant portion of our net sales. In addition, certain of our key domestic customers derive a significant portion of their revenues from sales in international markets. Therefore, our sales and results of operations could be adversely affected by economic slowdowns and other risks associated with international sales.

We have significant foreign operations, and outsource certain operations offshore, which pose significant risks.

We have significant international sales, service, engineering and manufacturing operations in Europe, Israel and Asia, and have outsourced a portion of our manufacturing to Mexico. We may expand the level of manufacturing and certain other operations that we do offshore in order to take advantage of cost efficiencies available to us in those countries. However, we may not achieve the significant cost savings or other benefits that we anticipate from this program. These foreign operations expose us to operational and political risks that may harm our business, including:

- political and economic instability;
- fluctuations in the value of currencies and high levels of inflation, particularly in Asia and Europe;
- changes in labor conditions and difficulties in staffing and managing foreign operations, including, but not limited to, labor unions;
- reduced or less certain protection for intellectual property rights;
- greater difficulty in collecting accounts receivable and longer payment cycles;
- burdens and costs of compliance with a variety of foreign laws;
- increases in duties and taxation;
- costs associated with compliance programs for import and export regulations;
- imposition of restrictions on currency conversion or the transfer of funds;
- changes in export duties and limitations on imports or exports;
- expropriation of private enterprises; and
- unexpected changes in foreign regulations.

If any of these risks materialize, our operating results may be adversely affected.

Unfavorable currency exchange rate fluctuations may lead to lower operating margins or may cause us to raise prices, which could result in reduced sales.

Currency exchange rate fluctuations could have an adverse effect on our net sales and results of operations and we could experience losses with respect to our hedging activities. Unfavorable currency fluctuations could require us to increase prices to foreign customers, which could result in lower net sales by us to such customers. Alternatively, if we do not adjust the prices for our products in response to unfavorable currency fluctuations, our results of operations could be adversely affected. In addition, most sales made by our foreign subsidiaries are denominated in the currency of the country in which these products are sold and the currency they receive in payment for such sales could be less valuable at the time of receipt as a result of exchange rate fluctuations. We enter into forward foreign exchange contracts and may enter into local currency purchased options to reduce currency exposure arising from intercompany sales of inventory. However, we cannot be certain that our efforts will be adequate to protect us against significant currency fluctuations or that such efforts will not expose us to additional exchange rate risks.

Key personnel may be difficult to attract and retain.

Our success depends to a large extent upon the efforts and abilities of a number of key employees and officers, particularly those with expertise in the semiconductor manufacturing and similar industrial manufacturing industries. The loss of key employees or officers could have a material adverse effect on our business, financial condition and results of operations. We believe that our future success will depend in part on our ability to attract and retain highly skilled technical, financial, managerial and marketing personnel. We cannot be certain that we will be successful in attracting and retaining such personnel.

Our proprietary technology is important to the continued success of our business. Our failure to protect this proprietary technology may significantly impair our competitive position.

As of December 31, 2007, we owned 327 U.S. patents, 237 foreign patents and had 126 pending U.S. patent applications. Although we seek to protect our intellectual property rights through patents, copyrights, trade secrets and other measures, we cannot be certain that:

- we will be able to protect our technology adequately;
- competitors will not be able to develop similar technology independently;
- any of our pending patent applications will be issued;
- domestic and international intellectual property laws will protect our intellectual property rights; or
- third parties will not assert that our products infringe patent, copyright or trade secrets of such parties.

Protection of our intellectual property rights may result in costly litigation.

Litigation may be necessary in order to enforce our patents, copyrights or other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others or to defend against claims of infringement. We are, from time to time, involved in lawsuits enforcing or defending our intellectual property rights and may be involved in such litigation in the future. Such litigation could result in substantial costs and diversion of resources and could have a material adverse effect on our business, financial condition and results of operations.

We may need to expend significant time and expense to protect our intellectual property regardless of the validity or successful outcome of such intellectual property claims. If we lose any litigation, we may be required to seek licenses from others or change, stop manufacturing or stop selling some of our products.

The market price of our common stock has fluctuated and may continue to fluctuate for reasons over which we have no control.

The stock market has from time to time experienced, and is likely to continue to experience, extreme price and volume fluctuations. Prices of securities of technology companies have been especially volatile and have often fluctuated for reasons that are unrelated to the operating performance of the companies. The market price of shares of our common stock has fluctuated greatly since our initial public offering and could continue to fluctuate due to a variety of factors. In the past, companies that have experienced volatility in the market price of their stock have been the objects of securities class action litigation. If we were the object of securities class action litigation, it could result in substantial costs and a diversion of our management's attention and resources.

Our dependence on sole, limited source suppliers, and international suppliers, could affect our ability to manufacture products and systems.

We rely on sole, limited source suppliers and international suppliers for a few of our components and subassemblies that are critical to the manufacturing of our products. This reliance involves several risks, including the following:

- the potential inability to obtain an adequate supply of required components;
- reduced control over pricing and timing of delivery of components; and
- the potential inability of our suppliers to develop technologically advanced products to support our growth and development of new systems.

We believe that in time we could obtain and qualify alternative sources for most sole, limited source and international supplier parts. Seeking alternative sources of the parts could require us to redesign our systems, resulting in increased costs and likely shipping delays. We may be unable to redesign our systems, which could result in further costs and shipping delays. These increased costs would decrease our profit margins if we could not pass the costs to our customers. Further, shipping delays could damage our relationships with current and potential customers and have a material adverse effect on our business and results of operations.

We are subject to governmental regulations. If we fail to comply with these regulations, our business could be harmed.

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our products. We must ensure that the affected products meet a variety of standards, many of which vary across the countries in which our systems are used. For example, the European Union has published directives specifically relating to power supplies. In addition, the European Union has issued directives relating to regulation of recycling and hazardous substances, which may be applicable to our products, or to which some customers may voluntarily elect to adhere to. In addition, China has adopted, and certain other Asian countries have indicated an intention to adopt, similar regulations. We must comply with any applicable regulation adopted in connection with these types of directives in order to ship affected products into countries that adopt these types of regulations. We believe we are in compliance with current applicable regulations, directives and standards and have obtained all necessary permits, approvals, and authorizations to conduct our business. However, compliance with future regulations, directives and standards, or customer demands beyond such requirements, could require us to modify or redesign certain systems, make capital expenditures or incur substantial costs. If we do not comply with current or future regulations, directives and standards:

- we could be subject to fines;
- our production could be suspended; or
- we could be prohibited from offering particular systems in specified markets.

Certain stockholders have a substantial interest in us and may be able to exert substantial influence over our actions.

As of December 31, 2007, John R. Bertucci, our Chairman, and certain members of his family, in the aggregate, beneficially owned approximately 8% of our outstanding common stock. As a result, these stockholders, acting together, may be able to exert substantial influence over our actions.

Some provisions of our restated articles of organization, as amended, our amended and restated by-laws and Massachusetts law could discourage potential acquisition proposals and could delay or prevent a change in control of us.

Anti-takeover provisions could diminish the opportunities for stockholders to participate in tender offers, including tender offers at a price above the then current market price of the common stock. Such provisions may also inhibit increases in the market price of the common stock that could result from takeover attempts. For example, while we have no present plans to issue any preferred stock, our board of directors, without further stockholder approval, may issue preferred stock that could have the effect of delaying, deterring or preventing a change in control of us. The issuance of preferred stock could adversely affect the voting power of the holders of our common stock, including the loss of voting control to others. In addition, our amended and restated by-laws provide for a classified board of directors consisting of three classes. The classified board could also have the effect of delaying, deterring or preventing a change in control of us.

Changes in financial accounting standards may adversely affect our reported results of operations.

A change in accounting standards or practices could have a significant effect on our reported results and may even affect our reporting of transactions completed before the change was effective. New accounting pronouncements and varying interpretations of existing accounting pronouncements have occurred and may occur in the future. Such changes may adversely affect our reported financial results or may impact our related business practice.

For example, Statement on Financial Accounting Standards No. 123R “Share-Based Payment” (“SFAS 123R”), which requires us to measure all employee stock-based compensation awards using a fair value method and record such expense in our consolidated financial statements, was adopted in the first quarter of 2006, and had a material adverse impact on our consolidated financial statements as reported under generally accepted accounting principles in the United States for the first quarter of 2006 and adversely impacted our consolidated financial statements for fiscal 2006.

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

None.

Item 2. ***Properties***

The following table provides information concerning MKS' principal and certain other owned and leased facilities as of December 31, 2007:

Location	Sq. Ft.	Activity	Products Manufactured	Lease Expires
Alameda, California	48,300	Manufacturing and Research & Development	Electrostatic Management Programs and Systems	March 31, 2011
Andover, Massachusetts	82,000	Manufacturing and Research & Development	Pressure Measurement and Control Products	(1)
Andover, Massachusetts	36,270	Corporate Headquarters	Not applicable	May 31, 2018
Austin, Texas	20,880	Manufacturing, Sales, Customer Support, Service and Research & Development	Control & Information Management Products	May 31, 2012
Berlin, Germany	20,750	Manufacturing, Customer Support, Service and Research & Development	Reactive Gas Generation Products	March 31, 2009
Boulder, Colorado	124,000	Manufacturing, Customer Support, Service and Research & Development	Vacuum Products	(2)
Carmiel, Israel	7,000	Manufacturing and Research & Development	Control & Information Management Products	December 31, 2007
Cheshire, United Kingdom	13,000	Manufacturing, Sales, Customer Support and Service	Materials Delivery Products	(3)
Colorado Springs, Colorado	24,000	Customer Support, Service and Research & Development	Power Delivery Products	(1)
Fukuoka, Japan	14,700	Customer Support and Service	Pressure Measurement and Control Products	October 18, ,2008
Lawrence, Massachusetts	40,000	Manufacturing	Pressure Measurement and Control Products	(1)
Methuen, Massachusetts	85,000	Manufacturing, Customer Support, Service and Research & Development	Pressure Measurement and Control Products; Materials Delivery Products	(1)
Munich, Germany	14,000	Manufacturing, Sales, Customer Support, Service and Research & Development	Pressure Measurement and Control Products; Materials Delivery Products	(1)
Nogales, Mexico	36,700	Manufacturing	Pressure Measurement and Control Products; Reactive Gas Generation Products	March 31, 2009
Richardson, Texas	8,800	Sales, Customer Support and Service	Not applicable	November 30, 2012
Rochester, New York	156,000	Manufacturing, Sales, Customer Support, Service and Research & Development	Power Delivery Products	(4)
San Jose, California	32,000	Sales, Customer Support and Service	Not applicable	April 30, 2009
Seoul, Korea	10,300	Sales, Customer Support and Service	Not applicable	May 31, 2008
Shenzhen, China	130,000	Manufacturing	Power Delivery Products	December 31, 2007
Shenzhen, China	242,000	Manufacturing	Power Delivery Products	May 31, 2017
Umea, Sweden	7,000	Sales, Customer Support and Research & Development	Control & Information Management Products	August 31, 2009

Location	Sq. Ft.	Activity	Products Manufactured	Lease Expires
Sunnyvale, California	10,000	Sales, Customer Support and Research & Development	Control & Information Management Products	July 7, 2010
Shropshire, United Kingdom	25,000	Manufacturing	Vacuum Products	October 18, 2010
Hsinchu, Taiwan	19,300	Sales, Customer Support and Service	Not applicable	August 25, 2008
Tokyo, Japan	48,230	Manufacturing, Sales, Customer Support, Service and Research & Development	Materials Delivery Products	(5)
Wilmington, Massachusetts	118,000	Manufacturing, Sales, Customer Support, Service and Research & Development	Reactive Gas Generation Products; Power Delivery Products	(1)

(1) This facility is owned by MKS.

(2) MKS leases two facilities, one has 39,000 square feet of space and the other has 38,000 square feet of space. Both leases expire on May 31, 2015. MKS also owns a third and fourth facility with 27,000 and 20,000 square feet of space, respectively.

(3) MKS leases two facilities, one has 2,000 square feet of space and a lease term which expires October 5, 2009 and the second has 11,000 square feet of space and a lease term which expires November 30, 2009.

(4) MKS owns this facility and has an Industrial Development Revenue Bond of $5.0 million, due in 2014, that is collateralized by the building.

(5) MKS leases two facilities, one has 20,600 square feet of space with a lease term that expires April 30, 2008 and the second has 10,500 square feet of space and a lease term that expires on September 30, 2011. MKS owns a third facility of 6,600 square feet.

In addition to manufacturing and other operations conducted at the foregoing leased or owned facilities, MKS provides worldwide sales, customer support and services from various other leased facilities throughout the world not listed in the table above. See “Business — Sales, Marketing and Support.”

Item 3. *Legal Proceedings*

We are subject to other legal proceedings and claims, which have arisen in the ordinary course of business.

In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on our results of operations, financial condition or cash flows.

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 through the solicitation of proxies or otherwise.

PART II

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

Price Range of Common Stock

Our common stock is traded on the NASDAQ Global Market under the symbol MKSI. On February 15, 2008, the closing price of our common stock, as reported on the NASDAQ Global Market, was $20.15 per share. The following table sets forth for the periods indicated the high and low bid prices per share of our common stock as reported by the NASDAQ Global Market.

	2007		2006	
Price Range of Common Stock	**High**	**Low**	**High**	**Low**
First Quarter	$ 26.00	$ 21.11	$ 23.75	$ 17.05
Second Quarter	28.47	25.46	24.97	18.66
Third Quarter	28.15	18.91	23.60	17.84
Fourth Quarter	21.71	16.94	23.36	19.54

On February 15, 2008, we had approximately 196 stockholders of record.

Dividend Policy

We have never declared or paid any cash dividends on our common stock. We currently intend to retain earnings, if any, to support our growth strategy and do not anticipate paying cash dividends in the foreseeable future. Payment of future dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our financial condition, operating results and current and anticipated cash needs.

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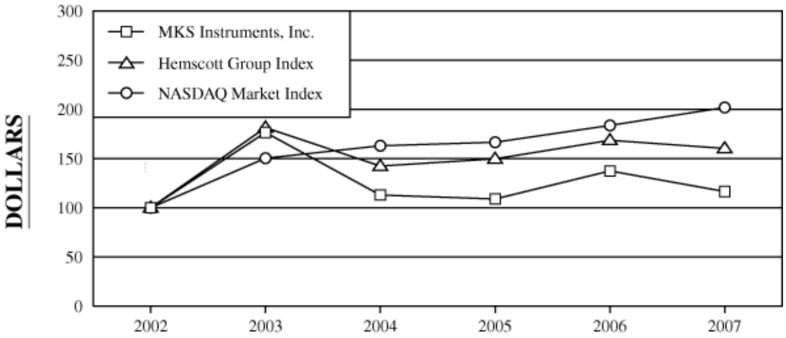
Comparative Stock Performance

The following graph compares the cumulative total shareholder return (assuming reinvestment of dividends) from investing $100 on December 31, 2002, and plotted at the last trading day of each of the fiscal years ended December 31, 2003, 2004, 2005, 2006 and 2007, in each of (i) the Company's Common Stock; (ii) an industry group index of semiconductor equipment/material manufacturers (the "Hemscott Group Index"), compiled by Hemscott, Inc. ("Hemscott"); and (iii) the NASDAQ Market Index of companies (the "NASDAQ Market Index"). The graph was compiled by Hemscott. The stock price performance on the graph below is not necessarily indicative of future price performance. The Company's Common Stock is listed on the NASDAQ Global Market under the ticker symbol "MKSI."

Performance Graph

COMPARISON OF CUMULATIVE TOTAL RETURN OF
ONE OR MORE COMPANIES, PEER GROUPS,
INDUSTRY INDEXES AND/OR BROAD MARKETS



Assumes $100 invested on December 31, 2002
Assumes dividends reinvested
Fiscal Year Ending December 31, 2007

	2002	2003	2004	2005	2006	2007
MKS Instruments, Inc.	$ 100.00	$ 176.51	$ 112.90	$ 108.89	$ 137.43	$ 116.49
Hemscott Group Index	$ 100.00	$ 181.44	$ 142.39	$ 149.72	$ 168.58	$ 160.31
NASDAQ Market Index	$ 100.00	$ 150.36	$ 163.00	$ 166.58	$ 183.68	$ 201.91

The information included under the heading "Performance Graph" in Item 5 of this Annual Report on Form 10-K is "furnished" and not "filed" and shall not be deemed to be "soliciting material" or subject to Regulation 14A, shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act.

Purchases of Equity Securities

On February 12, 2007, our Board of Directors approved a share repurchase program (the “Program”) for the repurchase of up to $300 million of our outstanding stock over the next two years. The repurchases may be made from time to time on the open market or through privately negotiated transactions. The timing and amount of any shares repurchased under the Program will depend on a variety of factors, including price, corporate and regulatory requirements, capital availability, and other market conditions. The Program may be discontinued at any time at our discretion and the discretion of our Board of Directors. During the year ended December 31, 2007, we repurchased 4,779,000 shares of common stock for $101.2 million for an average price of $21.17 per share. The following table provides information about purchases by the Company during the quarter ended December 31, 2007 of equity securities that are registered by the Company pursuant to Section 12 of the Exchange Act:

PURCHASES OF EQUITY SECURITIES

Period	Total Number of Shares Purchased during Period(1)	Average Price Paid per Share	Total Number of Shares Purchased since Adoption of Program as Part of Publicly Announced Plans or Programs(2)	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs
10/01/07-10/31/07	330,455	$ 20.09	2,279,220	$ 244,393,000
11/01/07-11/30/07	1,138,121	$ 17.94	3,417,341	$ 223,978,000
12/01/07-12/31/07	1,361,291	$ 18.46	4,778,632	$ 198,843,000

(1) We repurchased an aggregate of 4,778,632 shares of our common stock pursuant to the repurchase program that we publicly announced on February 12, 2007 (the “Program”). During the three months ended December 31, 2007, we repurchased a total of 2,829,867 shares of our common stock pursuant to the Program.

(2) Our Board of Directors approved the repurchase by us of up to an aggregate of $300 million of our common stock pursuant to the Program. The expiration date of this Program is February 11, 2009, unless terminated earlier by resolution of our board of directors.

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

Selected Consolidated Financial Data

	Year Ended December 31, 2007	2006	2005	2004	2003
	(In thousands, except per share data)				
Statement of Operations Data					
Net sales	$ 780,487	$ 782,801	$ 509,294	$ 555,080	$ 337,291
Gross profit	331,487	338,122	200,434	219,371	118,109
Income (loss) from operations(1)	106,985	122,541	40,548	59,913	(15,717)
Net income (loss)(2)	$ 86,360	$ 94,235	$ 34,565	$ 69,839	$ (16,385)
Net income (loss) per share:					
Basic	$ 1.53	$ 1.70	$ 0.64	$ 1.30	$ (0.32)
Diluted	$ 1.51	$ 1.68	$ 0.63	$ 1.28	$ (0.32)
Balance Sheet Data					
Cash and cash equivalents	$ 223,968	$ 215,208	$ 220,573	$ 138,389	$ 74,660
Short-term investments	99,797	74,749	72,046	97,511	54,518
Working capital	514,235	461,541	410,060	347,700	210,468
Long-term investments	—	2,816	857	4,775	13,625
Total assets	1,076,260	1,043,720	863,740	828,677	692,032
Short-term obligations	20,203	23,021	18,886	24,509	20,196
Long-term obligations, less current portion	5,871	6,113	6,152	6,747	8,810
Stockholders’ equity	954,009	901,219	762,843	726,634	608,310

(1) Income from operations for the years ended December 31, 2007 and 2006 includes stock-based compensation of $12.9 million and $13.1 million, respectively, as a result of adopting SFAS 123R in 2006. Income from operations for the year ended December 31, 2005 includes income from a litigation settlement of $3.0 million.

(2) Net income for the years ended December 31, 2007 and 2006 includes stock-based compensation of $8.4 million and $8.7 million, net of tax, respectively. Net income for the year ended December 31, 2004 includes a gain from the collection of a note receivable of $5.0 million which had been written off in 2002. During the year ended December 31, 2003, a valuation allowance against net deferred tax assets was maintained. Net loss for the year ended December 31, 2003 includes tax expense which is comprised primarily of state and foreign taxes. During 2004, the valuation allowance was reduced against the net deferred tax assets and net income for the year ended December 31, 2004 includes a deferred tax benefit of $10.2 million. See Note 9 of the Notes to the Consolidated Financial Statements.

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

Overview

We are a leading worldwide provider of instruments, subsystems and process control solutions that measure, control, power, monitor and analyze critical parameters to improve process performance and productivity of advanced manufacturing processes.

We are managed as one operating segment. We group our products into three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum Products. Our products are derived from our core competencies in pressure measurement and control, materials delivery, gas composition analysis, electrostatic charge management, control and information technology, power and reactive gas generation and vacuum technology. Our products are used in diverse markets, applications and processes. Our primary served markets are manufacturers of capital equipment for semiconductor devices, and for other thin film applications including flat panel displays, solar cells, data storage media and other advanced coatings. We also leverage our technology in other markets with advanced manufacturing applications including medical equipment, pharmaceutical manufacturing, and energy generation and environmental monitoring.

We have a diverse base of customers that includes manufacturers of semiconductor capital equipment and semiconductor devices, thin film capital equipment used in the manufacture of flat panel displays, solar cells, data storage media, and other coating applications; and other industrial, medical and manufacturing companies, and university, government and industrial research laboratories. During the years ended December 31, 2007, 2006 and 2005, we estimate that approximately 68%, 70% and 71% of our net sales, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers. We expect that sales to semiconductor capital equipment manufacturers and semiconductor device manufacturers will continue to account for a substantial majority of our sales.

Revenues for the full year 2007 were comparable with 2006, however quarterly revenues in both years fluctuated significantly as we experienced significant changes in customer orders. We currently expect that our first quarter 2008 net sales could be approximately the same as our fourth quarter 2007 net sales. However, the semiconductor capital equipment industry is subject to rapid demand shifts, which are difficult to predict, and we are uncertain how long these sales levels may be maintained or the timing or extent of any future downturn or upturn in the semiconductor capital equipment industry.

A significant portion of our net sales is to operations in international markets. International net sales include sales by our foreign subsidiaries, but exclude direct export sales. International net sales accounted for approximately 39%, 34% and 37% of net sales for the years ended December 31, 2007, 2006 and 2005, respectively, a significant portion of which were sales in Japan. We expect that international net sales will continue to represent a significant percentage of our total net sales.

Recent Acquisitions

On November 7, 2007, we acquired Yield Dynamics, Inc. ("YDI"), a provider of yield management technology located in Sunnyvale, California. YDI's data and yield management software, along with MKS' portfolio of sensors that control critical processes, data collection and integration hardware, and real-time fault detection and classification software, provides a comprehensive offering for generating, collecting and analyzing process sensor data and correlating the data to wafers, chambers and tools across the semiconductor fab as well as other thin film manufacturing processes. The purchase price consisted of $23.7 million in cash, net of $0.7 million in cash acquired, and $0.4 million in acquisition related costs. The purchase agreement includes contingent payments of up to $10.0 million based upon achieving specific annual and cumulative revenue targets between 2008 and 2010.

On October 11, 2006, we completed our acquisition of Novx Corp. ("Novx"), a provider of electrostatic charge monitoring technology for semiconductor, data storage, telecommunication, medical device and other markets. Novx's technology expands our capability to monitor, detect and control electrostatic charge in advanced process environments, such as semiconductor and hard disk drive manufacturing. The total purchase price was $2.6 million.

On January 3, 2006, we completed our acquisition of Ion Systems, Inc. ("Ion"), a leading provider of electrostatic management solutions located in Alameda, California, pursuant to an Agreement and Plan of Merger dated November 25, 2005. Ion's ionization technology monitors electrostatic charges to reduce process contamination and improve yields, which complements our process monitoring and control technologies. The aggregate purchase price consisted of $68.1 million in cash, net of $5.1 million in cash acquired, and $0.8 million in acquisition related costs.

Additionally, on January 3, 2006, we completed our acquisition of Umetrics, AB ("Umetrics"), a leader in multivariate data analysis and modeling software located in Umea, Sweden, pursuant to a Sale and Purchase Agreement dated December 15, 2005. Umetrics' multivariate data analysis and modeling software converts process data into useable information for yield improvement, when linked with our open and modular platform of process sensors and data collection, integration, data storage, and visualization capabilities. The purchase price consisted of $27.4 million in cash, net of $2.6 million in cash acquired, and $0.4 million in acquisition related costs.

Critical Accounting Policies and Estimates

Management's Discussion and Analysis of Financial Condition and Results of Operations discusses our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, we evaluate our estimates and judgments, including those related to revenue recognition and allowance for doubtful accounts, inventory, warranty costs, stock-based compensation expense, intangible assets, goodwill and other long-lived assets, in-process research and development and income taxes. We base our estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We believe the following critical accounting policies affect the most significant judgments, assumptions and estimates we use in preparing our consolidated financial statements:

Revenue recognition and Accounts Receivable Allowances. Revenue from product sales is recorded upon transfer of title and risk of loss to the customer provided that there is evidence of an arrangement, the sales price is fixed or determinable, and collection of the related receivable is reasonably assured. In most transactions, we have no obligations to our customers after the date products are shipped other than pursuant to warranty obligations. In some instances, we provide installation, training, support and services to customers after the product has been shipped. We defer the fair value of any undelivered elements until the undelivered element is delivered. Fair value is the price charged when the element is sold separately. Shipping and handling fees billed to customers, if any, are recognized as revenue. The related shipping and handling costs are recognized in cost of sales.

We monitor and track the amount of product returns, provide for accounts receivable allowances and reduce revenue at the time of shipment for the estimated amount of such future returns, based on historical experience. While product returns have historically been within our expectations and the provisions established, there is no assurance that we will continue to experience the same return rates that we have in the past. Any significant increase in product return rates could have a material adverse impact on our operating results for the period or periods in which such returns materialize.

While we maintain a credit approval process, significant judgments are made by management in connection with assessing our customers' ability to pay at the time of shipment. Despite this assessment, from time to time, our customers are unable to meet their payment obligations. We continuously monitor our customers' credit worthiness, and use our judgment in establishing a provision for estimated credit losses based upon our historical experience and any specific customer collection issues that we have identified. While such credit losses have historically been within our expectations and the provisions established, there is no assurance that we will continue to experience the same credit loss rates that we have in the past. A significant change in the liquidity or financial position of our customers could have a material adverse impact on the collectability of accounts receivable and our future operating results.

Inventory. We value our inventory at the lower of cost (first-in, first-out method) or market. We regularly review inventory quantities on hand and record a provision to write down excess and obsolete inventory to our estimated net realizable value, if less than cost, based primarily on our estimated forecast of product demand. Demand for our products can fluctuate significantly. A significant increase in the demand for our products could result in a short-term increase in the cost of inventory purchases as a result of supply shortages or a decrease in the cost of inventory purchases as a result of volume discounts, while a significant decrease in demand could result in an increase in the charges for excess inventory quantities on hand. In addition, our industry is subject to technological change, new product development and product technological obsolescence that could result in an increase in the amount of obsolete inventory quantities on hand. Therefore, any significant unanticipated changes in demand or technological developments could have a significant impact on the value of our inventory and our reported operating results.

