

TERADYNE, INC  
Form 10-K  
March 01, 2013  
[Table of Contents](#)

**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, 2012

OR

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

Commission file number 001-06462

**TERADYNE, INC.**

(Exact Name of Registrant as Specified in Its Charter)

**MASSACHUSETTS**  
(State or Other Jurisdiction of

Incorporation or Organization)

**04-2272148**  
(I.R.S. Employer

Identification Number)

**600 RIVERPARK DRIVE**

**01864**

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**NORTH READING, MASSACHUSETTS**

(Address of Principal Executive Offices)

(Zip Code)

**Registrant's telephone number, including area code: (978) 370-2700**

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

<b>Title of Each Class</b>	<b>Name of Each Exchange on Which Registered</b>
Common Stock, par value \$0.125 per share	New York Stock Exchange

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

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

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities 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 ☐

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (229.405) is not contained herein, and will not be contained to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or in any amendment to this Form 10-K. ☒

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

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐

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

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 29, 2012 was approximately \$2.3 billion based upon the closing price of the registrant's Common Stock on the New York Stock Exchange on that date.

The number of shares outstanding of the registrant's only class of Common Stock as of February 22, 2013 was 190,315,020 shares.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant's proxy statement in connection with its 2013 annual meeting of shareholders are incorporated by reference into Part III.

**Table of Contents**

**TERADYNE, INC.**

**FORM 10-K**

**PART I**

**Item 1: Business**

Teradyne, Inc. (the Company or Teradyne) was founded in 1960 and is a leading global supplier of automatic test equipment.

We design, develop, manufacture and sell automatic test systems and solutions used to test semiconductors, wireless products, hard disk drives and circuit boards in the consumer electronics, wireless, automotive, industrial, computing, communications and aerospace and defense industries. Our automatic test equipment products and services include:

semiconductor test ( Semiconductor Test ) systems;

wireless test ( Wireless Test ) systems; and

military/aerospace ( Mil/Aero ) test instrumentation and systems, storage test ( Storage Test ) systems, and circuit-board test and inspection ( Commercial Board Test ) systems (collectively these products represent Systems Test Group ).

We have a broad customer base which includes integrated device manufacturers ( IDMs ), outsourced semiconductor assembly and test providers ( OSATs ), wafer foundries, fabless companies that design, but contract with others for the manufacture of integrated circuits ( ICs ), developers of wireless devices and consumer electronics, manufacturers of circuit boards, automotive suppliers, wireless product manufacturers, storage device manufacturers, aerospace and military contractors.

In 2011, we acquired LitePoint Corporation ( LitePoint ) to expand our product portfolio of test equipment in the wireless test sector. LitePoint designs, develops, and supports advanced wireless test solutions for the development and manufacturing of wireless devices, including smart phones, tablets, notebooks, laptops, personal computer peripherals, and other Wi-Fi and cellular enabled devices. LitePoint is our Wireless Test segment.

In 2009, we entered the High Speed dynamic random access memory ( DRAM ) testing market with our UltraFlex-M product. High speed DRAM memory devices are used for data storage and high-end graphics applications in personal computer and gaming consoles.

In 2009, we also entered the market for hard disk drive test systems with our Neptune product. The Neptune product line currently is used to test 2.5 inch hard disk drives for laptops, notebooks and consumer electronic storage devices. In 2013, we intend to enter the test market for 3.5 inch hard disk drives which are used in cloud computing and other applications.

In 2008, we acquired Nextest Systems Corporation ( Nextest ) and Eagle Test Systems, Inc. ( Eagle Test ) to expand our product portfolio of automatic test equipment for the semiconductor industry. Nextest develops systems to test integrated circuits such as microcontrollers, image sensors, smart cards and field programmable logic devices for the flash memory, flash card and flash memory based system-on-a-chip ( SOC ) markets. Eagle Test develops systems to test analog, mixed-signal and radio frequency semiconductors used in digital cameras, MP3 players, cellular telephones, video/multimedia products, automotive electronics and notebook and desktop computers. Nextest and Eagle Test are included within our Semiconductor Test segment.

**Investor Information**

We are a Massachusetts corporation incorporated on September 23, 1960. We are subject to the informational requirements of the Securities Exchange Act of 1934 ( Exchange Act ). We file periodic reports, proxy statements and other information with the Securities and Exchange Commission ( SEC ). Such reports,



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## **Table of Contents**

proxy statements and other information may be obtained by visiting the Public Reference Room of the SEC at 100 F Street, N.E., Washington, DC 20549 or by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an internet site (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding issuers that file documents electronically.