Warranty costs. We provide for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. We provide warranty coverage for our products ranging from 12 to 36 months, with the majority of our products ranging from 12 to 24 months. We estimate the anticipated costs of repairing our products under such warranties based on the historical costs of the repairs and any known specific product issues. The assumptions we use to estimate warranty accruals are reevaluated periodically in light of actual experience and, when appropriate, the accruals are adjusted. Our determination of the appropriate level of warranty accrual is based upon estimates. Should product failure rates differ from our estimates, actual costs could vary significantly from our expectations.

Stock-Based Compensation Expense. Effective January 1, 2006, we adopted the fair value recognition provisions of SFAS 123R, using the modified prospective transition method, and therefore have not restated prior periods' results. Under this method we recognize compensation expense for all equity-based awards granted after January 1, 2006 as well as awards granted prior to but not yet vested as of January 1, 2006, in accordance with SFAS 123R. Under the fair value recognition provisions of SFAS 123R, we recognize stock-based compensation net of an estimated forfeiture rate and only recognize compensation cost for those shares expected to vest on a straight-line basis over the requisite service period of the award. The adoption of this standard reduced our net income by $7.2 million and $8.5 million, for the years ended December 31, 2007 and 2006, respectively. Prior to SFAS 123R adoption, we accounted for share-based payments under Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees" ("APB 25") and accordingly, generally recognized compensation expense only when we granted options with a discounted exercise price.

Determining the appropriate fair value model and calculating the fair value of share-based payment awards require the input of highly subjective assumptions, including the expected life of the share-based payment awards and stock price volatility. Management determined that blended volatility, a combination of historical and implied volatility, is more reflective of market conditions and a better indicator of expected volatility than historical or implied volatility. Therefore, expected volatility for the years ended December 31, 2007 and 2006 were based on a blended volatility. The assumptions used in calculating the fair value of share-based payment awards represent management's best estimates, but these estimates involve inherent uncertainties and the application of management judgment. As a result, if factors change and we use different assumptions, our stock-based compensation expense could be materially different in the future. In addition, we are required to estimate the expected forfeiture rate and only recognize expense for those shares expected to vest. If our actual forfeiture rate is materially different from our estimate, the stock-based compensation expense could be significantly different from what we have recorded in the current period. See Note 2 to the consolidated financial statements for a further discussion on stock-based compensation.

Intangible assets, goodwill and other long-lived assets. We review intangible assets and other long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. Factors we consider important, which could indicate an impairment, include significant under performance relative to expected historical or projected future operating results, significant changes in the manner of our use of the asset or the strategy for our overall business and significant and negative industry or economic trends. When we determine that the carrying value of the asset may not be recoverable based upon the existence of one or more of the above indicators of impairment, we compare the undiscounted cash flows to the carrying value of the asset. If impairment is possible and indicated, the asset is written down to its estimated fair value. Intangible assets, such as purchased technology, are generally recorded in connection with a business acquisition. The fair value initially assigned to intangible assets is determined based on estimates and judgment regarding expectations for the success and life cycle of products and technology acquired. If actual product acceptance differs significantly from the estimates, we may be required to record an impairment charge to write down the asset to its estimated fair value.

We assess goodwill for impairment at least annually, or more frequently when events and circumstances occur indicating that the recorded goodwill at the reporting unit level may be impaired. Reporting units are defined as operating segments or one level below an operating segment, referred to as a component. We have determined that our reporting units are components of our one operating segment. We allocate goodwill to reporting units at the time of acquisition and base that allocation on which reporting units will benefit from the acquired assets and liabilities. If the book value of a reporting unit exceeds its fair value, the implied fair value of goodwill is compared with the carrying amount of goodwill. If the carrying amount of goodwill exceeds the implied fair value, an impairment loss is recorded in an amount equal to that excess. The fair value of a reporting unit is estimated using the discounted cash flow approach, and is dependent on estimates and judgments related to future cash flows and discount rates. If actual cash flows differ significantly from the estimates used by management, we may be required to record an impairment charge to write down the goodwill to its estimated fair value.

In-process research and development. We value tangible and intangible assets acquired through our business acquisitions, including in-process research and development (“IPR&D”), at fair value. We determine IPR&D through established valuation techniques for various projects for the development of new products and technologies and expense IPR&D when technical feasibility is not reached. The value of IPR&D is determined using the income approach, which discounts expected future cash flows from projects under development to their net present value. Each project is analyzed and estimates and judgments are made to determine the technological innovations included in the utilization of core technology, the complexity, cost and time to complete development, any alternative future use or current technological feasibility and the stage of completion. If we acquire other companies with IPR&D in the future, we will value the IPR&D through established valuation techniques and will incur future IPR&D charges if those products under development have not reached technical feasibility.

Income taxes. We evaluate the realizability of our net deferred tax assets and assess the need for a valuation allowance on a quarterly basis. The future benefit to be derived from our deferred tax assets is dependent upon our ability to generate sufficient future taxable income to realize the assets. We record a valuation allowance to reduce our net deferred tax assets to the amount that may be more likely than not to be realized. To the extent we established a valuation allowance, an expense is recorded within the provision for income taxes line in the statement of operations. As of December 31, 2005, the Company had a valuation allowance of $3.5 million for its state tax credit carryforwards. During the fourth quarter of 2006, the Company determined that it would begin utilizing these aforementioned state tax credits and reduced the valuation allowance to reflect the amount of the state tax credits that are more likely than not expected to be utilized. The remaining valuation allowance at December 31, 2006 is $0.3 million, relating to the remaining state tax credits acquired with the purchase of Ion. During 2007, the Company increased the valuation allowance for the state tax loss carryforwards and state credits acquired in the purchase of YDI. The valuation allowance is $0.5 million at December 31, 2007. In future periods, if we were to determine that it was more likely than not that we would not be able to realize the recorded amount of our remaining net deferred tax assets, an adjustment to the valuation allowance would be recorded as an increase to income tax expense in the period such determination was made.

Results of Operations

The following table sets forth, for the periods indicated, the percentage of total net sales of certain line items included in our consolidated statement of operations data:

	Year Ended December 31,		
	2007	2006	2005
Net sales	100.0%	100.0%	100.0%
Cost of sales	57.5	56.8	60.6
Gross profit	42.5	43.2	39.4
Research and development	9.3	8.9	11.0
Selling, general and administrative	17.3	16.3	18.3
Amortization of acquired intangible assets	2.1	2.2	2.7
Purchase of in-process technology	0.1	0.1	—
Income from litigation settlement	—	—	0.6
Income from operations	13.7	15.7	8.0
Interest income, net	1.9	1.0	1.2
Impairment of investments	(0.2)	—	—
Income before income taxes	15.4	16.7	9.2
Provision for income taxes	4.3	4.7	2.4
Net income	11.1%	12.0%	6.8%

Year Ended 2007 Compared to 2006 and 2005

Net Sales

	Year Ended December 31,			% Change	% Change
	2007	2006	2005	in 2007	in 2006
Net sales	$ 780.5	$ 782.8	$ 509.3	(0.3)	53.7

Net sales decreased $2.3 million during the year ended December 31, 2007 mainly due to a decrease in worldwide demand from our semiconductor capital equipment manufacturer customers compared to the same period for the prior year. International net sales were $302.7 million for the year ended December 31, 2007 or 38.8% of net sales compared to $266.9 million for the same period of 2006 or 34.1% of net sales.

Net sales increased $273.5 million during the year ended December 31, 2006 mainly due to an increase in worldwide demand from our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers, which increased $188.6 million or 52.3% compared to the same period for the prior year. Additionally, net sales for thin-film and other non-semiconductor manufacturing applications increased $84.9 million or 57.1% compared to the same period for the prior year. During 2006, we acquired three companies. These acquisitions increased our total net sales by approximately $38.5 million for the year ended December 31, 2006 compared to the same period for the prior year. International net sales were $266.9 million for the year ended December 31, 2006 or 34.1% of net sales compared to $188.5 million for the same period of 2005 or 37.0% of net sales.

Gross Profit

	Year Ended December 31,			% Points Change in	% Points Change in
	2007	2006	2005	2007	2006
Gross profit as a percentage of sales	42.5%	43.2%	39.4%	(0.7)	3.8

Gross profit decreased slightly during the year ended December 31, 2007 mainly due to unfavorable product mix and other costs, including higher charges for excess inventory as a result of flattened sales and slightly higher overhead cost, offset by lower warranty cost in 2007.

Gross profit increased during the year ended December 31, 2006 mainly due to higher production volumes, which reduced overhead costs as a percentage of sales by 3.0 percentage points. In addition, the positive impact of gross profit margins from our three acquisitions in 2006, favorable product mix and other reduced manufacturing costs increased our overall margin by approximately 0.8 percentage points during the year ended December 31, 2006.

Research and Development

	Year Ended December 31,			% Change	% Change
	2007	2006	2005	in 2007	in 2006
Research and development expenses	$ 72.2	$ 69.7	$ 55.9	3.5	24.7

Our research and development is primarily focused on developing and improving our instruments, components, subsystems and process control solutions to improve process performance and productivity.

We have hundreds of products and our research and development efforts primarily consist of a large number of projects related to these products, none of which is individually material to us. Current projects typically have a duration of 12 to 30 months depending upon whether the product is an enhancement of existing technology or a new product. Our current initiatives include projects to enhance the performance characteristics of older products, to develop new products and to integrate various technologies into subsystems. These projects support in large part the transition in the semiconductor industry to larger wafer sizes and smaller integrated circuit geometries, which require more advanced process control technology. Research and development expenses consist primarily of salaries and related expenses for personnel engaged in research and development, fees paid to consultants, material costs for prototypes and other expenses related to the design, development, testing and enhancement of our products.

Research and development expense increased $2.5 million during the year ended December 31, 2007 mainly due to $1.9 million in increased compensation, resulting from increased headcount, and $1.8 million in consulting expenses, primarily offset by $0.8 million in lower project materials costs as compared to the same period in the prior year.

Research and development expense increased $13.8 million during the year ended December 31, 2006 mainly due to expenses of $5.4 million from the companies acquired in 2006, $4.9 million in increased compensation, resulting from increased incentive compensation, headcount and salaries, and $3.3 million in stock-based compensation expenses recorded during the current year.

We believe that the continued investment in research and development and ongoing development of new products are essential to the expansion of our markets, and expect to continue to make significant investment in research and development activities. We are subject to risks if products are not developed in a timely manner, due to rapidly changing customer requirements and competitive threats from other companies and technologies. Our success primarily depends on our products being designed into new generations of equipment for the semiconductor industry. We develop products that are technologically advanced so that they are positioned to be chosen for use in each successive generation of semiconductor capital equipment. If our products are not chosen to be designed into our customers' products, our net sales may be reduced during the lifespan of those products.

Selling, General and Administrative

	Year Ended December 31,			% Change	% Change
	2007	2006	2005	in 2007	in 2006
Selling, general and administrative expenses	$ 135.2	$ 127.7	$ 93.1	5.9	37.3

Selling, general and administrative expenses increased $7.5 million during the year ended December 31, 2007 primarily due to $3.8 million of increased IT spending to support current and future initiatives including the implementation of an ERP system, $0.7 million in increased compensation, $0.9 million increase in costs of operating facilities mainly in Asia, and by $1.1 million in foreign currency exchange losses as compared to the same period in the prior year.

Selling, general and administrative expenses increased $34.7 million during the year ended December 31, 2006 primarily due to expenses of $15.8 million from the companies acquired in 2006, $11.3 million in increased compensation, resulting from increased incentive compensation, headcount and salaries, $7.6 million in stock-based compensation expenses recorded during the current year and higher costs of $2.1 million for our ERP implementation and other IT investments , offset by $2.6 million in foreign currency exchange gains as compared to the same period in the prior year.

Amortization of Acquired Intangible Assets

	Year Ended December 31,			% Change	% Change
	2007	2006	2005	in 2007	in 2006
Amortization of acquired intangible assets	$ 16.2	$ 17.4	$ 13.9	(6.9)	25.3

Amortization expense for the year ended December 31, 2007 decreased $1.2 million primarily related to intangible assets from previous acquisitions that became fully amortized during 2007.

Amortization expense for the year ended December 31, 2006 increased $3.5 million primarily due to the amortization related to $33.6 million in acquired intangible assets from the acquisitions in 2006, which included a $1.0 million order backlog intangible asset that was amortized over 3 months during the first quarter of 2006.

Purchase of in-process technology

	Year Ended December 31,		
	2007	2006	2005
Purchase of in-process technology	$ 0.9	$ 0.8	—

In-process research and development amounts related to our acquisition of YDI in 2007 and Ion and Umetrics in 2006. The purchase price of the acquisitions was allocated to the assets acquired, including intangible assets, based on estimated fair values. The intangible assets included acquired in-process technology for projects, generally expected to have durations of 12 months, which did not have alternative future uses. Accordingly, these costs were expensed in the year of acquisition.

Income from Litigation Settlement

During the fourth quarter of 2005, we executed a settlement agreement with Advanced Energy Industries, Inc. (“Advanced Energy”) in connection with the patent infringement suit we had brought against Advanced Energy in federal district court in Delaware. Pursuant to the settlement agreement, Advanced Energy paid us $3.0 million in cash in October 2005.

Interest Income, Net

	Year Ended December 31,			% Change	% Change
	2007	2006	2005	in 2007	in 2006
Interest income, net	$ 14.5	$ 8.4	$ 6.5	72.5	30.1

Net interest income increased $6.1 million during the year ended December 31, 2007 mainly related to higher average outstanding cash and investment balances in 2007 and higher average rates.

Net interest income increased $1.9 million during the year ended December 31, 2006 mainly related to higher interest rates in 2006.

Impairment of Investment

	Year Ended December 31,		
	2007	2006	2005
Impairment of Investment	$ (1.5)	—	—

During the fourth quarter of 2007, we determined that declines in the fair value of our investments in certain commercial paper were other-than-temporary. This commercial paper was issued by two structured investment vehicles (SIVs) that entered into receivership during the fourth quarter of 2007 and they failed to make payments at maturity. Due to the mortgage-related assets these issuers held, they were exposed to adverse market conditions that affected the value of their collateral and their ability to access short-term funding. These investments are not currently trading on active markets, and therefore, have no readily determinable market value. As a result of our evaluation as of December 31, 2007, we recorded a $1.5 million impairment charge to earnings, based upon the Company receiving contemporaneous quotes from established third-party pricing services.

Provision for Income Taxes

	Year Ended December 31,		
	2007	2006	2005
Provision for income taxes	$ 33.7	$ 36.7	$ 12.4

The provision for income taxes in 2007, 2006 and 2005 are comprised of federal, state and foreign income taxes.

Our effective tax rate for the years ended December 31, 2007, 2006 and 2005 was 28.0%, 28.0% and 26.5%, respectively. The effective tax rate for 2007 is less than the statutory tax rate primarily due to the benefit from federal research and development credits and the profits of our international subsidiaries being taxed at rates lower than the U.S. statutory tax rate.

The effective tax rate in 2006 is less than the statutory tax rate primarily due to certain discrete tax matters related to our international operations, the benefit from the federal research and development credits, the reduction in the valuation allowance for state tax credits, and the profits of our international subsidiaries being taxed at rates lower than the U.S. statutory tax rate.

The effective tax rate in 2005 is less than the statutory tax rate primarily due to a tax benefit recorded as the result of the completion of the Internal Revenue Service (“IRS”) examination (see below), the benefit from federal research and development credits and the profits of our international subsidiaries being taxed at rates lower than the U.S. statutory tax rate.

We adopted FASB Interpretation 48, Accounting for Uncertainty in Income Taxes (“FIN 48”), as of January 1, 2007. As a result of the implementation of FIN 48, we did not recognize an adjustment in the liability for unrecognized income tax benefits. At the adoption date of January 1, 2007, the total amount of gross unrecognized tax benefits, which excludes interest and penalties discussed below, was $11.6 million. If these benefits were recognized in a future period, the timing of which is not estimable, the net unrecognized tax benefit of $10.1 million would impact our effective tax rate. The total amount of gross unrecognized tax benefits at December 31, 2007 was approximately $16.1 million, excluding penalties and interest. The increase from January 1, 2007 was primarily attributable to our tax positions taken during the current year. At December 31, 2007, if these benefits were recognized in a future period, the timing of which is not estimable, the net unrecognized tax benefit of approximately $13.2 million would impact our effective tax rate.

MKS and its subsidiaries are subject to U.S. federal income tax as well as the income tax of multiple state and foreign jurisdictions. We have concluded all U.S. federal income tax matters for years through 2002. The 2003 federal tax year remains open to the extent of the loss carryforward to 2004 and 2005. As of December 31, 2007, there were ongoing audits in various other tax jurisdictions.

Over the next 12 months it is reasonably possible that the Company may recognize $4.3 million to $4.8 million of previously unrecognized tax benefits related to various federal, state and foreign tax positions as a result of the conclusion of various audits and the expiration of the statute of limitations. The following tax years, in the major tax jurisdictions noted, are open for assessment or refund: U.S. Federal: 2003 to 2006, Germany: 2001 to 2006, Korea: 2005 to 2006, Japan: 2000 to 2006 and the United Kingdom: 2005 and 2006.

We accrue interest and penalties, if applicable, for any uncertain tax positions. This interest and penalty expense is a component of income tax expense. At the date of adoption of FIN 48 and at December 31, 2007, we had $0.7 million and $1.5 million, respectively, accrued for interest on unrecognized tax benefits.

For the year ended December 31, 2007, the Company amended prior federal tax returns to reflect revised estimates for qualifying federal research and development costs that allowed the Company to claim additional research tax credits. As a result of this claim, the Company recorded a benefit to income tax expense of $1.8 million.

During the year ended December 31, 2006, we received a notification letter from the Israeli Ministry of Industry Trade and Labor (“MITL”) indicating that our Israeli operations were in compliance with requirements relating to the tax holiday granted to our manufacturing operations in Israel in 2001. This tax holiday is anticipated to expire in 2011 and is subject to meeting continued investment, employment and other requirements under the guidelines of the MITL. Additionally, we recorded the impact of both a change in German tax rules allowing interest deductions on certain loans and an adjustment relating to transfer pricing. As a result of these items we recorded a net benefit to income tax expense of $1.6 million for the year ended December 31, 2006.

During 2005, the IRS completed its examination of our federal tax returns for the tax years 1999 through 2002. As a result of this examination, during the year ended December 31, 2005, we recorded a benefit to income tax expense of $1.9 million and a $0.6 million reduction of goodwill related to a previous acquisition.

Liquidity and Capital Resources

Cash, cash equivalents and short-term marketable securities totaled $323.8 million at December 31, 2007 compared to $290.0 million at December 31, 2006. This increase is mainly due to an increase of $119.1 million of cash generated from operations offset primarily by $58.7 million of cash used in financing activities and $24.0 million of cash used for the acquisition of YDI in November 2007. The primary driver in our current and anticipated future cash flows is and will continue to be cash generated from operations, consisting mainly of our net income and changes in operating assets and liabilities. In periods when our sales are growing, higher sales to customers will result in increased trade receivables, and inventories will generally increase as we build products for future sales. This may result in lower cash generated from operations. Conversely, in periods when our sales are declining, our trade accounts receivable and inventory balances will generally decrease, resulting in increased cash from operations.

Net cash provided by operating activities of $119.1 million for the year ended December 31, 2007, resulted mainly from net income of $86.4 million, a $26.1 million decrease in operating liabilities and non-cash charges of $30.6 million for depreciation and amortization and $12.9 million for stock-based compensation, and a decrease in net operating assets of $20.2 million and a deferred tax benefit of $10.3 million. The $26.1 million net decrease in operating liabilities is mainly caused by a decrease of $18.9 million in accounts payable primarily as a result of inventory procurement activities and a decrease of $6.6 million in accrued expenses and other current liabilities primarily as a result of lower accrued compensation and warranty costs. The $20.2 million decrease in operating assets consisted primarily of an $18.3 million decrease in accounts receivable as a result of lower sales in the last two months of 2007 compared to 2006. Net cash provided by operating activities of $78.2 million for the year ended December 31, 2006, resulted mainly from net income of $94.2 million, a $27.7 million increase in operating liabilities and non-cash charges of $31.3 million for depreciation and amortization and $13.1 million for stock-based compensation, offset by an increase in net operating assets of $77.4 million and a deferred tax benefit of $11.5 million. The $27.7 million net increase in operating liabilities is mainly caused by an increase of $15.4 million in accrued expenses and other current liabilities primarily as a result of higher accrued compensation and warranty costs, an increase of $6.5 million in taxes payable as a result of higher net income and an increase of $5.7 million in accounts payable primarily as a result of inventory procurement activities. The $13.1 million for stock-based compensation resulted from the adoption of FAS 123R as of January 1, 2006. The $77.4 million increase in operating assets consisted primarily of a $33.6 million increase in accounts receivable as a result of higher revenue and a $46.0 million increase in inventory as a result of increased product demand.

Net cash used in investing activities of $60.9 million for the year ended December 31, 2007, resulted primarily from the purchase of one technology company for $24.0 million, purchases of property, plant and equipment of $15.1 million, including approximately $6.3 million related to our new China facility and net purchases of $23.7 million of available for sale investments. Net cash used in investing activities of $114.3 million for the year ended December 31, 2006, resulted primarily from the purchase of three technology companies for $98.7 million, purchases of property, plant and equipment of $10.7 million and net purchases of $4.6 million of available for sale investments.

Net cash used in financing activities of $58.7 million for the year ended December 31, 2007, resulted from $101.2 million used to repurchase common stock and $4.1 million in net repayment of short-term borrowings, offset primarily by $45.3 million in proceeds from the exercises of stock options and purchases under our employee stock purchase plan. Net cash provided by financing activities of $30.5 million for the year ended December 31, 2006, consisted primarily of $23.3 million in proceeds from the exercise of stock options and purchases under our employee stock purchase plan and $5.2 million in net proceeds from short-term borrowings.

On August 1, 2007, we renewed an unsecured short-term LIBOR based loan agreement with a bank to be utilized primarily by our Japanese subsidiary for short-term liquidity purposes. The credit line, which expires on July 31, 2008, allows us to borrow, in multiple currencies, up to an equivalent of $35.0 million U.S. dollars. At December 31, 2007, we had outstanding borrowings of $8.9 million U.S. dollars, payable on demand, at an interest rate of 1.62%, with $26.1 million available for future borrowings.

Our Japanese subsidiary also has credit lines and short-term borrowing arrangements with a financial institution, which provide for aggregate borrowings as of December 31, 2007 of up to $22.4 million, which generally expire and are renewed in three-month intervals. At December 31, 2007, total borrowings outstanding under these arrangements was $10.0 million, at an interest rate ranging from 1.24% to 1.875%, with $12.4 million available for future borrowings.

We have provided financial guarantees for certain unsecured borrowings and have standby letters of credit, some of which do not have fixed expiration dates. At December 31, 2007, our maximum exposure as a result of these standby letters of credit and performance bonds was approximately $1.1 million.

Future payments due under debt, lease and purchase commitment obligations as of December 31, 2007 (in thousands) are as follows:

	Payment Due by Period					
Contractual Obligations	**Total**	**Less than 1 Year**	**1-3 years**	**3-5 years**	**After 5 years**	**Other**
Debt Obligations	$ 5,000	$ —	$ —	$ —	$ 5,000	$ —
Operating Lease Obligations	38,802	8,431	11,383	6,886	12,102	—
Purchase Obligations(1)	132,042	115,080	11,410	5,552	—	—
Capital Lease Obligations	2,107	1,236	871	—	—	—
Other Long-Term Liabilities Reflected on the Balance Sheet under GAAP(2)	20,634	178	—	—	7,674	12,782
Contingent Purchase Consideration in Connection with Acquisitions(3)	10,000	2,500	7,500	—	—	—
Total	$ 208,585	$ 127,425	$ 31,164	$ 12,438	$ 24,776	$ 12,782

(1) The majority of the outstanding inventory purchase commitments of approximately $104.0 million at December 31, 2007 are to be purchased within the next 12 months. Additionally, approximately $21.0 million represents a commitment, as of December 31, 2007, to a third party engaged to provide certain computer equipment, IT network services and IT support. This contract is for a period of approximately six years that began in September 2004 and has a significant penalty for early termination. The actual timing of payments and

amounts may vary based on equipment deployment dates. However, the amount noted represents our expected obligation based on anticipated deployment.

(2) We adopted FASB Interpretation 48, “Accounting for Uncertainty in Income Taxes” (“FIN 48”) as of January 1, 2007. According to FIN 48, this represents estimated liabilities for income taxes due for tax positions taken in a tax return that may not be sustained upon examination, based on the technical merits of the position.

(3) In connection with the YDI acquisition, additional purchase consideration may be payable upon the achievement of specific annual and cumulative revenue targets between 2008 and 2010.

We believe that our working capital, together with the cash anticipated to be generated from operations, will be sufficient to satisfy our estimated working capital and planned capital expenditure requirements through at least the next 12 months.

On February 12, 2007, our Board of Directors approved a share repurchase program (the “Program”) for the repurchase of up to $300.0 million of our outstanding stock over the next two years. The repurchases may be made from time to time on the open market or through privately negotiated transactions. The timing and amount of any shares repurchased under the Program will depend on a variety of factors, including price, corporate and regulatory requirements, capital availability and other market conditions. The Program may be discontinued at any time at our discretion and the discretion of our Board of Directors. During the year ended December 31, 2007, we repurchased 4,779,000 shares of common stock for $101.2 million for an average price of $21.17 per share.

To the extent permitted by Massachusetts law, our Restated Articles of Organization, as amended, require us to indemnify any of our current or former officers or directors or any person who has served or is serving in any capacity with respect to any of our employee benefit plans. Because no claim for indemnification has been pursued by any person covered by the relevant provisions of our Restated Articles of Organization, we believe that the estimated exposure for these indemnification obligations is currently minimal. Accordingly, we have no liabilities recorded for these requirements as of December 31, 2007.

We also enter into agreements in the ordinary course of business which include indemnification provisions. Pursuant to these agreements, we indemnify, hold harmless and agree to reimburse the indemnified party, generally our customers, for losses suffered or incurred by the indemnified party in connection with certain patent or other intellectual property infringement claims, and, in some instances, other claims, by any third party with respect to our products. The terms of these indemnification obligations are generally perpetual after execution of the agreements. The maximum potential amount of future payments we could be required to make under these indemnification agreements is, in some instances, not contractually limited. We have never incurred costs to defend lawsuits or settle claims related to these indemnification obligations. As a result, we believe the estimated fair value of these obligations is minimal. Accordingly, we have no liabilities recorded for these obligations as of December 31, 2007.

When, as part of an acquisition, we acquire all of the stock or all of the assets and liabilities of another company, we assume liability for certain events or occurrences that took place prior to the date of acquisition. The maximum potential amount of future payments we could be required to make for such obligations is undeterminable at this time. Other than obligations recorded as liabilities at the time of the acquisitions, historically we have not made significant payments for these indemnifications. Accordingly, no liabilities have been recorded for these obligations.

In conjunction with certain asset sales, we may provide routine indemnifications whose terms range in duration and often are not explicitly defined. Where appropriate, an obligation for such indemnifications is recorded as a liability. Because the amounts of liability under these types of indemnifications are not explicitly stated, the overall maximum amount of the obligation under such indemnifications cannot be reasonably estimated. Other than obligations recorded as liabilities at the time of the asset sale, historically we have not made significant payments for these indemnifications.

Derivatives

We conduct our operations globally. Consequently, the results of our operations are exposed to movements in foreign currency exchange rates. We hedge a portion of our forecasted foreign currency denominated intercompany sales of inventory, over a maximum period of 15 months, using forward foreign exchange contracts (“forward exchange contracts") primarily related to Japanese, Korean and European currencies. These derivatives are designated as cash-flow hedges, and changes in their fair value are carried in accumulated other comprehensive income in our consolidated statements of stockholder's equity until the hedged transaction affects earnings. When the hedged transaction affects earnings, the appropriate gain or loss from the derivative designated as a hedge of the transaction is reclassified from accumulated other comprehensive income to cost of sales in the consolidated statements of operations. As of December 31, 2007, the amount that will be reclassified from accumulated other comprehensive income to cost of sales over the next twelve months is immaterial. The ineffective portions of the derivatives are recorded in cost of sales and were immaterial in 2007, 2006 and 2005, respectively.

We also hedge certain intercompany and other payables with forward exchange contracts. Typically, as these derivatives hedge existing amounts that are denominated in foreign currencies, the derivatives do not qualify for hedge accounting. The foreign exchange gain or loss on these derivatives was immaterial in 2007, 2006 and 2005.

Realized and unrealized gains and losses on forward exchange contracts that do not qualify for hedge accounting are recognized immediately in earnings. The cash flows resulting from forward exchange contracts that qualify for hedge accounting are classified in our consolidated statements of cash flows as part of cash flows from operating activities. Cash flows resulting from forward exchange contracts that do not qualify for hedge accounting are classified in our statements of cash flows as investing activities. We do not hold or issue derivative financial instruments for trading purposes.

We had forward exchange contracts with notional amounts totaling $66.7 million outstanding at December 31, 2007, of which, $39.9 million were outstanding to exchange Japanese yen for U.S. dollars. We had forward exchange contracts with notional amounts totaling $20.3 million outstanding at December 31, 2006, of which, $14.6 million were outstanding to exchange Japanese yen for U.S. dollars. We had forward exchange contracts with notional amounts totaling $35.3 million outstanding at December 31, 2005 of which $28.5 million were outstanding to exchange Japanese yen for U.S. dollars.

Gains and losses on forward exchange contracts that qualify for hedge accounting are classified in cost of goods sold, which totaled a gain of $1.3 million, $1.9 million and $0.8 million for the years ended December 31, 2007, 2006 and 2005, respectively.

Off-Balance Sheet Arrangements

We do not have any financial partnerships with unconsolidated entities, such as entities often referred to as structured finance, special purpose entities or variable interest entities which are often established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. Accordingly, we are not exposed to any financing, liquidity, market or credit risk that could arise if we had such relationships.

Recently Issued Accounting Pronouncements

In September 2006, the Financial Accounting Standards Board (the "FASB") issued SFAS No. 157, "Fair Value Measurements" ("SFAS 157"). SFAS 157 clarifies the principle that fair value should be based on the assumptions market participants would use when pricing an asset or liability and establishes a fair value hierarchy that prioritizes the information used to develop those assumptions. Under the standard, fair value measurements would be separately disclosed by level within the fair value hierarchy. SFAS 157 is effective for fiscal years beginning after November 15, 2007, with early adoption permitted. We do not believe that SFAS 157 will have a material impact on our consolidated financial statements. Certain portions of SFAS 157 have been deferred for one year.

In February 2007, the FASB issued SFAS No. 159, "The Fair Value Option for Financial Assets and Liabilities" ("SFAS 159"). SFAS 159 permits companies to choose to measure certain financial instruments and certain other items at fair value and requires that unrealized gains and losses on items for which the fair value option has been elected be reported in earnings. SFAS 159 is effective for fiscal years beginning after November 15, 2007, although early adoption is permitted. We do not believe that SFAS 159 will have a material impact on our consolidated financial statements.

In December 2007, the FASB issued SFAS No. 141(R), "Business Combinations", which replaces SFAS No. 141. This revised standard requires assets, liabilities and non-controlling interests acquired to be measured at fair value and requires that costs incurred to effect the acquisition be recognized separately from the business combination. In addition, this statement expands the scope to include all transactions and other events in which one entity obtains control over one or more businesses. This statement is effective for all business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2008. We are in the process of evaluating whether the adoption of this standard will have a material effect on our consolidated financial results.

In December 2007, the FASB issued SFAS No. 160, "Noncontrolling Interests in Consolidated Financial Statements, an Amendment of ARB No. 51" ("SFAS No. 160"). This statement establishes accounting and reporting standards for the non-controlling interest in a subsidiary and for the deconsolidation of a subsidiary. This statement is effective for fiscal years beginning on or after December 15, 2008. We are in the process of evaluating whether the adoption of this standard will have a material effect on our consolidated financial statements.

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

Market Risk and Sensitivity Analysis

Our primary exposures to market risks include fluctuations in interest rates on our investment portfolio, short and long-term debt as well as fluctuations in foreign currency exchange rates.

Foreign Exchange Rate Risk

We enter into forward exchange contracts to reduce currency exposure arising from intercompany sales of inventory.

There were forward exchange contracts with notional amounts totaling $66.7 million and $20.3 million outstanding at December 31, 2007 and 2006, respectively. Of such forward exchange contracts, $39.9 million and $14.6 million, respectively, were outstanding to exchange Japanese yen for U.S. dollars with the remaining amounts relating to contracts to exchange the British pound, Korean Won and Euro for U.S. dollars. The potential fair value loss for a hypothetical 10% adverse change in the currency exchange rate on our forward exchange contracts at December 31, 2007 and 2006 would be $6.7 million and $2.0 million, respectively. The potential losses in 2007 and 2006 were estimated by calculating the fair value of the forward exchange contracts at December 31, 2007 and 2006 and comparing that with those calculated using the hypothetical forward currency exchange rates.

At December 31, 2007 and 2006 we had $134.3 million and $11.7 million, respectively, in loans outstanding between subsidiaries that were subject to foreign exchange exposure. The majority of the intercompany loans were related to our UK subsidiary, which were incurred in late December 2007 and were repaid in January 2008. At December 31, 2007 and 2006 a hypothetical 10% adverse change in foreign exchange rates would result in a net transaction loss of $14.9 million and $1.3 million, respectively, which would be recorded in current earnings.

At December 31, 2007 and 2006, we had $19.0 million and $21.8 million, respectively, related to short-term borrowings and current portion of long-term debt denominated in Japanese yen. The carrying value of these short-term borrowings approximates fair value due to their short period to maturity. Assuming a hypothetical 10% adverse change in the Japanese yen to U.S. dollar year-end exchange rate, the fair value of these short-term borrowings would increase by $2.1 million and $2.4 million, respectively. The potential increase in fair value was estimated by calculating the fair value of the short-term borrowings at December 31, 2007 and 2006, respectively, and comparing that with the fair value using the hypothetical year-end exchange rate.

Interest Rate Risk

Due to its short-term duration, the fair value of our cash and investment portfolio at December 31, 2007 and 2006 approximated its carrying value. Interest rate risk was estimated as the potential decrease in fair value resulting from a hypothetical 10% increase in interest rates for securities contained in the investment portfolio. The resulting hypothetical fair value was not materially different from the year-end carrying values.

Our total long-term debt outstanding, including the current portion, at December 31, 2007 and 2006 was $5.0 million, respectively, and consisted of a mortgage note and industrial development revenue bond. The interest rate on these debt instruments was 4.0% at December 31, 2007 and was 3.95% at December 31, 2006. Due to the immaterial amounts of the outstanding debt, a hypothetical change of 10% in interest rates would not have a material effect on our near-term financial condition or results of operations.

From time to time, MKS has outstanding short-term borrowings with variable interest rates, primarily denominated in Japanese yen. At December 31, 2007 and 2006, we had $19.0 million and $21.8 million, respectively, outstanding related to these short-term borrowings at interest rates ranging from 1.24% to 1.875% and 1.45% to 1.50%, respectively. Due to the short-term nature and amount of this short-term debt, a hypothetical change of 10% in interest rates would not have a material effect on our near-term financial condition or results of operations.

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

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To Board of Directors and Shareholders of
MKS Instruments, Inc.:

In our opinion, the consolidated financial statements listed in the index appearing under Item 15(a)1 present fairly, in all material respects, the financial position of MKS Instruments, Inc. and its subsidiaries at December 31, 2007 and 2006, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2007 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the index appearing under Item 15(a)2 presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2007, based on criteria established in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for stock-based compensation in 2006, and as discussed in Note 9, the manner in which it accounts for uncertain tax positions in 2007.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

As described in Management's Report on Internal Control over Financial Reporting, management has excluded Yield Dynamics, Inc. ("YDI") from its assessment of internal control over financial reporting as of December 31, 2007 because YDI was acquired by the Company in a purchase business combination during 2007. We have also excluded YDI from our audit of internal control over financial reporting. YDI is a wholly-owned subsidiary whose total assets and total revenues represent approximately 3% and less than 1%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2007.

PricewaterhouseCoopers LLP

Boston, Massachusetts
February 28, 2008

MKS INSTRUMENTS, INC.

CONSOLIDATED BALANCE SHEETS

	December 31, 2007	December 31, 2006
	(In thousands, except share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 223,968	$ 215,208
Short-term investments	99,797	74,749
Trade accounts receivable, net of allowances of $2,379 and $4,533 at December 31, 2007 and 2006, respectively	107,504	123,658
Inventories	150,731	149,820
Deferred income taxes	17,984	16,787
Other current assets	9,996	11,216
Total current assets	609,980	591,438
Property, plant and equipment, net	81,365	79,463
Long-term investments	—	2,816
Goodwill	337,473	323,973
Acquired intangible assets, net	36,141	43,104
Other assets	11,301	2,926
Total assets	$ 1,076,260	$ 1,043,720
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Short-term borrowings	$ 18,967	$ 21,845
Current portion of capital lease obligations	1,236	1,176
Accounts payable	28,683	38,541
Accrued compensation	17,842	26,685
Income taxes payable	3,649	16,619
Other accrued expenses	25,368	25,031
Total current liabilities	95,745	129,897
Long-term debt	5,000	5,000
Long-term portion of capital lease obligations	871	1,113
Deferred income taxes	—	1,535
Other liabilities	20,635	4,956
Commitments and contingencies (Note 7)		
Stockholders' equity:		
Preferred Stock, $0.01 par value, 2,000,000 shares authorized; none issued and outstanding	—	—
Common Stock, no par value, 200,000,000 shares authorized; 54,261,947 and 56,671,625 shares issued and outstanding at December 31, 2007 and 2006, respectively	113	113
Additional paid-in capital	685,465	680,164
Retained earnings	255,244	210,877
Accumulated other comprehensive income	13,187	10,065
Total stockholders' equity	954,009	901,219
Total liabilities and stockholders' equity	$ 1,076,260	$ 1,043,720

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

MKS INSTRUMENTS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31, 2007	2006	2005
	(In thousands, except per share data)		
Net sales	$ 780,487	$ 782,801	$ 509,294
Cost of sales	449,000	444,679	308,860
Gross profit	331,487	338,122	200,434
Research and development	72,170	69,702	55,916
Selling, general and administrative	135,249	127,703	93,106
Amortization of acquired intangible assets	16,183	17,376	13,864
Purchase of in-process technology	900	800	—
Income from litigation settlement	—	—	3,000
Income from operations	106,985	122,541	40,548
Interest expense	(806)	(974)	(810)
Interest income	15,294	9,374	7,269
Impairment of investments	(1,457)	—	—
Income before income taxes	120,016	130,941	47,007
Provision for income taxes	33,656	36,706	12,442
Net income	$ 86,360	$ 94,235	$ 34,565
Net income per share:			
Basic	$ 1.53	$ 1.70	$ 0.64
Diluted	$ 1.51	$ 1.68	$ 0.63
Weighted average common shares outstanding:			
Basic	56,349	55,395	54,067
Diluted	57,173	55,961	54,633

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

MKS INSTRUMENTS, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	For the year ended December 31, 2007, 2006 and 2005						
	Common Stock		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount					
	(In thousands, except share data)						
Balance at December 31, 2004	53,839,098	$ 113	$ 631,760	$ 82,077	$ 12,684		$ 726,634
Net issuance under stock-based plans	558,169		6,058				6,058
Tax benefit from stock-based plans			1,102				1,102
Other			232				232
Comprehensive income (net of tax):							
Net income				34,565		$ 34,565	34,565
Other comprehensive income:							
Changes in value of financial instruments designated as cash flow hedges and unrealized gain on investments					1,663	1,663	1,663
Foreign currency translation adjustment					(7,411)	(7,411)	(7,411)
Comprehensive income						$ 28,817	
Balance at December 31, 2005	54,397,267	$ 113	$ 639,152	$ 116,642	$ 6,936		$ 762,843
Net issuance under stock-based plans	2,274,358		23,255				23,255
Stock-based compensation			13,143				13,143
Tax benefit from stock-based plans			4,614				4,614
Comprehensive income (net of tax):							
Net income				94,235		94,235	94,235
Other comprehensive income:							
Changes in value of financial instruments designated as cash flow hedges and unrealized (loss) on investments					(43)	(43)	(43)
Foreign currency translation adjustment					3,172	3,172	3,172
Comprehensive income						$ 97,364	
Balance at December 31, 2006	56,671,625	$ 113	$ 680,164	$ 210,877	$ 10,065		$ 901,219
Net issuance under stock-based plans	2,368,954		45,266				45,266
Stock-based compensation			12,918				12,918
Tax benefit from stock-based plans			5,712				5,712
Stock purchases	(4,778,632)		(59,165)	(41,993)			(101,158)
Other			570				570
Comprehensive income (net of tax):							
Net income				86,360		86,360	86,360
Other comprehensive income:							
Changes in value of financial instruments designated as cash flow hedges and unrealized (loss) on investments					(622)	(622)	(622)
Foreign currency translation adjustment					3,744	3,744	3,744
Comprehensive income						$ 89,482	
Balance at December 31, 2007	54,261,947	$ 113	$ 685,465	$ 255,244	$ 13,187		$ 954,009

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

MKS INSTRUMENTS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31, 2007	2006 (In thousands)	2005
Cash flows from operating activities:			
Net income	$ 86,360	$ 94,235	$ 34,565
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	30,644	31,348	26,215
Stock-based compensation	12,918	13,143	—
Tax benefit from stock-based compensation	5,712	4,614	1,102
Excess tax benefit from stock-based compensation	(2,688)	(4,469)	—
Deferred taxes	(10,283)	(11,518)	303
Impairment of investments	1,457	—	—
Other	888	562	467
Changes in operating assets and liabilities, net of effects of businesses acquired:			
Trade accounts receivable	18,263	(33,555)	(4,702)
Inventories	1,206	(46,013)	(1,829)
Other current assets	708	2,213	307
Accrued expenses	(6,615)	15,437	(2)
Accounts payable	(18,855)	5,731	6,362
Income taxes payable	(596)	6,483	1,372
Net cash provided by operating activities	119,119	78,211	64,160
Cash flows from investing activities:			
Acquisitions of businesses, net of cash acquired	(24,021)	(98,671)	—
Purchases of short-term and long-term available-for-sale investments	(183,927)	(108,944)	(215,551)
Maturities and sales of short-term and long-term available-for-sale investments	160,269	104,302	244,736
Purchases of property, plant and equipment	(15,090)	(10,690)	(10,281)
Proceeds from sale of assets	370	578	241
Other	1,451	(827)	901
Net cash provided by (used in) investing activities	(60,948)	(114,252)	20,046
Cash flows from financing activities:			
Proceeds from short-term borrowings	137,656	89,547	79,005
Payments on short-term borrowings	(141,749)	(84,381)	(81,729)
Repurchases of common stock	(101,158)	—	—
Payments on long-term debt	—	(1,667)	(2,036)
Principal payments on capital lease obligations	(1,426)	(754)	(377)
Proceeds from exercise of stock options and employee stock purchase plan	45,266	23,255	6,058
Excess tax benefit from stock-based compensation	2,688	4,469	—
Net cash provided by (used in) financing activities	(58,723)	30,469	921
Effect of exchange rate changes on cash and cash equivalents	9,312	207	(2,943)
Increase (decrease) in cash and cash equivalents	8,760	(5,365)	82,184
Cash and cash equivalents at beginning of period	215,208	220,573	138,389
Cash and cash equivalents at end of period	$ 223,968	$ 215,208	$ 220,573
Supplemental disclosure of cash flow information:			
Cash paid during the period for:			
Interest	$ 830	$ 880	$ 784
Income taxes	$ 27,116	$ 35,922	$ 10,213
Non-cash financing activities:			
Equipment capital leases	$ 1,244	$ 1,638	$ 1,666

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

MKS INSTRUMENTS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Table in thousands, except share and per share data)

1) Description of Business

MKS Instruments, Inc. was founded in 1961 and is a leading worldwide provider of instruments, subsystems and process control solutions that measure, control, power, monitor and analyze critical parameters to improve process performance and productivity of advanced manufacturing processes. MKS is managed as one operating segment which is organized around three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum Products. MKS' products are derived from its core competencies in pressure measurement and control, materials delivery, gas composition analysis, electrostatic change management, control and information technology, power and reactive gas generation and vacuum technology.

2) Summary of Significant Accounting Policies

Basis of Presentation

The consolidated financial statements include the accounts of MKS Instruments, Inc. and its wholly owned subsidiaries (collectively, the "Company"). All significant intercompany accounts and transactions have been eliminated in consolidation.

Net Income Per Share

Basic earnings per share is based on the weighted average number of common shares outstanding, and diluted earnings per share is based on the weighted average number of common shares outstanding and all dilutive potential common equivalent shares outstanding. The dilutive effect of options is determined under the treasury stock method using the average market price for the period. Common equivalent shares are included in the per share calculations when the effect of their inclusion would be dilutive.

The following is a reconciliation of basic to diluted net income per share:

	For the Year Ended December 31, 2007	2006	2005
Net income	$ 86,360	$ 94,235	$ 34,565
Shares used in net income per common share — basic	56,349,000	55,395,000	54,067,000
Effect of dilutive securities:			
Stock options, restricted stock and employee stock purchase plan	824,000	566,000	566,000
Shares used in net income per common share — diluted	57,173,000	55,961,000	54,633,000
Net income per common share — basic	$ 1.53	$ 1.70	$ 0.64
Net income per common share — diluted	$ 1.51	$ 1.68	$ 0.63

Options and restricted stock outstanding of 3,684,435, 4,789,894 and 5,957,682 during the years ended December 31, 2007, 2006 and 2005, respectively, are excluded from the calculation of diluted net income per common share because their inclusion would be anti-dilutive.

Stock-Based Compensation

Effect of Adoption of SFAS 123R, Share-Based Payment

Prior to January 1, 2006, the Company accounted for stock-based awards to employees using the intrinsic value method as prescribed by Accounting Principles Board Opinion No. 25, “Accounting for Stock Issued to Employees,” and related interpretations (“APB 25”). Accordingly, no compensation expense was recorded for options issued to employees in fixed amounts with fixed exercise prices at least equal to the fair market value of the Company’s common stock at the date of grant. The Company had adopted the disclosure-only provisions of Statement of Financial Accounting Standards (“SFAS”) No. 123, “Accounting for Stock-Based Compensation,” as amended by SFAS No. 148, “Accounting for Stock-Based Compensation-Transition and Disclosure,” (“SFAS 123”).

On January 7, 2005, the Company accelerated the vesting of outstanding stock options granted to employees and officers with an exercise price of $23.00 per share or greater. As a result of this action, options to purchase approximately 1,600,000 shares of the Company’s common stock became exercisable on January 7, 2005. No compensation expense was recorded related to this action as these options had no intrinsic value on January 7, 2005. For purposes of the SFAS 123 pro forma calculation below, the expense related to the options that were accelerated was $16,886,000, net of tax, for the year ended December 31, 2005. The reason that the Company accelerated the vesting of the identified stock options was to reduce the Company’s compensation expense in periods subsequent to the adoption of SFAS No. 123R, “Share-Based Payment” (“SFAS 123R”).

As of January 1, 2006, the Company adopted SFAS 123R using the modified prospective method. SFAS 123R requires companies to recognize compensation cost for all stock-based awards based upon the grant-date fair value of those awards and to recognize the expense over the requisite service period for awards expected to vest. Using the modified prospective method of adopting SFAS 123R, MKS began recognizing compensation expense for equity-based awards granted after January 1, 2006 plus unvested awards granted prior to January 1, 2006. Under this method of implementation, prior periods were not restated. The Company has elected to adopt the alternative transition method for calculating the tax effects of equity-based compensation. The alternative transition method includes simplified methods to establish the beginning balance of the additional paid-in capital pool (APIC pool) related to the tax effects of employee stock-based compensation, and to determine the subsequent impact on the APIC pool and consolidated statement of cash flows of the tax effects of employee equity-based compensation awards that are outstanding upon the implementation of SFAS 123R. Subsequent to the initial adoption of SFAS 123R, the Company calculates potential windfall or shortfall tax benefits under the treasury stock method by excluding the impact of pro forma deferred tax assets.

The Company recognized the full impact of its share-based payment plans in the consolidated statements of operations for the years ended December 31, 2007 and 2006 under SFAS 123R. As of December 31, 2007, the Company capitalized $570,000 of such cost on its consolidated balance sheet. The Company did not capitalize any amount as of December 31, 2006 as such costs were not material. The following table reflects the effect of recording stock-based compensation for the years ended December 31, 2007 and 2006 in accordance with SFAS 123R:

(Table in thousands, except share and per share data)

	Year Ended December 31, 2007	Year Ended December 31, 2006
Stock-based compensation expense by type of award:		
Employee stock options	$ 3,516	$ 8,521
Restricted stock	8,481	3,862
Employee stock purchase plan	921	760
Total stock-based compensation	12,918	13,143
Tax effect on stock-based compensation	(5,712)	(4,614)
Net effect on net income	$ 7,206	$ 8,529
Effect on earnings per share:		
Basic	$ 0.13	$ 0.15
Diluted	$ 0.13	$ 0.15

The pre-tax effect within the Statement of Operations of recording stock-based compensation for the years ended December 31, 2007 and 2006 was as follows:

	Year Ended December 31, 2007	Year Ended December 31, 2006
Cost of sales	$ 1,564	$ 2,204
Research and development expense	3,275	3,348
Selling, general and administrative expense	8,079	7,591
Total pre-tax stock-based compensation expense	$ 12,918	$ 13,143

Prior to the adoption of SFAS 123R

The following table illustrates the effect on net income and net income per share, for the year ended December 31, 2005, if the Company had applied the fair value recognition provisions of SFAS 123 to stock-based employee awards.

	2005
Net income as reported	$ 34,565
Add: Stock-based employee compensation expense included in reported net income, net of tax	—
Deduct: Total stock-based employee compensation expense determined under the fair-value-based method for all awards, net of tax	(24,321)
Pro forma net income	$ 10,244
Basic and diluted net income per share:	
Basic — as reported	$ 0.64
Basic — Pro forma	$ 0.19
Diluted — as reported	$ 0.63
Diluted — Pro forma	$ 0.19

(Table in thousands, except share and per share data)

Valuation Assumptions

In connection with the adoption of SFAS 123R, the Company reassessed its valuation technique and related assumptions. The Company determines the fair value of restricted stock based on the number of shares granted and the closing market price of the Company's common stock on the date of the award, and estimates the fair value of stock options and employee stock purchase rights using the Black-Scholes valuation model, which is consistent with our valuation techniques previously utilized for options in footnote disclosures required under SFAS 123. Such values are recognized as expense on a straight-line basis over the requisite service periods, net of estimated forfeitures. The estimation of stock-based awards that will ultimately vest requires significant judgment. We consider many factors when estimating expected forfeitures, including types of awards and historical experience. Actual results, and future changes in estimates, may differ substantially from our current estimates.

There were no options granted during the year ended December 31, 2007. The weighted average grant date fair value of options granted during the year ended December 31, 2006, as determined under SFAS 123R, and during the year December 31, 2005, as determined under SFAS 123, was $12.00 and $8.27 per share, respectively. The total intrinsic value of options exercised during the years ended December 31, 2007, 2006 and 2005 was approximately $16,462,000, $14,252,000 and $2,858,000, respectively. The fair values of options at the date of grant were estimated using the Black-Scholes option-pricing model with the following weighted average assumptions:

	2007	2006	2005
Stock option plans:			
Expected life (years)	—	5.0	5.0
Risk-free interest rate	—	4.9%	4.0%
Expected Volatility	—	52.0%	51.0%
Dividend yield	—	0.0%	0.0%

The weighted average fair value of employee stock purchase rights granted in 2007, 2006 and 2005 was $4.88, $5.18 and $4.18, respectively. The fair value of the employees' purchase rights was estimated using the Black-Scholes option-pricing model with the following weighted average assumptions:

	2007	2006	2005
Employee stock purchase rights:			
Expected life (years)	0.5	0.5	0.5
Risk-free interest rate	5.0%	4.8%	2.7%
Expected volatility	33.0%	34.6%	34.0%
Dividend yield	0.0%	0.0%	0.0%

Expected volatilities for 2007 and 2006 are based on a combination of implied and historical volatilities of our common stock and based on historical volatilities for 2005; the expected life represents the weighted average period of time that options granted are expected to be outstanding giving consideration to vesting schedules and our historical exercise patterns; and the risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant for periods corresponding with the expected life of the option.

The fair value of stock options and restricted stock awards that vested during the year ended December 31, 2007, 2006 and 2005 was approximately $4,876,000, $8,111,000 and $10,097,000, respectively. As of December 31, 2007, the unrecognized compensation cost related to non-vested stock options and the unrecognized compensation cost related to restricted stock was approximately $2,273,000 and $17,247,000 respectively, and will be recognized over an estimated weighted average amortization period of 0.9 years and 1.9 years, respectively.

Foreign Exchange

The functional currency of the majority of the Company's foreign subsidiaries is the applicable local currency. For those subsidiaries, assets and liabilities are translated to U.S. dollars at year-end exchange rates. Income and expense accounts are translated at the average exchange rates prevailing during the year. The resulting translation adjustments are included in accumulated other comprehensive income in consolidated stockholders' equity. Foreign exchange transaction gains and losses, which arise from transaction activity and are reflected in operations, were immaterial in 2007, 2006 and 2005.