You can access financial and other information, including the charters of our Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee, our Corporate Governance Guidelines and Code of Conduct, by clicking the Investors link on our web site at [www.teradyne.com](http://www.teradyne.com). We make available, free of charge, copies of our filings with the SEC, including our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act through our web site as soon as reasonably practicable after filing such material electronically or otherwise furnishing it to the SEC.

## **Products**

### ***Semiconductor Test***

We design, manufacture, sell and support Semiconductor Test products and services on a worldwide basis. The test systems we provide are used both for wafer level and device package testing. These chips are used in automotive, industrial, communications, consumer, computer and electronic game applications, among others. Semiconductor devices span a broad range of functionality, from very simple low-cost devices such as appliance microcontrollers, operational amplifiers or voltage regulators to complex digital signal processors, microprocessors, high-density as well as high speed memory devices. Semiconductor Test products and services are sold to IDMs that integrate the fabrication of silicon wafers into their business, Fabless companies that outsource the manufacturing of silicon wafers, Foundries that cater to the processing and manufacturing of silicon wafers, and OSATs that provide test and assembly services for the final packaged devices to both Fabless companies and IDMs. Fabless companies perform the design of integrated circuits without manufacturing capabilities, and use Foundries for wafer manufacturing and OSATs for test and assembly. These customers obtain the overall benefit of comprehensively testing devices and reducing the total costs associated with testing by using our Semiconductor Test systems to:

improve and control product quality;

measure and improve product performance;

reduce time to market; and

increase production yields.

Our FLEX Test Platform architecture advances our core technologies to produce test equipment that is designed for high efficiency multi-site testing. Multi-site testing involves the simultaneous testing of many devices and functions in parallel. Leading semiconductor manufacturers are using multi-site testing to significantly improve their Cost of Test economics. The FLEX Test Platform architecture addresses customer requirements through the following key capabilities:

- 1) A high efficiency multi-site architecture that eliminates tester overhead such as instrument setup, synchronization and data movement, and signal processing;
- 2) The IG-XL software operating system which provides fast program development, including instant conversion from single to multi-site test; and
- 3) Broad technology coverage by instruments designed to cover the range of test parameters, coupled with a universal slot test head design that allows easy test system reconfiguration to address changing test needs.

FLEX Test Platform purchases are being made by IDMs, OSATs, Foundries and Fabless customers. The FLEX Test Platform has become a widely used test solution at OSATs and test houses by providing versatile testers that can handle the widest range of devices, allowing OSATs to leverage their capital investments. The



## **Table of Contents**

broad consumer, automotive and broadband markets have historically driven most of the device volume growth in the semiconductor industry. These markets include smart phones, cell phones, tablets, set top boxes, HDTVs, game controllers, computer graphics, and automotive controllers to name a few. These end use markets continue to be drivers for the FLEX Test Platform family of products because they require a wide range of technologies and instrument coverage. The FLEX Test Platform has an installed base of more than 3,500 systems to date and it continues to grow. The introduction of the UltraFLEX-M tester in 2009 extended the FLEX Test Platform into the High Speed DRAM testing market.

Our J750 test system shares the IG-XL software environment with the family of FLEX Test Platform systems. The J750 is designed to address the highest volume semiconductor devices such as microcontrollers that are central to the functionality of almost every consumer electronics product, from small appliances to automotive engine controllers. J750 test systems combine compact packaging, high throughput and ease of production test. We extended the J750 platform technology to create the IP750 Image Sensor test system. The IP750 is focused on testing image sensor devices used in digital cameras and other imaging products. We continue to invest in the J750 platform with new instrument releases that bring new capabilities to existing market segments and expand the J750 platform to new devices that include high end microcontrollers and the latest generation of cameras. The J750 platform has an installed base of over 3,900 systems and it continues to grow.

Our acquisition of Nextest in January of 2008 expanded our product offerings to include the Magnum test platform. The Magnum products address the requirements of mass production test of memory devices such as flash memory and DRAM. Flash and DRAM memory are widely used core building blocks in modern electronic products finding wide application in consumer, industrial, and computing equipment. Magnum II is the newest member of the family. With test rates up to 800 megabits per second and a versatile architecture designed for maximal throughput, Magnum II tests flash and DRAM devices, an important advantage for large memory producers that manufacture both types of memory. The Magnum platform has an installed base of over 1,300 systems and it continues to grow.