Revenue Recognition and Accounts Receivable Allowances

Revenue from product sales is recorded upon transfer of title and risk of loss to the customer provided that there is evidence of an arrangement, the sales price is fixed or determinable, and collection of the related receivable is reasonably assured. In most transactions, the Company has no obligations to customers after the date products are shipped other than pursuant to warranty obligations. In some instances, the Company provides installation, training, support and services to customers after the product has been shipped. For revenue arrangements with multiple deliverables, the Company defers the fair value related to any undelivered elements until the undelivered element is delivered. Fair value is the price charged when the element is sold separately. The Company provides for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. Shipping and handling fees, if any, billed to customers are recognized as revenue. The related shipping and handling costs are recognized in cost of sales. Accounts receivable allowances include sales returns and bad debt allowances. The Company monitors and tracks the amount of product returns and reduces revenue at the time of shipment for the estimated amount of such future returns, based on historical experience. The Company makes estimates evaluating its allowance for doubtful accounts. The Company continuously monitors collections and payments from its customers and maintains a provision for estimated credit losses based upon its historical experience and any specific customer collection issues that it has identified.

Cash and Cash Equivalents and Investments

All highly liquid investments with a maturity date of three months or less at the date of purchase are considered to be cash equivalents. The appropriate classification of investments in securities is determined at the time of purchase. Debt securities that the Company does not have the intent and ability to hold to maturity are classified as "available-for-sale" and are carried at fair value. Unrealized gains and losses on securities classified as available-for-sale are included in accumulated other comprehensive income in consolidated stockholders' equity.

The Company reviews its investment portfolio on a monthly basis to identify and evaluate individual investments that have indications of possible impairment. The factors considered in determining whether a loss is other-than-temporary include: the length of time and extent to which fair market value has been below the cost basis, the financial condition and near-term prospects of the issuer, credit quality, and the Company's ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in fair value. During this review, as of December 31, 2007, the Company determined that declines in the fair value of two of its investments in certain commercial paper were other-than-temporary. This commercial paper was issued by two structured investment vehicles (SIVs) that entered into receivership during the fourth quarter of 2007 and failed to make payment at maturity. Due to the mortgage-related assets held by these issuers, they were exposed to adverse market conditions that affected the value of their collateral and their ability to access short-term funding. These investments are not currently trading on active markets, and therefore, have no readily determinable market value. As a result of the Company's evaluation as of December 31, 2007, it recorded a $1,457,000 impairment charge to earnings based upon the Company receiving contemporaneous quotes from established third-party pricing services. This resulted in a new cost basis for the securities of $4,275,000.

(Table in thousands, except share and per share data)

The fair value of short-term available-for-sale investments with maturities or estimated lives of less than one year consists of the following:

	December 31, 2007	December 31, 2006
Federal Government and Government Agency Obligations	$ 46,813	$ 2,092
Commercial Paper and Corporate Obligations	52,984	72,657
	$ 99,797	$ 74,749

The fair value of long-term available-for-sale investments with maturities or estimated lives of one to five years consists of the following:

	December 31, 2007	December 31, 2006
Commercial Paper and Corporate Obligations	$ —	$ 2,816

The following table shows the gross unrealized gains and losses aggregated by investment category:

	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
As of December 31, 2007:				
Federal Government and Government Agency Obligations	$ 13,554	$ 15	$ —	$ 13,569
Commercial Paper and Corporate Obligations	13,853	39	64	13,828
Total	$ 27,407	$ 54	$ 64	$ 27,397
As of December 31, 2006:				
Commercial Paper and Corporate Obligations	$ 29,581	$ 156	$ 19	$ 29,718

Interest income is accrued as earned. Dividend income is recognized as income on the date the stock trades “ex-dividend.” The cost of marketable securities sold is determined by the specific identification method and realized gains or losses are reflected in income and were not material in 2007, 2006 and 2005.

Inventories

The Company values its inventory at the lower of cost (first-in, first-out method) or market. The Company regularly reviews inventory quantities on hand and records a provision to write down excess and obsolete inventory to its estimated net realizable value, if less than cost, based primarily on its estimated forecast of product demand.

Property, Plant and Equipment

Property, plant and equipment are stated at cost. Equipment acquired under capital leases is recorded at the present value of the minimum lease payments required during the lease period. Expenditures for major renewals and betterments that extend the useful lives of property, plant and equipment are capitalized. Expenditures for maintenance and repairs are charged to expense as incurred. When assets are sold or otherwise disposed of, the cost and related accumulated depreciation are eliminated from the accounts and any resulting gain or loss is recognized in earnings.

Depreciation is provided on the straight-line method over the estimated useful lives of twenty to thirty-one and one-half years for buildings and three to seven years for machinery and equipment and furniture and fixtures and office equipment, which includes ERP software. Leasehold improvements are amortized over the shorter of the lease term or the estimated useful life of the leased asset.

Intangible Assets

Intangible assets resulting from the acquisitions of entities accounted for using the purchase method of accounting are estimated by management based on the fair value of assets acquired. These include acquired customer lists, technology, patents, trade name and covenants not to compete. Intangible assets are amortized from two to eight years on a straight-line basis which represents the estimated periods of benefit.

Goodwill

Goodwill is the amount by which the cost of acquired net assets exceeded the fair value of those net assets on the date of acquisition. The Company assesses goodwill for impairment on an annual basis during the fourth quarter of each fiscal year, or more frequently when events and circumstances occur indicating that the recorded goodwill may be impaired. If the book value of a reporting unit exceeds its fair value, the implied fair value of goodwill is compared with the carrying amount of goodwill. If the carrying amount of goodwill exceeds the implied fair value, an impairment loss is recorded equal to that excess.

Impairment of Long-Lived Assets

The Company evaluates the recoverability of its long-lived assets, in accordance with Statement of Financial Accounting Standards No. 144, “Accounting for the Impairment or Disposal of Long-Lived Assets” (“SFAS 144”). SFAS 144 requires recognition of impairment of long-lived assets in the event the net book value of such assets exceeds the future undiscounted cash flows attributable to such assets. If impairment is indicated, the assets are written down to their estimated fair value.

Research and Development

Research and development costs are expensed as incurred and consist mainly of compensation related expenses and project materials. The Company’s research and development efforts include numerous projects, which generally have duration of 12 to 30 months.

In-Process Research and Development

The Company values tangible and intangible assets acquired through its business acquisitions at fair value including in-process research and development (“IPR&D”). The Company determines IPR&D through established valuation techniques for various projects for the development of new products and technologies and expenses IPR&D when technical feasibility is not reached.

Advertising Costs

Advertising costs are expensed as incurred. Advertising costs were immaterial in 2007, 2006 and 2005.

Income Taxes

The Company records income taxes using the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective income tax bases, and operating loss and tax credit carryforwards. The Company evaluates the realizability of net deferred tax assets and assesses the need for valuation allowance on a quarterly basis. The future benefit to be derived from its deferred tax assets is dependent upon its ability to generate sufficient future taxable income to realize the assets. The company records a valuation allowance to reduce its net deferred tax assets to the amount that is more likely than not to be realized. To the extent the Company establishes a valuation allowance, an expense will be recorded within the provision for income taxes line on the statement of operations. As of December 31, 2005, the Company had a valuation allowance of $3,497,000 for its state tax credit carryforwards. During the fourth quarter of 2006, the Company determined that it would begin utilizing these aforementioned state tax credits and reduced the valuation allowance to reflect the amount of the state tax credits that are more likely than not expected to be utilized. The remaining valuation allowance at December 31, 2006 was $317,000, related to the remaining state tax credits acquired with the purchase of Ion. During 2007, the Company increased the valuation allowance for the state tax loss carryforwards and state tax credits acquired in the purchase of YDI. The valuation allowance is $534,000 at December 31, 2007.

New Accounting Pronouncements

In September 2006, the Financial Accounting Standards Board (the “FASB”) issued SFAS No. 157, “Fair Value Measurements” (“SFAS 157”). SFAS 157 clarifies the principle that fair value should be based on the assumptions market participants would use when pricing an asset or liability and establishes a fair value hierarchy that prioritizes the information used to develop those assumptions. Under the standard, fair value measurements would be separately disclosed by level within the fair value hierarchy. SFAS 157 is effective for fiscal years beginning after November 15, 2007, with early adoption permitted. The Company does not believe that SFAS 157 will have a material impact on its consolidated financial statements. Certain portions of SFAS 157 have been deferred for one year.

In February 2007, the FASB issued SFAS No. 159, “The Fair Value Option for Financial Assets and Liabilities” (“SFAS 159”). SFAS 159 permits companies to choose to measure certain financial instruments and certain other items at fair value and requires that unrealized gains and losses on items for which the fair value option has been elected be reported in earnings. SFAS 159 is effective for fiscal years beginning after November 15, 2007, although early adoption is permitted. The Company does not believe that SFAS 159 will have a material impact on its consolidated financial statements.

In December 2007, the FASB issued SFAS no. 141(R), “Business Combinations”, which replaces SFAS No. 141. This revised standard requires assets, liabilities and non-controlling interests acquired to be measured at fair value and requires that costs incurred to effect the acquisition be recognized separately from the business combination. In addition, this statement expands the scope to include all transactions and other events in which one entity obtains control over one or more businesses. This statement is effective for all business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2008. The Company is in the process of evaluating whether the adoption of this standard will have a material effect on its consolidated financial statements.

In December 2007, the FASB issued SFAS No. 160, “Noncontrolling Interests in Consolidated Financial Statements, an Amendment of ARB No. 51”. This statement establishes accounting and reporting standards for the non-controlling interest in a subsidiary and for the deconsolidation of a subsidiary. This statement is effective for fiscal years beginning on or after December 15, 2008. The Company is in the process of evaluating whether the adoption of this standard will have a material effect on its financial position, results of operations or cash flows.

Use of Estimates

The consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, management evaluates its estimates and judgments, including those related to revenue recognition, stock-based compensation, inventory, intangible assets, goodwill, and other long-lived assets, in-process research and development, merger expenses, income taxes and investments. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

3) Financial Instruments and Risk Management

Foreign Exchange Risk Management

The Company hedges a portion of its forecasted foreign currency denominated intercompany sales of inventory, over a maximum period of fifteen months, using forward exchange contracts primarily related to Japanese, Korean and European currencies. These derivatives are designated as cash-flow hedges, and changes in their fair value are carried in accumulated other comprehensive income until the hedged transaction affects earnings. When the hedged transaction affects earnings, the appropriate gain or loss from the derivative designated as a hedge of the transaction is reclassified from accumulated other comprehensive income to cost of sales. As of December 31, 2007, the amount that will be reclassified from accumulated other comprehensive income to cost of sales over the next twelve months is immaterial. The ineffective portion of the derivatives is recorded in cost of sales and was immaterial in 2007, 2006 and 2005.

The Company hedges certain intercompany and other payables with forward foreign exchange contracts. Since these derivatives hedge existing amounts that are denominated in foreign currencies, the derivatives do not qualify for hedge accounting under SFAS No. 133. The foreign exchange gain or loss on these derivatives was immaterial in 2007, 2006 and 2005.

Realized and unrealized gains and losses on forward exchange contracts that do not qualify for hedge accounting are recognized immediately in earnings. The cash flows resulting from forward exchange contracts that qualify for hedge accounting are classified in the consolidated statement of cash flows as part of cash flows from operating activities. Cash flows resulting from forward exchange contracts that do not qualify for hedge accounting are classified in the consolidated statement of cash flows as investing activities. The Company does not hold or issue derivative financial instruments for trading purposes.

There were forward exchange contracts with notional amounts totaling $66,660,000 outstanding at December 31, 2007 of which $39,925,000 were outstanding to exchange Japanese Yen for U.S. dollars. There were forward exchange contracts with notional amounts totaling $20,324,000 outstanding at December 31, 2006 of which $14,619,000 were outstanding to exchange Japanese yen for U.S. dollars. There were forward exchange contracts with notional amounts totaling $35,299,000 outstanding at December 31, 2005. Of such forward exchange contracts, $28,461,000 were outstanding to exchange Japanese yen for US dollars.

Gains and losses on forward exchange contracts that qualify for hedge accounting are classified in cost of goods sold and totaled a gain of $1,312,000, $1,932,000 and $812,000 for the years ended December 31, 2007, 2006 and 2005, respectively.

The fair values of forward exchange contracts at December 31, 2007 and 2006, determined by applying period end currency exchange rates to the notional contract amounts, amounted to an unrealized gain of $43,000 and $998,000 for the years ended December 31, 2007 and 2006, respectively.

Concentrations of Credit Risk

The Company's significant concentrations of credit risk consist principally of cash and cash equivalents, investments, forward exchange contracts and trade accounts receivable. The Company maintains cash and cash equivalents with financial institutions including some banks with which it has borrowings. The Company maintains investments primarily in U.S. Treasury and government agency securities and corporate debt securities, with minimum rating of A1-P1 or AAA. The Company enters into forward currency contracts with high credit-quality financial institutions in order to minimize credit risk exposure. The Company's customers are primarily concentrated in the semiconductor industry, and a limited number of customers account for a significant portion of the Company's revenues. The Company regularly monitors the creditworthiness of its customers and believes it has adequately provided for potential credit loss exposures. Credit is extended for all customers based primarily on financial condition and collateral is not required.

(Table in thousands, except share and per share data)

Fair Value of Financial Instruments

The fair value of the term loans, including the current portion, approximates its carrying value given its variable rate interest provisions. The fair value of marketable securities is based on quoted market prices. The fair value of mortgage notes is based on borrowing rates for similar instruments and, therefore, approximates its carrying value. For all other balance sheet financial instruments, the carrying amount approximates fair value because of the short period to maturity of these instruments.

4) Inventories

Inventories consist of the following:

	December 31, 2007	December 31, 2006
Raw material	$ 73,529	$ 82,007
Work in process	26,171	26,943
Finished goods	51,031	40,870
	$ 150,731	$ 149,820

5) Property, Plant and Equipment

Property, plant and equipment consist of the following:

	December 31, 2007	December 31, 2006
Land	$ 11,566	$ 11,310
Buildings	64,991	63,932
Machinery and equipment	86,747	87,136
Furniture and fixtures and office equipment	47,165	38,244
Leasehold improvements	13,750	8,082
Construction in progress	3,239	2,846
	227,458	211,550
Less: accumulated depreciation and amortization	146,093	132,087
	$ 81,365	$ 79,463

(Table in thousands, except share and per share data)

Depreciation and amortization of property, plant and equipment totaled $14,476,000, $13,972,000 and $12,351,000 for the years ended December 31, 2007, 2006 and 2005, respectively.

6) Debt

Credit Agreements and Short-Term Borrowings

On July 31, 2007, the Company renewed an unsecured short-term LIBOR based loan agreement with a bank to be utilized primarily by its Japanese subsidiary for short-term liquidity purposes. The credit line, which expires on July 31, 2008, provides for the Company to borrow in multiple currencies of up to an equivalent of $35,000,000 U.S. dollars. At December 31, 2007, the Company had outstanding borrowings of $8,952,000 U.S. dollars, payable on demand, at an interest rate of 1.62%.

Additionally, the Company's Japanese subsidiary has lines of credit and short-term borrowing arrangements with two financial institutions which provide for aggregate borrowings as of December 31, 2007 of up to $22,379,000, which generally expire and are renewed at three month intervals. At December 31, 2007 and 2006, total borrowings outstanding under these arrangements were $10,015,000 and $5,041,000, respectively, at interest rates ranging from 1.24% to 1.875% at December 31, 2007 and at an interest rate of 1.50% at December 31, 2006.

Long-Term Debt

Long-term debt consists of the following:

	December 31,	
	2007	2006
Mortgage notes	$ 5,000	$ 5,000
Less: current portion	—	—
Long-term debt less current portion	$ 5,000	$ 5,000

The Company has a long-term debt agreement with the County of Monroe Industrial Development Agency (COMIDA) for a manufacturing facility located in Rochester, New York. The terms are the same as that of the underlying Industrial Development Revenue Bond which calls for payments of interest only through July 1, 2014, at which time the Bond is repayable in a lump sum of $5,000,000. Interest is reset annually based on bond remarketing, with an option by the Company to elect a fixed rate, subject to a maximum rate of 13% per annum. At December 31, 2007 the interest rate was 4.0%. The bond is collateralized by the building. The remaining principal balance outstanding at December 31, 2007 was $5,000,000. The net book value of the building at December 31, 2007 was approximately $9,472,000.

7) Commitments and Contingencies

On October 3, 2005, MKS entered into a settlement agreement with Advanced Energy Industries, Inc. ("Advanced Energy"), pursuant to which Advanced Energy paid MKS $3,000,000 in cash in October 2005. The settlement agreement was entered into in connection with a patent infringement litigation suit.

The Company is subject to other legal proceedings and claims, which have arisen in the ordinary course of business. In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on the Company's results of operations, financial condition or cash flows.

The Company leases certain of its facilities and machinery and equipment under capital and operating leases expiring in various years through 2012 and thereafter. Generally, the facility leases require the Company to pay maintenance, insurance and real estate taxes. Rental expense under operating leases totaled $8,257,000, $7,443,000 and $7,439,000, for the years ended December 31, 2007, 2006 and 2005, respectively.

(Table in thousands, except share and per share data)

Minimum lease payments under operating and capital leases are as follows:

	Operating Leases	Capital Leases
Year ending December 31,		
2008	$ 8,431	$ 1,345
2009	6,287	744
2010	5,096	160
2011	3,678	—
2012	3,208	—
Thereafter	12,102	—
Total minimum lease payments	$ 38,802	2,249
Less: amounts representing interest		142
Present value of minimum lease payments		2,107
Less: current portion		1,236
Long-term portion		$ 871

As of December 31, 2007, the Company has entered into non-cancelable purchase commitments for certain inventory components and other equipment and services used in its normal operations. The majority of these purchase commitments covered by these arrangements are for periods of less than one year and aggregate to approximately $103,689,000. Additionally, the Company has engaged a third party to provide certain computer equipment, IT network services and IT support. This contract is for a period of approximately six years beginning in September 2004 and has a significant penalty for early termination. The obligation at December 31, 2007 of approximately $20,803,000, excluding capital lease and interest payments of $2,249,000, will be paid over the term of the arrangement. Average annual payments are expected to be approximately $6,934,000.

To the extent permitted by Massachusetts law, the Company's Restated Articles of Organization, as amended, require the Company to indemnify any of its current or former officers or directors or any person who has served or is serving in any capacity with respect to any of the Company's employee benefit plans. Because no claim for indemnification has been pursued by any person covered by the relevant provisions of the Company's Restated Articles of Organization, the Company believes that the estimated exposure for these indemnification obligations is currently minimal. Accordingly, the Company has no liabilities recorded for these requirements as of December 31, 2007.

The Company also enters into agreements in the ordinary course of business which include indemnification provisions. Pursuant to these agreements, the Company indemnifies, holds harmless and agrees to reimburse the indemnified party, generally its customers, for losses suffered or incurred by the indemnified party in connection with certain patent or other intellectual property infringement claims, and, in some instances, other claims, by any third party with respect to the Company's products. The term of these indemnification obligations is generally perpetual after execution of the agreement. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is, in some instances, not contractually limited. The Company has never incurred costs to defend lawsuits or settle claims related to these indemnification obligations. As a result, the Company believes the estimated fair value of these obligations is minimal. Accordingly, the Company has no liabilities recorded for these obligations as of December 31, 2007.

When, as part of an acquisition, the Company acquires all of the stock or all of the assets and liabilities of another company, the Company assumes liability for certain events or occurrences that took place prior to the date of acquisition. The maximum potential amount of future payments the Company could be required to make for such obligations is undeterminable at this time. Other than obligations recorded as liabilities at the time of the acquisitions, historically the Company has not made significant payments for these indemnifications. Accordingly, no liabilities have been recorded for these obligations.

In conjunction with certain asset sales, the Company may provide routine indemnifications whose terms range in duration and often are not explicitly defined. Where appropriate, an obligation for such indemnifications is recorded as a liability. Because the amounts of liability under these types of indemnifications are not explicitly stated, the overall maximum amount of the obligation under such indemnifications cannot be reasonably estimated. Other than obligations recorded as liabilities at the time of the asset sale, historically the Company has not made significant payments for these indemnifications.

8) Stockholders' Equity

Stock Repurchase Program

On February 12, 2007, MKS' Board of Directors approved a share repurchase program (the "Program") for the repurchase of up to $300,000,000 of its outstanding stock over the subsequent two years. The repurchases may be made from time to time on the open market or through privately negotiated transactions. The timing and amount of any shares repurchased under the Program will depend on a variety of factors, including price, corporate and regulatory requirements, capital availability, and other market conditions. The Program may be discontinued at any time at the discretion of the Company and its Board of Directors. During the year ended December 31, 2007, the Company repurchased 4,779,000 shares of common stock for $101,157,000 for an average price of $21.17 per share. From January 1, 2008 through February 21, 2008, the Company purchased 812,210 shares of common stock for $15,744,914, representing an average price of $19.39 per share.

Stock Purchase Plans

The Company's Third Amended and Restated 1999 Employee Stock Purchase Plan (the "Purchase Plan") authorizes the issuance of up to an aggregate of 1,250,000 shares of Common Stock to participating employees. Offerings under the Purchase Plan commence on June 1 and December 1 and terminate, respectively, on November 30 and May 31. Under the Purchase Plan, eligible employees may purchase shares of Common Stock through payroll deductions of up to 10% of their compensation. The price at which an employee's option is exercised is the lower of (1) 85% of the closing price of the Common Stock on the NASDAQ Global Market on the day that each offering commences or (2) 85% of the closing price on the day that each offering terminates. During 2007 and 2006, the Company issued 166,127 and 120,515 shares, respectively, of Common Stock to employees who participated in the Purchase Plan at exercise prices of $17.64 and $15.44 per share in 2007 and $16.59 and $17.65 per share in 2006, respectively. As of December 31, 2007, there were 305,445 shares reserved for future issuance under the Purchase Plan.

The Company's Second Amended and Restated International Employee Stock Purchase Plan (the "Foreign Purchase Plan") authorizes the issuance of up to an aggregate of 250,000 shares of Common Stock to participating employees. Offerings under the Foreign Purchase Plan commence on June 1 and December 1 and terminate, respectively, on November 30 and May 31. Under the Foreign Purchase Plan, eligible employees may purchase shares of Common Stock through payroll deductions of up to 10% of their compensation. The price at which an employee's option is exercised is the lower of (1) 85% of the closing price of the Common Stock on the NASDAQ Global Market on the day that each offering commences or (2) 85% of the closing price on the day that each offering terminates. During 2007 and 2006, the Company issued 32,803 and 23,236, respectively, shares of Common Stock to employees who participated in the Foreign Purchase Plan at exercise prices of $17.64 and $15.44 per share in 2007 and $16.59 and $17.65 per share in 2006, respectively. As of December 31, 2007, there were 82,417 shares reserved for future issuance under the Foreign Purchase Plan.

Equity Incentive Plans

The Company's equity incentive plans (the "Plans") are intended to attract and retain employees and to provide an incentive for them to assist the Company to achieve long-range performance goals and to enable them to participate in the long-term growth of the Company. Employees may be granted restricted stock and restricted stock units (collectively, "restricted stock"), options to purchase shares of the Company's stock and other equity incentives under the Plans.

The Company's 2004 Stock Incentive Plan (the "2004 Plan") was adopted by the board of directors on March 4, 2004 and approved by the stockholders on May 13, 2004. As of December 31, 2007 there were 8,245,399 shares authorized for issuance under the 2004 Plan, which amount shall increase each year by an amount equal to 5% of the total outstanding shares of the Company's common stock outstanding on January 1 of such year, provided that the maximum aggregate number of shares of common stock which may be issued under the 2004 Plan is 15,000,000 shares (subject to adjustment for certain changes in MKS' capitalization). The Company may grant options, restricted stock awards, stock appreciation rights and other stock-based awards to employees, officers, directors, consultants and advisors under the 2004 Plan. As of December 31, 2007 there were 6,832,159 shares available for future grant under the 2004 Plan.

The Company's Second Restated 1995 Stock Incentive Plan (the "1995 Plan") expired in November 2005 and no further awards may be granted under the 1995 Plan, although there are still outstanding options available for exercise under this plan.

The Company's 1997 Director Stock Plan (the "1997 Director Plan") provides for (i) the initial grant of options to purchase 20,000 shares of common stock to each person who first becomes an outside director and (ii) annual grants of options to purchase 12,000 shares of common stock on the date of the annual meeting of stockholders. In December 2004, the board of directors amended the 1997 Director Plan to allow for all options granted on or after May 17, 2000 to be exercisable within the three year period from the date of the director's termination as director. On March 4, 2004, the board of directors approved, and on May 13, 2004, the stockholders approved, an increase in the number of shares available for issuance under the 1997 Director Plan from 300,000 shares to 750,000 shares. The 1997 Director Plan was terminated on February 12, 2007.

On January 7, 2005, the Company accelerated the vesting of outstanding options with an exercise price of $23.00 or greater. As a result of this action, options to purchase approximately 1,600,000 shares became exercisable on January 7, 2005. No compensation expense was recorded in 2005 related to this action as these options had no intrinsic value on January 7, 2005. The reason that the Company accelerated the vesting of the identified stock options was to reduce the Company's compensation charges in future years.

The Company has granted options to employees under the 2004 Plan, 1995 Plan and the 1993 Stock Option Plan and to directors under the 1997 Director Plan and the 1996 Director Stock Option Plan (collectively, the "Plans"). The Plans are administered by the compensation committee of the Company's board of directors.

At December 31, 2007, 6,832,159 shares of the Company's common stock were available for future grants under the Plans. Stock options are granted at an exercise price equal to 100% of the fair value of the Company's common stock. Generally, stock options granted to employees under the Plans in 2001 and after, vest 25% after one year and 6.25% per quarter thereafter, and expire 10 years after the grant date. Generally, stock options granted under the Plans prior to 2000 vest 20% after one year and 5% per quarter thereafter, and expire 10 years after the grant date. Options granted to directors generally vest at the earliest of (1) the next annual meeting, (2) 13 months from date of grant, or (3) the effective date of an acquisition. Restricted stock awards generally vest three years from the date of grant.

MKS INSTRUMENTS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)
(Table in thousands, except share and per share data)

The following table presents the activity for options under the Plans:

	Year Ended December 31,					
	2007		2006		2005	
	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price
Outstanding — beginning of period	7,614,655	$ 21.62	9,459,271	$ 20.36	10,023,717	$ 20.25
Granted	—	—	102,000	$ 22.94	316,500	$ 16.93
Exercised	(2,233,303)	$ 18.58	(1,563,706)	$ 13.33	(382,211)	$ 10.70
Forfeited or Expired	(258,296)	$ 25.59	(382,910)	$ 24.64	(498,735)	$ 23.34
Outstanding — end of period	5,123,056	$ 22.74	7,614,655	$ 21.62	9,459,271	$ 20.36
Exercisable at end of period	4,810,516	$ 23.22	6,720,395	$ 22.36	7,750,739	$ 21.45

The following table presents the activity for restricted stock under the Plans:

	Years Ended December 31,			
	2007		2006	
	Non-vested Restricted Stock	Weighted Average Grant Date Fair Value	Non-vested Restricted Stock	Weighted Average Grant Date Fair Value
Non-vested restricted stock — beginning of period	714,125	$ 22.00	—	$ —
Granted	775,353	$ 22.06	741,090	$ 22.01
Vested	(4,527)	$ 23.39	(1,250)	$ 23.43
Forfeited or Expired	(135,601)	$ 22.53	(25,715)	$ 22.27
Non-vested restricted stock — end of period	1,349,350	$ 21.98	714,125	$ 22.00

The following table summarizes information with respect to options outstanding and exercisable under the Plans at December 31, 2007:

	Options Outstanding				Options Exercisable		
	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (In Years)	Aggregate Intrinsic Value (In Thousands)	Number of Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value (In Thousands)
$ 6.67 – $13.87	96,174	$ 8.99	1.85	$ 976	95,517	$ 8.96	$ 972
$14.00 – $19.00	1,735,341	$ 15.95	5.38	5,535	1,436,532	$ 16.12	4,338
$19.40 – $29.50	2,530,041	$ 25.02	4.80	—	2,516,967	$ 25.05	—
$29.93 – $61.50	761,500	$ 32.36	4.12	—	761,500	$ 32.36	—
	5,123,056	$ 22.74	4.84	$ 6,511	4,810,516	$ 23.22	$ 5,310

The weighted average remaining contractual life of options exercisable was 4.71 years at December 31, 2007.

The aggregate intrinsic value in the table above represents the total pretax intrinsic value, based on the Company’s closing stock price of $19.14 as of December 31, 2007, which would have been received by the option holders had all option holders exercised their options as of that date. The total number of in-the-money options exercisable as of December 31, 2007 was 1,532,049.

(Table in thousands, except share and per share data)

The total cash received from employees as a result of employee stock option exercises during the years ended December 31, 2007 and 2006 was approximately $42,005,000 and $20,838,000, respectively. In connection with these exercises, the net tax benefits realized by the Company for the years ended December 31, 2007 and 2006 were approximately $5,712,000 and $4,614,000, respectively.

The Company settles employee stock option exercises with newly issued common shares.

Accumulated Other Comprehensive Income

The balance of accumulated other comprehensive income (loss) was comprised of the following:

	Cumulative Translation Adjustments	Financial Instruments Designated as Cash Flow Hedges	Unrealized Gain (Loss) on Investments	Accumulated Other Comprehensive Income (Loss)
Balance at December 31, 2005	$ 6,294	$ 594	$ 48	$ 6,936
Foreign currency translation adjustment, net of taxes of $0	3,172	—	—	3,172
Changes in value of financial instruments designated as cash flow hedges, net of tax benefit of $90	—	(149)	—	(149)
Change in unrealized gain on investments, net of taxes of $64	—	—	106	106
Balance at December 31, 2006	$ 9,466	$ 445	$ 154	$ 10,065
Foreign currency translation adjustment, net of taxes of $0	3,744	—	—	3,744
Changes in value of financial instruments designated as cash flow hedges, net of tax benefit of $423	—	(532)	—	(532)
Change in unrealized (loss) on investments, net of tax benefit of $71	—	—	(90)	(90)
Balance at December 31, 2007	$ 13,210	$ (87)	$ 64	$ 13,187

9) Income Taxes

A reconciliation of the Company's 2007, 2006 and 2005 effective tax rate to the U.S. federal statutory rate follows:

	2007	2006	2005
U.S. Federal income tax statutory rate	35.0%	35.0%	35.0%
Federal and state tax credits	(4.3)	(1.7)	(4.7)
State income taxes, net of federal benefit	1.7	2.3	1.7
Effect of foreign operations taxed at various rates	(4.9)	(7.1)	(5.3)
Extraterritorial income and qualified production activity tax benefit	(0.7)	(0.9)	(2.0)
Deferred tax asset valuation allowance	—	(2.1)	1.3
Other	1.2	2.5	0.5
	28.0%	28.0%	26.5%

MKS INSTRUMENTS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)
(Table in thousands, except share and per share data)

The components of income before income taxes and the related provision (benefit) for income taxes consist of the following:

	Year Ended December 31, 2007	2006	2005
Income before income taxes:			
United States	$ 64,228	$ 72,276	$ 14,872
Foreign	55,788	58,665	32,135
	$ 120,016	$ 130,941	$ 47,007
Current taxes:			
United States Federal	$ 29,663	$ 36,056	$ 1,958
State	1,682	3,252	1,259
Foreign	12,594	8,916	8,922
	43,939	48,224	12,139
Deferred taxes:			
United States Federal	(7,741)	(9,219)	856
State and Foreign	(2,542)	(2,299)	(553)
	(10,283)	(11,518)	303
Provision for income taxes	$ 33,656	$ 36,706	$ 12,442

At December 31, 2007 and 2006, the significant components of the deferred tax assets and deferred tax liabilities were as follows:

	2007	2006
Deferred tax assets:		
Net operating losses and credits	$ 7,604	$ 2,751
Inventory and warranty reserves	14,632	13,863
Accounts receivable and other accruals	2,310	5,320
Depreciation and amortization	6,030	5,988
Stock-based compensation	8,424	4,447
Other	6,346	2,316
Total deferred tax assets	45,346	34,685
Deferred tax liabilities:		
Acquired intangible assets	(17,560)	(18,618)
Other	(508)	(498)
Total deferred tax liabilities	(18,068)	(19,116)
Valuation allowance	(534)	(317)
Net deferred tax assets	$ 26,744	$ 15,252

At December 31, 2007 and 2006, the Company had Massachusetts research credit carryforwards of $4,477,000 and $3,341,000, respectively. These credit carryforwards will expire at various dates through 2022.

(Table in thousands, except share and per share data)

At December 31, 2007, as a result of the acquisition of YDI, the Company had a federal net operating loss carryforward of $8,832,000 and a federal general business credit carryforward of $810,000. The Company's intention is to carryforward both these tax attributes, subject to the limitations of the Internal Revenue Code. The loss and credit carryforwards expire at various dates through 2027.

At December 31, 2006, as a result of the acquisition of Ion Systems Inc., the Company had a federal net operating loss carryforward of $1,216,000 and a federal general business credit carryforward of $71,000. The Company carried both of these tax attributes to previous Ion tax years and recovered $497,000 of previously paid taxes.

Although the Company believes that its tax positions are consistent with applicable U.S. federal, state and international laws, certain tax reserves are maintained at December 31, 2007 should these positions be challenged by the applicable tax authority and additional tax assessed on audit.

The Company has adopted FASB Interpretation 48, Accounting for Uncertainty in Income Taxes ("FIN 48"), as of January 1, 2007. As a result of the implementation of FIN 48, the Company did not recognize an adjustment in the liability for unrecognized income tax benefits. A reconciliation of the beginning and ending amount of gross unrecognized tax benefits is as follows:

Balance at January 1, 2007	$	11,637,000
Increases for prior years		1,264,000
Increases for the current year		3,240,000
Reductions related to settlements with taxing authorities		—
Reductions related to expiration of statute of limitations		(18,000)
Balance at December 31, 2007	$	16,123,000

At December 31, 2007, if these benefits were recognized in a future period, the timing of which is not estimable, the net unrecognized tax benefit of approximately $13,242,000 would impact our effective tax rate.

MKS and its subsidiaries are subject to U.S. federal income tax as well as the income tax of multiple state and foreign jurisdictions. The Company has concluded all U.S. federal income tax matters for years through 2002. The 2003 Federal tax year remains open to the extent of the loss carryforwards to 2004 and 2005. As of December 31, 2007, there were on-going audits in various other tax jurisdictions.

Over the next 12 months it is reasonably possible that the Company may recognize $4,300,000 to $4,800,000 of previously unrecognized tax benefits related to various federal, state and foreign tax positions as a result of the conclusion of various audits and the expiration of the statute of limitations. The following tax years, in the major tax jurisdictions noted, are open for assessment or refund: U.S. Federal: 2003 to 2006, Germany: 2001 to 2006, Korea: 2005 to 2006, Japan: 2000 to 2006 and the United Kingdom: 2005 and 2006.

The Company accrues interest and penalties, if applicable, for any uncertain tax positions. Any interest and penalty expense is a component of income tax expense. At the date of adoption of FIN 48 and at December 31, 2007, the Company had $700,000 and $1,500,000, respectively, accrued for interest on unrecognized tax benefits.

For the year ended December 31, 2007, the Company amended prior federal tax returns to reflect revised estimates for qualifying research and development costs that allowed the company to claim additional research tax credits. As a result of this claim, the Company recorded a benefit to income tax expense of $1,800,000 million.

During the year ended December 31, 2006, the Company received a notification letter from the Israeli Ministry of Industry Trade and Labor ("MITL") indicating that its Israeli operations were in compliance with requirements relating to the tax holiday granted to its manufacturing operations in Israel in 2001. This tax holiday is anticipated to expire in 2011 and is subject to meeting continued investment, employment and other requirements under the guidelines of the MITL. This tax holiday resulted in income tax savings of $3,393,000, $5,125,000 and $1,190,000 for the years ended December 31, 2007, 2006 and 2005, respectively.

Additionally, for the year ended December 31, 2006, the Company recorded the impact of both a change in German tax rules allowing interest deductions on certain loans and adjustments relating to transfer pricing. As a result of these items the Company recorded additional income tax benefits of $1,565,000 for the year ended December 31, 2006. The net reduction in the valuation allowance for the year ended December 31, 2006 resulted from the utilization of tax credit carryovers of $2,706,000 and the expiration of credits of $474,000 on a merged subsidiary.

During 2005, the Internal Revenue Service ("IRS") completed its examination of the Company's tax returns for the tax years 1999 through 2002. As a result of this examination, during the year ended December 31, 2005, the Company recorded a reduction in income taxes payable of $1,621,000, a benefit to income tax expense of $1,901,000 and a $576,000 reduction of goodwill related to a previous acquisition.

On October 22, 2004, the American Jobs Creation Act of 2004 (the "Act") was signed into law. The Act contains a provision allowing U.S. multinational companies a one-time incentive to repatriate foreign earnings at an effective tax rate of 5.25%. During 2005, the Company conducted an extensive study of the new provision and concluded that no opportunities existed from which the Company could benefit from repatriation of its undistributed foreign earnings. Through December 31, 2007, the Company has not provided deferred income taxes on the undistributed earnings of its foreign subsidiaries because such earnings were intended to be permanently reinvested outside the U.S. Determination of the potential deferred income tax liability on these undistributed earnings is not practicable because such liability, if any, is dependent on circumstances existing if and when remittance occurs. At December 31, 2007, the Company had $199,253,000 of undistributed earnings in its foreign subsidiaries.

10) Employee Benefit Plans

The Company has a 401(k) profit-sharing plan for U.S. employees meeting certain requirements in which eligible employees may contribute between 1% and 50% of their annual compensation to this plan, and, with respect to employees who are age 50 and older, certain specified additional amounts, limited by an annual maximum amount determined by the IRS. The Company, at its discretion, may provide a matching contribution which will generally match up to the first 2% of each participant's compensation, plus 25% of the next 4% of compensation. At the discretion of the board of directors, the Company may also make additional contributions for the benefit of all eligible employees. The Company's contributions were $2,516,000 $2,385,000 and $1,894,000 for 2007, 2006 and 2005, respectively.

The Company maintains a bonus plan which provides cash awards to key employees, at the discretion of the compensation committee of the board of directors, based upon operating results and employee performance. The bonus expense was $3,713,000 in 2007, $10,300,000 in 2006 and was $2,402,000 in 2005.

The Company provides supplemental retirement benefits for certain of its officers and executive officers. This obligation was $5,765,000 and $3,098,000 at December 31, 2007 and 2006, respectively.

11) Segment and Geographical Information and Significant Customer

The Company operates in one segment for the development, manufacturing, sales and servicing of products that measure, control, power and monitor critical parameters of advanced manufacturing processes. The Company's chief decision-maker reviews consolidated operating results to make decisions about allocating resources and assessing performance for the entire Company.

MKS INSTRUMENTS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)
(Table in thousands, except share and per share data)

Information about the Company's operations in different geographic regions is presented in the tables below. Net sales to unaffiliated customers are based on the location in which the sale originated. Transfers between geographic areas are at negotiated transfer prices and have been eliminated from consolidated net sales.

	Year Ended December 31,		
	2007	2006	2005
Geographic net sales			
United States	$ 477,801	$ 515,896	$ 320,816
Japan	103,474	96,936	79,820
Europe	88,279	70,648	52,687
Asia	110,933	99,321	55,971
	$ 780,487	$ 782,801	$ 509,294

	December 31,	
	2007	2006
Long — lived assets		
United States	$ 63,731	$ 68,393
Japan	6,520	5,479
Europe	4,386	4,908
Asia	9,269	3,609
	$ 83,906	$ 82,389

The Company groups its products into three product groups. Net sales for these product groups are as follows:

	December 31,		
	2007	2006	2005
Instruments and Control Systems	$ 377,992	$ 371,919	$ 233,279
Power and Reactive Gas Products	319,403	328,810	215,858
Vacuum and Other Products	83,092	82,072	60,157
	$ 780,487	$ 782,801	$ 509,294

The Company had one customer comprising 20%, 21% and 18% of net sales for the years ended December 31, 2007, 2006 and 2005, respectively. During the years ended December 31, 2007, 2006 and 2005, the Company estimates that approximately 68%, 70% and 71% of its net sales, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers.

12) Acquisitions

On November 7, 2007, the Company acquired Yield Dynamics, Inc. ("YDI"), a provider of yield management technology located in Sunnyvale, California. YDI's data and yield management software, along with MKS' portfolio of sensors that control critical processes, data collection and integration hardware, and real-time fault detection and classification software, provides a comprehensive offering for generating, collecting and analyzing process sensor data and correlating the data to wafers, chambers and tools across the semiconductor fab as well as other thin film manufacturing processes. The purchase price consisted of $23,659,000 in cash, net of $651,000 in cash acquired and $363,000 in acquisition related costs. The purchase agreement includes contingent payments of up to $10,000,000 based upon achieving specific annual and cumulative revenue targets between 2008 and 2010.

(Table in thousands, except share and per share data)

The following table summarizes the estimated fair value of the assets acquired and liabilities assumed at the date of the acquisition:

Current assets	$ 693
Intangible assets	9,010
Other assets	4,039
Goodwill	15,407
Total assets acquired	29,149
Current liabilities	(844)
Deferred tax liabilities	(3,632)
Total liabilities assumed	(4,476)
Total purchase price including acquisition costs	$ 24,673

The goodwill and other intangible assets associated with the acquisition are not deductible for tax purposes. Of the $9,010,000 of acquired intangible assets, the following table reflects the allocation of the acquired intangible assets and related estimates of useful lives:

Customer relationships	$ 2,300	8-year useful life
Completed technology	5,500	6-year useful life
Others	310	2-5-year useful life
In-process research and development	900	
	$ 9,010	

This transaction resulted in an amount of purchase price that exceeded the estimated fair values of tangible and intangible assets, which was allocated to goodwill. The Company believes that the amount of goodwill relative to identifiable intangible assets relates to several factors including: (1) being a provider of yield management software technology which will be increasingly important to solution providers for semiconductor and other industrial customers and (2) enhanced ability to combine YDI's software products with MKS' multivariate software and traditional hardware products.

On January 3, 2006, the Company completed its acquisition of Ion Systems, Inc. ("Ion"), a leading provider of electrostatic management solutions located in Alameda, California, pursuant to an Agreement and Plan of Merger dated November 25, 2005. Ion's ionization technology monitors electrostatic charge to reduce process contamination and improve yields, which complements the Company's process monitoring and control technologies. The aggregate purchase price consisted of $68,073,000 in cash, net of $5,056,000 in cash acquired, and $807,000 in acquisition related costs.

(Table in thousands, except share and per share data)

The following table summarizes the estimated fair value of the assets acquired and liabilities assumed at the date of the acquisition:

Current assets	$ 17,310
Intangible assets	25,947
Other assets	3,066
Goodwill	45,017
Total assets acquired	91,340
Current liabilities	(7,245)
Deferred tax liabilities	(10,159)
Total liabilities assumed	(17,404)
Total purchase price including acquisition costs	$ 73,936

The goodwill and other intangible assets associated with the acquisition are not deductible for tax purposes. Of the $25,947,000 of acquired intangible assets, the following table reflects the allocation of the acquired intangible assets and related estimates of useful lives:

Customer relationships	$ 11,992	8-year useful life
Completed technology	10,255	6-year useful life
Trade names	2,300	8-year useful life
Order backlog	1,000	3 months
In-process research and development	400	
	$ 25,947	

This transaction resulted in an amount of purchase price that exceeded the estimated fair values of tangible and intangible assets, which was allocated to goodwill. The Company believes that the amount of goodwill relative to identifiable intangible assets relates to several factors including: (1) potential buyer-specific synergies related to market opportunities for a combined product offering and (2) potential to leverage the Company's sales force and intellectual property to attract new customers and revenue.

On January 3, 2006, the Company completed its acquisition of Umetrics, AB ("Umetrics"), a leader in multivariate data analysis and modeling software located in Umea, Sweden, pursuant to a Sale and Purchase Agreement dated December 15, 2005. Umetrics' multivariate data analysis and modeling software converts process data into useable information for yield improvement when linked with the Company's open and modular platform of process sensors and data collection, integration, data storage, and visualization capabilities. The purchase price consisted of $27,400,000 in cash, net of $2,602,000 in cash acquired, and $392,000 in acquisition related costs.

(Table in thousands, except share and per share data)

The following table summarizes the estimated fair value of the assets acquired and liabilities assumed at the date of the acquisition:

Current assets	$ 4,243
Intangible assets	7,650
Other assets	400
Goodwill	22,060
Total assets acquired	34,353
Current liabilities	(1,929)
Deferred tax liabilities	(2,030)
Total liabilities assumed	(3,959)
Total purchase price including acquisition costs	$ 30,394

The goodwill and other intangible assets associated with the acquisition are not deductible for tax purposes. Of the $7,650,000 of acquired intangible assets, the following table reflects the allocation of the acquired intangible assets and related estimates of useful lives:

Customer relationships	$ 2,300	8-year useful life
Completed technology	4,150	4-6-year useful life
Trade names	800	8-year useful life
In-process research and development	400	
	$ 7,650	

This transaction resulted in an amount of purchase price that exceeded the estimated fair values of tangible and intangible assets, which was allocated to goodwill. The Company believes that the amount of goodwill relative to identifiable intangible assets relates to several factors including: (1) being a provider of multivariate software technology which will be increasingly important to solution providers for semiconductor and other industrial customers and (2) enhanced ability to combine Umetrics' software products with MKS' traditional hardware products.

Ion's ionization technology and Umetrics' multivariate data analysis technology both complement our process control and monitoring technologies and will support the Company's mission to improve process performance and productivity.

On October 11, 2006, we completed our acquisition of Novx Corp. ("Novx"), a provider of electrostatic charge monitoring technology for semiconductor, data storage, telecommunication, medical device and other markets. Novx's technology expands our capability to monitor, detect and control electrostatic charge in advanced process environments, such as semiconductor and hard disk drive manufacturing. The total purchase price for Novx was $2,552,000.

The results of these acquisitions were included in the Company's consolidated operations beginning on the date of acquisition. The pro forma consolidated statements reflecting the operating results of YDI, had it been acquired as of January 1, 2007, would not differ materially from the operating results of the Company as reported for the twelve months ended December 31, 2007. The pro forma consolidated statements reflecting the operating results of Ion, Umetrics and Novx, had they been acquired as of January 1, 2006, would not differ materially from the operating results of the Company for the twelve months ended December 31, 2006.

(Table in thousands, except share and per share data)

13) Goodwill and Intangible Assets

The Company is required to perform an annual impairment test of its goodwill under the provisions of SFAS 142. SFAS 142 requires that companies identify and assess goodwill at the reporting unit level. Reporting units are defined as operating segments or one level below an operating segment, referred to as a component. The Company has determined that its reporting units are components of its operating segment. The Company allocates goodwill to reporting units at the time of acquisition and bases that allocation on which reporting units will benefit from the acquired assets and liabilities. The fair value of each reporting unit with goodwill is compared to its recorded book value. An excess of book value over fair value indicates that an impairment of goodwill exists. Fair value is based on a discounted cash flow analysis of expectations of future earnings for each of the reporting units with goodwill. The Company completed its annual impairment test for 2007 and 2006 and concluded that no impairment of goodwill existed as of October 31, 2007 or October 31, 2006, the annual goodwill measurement date.

The changes in the carrying amount of goodwill during the years ended December 31, 2007 and 2006 were as follows:

	Year Ended December 31, 2007	Year Ended December 31, 2006
Balance, beginning of year	$ 323,973	$ 255,243
Goodwill acquired during the year	15,407	68,606
Adjustments to previously recorded goodwill	(1,907)	124
Balance, end of year	$ 337,473	$ 323,973

The adjustments to previously recorded goodwill for 2007 relate mainly to various tax adjustments for previous acquisitions.

Components of the Company's acquired intangible assets are comprised of the following:

	December 31, 2007		December 31, 2006	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Completed technology	$ 93,204	$ (75,681)	$ 87,087	$ (63,570)
Customer relationships	23,542	(9,644)	20,932	(7,139)
Patents, trademarks, trade names and other	29,729	(25,009)	16,494	(10,700)
	$ 146,475	$ (110,334)	$ 124,513	$ (81,409)

Aggregate amortization expense related to acquired intangibles for the years ended December 31, 2007, 2006 and 2005 were $17,083,000, $17,376,000 and $13,864,000, respectively. Estimated amortization expense related to acquired intangibles for each of the five succeeding years is as follows:

Year	Amount
2008	$ 8,912
2009	7,313
2010	6,132
2011	5,707
2012	3,484

(Table in thousands, except share and per share data)

14) Product Warranties

The Company provides for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. While the Company engages in extensive product quality programs and processes, including actively monitoring and evaluating the quality of its component suppliers, the Company's warranty obligation is affected by product failure rates, utilization levels, material usage, and supplier warranties on parts delivered to the Company. Should actual product failure rates, utilization levels, material usage, or supplier warranties on parts differ from the Company's estimates, revisions to the estimated warranty liability would be required.

Product warranty activity for the years ended December 31, were as follows:

	2007	2006
Balance at beginning of year	$ 11,549	$ 7,766
Warranty assumed through acquisitions	—	612
Provisions for product warranties	5,992	13,006
Direct charges to the warranty liability	(8,044)	(9,835)
Balance at end of year	$ 9,497	$ 11,549

15) Other Balance Sheet Information

	December 31, 2007	December 31, 2006
Other Assets:		
Deferred tax assets, net	$ 8,760	$ —
Other	2,541	2,926
Total other assets	$ 11,301	$ 2,926
Other Accrued Expenses:		
Product warranties	$ 9,497	$ 11,549
Deferred revenue	5,084	3,819
Other	10,787	9,663
Total other accrued expenses	$ 25,368	$ 25,031
Other Liabilities:		
Income tax payable	$ 12,782	$ —
Accrued compensation	7,621	4,725
Other	232	231
Total other liabilities	$ 20,635	$ 4,956

16) Related Party Transactions

The Vice President and General Manager of the Company's Vacuum Products Group is the general partner of two real estate entities (the "Aspen Entities"). The Company leased from the Aspen Entities certain facilities occupied by the Company's Vacuum Products Group in Boulder, Colorado until the Aspen Entities sold those facilities to a third party on March 30, 2007. The Company paid the Aspen Entities $191,000, $751,000 and $835,000 in 2007, 2006 and 2005, respectively, to lease such facilities.

Emerson Electric Co. ("Emerson") was the beneficial owner of approximately 5% of the outstanding shares of the Company's common stock at December 31, 2006. During 2007, Emerson was an unrelated party. For the years ended December 31, 2006 and 2005, the Company purchased materials and administrative services from Emerson and its subsidiaries totaling approximately $1,430,000 and $800,000, respectively.

MKS INSTRUMENTS, INC.
SUPPLEMENTAL FINANCIAL DATA

	Quarter Ended			
	March 31	June 30	Sept. 30	Dec. 31
	(Table in thousands, except per share data) (Unaudited)			
2007				
Statement of Operations Data				
Net sales	$ 211,432	$ 203,978	$ 181,014	$ 184,063
Gross profit	92,862	86,030	76,598	75,997
Income from operations	35,880	27,643	23,068	20,394
Net income(1)	$ 27,290	$ 22,527	$ 21,382	$ 15,161
Net income per share:				
Basic	$ 0.48	$ 0.40	$ 0.38	$ 0.27
Diluted	$ 0.48	$ 0.39	$ 0.37	$ 0.27
2006				
Statement of Operations Data				
Net sales	$ 179,061	$ 198,351	$ 205,494	$ 199,895
Gross profit	73,745	86,501	90,619	87,257
Income from operations	21,869	34,452	35,622	30,598
Net income(2)	$ 15,435	$ 24,374	$ 27,933	$ 26,493
Net income per share:				
Basic	$ 0.28	$ 0.44	$ 0.50	$ 0.47
Diluted	$ 0.28	$ 0.44	$ 0.50	$ 0.47

(1) Net income for the quarter ended September 30, 2007 includes a net tax benefit of $1.8 million attributable to a discrete tax matter related to our research and development tax credits.

(2) Net income for the quarter ended September 30, 2006 includes a net tax benefit of $1.6 million primarily attributable to certain discrete tax matters related to our international operations. Net income for the quarter ended December 31, 2006 includes a net tax benefit of $3.1 million attributable to the impact on prior quarters of the retroactive extension of the R&D tax credit from January 1, 2006 through December 31, 2006 and to a reduction of the valuation allowance on state tax credits.

Item 9. ***Changes in and Disagreements with Accountants on Accounting and Financial Disclosure***

None.

Item 9A. ***Controls and Procedures***

Evaluation of Disclosure Controls and Procedures

Our management (with the participation of our Chief Executive Officer and Chief Financial Officer) evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), as of December 31, 2007. Disclosure controls and procedures are designed to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported on a timely basis and that such information is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that these disclosure controls and procedures are effective and designed to ensure that the information required to be disclosed in our reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the requisite time periods.

Limitations on Effectiveness of Controls

Our management has concluded that our disclosure controls and procedures and internal controls provide reasonable assurance that the objectives of our control system are met. However, our management (including our Chief Executive Officer and Chief Financial Officer) does not expect that the disclosure controls and procedures or internal controls will prevent all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Due to the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues, errors and instances of fraud, if any, within the Company have been or will be detected. These inherent limitations include the realities that judgments in decision making can be faulty and that breakdowns can occur because of simple errors or mistakes. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the control. The design of any system is also based in part upon certain assumptions about the likelihood of future events, and there can be no assurances that any design will succeed in achieving its stated goals under all potential future conditions. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Securities Exchange Act as a process designed by, or under the supervision of, the Company's Chief Executive Officer and Chief Financial Officer and effected by the Company's Board of Directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and

- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2007. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control — Integrated Framework.*

Based on our assessment, management concluded that, as of December 31, 2007, our internal control over financial reporting was effective based on those criteria.

Management has excluded the operations of Yield Dynamics, Inc. ("YDI") from its assessment of internal control over financial reporting as of December 31, 2007 because this entity was acquired by the Company in a purchase business combination during fiscal 2007. The total assets and total revenues of the acquired businesses of YDI represent approximately 3% and less than 1%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2007.