Our acquisition of Eagle Test in November of 2008 expanded our product offerings to include the ETS platform. The ETS platform is used by semiconductor manufacturers and assembly and test subcontractors, primarily in the low pin count analog/mixed signal discrete markets that cover more cost sensitive applications. Eagle Test's proprietary SmartPin technology enables multiple semiconductor devices to be tested simultaneously, or in parallel, on an individual test system, permitting greater test throughput. Semiconductors tested by Eagle Test's systems are incorporated into a wide range of products in historically high-growth markets, including digital cameras, MP3 players, cell phones, video/multimedia products, automotive electronics, computer peripherals, and notebook and desktop computers. The ETS platform has an installed base of over 2,900 systems and it continues to grow.

### ***Wireless Test***

Our acquisition of LitePoint in October of 2011 expanded our product offerings in the wireless test industry. LitePoint designs, develops, and supports advanced wireless test solutions for the development and manufacturing of wireless devices, including smart phones, tablets, notebooks/laptops, personal computer peripherals, and other Wi-Fi and cellular enabled devices. LitePoint collaborates with developers, component manufacturers, and industry leaders to create agile systems capable of analyzing the entire wireless landscape. Using easy-to-deploy, innovative test methodologies running on software-controlled module design, LitePoint's IQ product line is designed for high-volume, low-cost product test. LitePoint's products fall into two categories: cellular and connectivity.

### ***Cellular***

The LitePoint IQxstream is an optimized solution for high-speed testing of GSM, EDGE, W-CDMA, HSPA+, cdma2000, and LTE technologies used for calibration and verification of smartphones, tablets, and embedded cellular modules. As the industry's first multi-DUT test solution, it greatly increases production

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## **Table of Contents**

output through the implementation of parallel test methods of multiple devices. IQxstream is complemented by LitePoint's IQvector solution, a turnkey production-optimized testing package that supports the leading cellular chipset solutions, and allows manufacturers to ramp volume production in a matter of weeks, rather than months.

### ***Connectivity***

LitePoint offers a comprehensive range of hardware and software solutions for connectivity testing. The IQxel, IQxel80, and new IQxel160 enable testing of the latest Wi-Fi standard 802.11ac taking wireless data rates beyond the gigabit per second barrier. The IQxel supports multiple bandwidths and channel configurations, MIMO antenna arrangements, Bluetooth 1.0-4.0, as well as legacy 802.11 a/b/g/n/p modes. It is targeted at manufacturers of networking equipment, Internet access devices, and embedded modules used in smartphones, tablets, and PCs. The LitePoint IQ2015 is a one-box solution for multi-connectivity needs, including Wi-Fi (a/b/g/n), Bluetooth (1.0-4.0), GPS/GLONASS, FM, WiMAX and ZigBee. It is a preferred choice by manufacturers of smartphones and tablets. LitePoint continues to deliver and support its legacy products, including IQflex, IQnxn, IQ2010, IQnav, and IQview.

LitePoint IQfactPlus is a turnkey, chipset specific solution, enabling rapid volume manufacturing with a minimum of engineering effort. IQfact solution can be customized for a specific end product and then deployed on LitePoint test equipment.

### ***Systems Test Group***

Our Systems Test Group segment is comprised of three business units: Mil/Aero, Storage Test and Commercial Board Test.

#### ***Mil/Aero***

We are a leading provider of high-performance test systems, subsystems, instruments, software solutions and service for the defense and aerospace markets. Our solutions are used to ensure the readiness of military and commercial aerospace electronics systems. New programs, such as tactical aircraft and missile systems, as well as upgrade programs, continue to fuel the demand for high performance test systems in this market. Our solutions are well-suited to the demands of defense/aerospace electronics manufacturers and repair depots worldwide. Our leadership in this market is underscored by our success with major Department of Defense programs across all U.S. military service branches and many allied defense services worldwide.

#### ***Storage Test***

The Storage Test business unit addresses the high throughput, automated manufacturing test requirement of hard disk drive (HDD) manufacturers. Our products address the 2.5 inch HDD market that is driven by the needs of laptop, ultrabook, and enterprise storage products. We are a leading supplier of test equipment to this market as illustrated by our success at each of the HDD manufacturers. Our Neptune tester is a leader in addressing customer requirements related to factory density, thermal performance and vibration isolation. In 2013, we intend to enter the test market for 3.5 inch hard disk drives which are used in cloud computing and other applications.

#### ***Commercial Board Test***

Our test and inspection systems are used by electronics manufacturers worldwide. Our products verify that printed circuit boards are assembled correctly and operational. Fast, accurate and cost-effective test capabilities are hallmark features of our In-Circuit-Test (ICT) systems, including the TestStation and Spectrum product families. We offer a full range of ICT equipment, including handler-ready, in-line test systems for high volume automated board manufacturing, standalone offline systems and combined ICT/functional test solutions.