Our internal controls over financial reporting as of December 31, 2007 have been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their attestation report which appears on pages 35 through 36.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during our fourth fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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

None.

PART III

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

The information required by this item is set forth under the captions "Election of Directors," "Executive Officers," "Code of Ethics," "Directors — Audit Committee Financial Expert" and "Corporate Governance" in our definitive proxy statement for the 2008 Annual Meeting of Stockholders, and is incorporated herein by reference.

We are also required under Item 405 of Regulation S-K to provide information concerning delinquent filers of reports under Section 16 of the Securities and Exchange Act of 1934, as amended. This information is listed under the caption "Section 16(a) Beneficial Ownership Reporting Compliance" in our definitive proxy statement for the 2008 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year. This information is incorporated herein by reference.

Item 11. ***Executive Compensation***

The information required by this item is set forth under the captions "Executive Officers — Executive Compensation" and "Executive Officers — Compensation Discussion and Analysis" in our definitive proxy statement for the 2008 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year. This information is incorporated herein by reference.

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

The information required by Item 403 of Regulation S-K is set forth under the caption "Security Ownership of Certain Beneficial Owners and Management" in our definitive proxy statement for the 2008 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year. This information is incorporated herein by reference.

The information required by Item 201(d) of Regulation S-K is set forth under the caption "Executive Officers — Equity Compensation Plan Information" in our definitive proxy statement for the 2008 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year. This information is incorporated herein by reference.

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

The information required by this item is set forth under the caption "Executive Officers — Certain Relationships and Related Transactions" and "Corporate Governance" in our definitive proxy statement for the 2008 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year. This information is incorporated herein by reference.

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

The information required by this item is set forth under the caption "Independent Registered Public Accounting Firm" in our definitive proxy statement for the 2008 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year. This information is incorporated herein by reference.

PART IV

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

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

1. *Financial Statements.* The following Consolidated Financial Statements are included under Item 8 on this Annual Report on Form 10-K.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Financial Statements:

2. *Financial Statement Schedules*

The following consolidated financial statement schedule is included in this Annual Report on Form 10-K:

Schedule II — Valuation and Qualifying Accounts

Schedules other than those listed above have been omitted since they are either not required or information is otherwise included.

3. *Exhibits.* The following exhibits are filed as part of this Annual Report on Form 10-K pursuant to Item 15(b).

Exhibit No.	Title
+3.1(1)	Restated Articles of Organization
+3.2(2)	Articles of Amendment, as filed with the Secretary of State of Massachusetts on May 18, 2001
+3.3(3)	Articles of Amendment, as filed with the Secretary of State of Massachusetts on May 16, 2002
+3.4(4)	Amended and Restated By-Laws
+4.1(4)	Specimen certificate representing the common stock
+10.1(5)*	Applied Science and Technology, Inc. 1993 Stock Option Plan, as amended
+10.2(6)*	Applied Science and Technology, Inc. 1994 Formula Stock Option Plan, as amended
+10.3(4)*	1996 Amended and Restated Director Stock Option Plan
+10.4(7)*	Second Amended and Restated 1997 Director Stock Option Plan, and forms of option agreements thereto
+10.5(8)*	2004 Stock Incentive Plan, as amended (the “2004 Plan”)
+10.6(9)*	Form of Nonstatutory Stock Option Agreement to be granted under the 2004 Plan
+10.7(10)*	Form of Performance Stock Award under the 2004 Plan
+10.8(11)*	Form of Restricted Stock Award under the 2004 Plan
+10.9(12)*	Form of Restricted Stock Unit Agreement (cliff vesting) under the 2004 Plan
+10.10(13)*	Form of Restricted Stock Unit Agreement for Initial Grant to Non-Employee Directors under the 2004 Plan
+10.11(13)*	Form of Restricted Stock Unit Agreement for Annual Grant to Non-Employee Directors under the 2004 Plan
+10.12(13)*	Form of Performance-Based Restricted Stock Unit Agreement under the 2004 Plan
+10.13(13)*	Form of Time-Based Restricted Stock Unit Agreement under the 2004 Plan
10.14*	Form of Restricted Stock Unit Agreement under the 2004 Plan
+10.15(14)*	Second Restated 1995 Stock Incentive Plan (the “1995 Plan”)
+10.16(15)*	Form of Nonstatutory Stock Option Agreement under the 1995 Plan
+10.17(10)*	Form of Performance Stock Award under Registrant’s 1995 Plan
+10.18(15)*	Third Restated 1999 Employee Stock Purchase Plan
+10.19(15)*	Second Restated International Employee Stock Purchase Plan
+10.20(16)*	Employment Agreement dated as of July 1, 2005 between John Bertucci and the Registrant
10.21*	Employment Agreement dated July 1, 2005 between Leo Berlinghieri and the Registrant, as amended on November 13, 2007
+10.22(16)*	Employment Agreement dated as of July 1, 2005 between Ronald C. Weigner and the Registrant
+10.23(16)*	Amended and Restated Employment Agreement dated as of July 1, 2005 between William D. Stewart and the Registrant
+10.24(14)*	Employment Agreement dated as of July 30, 2004 between John Smith and the Registrant
+10.25(17)*	Employment Agreement dated as of April 25, 2005 between Gerald Colella and the Registrant
+10.26(18)*	Employment Agreement dated as of November 25, 2005 between Frank Schneider and the Registrant
10.27*	Summary of 2008 Compensatory Arrangements with Executive Officers
+10.28(19)*	Summary of Compensatory Arrangements with Non-Employee Directors
+10.29(20)	Optional Advanced Demand Grid Note dated August 3, 2004 in favor of HSBC Bank USA (“HSBC Note”), and Amendment thereto dated as of July 29, 2005
+10.30(21)	Second Amendment, dated July 31, 2007, to HSBC Note

Exhibit No.	Title
10.31	Third Amendment, dated July 31, 2007, to HSBC Note
+10.32(22)	Global Supply Agreement dated April 12, 2005 by and between the Registrant and Applied Materials, Inc.
+10.33(23)	Settlement Agreement dated as of October 3, 2005 by and between the Registrant, Applied Science and Technology, Inc. and Advanced Energy, Inc.
21.1	Subsidiaries of the Registrant
23.1	Consent of PricewaterhouseCoopers LLP
31.1	Certification of Principal Executive Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended
31.2	Certification of Principal Financial Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended
32.1	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

+ Previously filed

* Management contract or compensatory plan arrangement filed as an Exhibit to this Form 10-K pursuant to Item 15(b) of this report.

(1) Incorporated by reference to the Registration Statement on Form S-4 (File No. 333-49738) filed with the Securities and Exchange Commission on November 13, 2000.

(2) Incorporated by reference to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2001.

(3) Incorporated by reference to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2002.

(4) Incorporated by reference to the Registration Statement on Form S-1 filed with the Securities and Exchange Commission on January 28, 1999, as amended.

(5) Incorporated by reference to the Registration Statement on Form S-8 filed with the Securities and Exchange Commission on January 29, 2001.

(6) Incorporated by reference to the Registration Statement on Form S-8 filed with the Securities and Exchange Commission on January 29, 2001.

(7) Incorporated by reference to the Registrant’s Annual Report on Form 10-K for the year ended December 31, 2004.

(8) Incorporated by reference to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2006.

(9) Incorporated by reference to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2004.

(10) Incorporated by reference to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2005.

(11) Incorporated by reference to the Registrant’s Current Report on Form 8-K filed with the Securities and Exchange Commission on February 17, 2006.

(12) Incorporated by reference to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2006.

(13) Incorporated by reference to the Registrant’s Annual Report on Form 10-K for the year ended December 31, 2006.

(14) Incorporated by reference to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2002.

(15) Incorporated by reference to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2004.

(16) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 5, 2005.

(17) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on April 27, 2005.

(18) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on January 9, 2006.

(19) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on October 31, 2006.

(20) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2005

(21) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on August 3, 2006.

(22) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2007.

(23) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on April 27, 2005.

(24) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on October 7, 2005.

(b) Exhibits

MKS hereby files as exhibits to our Annual Report on Form 10-K those exhibits listed in Item 15(a) above.

(c) Financial Statement Schedules

MKS INSTRUMENTS, INC.
SCHEDULE II — VALUATION AND QUALIFYING ACCOUNTS

Description	Balance at Beginning of Year	Additions: Charged to Costs and Expenses	Additions: Charged to Other Accounts	Deductions & Write-offs	Balance at End of Year
			(Dollars in thousands)		
Accounts receivable allowance					
Year ended December 31,					
2007	$ 4,533	$ 1,721	$ —	$ 3,875	$ 2,379
2006	$ 3,178	$ 5,607	$ —	$ 4,252	$ 4,533
2005	$ 3,238	$ 4,101	$ —	$ 4,161	$ 3,178

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

MKS Instruments, Inc.

By: /s/ Leo Berlinghieri
Leo Berlinghieri
Chief Executive Officer, President and Director
(Principal Executive Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the date indicated.

Signatures	Title	Date
/s/ John R. Bertucci John R. Bertucci	Chairman of the Board of Directors	February 28, 2008
/s/ Leo Berlinghieri Leo Berlinghieri	Chief Executive Officer, President and Director (Principal Executive Officer)	February 28, 2008
/s/ Ronald C. Weigner Ronald C. Weigner	Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	February 28, 2008
/s/ Cristina H. Amon Cristina H. Amon	Director	February 28, 2008
/s/ Robert R. Anderson Robert R. Anderson	Director	February 28, 2008
/s/ Gregory R. Beecher Gregory R. Beecher	Director	February 28, 2008
/s/ Richard S. Chute Richard S. Chute	Director	February 28, 2008
/s/ Hans-Jochen Kahl Hans-Jochen Kahl	Director	February 28, 2008
/s/ Louis P. Valente Louis P. Valente	Director	February 28, 2008

Exhibit 10.14

MKS INSTRUMENTS, INC.

Restricted Stock Unit Agreement

Granted Under the 2004 Stock Incentive Plan

AGREEMENT made ___(the "Grant Date"), between MKS Instruments, Inc., a Massachusetts corporation (the "Company"), and **«First_Name» «Last_Name»** (the "Participant").

For valuable consideration, receipt of which is acknowledged, the parties hereto agree as follows:

1. General.

The Company has granted to the Participant restricted stock units ("RSUs") with respect to the number of shares set forth in Exhibit A hereto (the "Shares") of common stock, no par value, of the Company ("Common Stock"), subject to the terms and conditions set forth in this Agreement and in the Company's 2004 Stock Incentive Plan (the "Plan"). The RSUs represent a promise by the Company to deliver Shares upon vesting.

(a) Definitions. "Forfeiture" shall mean any forfeiture of RSUs pursuant to Section 2. "Vesting Date" is defined on Exhibit A hereto. "Determination Date" (if applicable) is defined on Exhibit A hereto. For purposes of this Agreement, "employ" or "employment" with the Company shall include employment with a parent or subsidiary of the Company as defined in Sections 424(e) or (f) of the Internal Revenue Code.

(b) Vesting Period. Subject to the terms and conditions of this Agreement (including the Forfeiture provisions described in Section 2 below), the RSUs shall vest according to the terms set forth in Exhibit A. As soon as practicable after each applicable Vesting Date, but in any event, within the period ending on the later to occur of the date that is 2 1/2 months from the end of (i) the Participant's tax year that includes the Vesting Date or (ii) the Company's tax year that includes the Vesting Date, the Company shall instruct its transfer agent to deposit the Shares subject to the RSUs into the Participant's existing equity account at Fidelity Stock Plan Services, LLC, or such other broker with which the Company has established a relationship ("Broker"), subject to payment in accordance with Section 6 of all applicable withholding taxes.

2. Forfeiture.

(a) Cessation of Employment. In the event that the Participant ceases to be employed by the Company for any reason or no reason (except for death, disability or retirement), with or without cause, prior to a Vesting Date, all of the Participant's unvested RSUs shall automatically be forfeited as of such cessation. In the event that the Participant ceases to be employed by the Company by reason of death, disability or retirement prior to a Vesting Date, then 100% of the

Participant's RSUs shall become immediately and fully vested and shall no longer be subject to the Forfeiture provisions under this Agreement.

For the purpose of this Section 2, "disability" shall mean disability as defined in Section 216(i)(1) of the U.S. Social Security Act.

"Retirement" means a voluntary termination of employment by the Participant after he or she is at least age sixty (60) and has a combination of years of age plus Years of Service with the Company equal to seventy (70) or more. "Years of Service" means full years of employment since the Participant's original hire date with the Company (or parent or subsidiary of the Company).

(b) Change in Control. Notwithstanding the foregoing, if, prior to any Vesting Date, and within two years after the effectiveness of a Change in Control (as defined below), the Participant is (i) terminated by the Company without Cause (as defined below) or (ii) terminates his employment for Good Reason (as defined below), then, 100% of the Participant's RSUs shall become immediately and fully vested and shall no longer be subject to the Forfeiture provisions under this Agreement. For purposes of this section "Change in Control" means the first to occur of any of the following events: (I) any "person" (as that term is used in Section 13 and 14(d)(2) of the Securities Exchange Act of 1934 ("Exchange Act")) becomes the beneficial owner (as that term is used in Section 13(d) of the Exchange Act), directly or indirectly, of fifty percent (50%) or more of the Company's capital stock entitled to vote in the election of directors; (II) the shareholders of the Company approve any consolidation or merger of the Company, other than a consolidation or merger of the Company in which the holders of the common stock of the Company immediately prior to the consolidation or merger hold more than fifty percent (50%) of the common stock of the surviving corporation immediately after the consolidation or merger; or (III) the shareholders of the Company approve the sale or transfer of all or substantially all of the assets of the Company to parties that are not within a "controlled group of corporations" (as defined in Code Section 1563) in which the Company is a member. For purposes of this Agreement, "Cause" shall mean conviction for the commission of a felony, willful failure by the Participant to perform his responsibilities to the Company, or willful misconduct by the Participant. For purposes of this section, "Good Reason" shall mean termination of the Participant's employment by the Participant within 90 days following (I) a material diminution in the Participant's positions, duties and responsibilities from those described in the Participant's Employment Agreement, (II) a material reduction in the Participant's base salary (other than a reduction which is part of a general salary reduction program affecting senior executives of the Company), (III) a material reduction in the aggregate value of the pension and welfare benefits provided to the Participant from those in effect prior to the Change in Control (other than a reduction which is proportionate to the reductions applicable to other senior executives pursuant to a cost-saving plan that includes all senior executives), (IV) a material breach of any provision of the Participant's Employment Agreement by the Company or (V) the Company's requiring the Participant to be based at a location that creates for the Participant a one way commute in excess of 60 miles from his primary residence, except for required travel on the Company's business to an extent substantially consistent with the business travel obligations of the Participant under the Participant's Employment Agreement. Notwithstanding the foregoing, a termination shall not be treated as a termination for Good Reason (I) if the Participant shall have consented in writing to the occurrence of the event giving rise to the claim of termination for Good Reason or (II) unless the Participant shall have delivered a written notice to the Company within 30 days of his having actual knowledge of the occurrence of one of such events stating that he intends to terminate his employment for Good Reason and specifying the factual basis for such termination, and such event, if capable of being cured, shall not have been cured within 30 days of the receipt of such notice.

3. Restrictions on Transfer.

The Participant shall not sell, assign, transfer, pledge, hypothecate or otherwise dispose of, by operation of law or otherwise (collectively "transfer") any RSUs, or any interest therein, except that the Participant may transfer such RSUs (i) to or for the benefit of any spouse, children, parents, uncles, aunts, siblings, grandchildren and any other relatives approved by the Board of Directors (collectively, "Approved Relatives") or to a trust established solely for the benefit of the Participant and/or Approved Relatives, provided that such RSUs shall remain subject to this Agreement (including without limitation the terms of Forfeiture and the restrictions on transfer set forth in this Section 3) and such permitted transferee shall, as a condition to such transfer, deliver to the Company a written instrument confirming that such transferee shall be bound by all of the terms and conditions of this Agreement.

4. Provisions of the Plan.

This Agreement is subject to the provisions of the Plan, a copy of which is furnished to the Participant with this Agreement.

5. No Compensation Deferral. Neither the Plan nor this Agreement is intended to provide for an elective deferral of compensation that would be subject to Section 409A ("Section 409A") of the U.S. Internal Revenue Code of 1986, as amended. The Company reserves the right, to the extent the Company deems necessary or advisable in its sole discretion, to unilaterally amend or modify the Plan and/or this Agreement to ensure that no awards (including without limitation, the RSUs) become subject to the requirements of Section 409A.

6. Withholding Taxes.

(a) The Company's obligation to deliver Shares to the Participant upon the vesting of RSUs shall be subject to the satisfaction of all income tax (including federal, state and local taxes), social insurance, payroll tax, payment on account or other tax related withholding requirements ("Withholding Taxes"). In order to satisfy all Withholding Taxes due upon vesting of the Participant's RSUs, the Participant agrees to the following:

(b) As a condition to receiving any Shares upon vesting of the RSUs, on the date of this Agreement, the Participant hereby irrevocably instructs the Company to take the actions described in this subsection 6(b). On each Vesting Date, the Participant hereby elects to satisfy all Withholding Taxes obligation then due through the retention by the Company of Shares. Accordingly, the Participant hereby instructs the Company, with no further action by the Participant, on each Vesting Date to deduct and retain from the number of Shares to which the Participant is entitled from the RSUs then scheduled to vest such number of Shares as is equal to the value of the Withholding Taxes. The Participant understands that the fair market value of the surrendered Shares will be based on the closing price of the Company's Common Stock on the trading day preceding the Vesting Date.

(c) Participant has reviewed with the Participant's own tax advisors the federal, state, local and foreign tax consequences of this grant and the transactions contemplated by this Agreement. The Participant is relying solely on such advisors and not on any statements or representations of the Company or any of its agents. The Participant understands that the Participant (and not the Company) shall be responsible for the Participant's own tax liability that may arise as a result of this grant or the transactions contemplated by this Agreement.

(d) The Participant represents to the Company that, as of the date hereof, he/she is not aware of any material nonpublic information about the Company or the Common Stock. The Participant and the Company have structured this Agreement to constitute a "binding contract" relating to the retention by the Company of Common Stock pursuant to this Section 6, consistent with the affirmative defense to liability under Section 10(b) of the Securities Exchange Act of 1934 under Rule 10b5-1(c) promulgated under such Act.

7. Nature of the Grant**.** In signing this Agreement, the Participant acknowledges that:

(a) the Plan is established voluntarily by the Company, it is discretionary in nature and may be modified, amended, suspended or terminated by the Company at any time, unless otherwise provided in the Plan and this Agreement;

(b) the grant of RSUs is voluntary and occasional and does not create any contractual or other right to receive future awards of RSUs, or benefits in lieu of RSUs even if RSUs have been awarded repeatedly in the past;

(c) all decisions with respect to future grants of RSUs, if any, will be at the sole discretion of the Company;

(d) the Participant's participation in the Plan is voluntary;

(e) RSUs are an extraordinary item that do not constitute compensation of any kind for services of any kind rendered to the Company or to the Participant's employer, and RSUs are outside the scope of the Participant's employment contract, if any;

(f) RSUs are not part of normal or expected compensation or salary for any purpose, including, but not limited to, calculation of any severance, resignation, termination, redundancy, end of service payments, bonuses, long-service awards, pension or retirement benefits or similar payments and in no event should be considered as compensation for, or relating in any way to, past services for the Company or the Participant's employer;

(g) the future value of the underlying Shares is unknown and cannot be predicted with certainty;

(h) if the Participant receives Shares upon vesting, the value of such Shares acquired on vesting of RSUs may increase or decrease in value;

(i) in consideration of the grant of RSUs, no claim or entitlement to compensation or damages arises from termination of the RSUs or diminution in value of the RSUs or Shares received upon vesting of RSUs resulting from termination of the Participant's employment by the Company or the Participant's employer (for any reason whatsoever and whether or not in breach of local labor laws) and the Participant irrevocably releases the Company and his or her employer from any such claim that may arise; if, notwithstanding the foregoing, any such claim is found by a court of competent jurisdiction to have arisen, then, by signing this Agreement, the Participant shall be deemed irrevocably to have waived his or her entitlement to pursue such claim; and

(j) further, if the Participant ceases to be a employee (whether or not in breach of local labor laws), the Participant's right to receive RSUs and vest under the Plan, if any, will terminate effective as of the date that the Participant is no longer actively employed by the Company and will not be extended by any notice period mandated under local law (*e.g.*, active employment would not include a period of "garden leave" or similar period pursuant to local law); the Committee shall have the exclusive discretion to determine when the Participant is no longer actively employed for purposes of the Plan.

8. Data Privacy Notice and Consent. The Participant hereby explicitly and unambiguously consents to the collection, use and transfer, in electronic or other form, of his or her personal data as described in this paragraph, by and among, as applicable, the Participant's employer and the Company and its subsidiaries and affiliates for, among other purposes, implementing, administering and managing the Participant's participation in the Plan. The Participant understands that the Company and its subsidiaries hold certain personal information about the Participant, including the Participant's name, home address and telephone number, date of birth, social security number or identification number, salary, nationality, job title, any Shares or directorships held in the Company, details of all options or any other entitlement to Shares awarded, canceled, exercised, vested, unvested or outstanding in the Participant's favor, for the purpose of managing and administering the Plan ("Data"). The Participant further understands that the Company and/or its subsidiaries will transfer Data amongst themselves as necessary for employment purposes, including implementation, administration and management of the Participant's participation in the Plan, and that the Company and/or any of its subsidiaries may each further transfer Data to Broker or such other stock plan service provider or other third parties assisting the Company with processing of Data. The Participant understands that these recipients may be located in the United States, and that the recipient's country may have different data privacy laws and protections than in the Participant's country. The Participant authorizes them to receive, possess, use, retain and transfer the Data, in electronic or other form, for the purposes described in this section, including any requisite transfer to Broker or such other stock plan service provider or other third party as may be required for the administration of the Plan and/or the subsequent holding of Shares of stock on the Participant's behalf. The Participant understands that he or she may, at any time, request access to the Data, request any necessary amendments to it or refuse or withdraw the consents herein, in any case without cost, by contacting in writing his or her local human resources representative. The Participant understands, however, that withdrawal of consent may affect the Participant's ability participate in or realize benefits from the Plan. For more information

on the consequences of refusal to consent or withdrawal of consent, the Participant understands that he or she may contact his or her local human resources representative.

9. Miscellaneous.

(a) No Rights to Employment. The Participant acknowledges and agrees that the vesting of the RSUs pursuant to Section 1 and Exhibit A hereof is earned only in accordance with the terms of such sections. The Participant further acknowledges and agrees that the transactions contemplated hereunder and the vesting schedule set forth herein do not constitute an express or implied promise of continued engagement as an employee for the vesting period, for any period, or at all.

(b) Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement, and each other provision of this Agreement shall be severable and enforceable to the extent permitted by law.

(c) Waiver. Any provision for the benefit of the Company contained in this Agreement may be waived, either generally or in any particular instance, by the Board of Directors of the Company.

(d) Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Company and the Participant and their respective heirs, executors, administrators, legal representatives, successors and assigns, subject to the restrictions on transfer set forth in Section 3 of this Agreement.

(e) Notice. All notices required or permitted hereunder shall be in writing and deemed effectively given upon personal delivery or five days after deposit in the United States Post Office, by registered or certified mail, postage prepaid, addressed to the other party hereto at the address shown beneath his or its respective signature to this Agreement, or at such other address or addresses as either party shall designate to the other in accordance with this Section 9(e).

(f) Pronouns. Whenever the context may require, any pronouns used in this Agreement shall include the corresponding masculine, feminine or neuter forms, and the singular form of nouns and pronouns shall include the plural, and vice versa.

(g) Language. If the Participant has received this Agreement or any other document related to the Plan translated into a language other than English and if the translated version is different than the English version, the English version will control.

(h) Electronic Delivery. The Company may, in its sole discretion, decide to deliver any documents related to participation in the Plan, RSUs granted under the Plan or future RSUs that may be granted under the Plan by electronic means or to request the Participant's consent to participate in the Plan by electronic means. The Participant hereby consents to receive such documents by electronic delivery and, if requested, to agree to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

(i) Entire Agreement. This Agreement and the Plan constitute the entire agreement between the parties, and supersedes all prior agreements and understandings, relating to the subject matter of this Agreement.

(j) Amendment. This Agreement may be amended or modified only by a written instrument executed by both the Company and the Participant.

(k) Governing Law. This Agreement shall be construed, interpreted and enforced in accordance with the internal laws of the Commonwealth of Massachusetts without regard to any applicable conflicts of laws.

(l) The Participant's Acknowledgments. The Participant acknowledges that he or she: (i) has read this Agreement; (ii) has been represented in the preparation, negotiation, and execution of this Agreement by legal counsel of the Participant's own choice or has voluntarily declined to seek such counsel; and (iii) understands the terms and consequences of this Agreement; and (iv) is fully aware of the legal and binding effect of this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

MKS INSTRUMENTS, INC.

By: /s/ Leo Berlinghieri
Title: Chief Executive Officer & President
2 Tech Drive, Suite 201
Andover, MA 01810

«First_Name» «Last_Name»

Participants Signature

Exhibit A

Exhibit 10.21

AMENDMENT TO EMPLOYMENT AGREEMENT

This Amendment (the "Amendment") to Employment Agreement is made this 13 day of November 2007 by and between MKS Instruments, Inc., a Massachusetts corporation ("MKS"), and Leo Berlinghieri (the "Employee").

RECITALS

WHEREAS, MKS and the Employee have previously entered into an employment agreement dated July 1, 2005 (the "Employment Agreement");

WHEREAS, MKS and the Employee wish to modify certain limited provisions of the Employment Agreement;

NOW THEREFORE, for good and valuable consideration, the sufficiency and receipt whereof are hereby acknowledged, the parties hereby agree as follows:

1. Ratification of Employment Agreement. Except as specifically set forth in this Amendment, the parties hereby ratify and confirm in all respects all of the provisions of the Employment Agreement.

2. Addition of New Paragraph. The following Section (f) shall be added to the end of Section 6 of the Employment Agreement:

> (f) To the extent required to avoid the excise tax pursuant to regulations under Section 409A of the Internal Revenue Code, any payments to which the Employee is entitled will be postponed for six (6) months following the Employee's date of termination.

In witness whereof, the parties have executed this Amendment as of the date first mentioned above.

MKS INSTRUMENTS, INC.	EMPLOYEE
/s/ Ronald C. Weigner	/s/ Leo Berlinghieri
By: Ronald C. Weigner Vice President & Chief Financial Officer	Leo Berlinghieri

EMPLOYMENT AGREEMENT

EMPLOYMENT AGREEMENT dated as of July 01, 2005 ("Employment Agreement"), by and between MKS Instruments, Inc., a Massachusetts Corporation (the "Corporation"), and Leo Berlinghieri, of North Andover, MA (the "Employee").