**Table of Contents*****Discontinued Operations***

On March 21, 2011, our Diagnostic Solutions business unit was sold to SPX Corporation for \$40.2 million in cash. This business provided electronic test and diagnostic systems to the automotive OEMs and their major subcontractors. This business unit was in our Systems Test Group segment. Diagnostic Solutions has been reflected as discontinued operations in the accompanying financial statements.

***Summary of Net Revenues by Reportable Segment***

Our three reportable segments accounted for the following percentages of consolidated net revenues for each of the last three years:

	2012	2011	2010
Semiconductor Test	68%	77%	90%
Wireless Test	17	2	
Systems Test Group	15	21	10
	100%	100%	100%

**Sales and Distribution**

In 2012, revenues from Apple Inc. accounted for 10% of our consolidated net revenues. Apple Inc. is a customer of our Wireless Test segment. In 2011 and 2010, no single customer accounted for 10% or more of our consolidated net revenues. In each of the years 2012, 2011 and 2010, our three largest customers in aggregate accounted for 29%, 19% and 21% of our consolidated net revenues, respectively.

Direct sales to United States government agencies accounted for 2%, 2% and 1% of our consolidated net revenues in 2012, 2011 and 2010, respectively. Approximately 15%, 8% and 8% of Systems Test Group's revenues in 2012, 2011 and 2010, respectively, were to United States government agencies and 20%, 17% and 35% of Systems Test Group's revenues in 2012, 2011 and 2010, respectively, were to government contractor customers.

We have sales and service offices located throughout North America, Asia and Europe, as our customers outside the United States are located primarily in these geographic areas. We sell in these areas predominantly through a direct sales force. Our manufacturing activities are primarily conducted through subcontractors and outsourced contract manufacturers with a significant operation concentrated in China.

Sales to customers outside the United States were 86%, 84% and 85% of our consolidated net revenues in 2012, 2011 and 2010, respectively. Sales are attributed to geographic areas based on the location of the customer site.

Sales to customers outside of the United States that accounted for 10% or more of our consolidated net revenues in any of the previous three years were as follows:

	2012	2011	2010
China	21%	13%	9%
Taiwan	18	12	18
Korea	14	10	8
Japan	6	10	5
Philippines	6	9	12
Malaysia	4	10	13

**Table of Contents**

See also Item 1A: Risk Factors and Note S: Operating Segment, Geographic and Significant Customer Information in Notes to Consolidated Financial Statements.

**Competition**

We face significant competition throughout the world in each of our reportable segments. Competitors in the Semiconductor Test segment include, among others, Advantest Corporation and LTX Credence Corporation. Competitors in the Systems Test Group include, among others, Agilent Technologies, Inc. and Xyratex Ltd. Competitors in our Wireless Test segment include, among others, Agilent Technologies, Inc., Aeroflex, Inc., Anritsu Company, National Instruments Corporation and Rohde & Schwarz GmbH & Co. KG.

Some of our competitors have substantially greater financial and other resources to pursue engineering, manufacturing, marketing and distribution of their products. In particular, our largest competitor in the Semiconductor Test segment spends considerably more than us on research and development which may provide it with a competitive advantage. We also face competition from emerging Asian equipment companies and from internal suppliers at several of our customers. Some of our competitors have introduced or announced new products with certain performance characteristics which may be considered equal or superior to those we currently offer. We expect our competitors to continue to improve the performance of their current products and to introduce new products or new technologies that provide improved cost of ownership and performance characteristics. See also Item 1A: Risk Factors.

**Backlog**

At December 31, 2012 and 2011, our backlog of unfilled orders in our three reportable segments was as follows:

	2012	2011
	(in millions)	
Semiconductor Test	\$ 204.2	\$ 274.8
Wireless Test	29.8	4.4
Systems Test Group	120.0	175.3
	\$ 354.0	\$ 454.5

Of the backlog at December 31, 2012, approximately 98% of the Semiconductor Test backlog, 85% of Systems Test Group backlog, and 48% of Wireless Test backlog, is expected to be delivered in 2013.

Customers may delay delivery of products or cancel orders suddenly and without significant notice, subject to possible cancellation penalties. Due to possible customer changes in delivery schedules and cancellation of orders, our backlog at any particular date is not necessarily indicative of the actual sales for any succeeding period. Delays in delivery schedules or cancellations of backlog during any particular period could have a material adverse effect on our business, financial condition or results of operations.