WHEREAS, the Corporation and the Employee entered into an Amended and Restated Employment Agreement dated July 30, 2004 (the "Original Employment Agreement"); and

WHEREAS, the Corporation intends to amend the terms of employment with the Employee as more particularly set forth herein; and

WHEREAS, the Corporation and the Employee intend that this Employment Agreement shall supercede the Original Employment Agreement and that as of the date hereof, the Original Employment Agreement shall be of no further force and effect;

NOW, THEREFORE, in consideration of the premises and the mutual promises contained herein, the Corporation and the Employee hereby agree as follows:

(1) Term of Employment: The Corporation hereby employs the Employee, and the Employee hereby accepts employment with the Corporation, for a period commencing as of July 01, 2005 and continuing from month to month thereafter until terminated as provided in this Section (1). Either the Corporation or the Employee may terminate the employment of the Employee under this Employment Agreement at any time after July 01, 2005 by giving written notice to the other party stating its or his election to terminate the employment of the Employee under this Employment Agreement. The employment of the Employee under this Employment Agreement shall terminate thirty (30) days after the date of receipt by the other party of such notice; provided, however, that the employment of the Employee under this Employment Agreement is subject to prior termination as hereinafter provided in Section (5). Notwithstanding the above, the Corporation shall be entitled, at its sole discretion, to waive the obligation of the Employee to continue to work during the thirty (30) day notice period.

(2) Capacity: The Employee shall serve as President and Chief Executive Officer of the Corporation and shall have such authority and will perform such duties as are delegated to him by the Board of Directors of the Corporation that are consistent with this position and his training and experience for the term of employment under this Employment Agreement.

(3) Extent of Services: During the term of employment of the Employee under this Employment Agreement, the Employee shall devote his full time to, and use his best efforts in the furtherance of, the business of the Corporation and shall not engage in any other business activity, whether or not such business activity is pursued for gain or any other pecuniary advantage, without the prior written consent of the Corporation.

(4) Compensation: In consideration of the services to be rendered by the Employee under this Employment Agreement, the Corporation agrees to pay, and the Employee agrees to accept, the following compensation:

(a) Base Salary: A base salary at the rate of four hundred twenty-five thousand dollars ($425,000) per year for the term of employment of the Employee under this Employment Agreement. The base salary shall be payable in equal biweekly installments, subject to usual withholding requirements, and will be subject to any changes in pay policies that may be established by the Corporation. The base salary will be reviewed regularly according to the practices of the Corporation. No overtime pay will be paid to the Employee by the Corporation.

(b) Incentive: For each calendar year of the corporation during the term of employment of the Employee under this Employment Agreement, the Employee shall be entitled to participate in a Management Incentive Program pursuant to the terms of which the Employee may receive compensation in addition to his base salary if the Corporation attains its consolidated financial goals during such calendar year of the Corporation. The "targeted" additional compensation goal for the Employee shall be 60% of his base annual earnings. The Management Incentive Program, including the consolidated financial goals established by the Corporation for the calendar year and the formula to be used to determine the payment of amounts under the Management Incentive Program, will be communicated to the Employee in writing prior to the beginning of each calendar year of the Corporation. If there shall be any disagreement between the Corporation and the Employee as to the calculation of the Management

Incentive Bonus in any calendar year of the Corporation during the term of employment of the Employee under this Employment Agreement, the decision of the independent Public Accounting firm of the corporation as to the amount of the Management Incentive Bonus of the Corporation shall be conclusive and binding on the Corporation and the Employee. The Employee shall have no right to inspect any of the books, papers or records of the Corporation, except that the Employee shall be entitled to inspect any certificate of such independent public accounting firm as to the calculation of the Management Incentive Bonus of the Corporation in any calendar year of the Corporation during the term of employment of the Employee under this Employment Agreement. Incentive payments shall be payable to the Employee on or before March 31 after the end of each calendar year of the Corporation during the term of employment of the Employee under this Employment Agreement. The Employee will not receive any payment under the Management Incentive Program for any calendar year in which the Employee is not actively employed on the last day of that calendar year.

(c) MKS Instruments Profit Sharing and 401-K Plan: The Employee shall be eligible to become a participant under this plan of the Corporation on fulfilling the conditions set forth in the MKS Instruments Profit Sharing and 401-K Plan.

(d) Vacation: The Employee shall be entitled to an annual vacation leave of twenty-five (25) days at full pay during each year of this Employment Agreement, subject to the Employee arranging such vacation so as not to affect adversely the ability of the Corporation to transact its necessary business.

(e) Life Insurance: The Corporation shall provide, and pay all of the premiums for, term life insurance for the Employee during the term of employment of the Employee under this Employment Agreement in accordance with the term life insurance plan of the Corporation.

(f) Medical/Dental Insurance: The Corporation shall provide group medical/dental insurance for the Employee under the plans of the Corporation applicable to the Employee during the term of employment of the Employee under this Employment Agreement.

(g) Retirement Benefits: The Employee shall be eligible to participate in supplemental retirement benefits according to the terms and conditions set forth in Appendix A of this Employment Agreement.

(h) Other Benefits: The Corporation shall provide other benefits for the Employee under the plans of the Corporation applicable to the Employee during the term of employment of the Employee under this Employment Agreement.

(5) Termination: The employment of the Employee under this Employment Agreement shall terminate:

(a) On the expiration of the period of employment as provided in Section (1).

(b) Upon the death of the Employee.

(c) At the election of the Corporation (i) if the Employee shall refuse to perform the services required of him under this Employment Agreement, or (ii) if the Employee shall fail, or refuse, to perform the other covenants and agreements required of him under this Employment Agreement, or (iii) for "cause", which term shall mean conviction for the commission of a felony, willful failure by the Employee to perform his responsibilities to the Corporation, or willful misconduct by the Employee.

(6) Payment Upon Termination:

(a) If the employment of the Employee is terminated by the Corporation other than pursuant to Section 5 (c) hereof, the Corporation (i) shall continue to pay Employee the Base Salary in effect immediately prior to the time of such termination for twelve (12) months after the last full day Employee works under this Agreement at its normal payroll payment dates; (ii) shall reimburse Employee for the premiums (if any) he pays for continuation of life insurance should he elect to exercise the conversion feature of the Corporation's group life policy then in effect for twelve (12) months after the last full day Employee works under this Agreement; and (iii) continue to pay for such medical/dental/vision insurance as Employee may then receive for twelve (12) months after the last full day Employee works under this Agreement; (iv) continued participation in the Corporation's other benefit plans under the terms in effect immediately prior to termination for a period of 12 months (such payments of Base Salary and payments or reimbursements of insurance premiums by the Corporation, the "Severance Benefits).Employee agrees that, (a) his eligibility for or entitlement to the foregoing Severance Benefits shall be subject to Employee's execution and delivery of a release, in such form as the Corporation may require, that, among other things, may be a general release of any and all claims Employee may have against Employer, (b) Employee shall have no rights or remedies in the event of his or her termination by the Corporation without Cause and other than as a result of Disability or death except for those set forth in this Agreement and (c) Employee's right to receive any of the foregoing Severance Benefits shall be expressly conditioned upon Employee's full compliance with the Corporation's Confidentiality Agreement, pursuant to its continued effectiveness, and Employee's full cooperation with the Corporation in both fulfilling the terms of this Agreement and the Corporation's Confidentiality Agreement and otherwise performing such actions as the Corporation may request in transitioning Employee from his employment with the Corporation and upon any breach of either such agreement by Employee, Employee's rights to any continued payment of Severance Benefits shall immediately cease and Employee shall be obligated to repay to the Corporation all amounts paid by the Corporation for the Severance Benefits except for the amount of $1,000, which Employee shall be entitled to retain.

(b) If the employment of the Employee is terminated by death, the Corporation shall pay to the estate of the Employee an amount equal to 12 months Base Annual Salary at the rate in effect immediately prior to termination.

(c) In the event the employment of the Employee is terminated at the election of the Corporation pursuant to Section (5) (c) hereof, the Employee shall only be entitled to his base salary through the last day of actual employment or the date of termination, whichever is earlier.

(d) In the event the Employee voluntarily terminates his employment on the expiration of the period of employment as provided in Section (1), the Employee shall not be entitled to any compensation, and the Corporation shall have no obligation to pay the Employee any compensation, except as is provided in this Employment Agreement.

(e) in the event the Employee's employment is terminated without "cause" by the Corporation or by the Employee for Good Reason (as defined in Appendix A), upon or as a result of a Change in Control (as defined in

Appendix A) or at any time within 2 years following such a Change in Control, the Employee shall receive (i) 36 months Base Annual Salary, at the rate in effect immediately prior to termination; (ii) the Target Bonus under the MKS Management Incentive Plan for 36 months following termination at the rate in effect prior to termination (which foregoing Base Annual Salary and Target Bonus amounts shall be payable to Employee in a lump sum amount within 30 days of the date of termination, and shall be grossed up to account for applicable federal and state income taxes payable by Employee with respect to such amounts) (iii) continued participation in the Corporation's benefit plans under the terms in effect immediately prior to termination for a period of 36 months; (iv) and, continuation in the Corporation's medical, dental, vision and life insurance plans for a period of 36 months.

(7) Trade Secrets: The Employee covenants and agrees that he will communicate to the Corporation, and will not divulge or communicate to any other person, partnership, corporation or other entity without the prior written consent of the Corporation, any trade secrets of the Corporation or confidential information relating to the business of the Corporation or any one connected with the Corporation, and that such trade secrets and confidential information shall not be used by the Employee either on his own behalf or for the benefit of others or disclosed by the Employee to any one, except to the Corporation, during or after the term of employment of the Employee under this Employment Agreement.

(8) Inventions and Patents:

(a) The Employee shall make prompt full disclosure in writing to the Corporation of all inventions, improvements and discoveries, whether or not patentable, which the Employee conceives, devises, makes, discovers, develops, perfects or first reduces to practice, either alone or jointly with others, during the term of employment of the Employee under this Employment Agreement, which relate in any way to the fields, products or business of the Corporation, including development and research, whether during or out of the usual hours of work or on or off the premises of the Corporation or by use of the facilities of the Corporation or otherwise and whether at the request or suggestion of the Corporation or otherwise (all such inventions, improvements and discoveries being hereinafter called the "Inventions"), including any Inventions, whether or not patentable, conceived, devised, made, discovered, developed, perfected or first reduced to practice by the Employee after the employment of the Employee under this Employment Agreement is terminated if the Inventions were conceived by the Employee during the term of employment of the Employee under this Employment Agreement. Any Inventions, whether or not patentable, conceived, devised, made, discovered, developed, perfected or first reduced to practice by the Employee within six (6) months of the date of termination of the employment of the Employee under this Employment Agreement shall be conclusively presumed to have been conceived during the term of employment of the Employee under this Employment Agreement.

(b) The Employee agrees that the Inventions shall be the sole and exclusive property of the Corporation.

(c) The Employee agrees to assist the Corporation and its nominees in every reasonable way (entirely at its or their expense) to obtain for the benefit of the Corporation letters patent for the Inventions and trademarks, trade names and copyrights relating to the Inventions, and any renewals, extensions or reissues thereof, in any and all countries, and agrees to make, execute, acknowledge and deliver, at the request of the Corporation, all written applications for letters patent, trademarks, trade names and copyrights relating to the Inventions and any renewals, extensions or reissues thereof, in any and all countries, and all documents with respect thereto, and all powers of attorney relating thereto and, without further compensation, to assign to the Corporation or its nominee all the right, title and interest of the Employee in and to such applications and to any patents, trademarks, trade names or copyrights which shall thereafter issue on any such applications, and to execute, acknowledge and deliver all other documents deemed necessary by the Corporation to transfer to or vest in the Corporation all of the right, title and interest of the Employee in and to the Inventions, and to such trademarks, trade names, patents and copyrights together with exclusive rights to make, use, license and sell them throughout the world.

(d) The Employee agrees that even though his employment is terminated under this Employment Agreement he will, at any time after such termination of employment, carry out and perform all of the agreements of Subsections (8) (a) and (8) (c) above, and will at any time and at all times cooperate with the Corporation in the prosecution and/or defense of any litigation which may arise in connection with the Inventions, provided, however, that should such services be rendered after termination of employment of the Employee under this Employment Agreement, the Employee shall be paid reasonable compensation on a per diem basis.

(e) The Employee agrees to make and maintain adequate and current written records of all Inventions in the form of notes, sketches, drawings, or reports relating thereto, which records shall be and remain the property of, and available to, the Corporation at all times.

(f) The Employee agrees that he will, upon leaving the employment of the Corporation, promptly deliver to the Corporation all originals and copies of disclosures, drawings, prints, letters, notes, and reports either typed, handwritten or otherwise memorialized, belonging to the Corporation which are in his possession or under his control and the Employee agrees that he will not retain or give away or make copies of the originals or copies of any such disclosures, drawings, prints, letters, notes or reports.

(9) Property of Corporation: All files, records, reports, documents, drawings, specifications, equipment, and similar items relating to the business of the Corporation, whether prepared by the Employee or otherwise coming into his possession, shall remain the exclusive property of the Corporation and shall not be removed by the Employee from the premises of the Corporation under any circumstances whatsoever without the prior written consent of the Corporation.

(10) Non-Competition:

(a) During the term of employment of the Employee under this Employment Agreement, and during a period of one (1) year after termination of employment of the Employee under this Employment Agreement if such termination of employment was caused by the Corporation, (or by the Employee for Good Reason), or for a period of two (2) years after termination of employment of the Employee under this Employment Agreement if such termination of employment was caused by the Employee (other than for Good Reason), (i) the Employee shall not engage, either directly or indirectly, in any manner or capacity, in any business or activity which is competitive with any business or activity conducted by the Corporation; (ii) the Employee shall not work for, directly or indirectly, any person who was an employee, officer or agent of the Corporation or of any of its subsidiaries at any time during a period of twelve (12) months prior to the termination of the employment of the Employee under this Employment Agreement nor shall the Employee form any partnership with, or establish any business venture in cooperation with, any such person which is competitive with any business or activity of the Corporation; (iii) the Employee shall not have any material financial interest, or participate as a director, officer, 1% stockholder, partner, employee, consultant or otherwise, in any corporation, partnership or other entity which is competitive with any business or activity conducted by the Corporation.

(b) The Corporation and the Employee agree that the services of the Employee are of a personal, special, unique and extraordinary character, and cannot be replaced by the Corporation without great difficulty, and that the violation by the Employee of any of his agreements under this Section (10) would damage the goodwill of the Corporation and cause the Corporation irreparable harm which could not reasonably or adequately be compensated in damages in an action at law, and that the agreements of the Employee under this Section (10) may be enforced by the Corporation in equity by an injunction or restraining order in addition to being enforced by the Corporation at law.

(c) In the event that this Section (10) shall be determined by any court of competent jurisdiction to be unenforceable by reason of its extending for too long a period of time or over too great a range of activities, it shall be interpreted to extend only over the maximum period of time or range of activities as to which it may be enforceable.

(11) Non-Solicitation: The Employee shall not, on his own behalf or in the service or on behalf of others, directly or indirectly:

(a) solicit, entice or induce any Customer (as defined below) to become a customer, distributor or supplier of any other person, firm or corporation with respect to products and/or services sold or under development by the Corporation during his employment at the Corporation, or to cease doing business with the Corporation, and the Employee shall not contact or approach any such person, firm or corporation for such purpose or authorize or knowingly approve the taking of such actions by any other person for a period of twenty-four (24) months from the date of the termination of employment of the Employee under this Employment Agreement; or

(b) solicit, recruit or hire (or attempt to solicit, recruit or hire) any employee, officer or agent of the Corporation or contractor engaged by the Corporation (whether or not such person is a full-time employee or whether or not such employment is pursuant to a written agreement or at-will) to terminate such person's employment or engagement with the Corporation or work for a third party other than the Corporation for a period of twenty-four (24) months after the date of the termination of employment of the Employee under this Employment Agreement, or engage in any activity that would cause such employee or contractor to violate any agreement with the Corporation, nor shall the Employee form any partnership with, or establish any business venture in cooperation with, any such person.

(c) For the purposes of this Section (11), a "Customer" means any person or entity which as of the date of the termination of employment of the Employee under this Employment Agreement was, within two (2) years prior to such time, a customer, distributor or supplier of the Corporation, and references to the Corporation shall be deemed to include any affiliate or subsidiary of the Corporation.

(12) Notice: Any and all notices under this Employment Agreement shall be in writing and, if to the Corporation, shall be duly given if sent to the Corporation by registered or certified mail, postage prepaid, return receipt requested, at the address of the Corporation set forth under its name below or at such other address as the Corporation may hereafter designate to the Employee in writing for the purpose, and, if to the Employee, shall be duly given if delivered to the Employee by hand or if sent to the Employee by registered or certified mail, postage prepaid, return receipt requested, at the address of the Employee set forth under his name below or at such other address as the Employee may hereafter designate to the Corporation in writing for the purpose.

(13) Assignment: The rights and obligations of the Corporation under this Employment Agreement shall inure to the benefit of, and shall be binding upon, the successors and assigns of the Corporation. The rights and obligations of the Employee under this Employment Agreement shall inure to the benefit of, and shall be binding upon, the heirs, executors and legal representatives of the Employee.

(14) Entire Agreement and Severability:

(a) This Employment Agreement, and the attached Appendix A, supersedes any and all other agreements, either oral or in writing, between the parties hereto with respect to the employment of the Employee by the Corporation and contains all of the covenants and agreements between the parties with respect to such employment. Each party to this Employment Agreement acknowledges that no representations, inducements, promises or agreements, oral or otherwise, have been made by any party, or any one acting on behalf of any party, which are not embodied herein, and that no other agreement, statement or promise not contained in this Employment Agreement, and the attached Appendix A, shall be valid and binding. Any modification of this Employment Agreement, and the attached Appendix A, will be effective only if it is in writing signed by both parties to this Employment Agreement.

(b) If any provision in this Employment Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force and effect without being impaired or invalidated in any way.

(c) All pronouns used herein shall include the masculine, feminine, and neuter gender as the context requires.

(15) Governing Law: This Employment Agreement shall be governed by, and construed in accordance with, the laws of The Commonwealth of Massachusetts applicable to contracts made and to be performed entirely within The Commonwealth of Massachusetts without regard to its conflict of laws principles.

IN WITNESS WHEREOF, the parties hereto have executed, in The Commonwealth of Massachusetts, this Employment Agreement as a sealed instrument, all as of the day, month and year first written above.

MKS INSTRUMENTS, INC.

By: /s/ John R. Bertucci

Executive Chairman of the
Corporation's Board of Directors

90 Industrial Way
Wilmington, MA 01887

/s/ Leo Berlinghieri

Legal Signature

Leo Berlinghieri
Address:
99 Thistle Road

North Andover, MA 01845

_____LEO BERLINGHIERI

APPENDIX A

SUPPLEMENTAL RETIREMENT BENEFITS

1. PURPOSE. (a) GENERAL: The purpose of this Appendix A is to provide Employee with supplemental retirement benefits to encourage his continued employment with the Corporation. Benefits will be payable only if Employee fully complies with all of the requirements of this Appendix A.

(b): For Benefit of Employee Only: Benefits under this Appendix A are provided for the benefit of Employee only. No other employee shall accrue any rights of any kind as a result of the existence of the arrangement described in this Appendix A. Supplemental retirement benefits may be provided to an employee only as specifically authorized by the Board of Directors of the Corporation.

2. DEFINITIONS. As used in this Appendix A, the following terms have the meanings set forth below, unless a different meaning is required by the context:

2.1. "Actuarially Equivalent" means a benefit of equivalent value to another benefit, determined on the following basis:

> Interest Rate: The average annual interest rate on 10-year Treasury securities as published in the Internal Revenue Bulletin for the calendar quarter immediately preceding the calendar quarter in which the actuarially equivalent benefit is being determined plus 25 basis points; and
>
> Mortality: The most recent "applicable mortality table" prescribed by Section 417(e)(3)(A)(ii) of the Internal Revenue Code (or a successor provision as determined by the Corporation).

2.2. "Base salary" means base salary as defined in the Employment Agreement, before any pre-tax salary reductions for participation in any benefits plan of the Corporation.

2.3. "Beneficiary" means one or more persons, trusts, estates or other entities, designated by Employee to receive death benefits under Sections 5.1(b), 5.2(b) or 6.1(b) of this Appendix A upon Employee's death. If Employee fails to designate a Beneficiary or if all designated

Beneficiaries predecease Employee or die prior to complete distribution of Employee's benefits under Section 5.1(b) or 5.2(b), then such death benefits shall be payable to the executor or personal representative of Employee's estate.

Employee shall designate his Beneficiary by completing and signing a beneficiary designation form prescribed by the Corporation, and returning it to the Corporation or its designated agent. Employee shall have the right to change a Beneficiary by completing, signing and otherwise complying with the terms of the beneficiary designation form and the Corporation's rules and procedures, as in effect from time to time. Upon the acceptance by the Corporation of a new beneficiary designation form, all Beneficiary designations previously filed shall be canceled. The Corporation shall be entitled to rely on the last beneficiary designation form filed by Employee and accepted by the Corporation prior to his or her death. No designation or change in designation of a Beneficiary shall be effective until received and acknowledged in writing by the Corporation or its designated agent. If the Corporation has any doubt as to the proper Beneficiary to receive payments pursuant to this Appendix A, the Corporation shall have the right, exercisable in its discretion, to withhold such payments until this matter is resolved to the Corporation's satisfaction.

2.4. "Bonus" means a bonus paid under the Corporation's Management Incentive Program.

2.5. "Change in Control" means the first to occur of any of the following events:

(a) Any "person" (as that term is used in Section 13 and 14(d)(2) of the Securities Exchange Act of 1934 ("Exchange Act")) becomes the beneficial owner (as that term is used in Section 13(d) of the Exchange Act), directly or indirectly, of fifty percent (50%) or more of the Corporation's capital stock entitled to vote in the election of directors;

(b) The shareholders of the Corporation approve any consolidation or merger of the Corporation, other than a consolidation or merger of the Corporation in which the holders of the common stock of the Corporation immediately prior to the consolidation or merger hold more than fifty percent (50%) of the common stock of the surviving corporation immediately after the consolidation or merger;

(c) The shareholders of the Corporation approve any plan or proposal for the liquidation or dissolution of the Corporation; or

(d) The shareholders of the Corporation approve the sale or transfer of all or substantially all of the assets of the Corporation to parties that are not within a "controlled group of corporations" (as defined in Code Section 1563) in which the Corporation is a member.

2.6. "Corporation" means MKS Instruments, Inc.. and any corporation, trust, association or enterprise which is required to be considered, together with the Corporation, as one employer pursuant to the provisions of Sections 414(b), 414(c), 414(m) or 414(o) of the Code.

2.7. "Compensation" for any calendar year means the sum of Employee's Base Salary for such year plus any Bonus paid in such year.

2.8. "Early Retirement Benefit" means the Retirement benefit determined under Section 5.2 of this Appendix A upon Employee's Retirement prior to his Normal Retirement Date.

2.9. "Employment Agreement" means the Employment Agreement between Employee and the Corporation that contains this Appendix A.

2.10. "Final Average Pay" means, for purposes of Section 5 the average of Employee's three (3) highest years of Compensation during the ten (10) calendar year period immediately preceding the calendar year in which Employee Retires, and for purposes of determining death benefits under Section 6 the average of Employee's three (3) highest years of Compensation during the ten (10) calendar year period immediately preceding the calendar year containing Employee's date of death. The foregoing notwithstanding, any calendar year in which Employee has no Compensation from the Corporation shall be ignored in determining such ten calendar year period.

2.11. "Normal Retirement Age" means Employee's 62nd birthday.

2.12. "Normal Retirement Benefit" means the Retirement benefit determined under Section 5.1 of this Appendix A upon Employee's Retirement on or after his Normal Retirement Date.

2.13. "Normal Retirement Date" means the first day of the month in which Employee attains Normal Retirement Age.

2.14. "Permanent and Total Disability" means disability as defined in Section 216(i)(1) of the Social Security Act (in general, the inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or has lasted or can be expected to last for a continuous period of not less than

12 months, or blindness). Employee shall be conclusively presumed to be Permanently and Totally Disabled upon determination that he is disabled by the Social Security Administration.

2.15. "Retires" or "Retired" means Employee's termination of employment with the Corporation upon or after satisfying the vesting requirements of Section 4.1. Employee shall be deemed to have Retired with a fully vested Normal Retirement Benefit on the earliest of the date he becomes Permanently and Totally Disabled, the date the Corporation terminates Employee's employment with the Corporation for any reason other than Termination for Cause, the date of Employee's death while employed by the Corporation, or the date of Employee's qualifying termination of employment in connection with a Change in Control in accordance with the provisions of Section 7 of this Appendix A.

2.16. "Retirement Date" means the date Employee Retires or is deemed to have Retired in accordance with Section 2.15 of this Appendix A. The term "Retirement Date" shall include Employee's Early Retirement Date as defined in Section 5.2 of this Appendix A.

2.17. "Termination of Employment" means Termination for Cause, or Employee's voluntary severance from employment with the Corporation for any reason other than Retirement.

2.18. "Termination for Cause" means, solely for purposes of this Appendix A, termination of Employee's employment by the Corporation as a result of Employee's conviction for the commission of a felony, material breach of any employment or other agreements between Employee and the Corporation, or willful failure to perform the material responsibilities of his position with the Corporation.

2.19. "Trust" means the Trust established pursuant to Section 10 of this Appendix A.

3. ELIGIBILITY FOR RETIREMENT BENEFITS.

3.1. General: Subject to Sections 4.2, 4.3, 4.4, and 4.5 the Corporation shall pay the retirement benefits described in this Appendix A if Employee Retires from employment with the Corporation upon or after satisfying the vesting requirements set forth in Section 4.1.

3.2. Disability: Solely for purposes of determining eligibility for benefits payable under this Appendix A, Employee shall be deemed to be an employee of the Corporation during any period for which Employee receives benefits under any short term or long term disability plan of the Corporation but is not Permanently and Totally Disabled, and during such period Employee shall continue to accrue service for purposes of the vesting requirements set forth in

Section 4.1. If Employee remains disabled on the date he satisfies the vesting requirements set forth in Section 4.1, he shall be deemed to have Retired from employment from the Corporation on that date for purposes of this Appendix A. This Section 3.2 shall have no bearing on whether Employee remains an employee of the Corporation for any other purpose.

4. VESTING.

4.1 General: Except as provided in Sections 4.2, 4.3, 4.4, and 4.5, and subject to Section 10.2, Employee's benefits under this Appendix A shall be fully vested and nonforfeitable if Employee satisfies both (a) and (b) while employed with the Corporation:

(a) attains age 60, and

(b) has 25 years of service with the Corporation. Employee shall have 25 years of service on the 25th anniversary of Employee's original hire date.

The foregoing notwithstanding, Employee shall be fully vested in his benefit under this Appendix A on the earliest of the date (a) Employee dies while employed by the Corporation, (b) Employee becomes Permanently and Totally Disabled, (c) the Corporation terminates Employee's employment with the Corporation for any reason other than Termination for Cause as defined in Section 2.18 of this Appendix A, or (d) of Employee's qualifying termination of employment in connection with a Change in Control in accordance with the requirements of Section 7 of this Appendix A. Death benefits shall be determined in accordance with Section 6.

4.2. Termination for Cause: All benefits shall be forfeited, and no amount shall be payable under this Appendix A, in the event of Employee's Termination for Cause.

4.3. Compliance with Noncompete, Nondisclosure, and Nonsolicitation Agreements. All benefits under this Appendix A are expressly conditioned upon Employee's compliance with the terms of any noncompetition, nondisclosure, or nonsolicitation provisions contained in the Employment Agreement, or in any other agreement between Employee and the Corporation. All benefits payable under this Appendix A shall be forfeited, and no amount shall be payable, in the event Employee violates the terms of any such provisions. If Employee violates the terms of any such provisions, and benefit payments have commenced to Employee, any such payments shall cease, and Employee shall repay all previously paid benefits to the Corporation upon demand. If Employee fails to repay such amounts upon demand, the

Corporation shall have the right to take any action necessary to recover such payments from Employee.

4.4. Notice of Intent to Retire. Benefits payable under this Appendix A are specifically conditioned upon Employee providing to the Corporation written notice of Employee's intent to Retire at least six months prior to Employee's Retirement date. In the event Employee terminates employment with the Corporation for any reason other than death without satisfying the notice requirements of this Section 4.4 all benefits shall be forfeited, and no amount shall be payable under this Appendix A. The foregoing notwithstanding, the Corporation, in its sole and absolute discretion, may elect to waive the notice requirement of this Section 4.4. The foregoing notwithstanding, this Section 4.4 shall not apply to death benefits payable under Section 6 of this Appendix A, or to Retirement benefits payable under Section 5 as a result of Employee's deemed Retirement under Section 2.15 or Section 7 of this Appendix A.

4.5. Release. Benefits payable under this Appendix A (other than death benefits payable under Section 6) are specifically conditioned upon and provided in exchange for Employee signing a separation agreement that releases the Corporation from any liabilities that may have arisen as a result of Employee's employment and/or termination of employment with the Corporation. In the event Employee terminates employment with the Corporation for any reason other than death without satisfying the requirements of this Section 4.5 all benefits shall be forfeited, and no amount shall be payable under this Appendix A.

4.6. Termination of Employment Prior to Satisfying Vesting Requirements. No benefits are payable under this Appendix A upon Employee's Termination of Employment with the Corporation prior to satisfying the vesting requirements set forth in Section 4.1.

5. RETIREMENT BENEFITS.

5.1. Normal Retirement Benefit. This Section 5.1 describes the Retirement benefit payable by the Corporation in the event Employee Retires (or is deemed to have Retired in accordance with Section 2.15 or Section 7 of this Appendix A) on or after his Normal Retirement Date. Employee's Normal Retirement Benefit shall be paid in the form of an Actuarially Equivalent lump sum, as set forth in Section 5.3(a), unless Employee makes the election described in Section 5.3(b).

(a) Married on Retirement Date: If Employee is married on his Retirement Date, Employee's Normal Retirement Benefit shall be:

50% times Final Average Pay

payable annually for the life of Employee with 50% of such amount continuing after Employee's death to his spouse for her life. Payments shall commence as soon as administratively practicable following Employee's Retirement Date, and subsequent payments shall be made as soon as administrative practicable following each anniversary of Employee's Retirement Date (payments shall not, however, commence earlier than the date permitted by federal law). Solely for purposes of this Section 5.1, "Spouse" shall mean the spouse to whom Employee is married on his Retirement Date (regardless of whether that is the same spouse to whom he is married on his date of death), unless the Corporation is directed by a court of competent jurisdiction to treat someone else as Employee's "spouse." If the spouse to whom Employee is married on his Retirement Date does not survive Employee, no survivor death benefit shall be payable under this Section 5.1, without regard to whether employee is married on his date of death.

(b) Not Married on Retirement Date: If Employee is not married on his Retirement Date, Employee's Normal Retirement Benefit shall be:

50% times Final Average Pay

payable annually for the life of Employee with a ten year certain guarantee. Payments shall commence as soon as administratively practicable following Employee's Retirement Date, and subsequent payments shall be made as soon as administrative practicable following each anniversary of Employee's Retirement Date (payments shall not, however, commence earlier than the date permitted by federal law). If Employee dies before receiving 10 annual installments, the Corporation shall pay a lump sum benefit to Employee's Beneficiary that is Actuarially Equivalent to the additional benefit that would have been payable to Employee had he continued to receive annual installments up to a total of 10 annual installments.

5.2. Early Retirement Benefit. This Section 5.2 describes the Retirement benefit payable by the Corporation in the event Employee Retires prior to his Normal Retirement Date. Employee may Retire from employment with the Corporation prior to his Normal Retirement Date on the first day of any month coincident with or next following the date he satisfies the vesting requirements of section 4.1. The date on which Employee Retires under this Section 5.2 shall be his Early Retirement Date. Employee's Early Retirement Benefit shall be paid in the form of an Actuarially Equivalent lump sum, as set forth in Section 5.3(a), unless Employee makes the election described in Section 5.3(b).

(a) Married on Early Retirement Date: If Employee is married on his Early Retirement Date, Employee's Early Retirement Benefit shall be:

50% times Final Average Pay

multiplied by the applicable percentage as set forth in the following schedule:

Age at which Early Retirement Benefits Commence	62	61	60
Applicable Percentage	100%	90	80

payable annually for the life of Employee with 50% of such amount continuing after Employee's death to his spouse for her life. Payments shall commence as soon as administratively practicable following Employee's Early Retirement Date, and subsequent payments shall be made as soon as administrative practicable following each anniversary of Employee's Early Retirement Date (payments shall not, however, commence earlier than the date permitted by federal law). Solely for purposes of this Section 5.2, "Spouse" shall mean the spouse to whom Employee is married on his Early Retirement Date (regardless of whether that is the same spouse to whom he is married on his date of death), unless the Corporation is directed by a court of competent jurisdiction to treat someone else as Employee's "spouse." If the spouse to whom Employee is married on his Early Retirement Date does not survive Employee, no survivor death benefit shall be payable under this Section 5.2, without regard to whether employee is married on his date of death.

(b) Not Married on Early Retirement Date: If Employee is not married on his Early Retirement Date, Employee's Early Retirement Benefit shall be:

50% times Final Average Pay

multiplied by the applicable percentage as set forth in the following schedule:

Age at which Early Retirement Benefits Commence	62	61	60
Applicable Percentage	100%	90	80

payable annually for the life of Employee with a ten year certain guarantee. Payments shall commence as soon as administratively practicable following Employee's Early Retirement Date, and subsequent payments shall be made as soon as administrative practicable following each anniversary of Employee's Early Retirement Date (payments shall not, however, commence earlier than the date permitted by federal law). If Employee dies before receiving 10 annual installments, the Corporation shall pay a lump sum benefit to Employee's Beneficiary that is Actuarially Equivalent to the additional benefit that would have been payable to Employee had he continued to receive annual installments up to a total of 10 annual installments.

5.3. Form of Payment:

(a) Unless Employee makes the election described in Section 5.3(b) below, Employee's Normal Retirement Benefit or Early Retirement Benefit, determined in accordance with section 5.1 or 5.2 as applicable, shall be paid in the form of a single lump sum that is Actuarially Equivalent to such Normal Retirement Benefit or Early Retirement Benefit. Such lump sum shall be paid as soon as administratively practicable following Employee's retirement (or, if later, the earliest date permitted by Federal law).

(b) In lieu of payment of his Normal Retirement Benefit or Early Retirement Benefit in the form of a lump sum as described in Section 5.3(a), Employee may elect, in the manner prescribed by the Corporation, to receive payment of his retirement benefit in the form described in Section 5.1 or 5.2 as applicable. Any such election must be submitted to and accepted by the Corporation no later than the 13th month prior to Employee's Retirement Date.

5.4. Death While Employed by the Corporation. In the event Employee dies while employed by the Corporation, any benefits payable under this Appendix A shall be determined in accordance with Section 6.

6. DEATH WHILE EMPLOYED BY THE CORPORATION.

6.1. General. In the event Employee dies while employed by the Corporation the death benefit payable under this Appendix A shall be as follows:

(a) if Employee is married on his date of death, 50% of the lump sum that is Actuarially Equivalent to the Normal Retirement Benefit determined under Section 5.1(a) of this Appendix A, such lump sum benefit to be determined as if Employee Retired on his date of death after reaching Normal Retirement Age; or

(b) if Employee is not married on his date of death, 50% of the lump sum that is Actuarially Equivalent to the Normal Retirement Benefit determined under Section 5.1(b) of this Appendix A, such lump sum benefit to be determined as if Employee Retired on his date of death after reaching Normal Retirement Age.

The death benefit shall be payable in a lump sum as soon as administratively practicable following Employee's date of death.

6.2. Payee. This death benefit shall be payable to Employee's (a) surviving spouse if Employee is married on his date of death, or (b) Beneficiary if Employee is not married on his date of death. "Surviving spouse" for purposes of this Section 6.2 means the spouse to whom Employee is married on his date of death.

7. EFFECT OF A CHANGE IN CONTROL OF THE CORPORATION. Anything in this Appendix A to the contrary notwithstanding, this Section 7 shall apply in the event of a Change in Control. If, within three years after the date of a Change in Control Employee's employment with the Corporation is involuntarily terminated by the Corporation for any reason (other than Cause), or Employee voluntarily terminates employment with the Corporation for Good Reason, and employee is not otherwise eligible for Retirement, then Employee shall be deemed to have Retired with a fully vested Normal Retirement Benefit on the date of such termination of employment. Employee's Normal Retirement Benefit shall be determined as of such deemed Retirement Date, and shall be payable in a lump sum, calculated pursuant to Sections 5.1 and 5.3, as soon as administratively practicable following such deemed Retirement Date.

Solely for purposes of this Section 7, "Good Reason" shall mean termination of Employee's employment by Employee within 90 days following (i) a material diminution in Employee's positions, duties and responsibilities from those described in this Employment Agreement (ii) a reduction in Employee's Base Salary (other than a reduction which is part of a general salary reduction program affecting senior executives of the Corporation) (iii) a material reduction in the aggregate value of the pension and welfare benefits provided to Employee from those in effect prior to the Change in Control (other than a reduction which is proportionate to the reductions applicable to other senior executives pursuant to a cost-saving plan that includes all senior executives), (iv) a material breach of any provision of this Employment Agreement by the Corporation, (v) the Corporation's requiring Employee to be based at a location that creates for Employee a one way commute in excess of 60 miles from his primary residence, except for required travel on the Corporation's business to an extent substantially consistent with the business travel obligations of Employee under this Employment Agreement. Notwithstanding the foregoing, a termination shall not be treated as a termination for Good Reason (i) if Employee shall have consented in writing to the occurrence of the event giving rise to the claim of termination for Good Reason or (ii) unless Employee shall have delivered a written notice to the Corporation within 30 days of his having actual knowledge of the occurrence of one of such events stating that he intends to terminate his employment for Good Reason and specifying the factual basis for such termination, and such event, if capable of being cured, shall not have been cured within 30 days of the receipt of such notice.

8. EFFECT OF TERMINATION OF EMPLOYMENT AND REHIRE. Upon Employee's termination of employment with the Corporation the benefit payable under this Appendix A, if any, shall be determined by the Corporation and such determination shall be conclusive and binding (subject to Section 14). If Employee is subsequently reemployed by the Corporation such reemployment, additional service, and additional compensation shall not result in a re-determination of the benefits due under this Appendix A. If, upon reemployment, Employee is receiving installment payments pursuant to Section 5 those payments shall not be suspended during any period of reemployment.

9. ADMINISTRATION.

9.1. Powers of the Corporation: The Board of Directors of the Corporation (the "Board") shall have the sole authority to act on behalf of the Corporation under this Appendix A (subject to Section 9.3), and shall have all the powers necessary to administer the benefits under this Appendix A, including, without limitation, the power to interpret the provisions of this Appendix A and to establish rules and prescribe any forms required to administer benefits under this Appendix A

9.2. Actions of the Board: All determinations, interpretations, rules, and decisions of the Board shall be conclusive and binding upon all persons having or claiming to have any interest or right under this Appendix A.

9.3. Delegation: The Board shall have the power to delegate specific duties and responsibilities to officers or other employees of the Corporation or other individuals or entities. Any delegation by the Board may allow further delegations by the individual or entity to whom the delegation is made. Any delegation may be rescinded by the Board at any time. Each person or entity to whom a duty or responsibility has been delegated shall be responsible for the exercise of such duty or responsibility and shall not be responsible for any act or failure to act of any other person or entity.

9.4. Reports and Records: The Board and those to whom the Board has delegated duties under Section 9.3 shall keep records of all their proceedings and actions and shall maintain books of account, records, and other data as shall be necessary for the proper administration of this Appendix A and for compliance with applicable law.

9.5. Costs: The costs of providing and administering the benefits under this Appendix A shall be borne by the Corporation.

10. UNFUNDED BENEFITS; ESTABLISHMENT OF TRUST.

10.1. Unfunded Status. This Appendix A shall be unfunded for tax purposes and for purposes of Title 1 of ERISA.

10.2. Establishment of Trust. The Corporation shall not be required to set aside any funds to discharge its obligations hereunder, but may set aside such funds to informally fund all or part of its obligations hereunder if it chooses to do so, including without limitation the contribution of assets to a "rabbi trust" (the Trust). Any setting aside of amounts, or acquisition of any insurance policy or any other asset, by the Corporation with which to discharge its obligations hereunder in trust or otherwise, shall not be deemed to create any beneficial ownership interest in Employee, his surviving spouse, or Beneficiary, and legal and equitable title to any funds so set aside shall remain in the Corporation, and any recipient of benefits hereunder shall have no security or other interest in such funds. The rights of Employee and his surviving spouse and Beneficiary(ies) under this Appendix A shall be no greater than the rights of a general unsecured creditor of the Corporation. Any and all funds so set aside by the Corporation shall remain the general assets of the Corporation, and subject to the claims of its general creditors, present and future.

10.3. Interrelationship of this Appendix A and the Trust. The provisions of this Appendix A shall govern the rights of Employee to receive distributions pursuant to the provisions of this Appendix A. The provisions of the Trust shall govern the rights of the Corporation, Employee, and creditors of the Corporation to the assets transferred to the Trust. The Corporation shall at all times remain liable to carry out its obligations under this Appendix A.

10.4. Distributions from the Trust. The Corporation's obligations under this Appendix A may be satisfied with Trust assets distributed pursuant to the terms of the Trust, and any such distribution shall reduce the Corporation's obligation under this Appendix A.

11. PAYMENT OF BENEFIT FOR DISABLED OR INCAPACITATED PERSON. If the Corporation determines, in its discretion, that Employee or Employee's Beneficiary or surviving spouse is under a legal disability or is incapacitated in any way so as to be unable to manage his financial affairs, the Corporation shall make payment to such person or to his legal representative or to a friend or relative of such person as the Corporation considers advisable. Any payment under this Section 11 shall be a complete discharge of any liability for the making of such payment under this Appendix A. Nothing contained in this Section 11 however, should be deemed to impose upon the Corporation any liability for paying a benefit to any person who is under such a legal disability or is so incapacitated unless it has received notice of such disability or incapacity from a competent source.

12. NONASSIGNABILITY. Neither Employee nor any other person shall have any right to commute, sell, assign, transfer, pledge, anticipate, mortgage or otherwise encumber, transfer, hypothecate, alienate or convey in advance of actual receipt, the amounts, if any, payable hereunder, or any part thereof, which are, and all rights to which are expressly declared to be, unassignable and non-transferable. No part of the amounts payable shall, prior to actual payment, be subject to seizure, attachment, garnishment or sequestration for the payment of any debts, judgments, alimony or separate maintenance owed by Employee or any other person, be transferable by operation of law in the event of Employee's or any other person's bankruptcy or insolvency or be transferable to a spouse as a result of a property settlement or otherwise. The Corporation is authorized to make any payments directed by court order.

13. CLAIM PROCEDURE.

13.1. Presentation of Claim. Employee, or the surviving spouse of Employee after Employee's death, or Employee's Beneficiary (such Employee, surviving spouse, or Beneficiary being referred to below as a "Claimant") may deliver to the Corporation a written claim for a determination with respect to the amounts distributable to such Claimant under this Appendix A. If such a claim relates to the contents of a notice received by the Claimant, the claim must be made within sixty (60) days after such notice was received by the Claimant.

All other claims must be made within 180 days of the date on which the event that caused the claim to arise occurred. The claim must state with particularity the determination desired by the Claimant.

13.2. Notification of Decision. The Corporation shall consider a Claimant's claim within a reasonable time, but no later than ninety (90) days after receiving the claim. If the Corporation determines that special circumstances require an extension of time for processing the claim, written notice of the extension shall be furnished to the Claimant prior to the termination of the initial ninety (90) day period. In no event shall such extension exceed a period of ninety (90) days from the end of the initial period. The extension notice shall indicate the special circumstances requiring an extension of time and the date by which the Corporation expects to render the benefit determination. The Corporation shall notify the Claimant in writing:

(a) that the Claimant's requested determination has been made, and that the claim has been allowed in full; or

(b) that the Corporation has reached a conclusion contrary, in whole or in part, to the Claimant's requested determination, and such notice must set forth in a manner calculated to be understood by the Claimant:

(i) the specific reason(s) for the denial of the claim, or any part of it;

(ii) specific reference(s) to pertinent provisions of this Appendix A upon which such denial was based;

(iii) a description of any additional material or information necessary for the Claimant to perfect the claim, and an explanation of why such material or information is necessary;

(iv) an explanation of the claim review procedure set forth in Section 13.3 below; and

(v) a statement of the Claimant's right to bring a civil action under ERISA Section 502(a) following an adverse benefit determination on review.

13.3. Review of a Denied Claim. On or before sixty (60) days after receiving a notice from the Corporation that a claim has been denied, in whole or in part, a Claimant (or the Claimant's duly authorized representative) may file with the Corporation a written request for a review of the denial of the claim. The Claimant (or the Claimant's duly authorized representative):

(a) may, upon request and free of charge, have reasonable access to, and copies of, all documents, records and other information relevant to the claim for benefits;

(b) may submit written comments or other documents; and/or

(c) may request a hearing, which the Corporation, in its sole discretion, may grant.

13.4. Decision on Review. The Corporation shall render its decision on review promptly, and no later than sixty (60) days after the Corporation receives the Claimant's written request for a review of the denial of the claim. If the Corporation determines that special circumstances require an extension of time for processing the claim, written notice of the extension shall be furnished to the Claimant prior to the termination of the initial sixty (60) day period. In no event shall such extension exceed a period of sixty (60) days from the end of the initial period. The extension notice shall indicate the special circumstances requiring an extension of time and the date by which the Corporation expects to render the benefit determination. In rendering its decision, the Corporation shall take into account all comments, documents, records and other information submitted by the Claimant relating to the claim, without regard to whether such information was submitted or considered in the initial benefit determination. The decision must be written in a manner calculated to be understood by the Claimant, and it must contain:

(a) specific reasons for the decision;

(b) specific reference(s) to the pertinent provisions of this Appendix A upon which the decision was based;

(c) a statement that the Claimant is entitled to receive, upon request and free of charge, reasonable access to and copies of, all documents, records and other information relevant (as defined in applicable ERISA regulations) to the Claimant's claim for benefits; and

(d) a statement of the Claimant's right to bring a civil action under ERISA Section 502(a).

13.5. LEGAL ACTION. A Claimant's compliance with the foregoing provisions of this Article 13 is a mandatory prerequisite to a Claimant's right to commence any legal action with respect to any claim for benefits under this Appendix A.

14. TAX WITHHOLDING AND REPORTING; SECTION 280G EXCISE TAXES.

(a) General. The Corporation shall have the right to deduct any required withholding taxes from any payment made under this Appendix A. Except as provided in Section 14(b), the Corporation shall not be obligated to pay or reimburse Employee, or his surviving spouse or Beneficiary, for any income or other taxes or penalties that may be imposed on such person by the Internal Revenue Service or any state or other taxing authority as a result of benefits paid under this Appendix A.

(b) Excise Tax Payment. In the event that any payment or benefit (within the meaning of Section 280G(b)(2) of the Internal Revenue Code of 1986, as amended (the "Code")), to Employee or for his benefit paid or payable or distributed or distributable pursuant to the terms of this Employment Agreement (including this Appendix A) or otherwise in connection with, or arising out of, his employment with the Corporation or a Change in Control of the Corporation (a "Payment" or "Payments"), would be subject to the excise tax imposed by Section 4999 of the Code or any interest or penalties are incurred by the Employee with respect to such excise tax (such excise tax, together with any such interest and penalties, are hereinafter collectively referred to as the "Excise Tax"), then Employee will be entitled to immediately receive an additional payment (a "Gross-Up Payment") in an amount such that after payment by Employee of all taxes (including any interest or penalties, other than interest and penalties imposed by reason of Employee's failure to file timely a tax return or pay taxes shown due on his return, imposed with respect to such taxes and the Excise Tax), including any Excise Tax imposed upon the Gross-Up Payment, Employee retains an amount of the Gross-Up Payment equal to the Excise Tax imposed upon the Payments.

15. SUCCESSORS. The provisions of this Appendix A shall bind and inure to the benefit of the Corporation and its successors and assigns and Employee and Employee's surviving spouse and designated beneficiaries.

16. AMENDMENT. This Appendix A may be amended only by written agreement between Employee and the Corporation.

17. LEGEND

> The securities represented by this supplemental retirement benefit have not been registered under the Securities Act of 1933, as amended, and may not be sold, transferred or otherwise disposed of in the absence of an effective registration

statement under such Act or an opinion of counsel satisfactory to the corporation to the effect that such registration is not required.

Exhibit 10.27

Summary of 2008 Compensatory Arrangements with Executive Officers

Executive Officer	**Annual Salary**
Leo Berlinghieri, Chief Executive Officer and President	$485,000
Gerald G. Colella, Vice President, Chief Business Officer and Acting Group VP, PRG Products	$350,000
John T.C. Lee, Group VP CIT and Ion Systems Products	$265,000
John A. Smith, Vice President and Chief Technology Officer	$285,000
William D. Stewart, Vice President & General Manager, Vacuum Products Group	$260,000
Ronald C. Weigner, Vice President and Chief Financial Officer	$263,000

THIRD AMENDMENT DATED JULY 31, 2007
TO
OPTIONAL ADVANCE DEMAND GRID NOTE

This Third Amendment dated as of July 31, 2007 amends the Optional Advance Demand Grid Note dated August 3, 2004, made by MKS Instruments, Inc. and MKS Japan, Inc. in favor of HSBC Bank USA, National Association, as amended by the First Amendment, dated July 29, 2005 and the Second Amendment, dated July 31, 2006 (the "Note"). Terms defined in the Note shall have the same meanings in this Amendment.

1. The date of "July 31, 2007", wherever it appears in the Note, is hereby deleted and replaced with: "July 31, 2008". After July 31, 2008, the termination date of "July 31, 2008" (and any subsequent termination date), wherever it appears in the note, shall be deleted and replaced by such later date as may be agreed to in writing by the Bank and the Borrower as the new termination date of the Note.

2. The definition of **Adjusted LIBOR Rate** is changed to**:** the LIBOR Rate plus .75%

3. Eliminate requirement "(iii) management prepared financial forecasts for each fiscal year" as noted on page 4 of the Optional Advance Demand Grid Note.

4. Except as amended hereby, the Note remains unchanged and in full force and effect.

MKS INSTRUMENTS, INC.

By: /s/ Joseph M. Tocci
Name: Joseph M. Tocci
Title: Treasurer

MKS JAPAN, INC.

By: /s/ Ronald C. Weigner
Name: Ronald Weigner
Director

HSBC BANK USA, NATIONAL ASSOCIATION

By: /s/ Elise M. Russo
Name: Elise M. Russo
Title: FVP

EXHIBIT 21.1

SUBSIDIARIES OF THE REGISTRANT

SUBSIDIARY	JURISDICTION OF INCORPORATION
MKS Instruments France S.A.S.	France
MKS Instruments U.K. Limited	United Kingdom
MKS Japan, Inc.	Japan
MKS Korea Co., Ltd.	Korea
ASTeX GmbH	Germany
Telvac Engineering Limited	United Kingdom
Spectra Sensortech, Ltd.	United Kingdom
MKS MSC, Inc.	Massachusetts
MKS (Bermuda) Ltd.	Bermuda
MKS Luxembourg S.A.R.L.	Luxembourg
MKS Germany Holding GmbH	Germany
MKS Instruments Deutschland GmbH	Germany
MKS Instruments (Asia) Ltd.	Bermuda
MKS Instruments (Hong Kong) Ltd.	Hong Kong
MKS Instruments (China) Company Ltd.	China
MKS Taiwan Technology Ltd.	Taiwan
MKS Tenta Products Ltd.	Israel
MKS Denmark APS	Denmark
MKS Tega Ltd.	Israel
MKS Instruments (Shanghai) Ltd	Shanghai
Ion Systems, Inc.	California
MKS Umetrics AB	Sweden
Umetrics (UK) Ltd.	UK
Umetrics, Inc.	New Jersey
Tantec, Inc.	Illinois
Yield Dynamics, Inc	California
MKS Technology Limited	United Kingdom
Tianjin Yield Co, Ltd.	China

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (No. 333-78069, 333-78071, 333-78073, 333-31224, 333-54486, 333-54488, 333-54490, 333-90498, 333-90500, 333-90502, 333-116385, 333-116387, 333-116389, and 333-127221) and Form S-3 (No. 333-34450 and 333-109753) of MKS Instruments, Inc. of our report dated February 28, 2008 relating to the financial statements, financial statement schedule and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts
February 28, 2008

EXHIBIT 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, Leo Berlinghieri, certify that:

1. I have reviewed this annual report on Form 10-K of MKS Instruments, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15(d)-15(f)) for the registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;

    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any changes in the registrant's internal control over financial reporting that occurred during the registrant's fourth fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control and financial reporting.

Dated: February 28, 2008

/s/ Leo Berlinghieri
Leo Berlinghieri
Chief Executive Officer and President
(Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, Ronald C. Weigner, certify that:

1. I have reviewed this annual report on Form 10-K of MKS Instruments, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15(d)-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any changes in the registrant's internal control over financial reporting that occurred during the registrant's fourth fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control and financial reporting.

Dated: February 28, 2008

/s/ Ronald C. Weigner
Ronald C. Weigner
Vice President and Chief Financial Officer
(Principal Financial Officer)

EXHIBIT 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER

PURSUANT TO 18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of MKS Instruments, Inc. (the “Company”) for the period ended December 31, 2007 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), the undersigned, Leo Berlinghieri, Chief Executive Officer and President of the Company, and Ronald C. Weigner, Vice President and Chief Financial Officer of the Company, each hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, based on his knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: February 28, 2008	/s/ Leo Berlinghieri Leo Berlinghieri Chief Executive Officer and President
Dated: February 28, 2008	/s/ Ronald C. Weigner Ronald C. Weigner Vice President and Chief Financial Officer