**Raw Materials**

Our products contain electronic and mechanical components that are provided by a wide range of suppliers. Some of these components are standard products, while others are manufactured to our specifications. We can experience occasional delays in obtaining timely delivery of certain items. While the majority of our components are available from multiple suppliers, certain items are obtained from sole sources. We may experience a temporary adverse impact if any of our sole source suppliers delay or cease to deliver products.

## **Table of Contents**

### **Intellectual Property and Licenses**

The development of our products, both hardware and software, is based in significant part on proprietary information, our brands and technology. We protect our rights in proprietary information, brands and technology through various methods, such as:

patents;

copyrights;

trademarks;

trade secrets;

standards of business conduct and related business practices; and

technology license agreements, software license agreements, non-disclosure agreements, employment agreements, and other agreements.

However, these protections might not be effective in all circumstances. Competitors might independently develop similar technology or exploit our proprietary information and our brands in countries where we lack enforceable intellectual property rights or where enforcement of such rights through the legal system provides an insufficient deterrent. Also, intellectual property protections can lapse or be invalidated through appropriate legal processes. We do not believe that any single piece of intellectual property or proprietary rights is essential to our business.

### **Employees**

As of December 31, 2012, we employed approximately 3,600 people. Since the inception of our business, we have experienced no work stoppages or other labor disturbances. We have no collective bargaining contracts.

### **Engineering and Development Activities**

The highly technical nature of our products requires a large and continuing engineering and development effort. Engineering and development expenditures for the years ended December 31, 2012, 2011 and 2010 were \$251.4 million, \$197.8 million, and \$191.9 million, respectively. These expenditures accounted for approximately 15%, 14%, and 12% of our consolidated net revenues in 2012, 2011, and 2010, respectively.

### **Environmental Affairs**

We are subject to various federal, state, and local government laws and regulations relating to the protection of employee health and safety and the environment. We accrue for all known environmental liabilities when it becomes probable that we will incur cleanup costs and those costs can reasonably be estimated. Estimated environmental costs are not expected to materially affect the financial position or results of our operations in future periods. However, estimates of future costs are subject to change due to protracted cleanup periods and changing environmental remediation laws and regulations.

**Table of Contents****OUR EXECUTIVE OFFICERS**

Pursuant to General Instruction G(3) of Form 10-K, the following table is included in Part I of this Annual Report on Form 10-K in lieu of being included in the Proxy Statement for the Annual Meeting of Shareholders. The table sets forth the names of all of our executive officers and certain other information relating to their positions held with Teradyne and other business experience. Our executive officers do not have a specific term of office but rather serve at the discretion of the Board of Directors.

Executive Officer	Age	Position	Business Experience For The Past 5 Years
Michael A. Bradley	64	Chief Executive Officer	Chief Executive Officer since 2004; President of Teradyne from 2003 to January 2013; President of Semiconductor Test from 2001 to 2003.
Gregory R. Beecher	55	Vice President, Chief Financial Officer and Treasurer	Vice President and Chief Financial Officer of Teradyne since 2001; Treasurer of Teradyne from 2003 to 2005 and since 2006.
Charles J. Gray	51	Vice President, General Counsel and Secretary	Vice President, General Counsel and Secretary of Teradyne since April 2009; Vice President and General Counsel of Sonus Networks, Inc. from 2002 to 2008.
Mark E. Jagiela	52	President and President of Semiconductor Test	President of Teradyne since January 2013; President of Semiconductor Test since 2003; Vice President of Teradyne since 2001.
Walter G. Vahey	48	President of Systems Test Group	President of Systems Test Group since July 2012; Vice President of Teradyne since 2008; General Manager of Storage Test since 2008; General Manager of Mil/Aero from 2004 to July 2012.

**Item 1A: Risk Factors**  
**Risks Associated with Our Business**

The risks described below are not the only risks that we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.

***Our business is impacted by worldwide economic cycles, which are difficult to predict.***

Capital equipment providers in the electronics and semiconductor industries, such as Teradyne, have, in the past, been negatively impacted by sudden slowdowns in the global economies, and resulting reductions in customer capital investments. The duration and frequency of slowdowns in customer capital investments are difficult to predict.

The global economy and financial markets experienced disruption in 2009 and 2008, including, among other things, extreme volatility in security prices, severely diminished liquidity and credit availability, rating downgrades of certain investments and declining valuations of others. We are unable to predict the likely duration, frequency and severity of disruptions in financial markets, credit availability, and adverse economic conditions throughout the world. These economic developments affect businesses such as ours and those of our customers and vendors in a number of ways that could result in unfavorable consequences to us. Disruption or deterioration in economic conditions may reduce customer purchases of our products, thereby reducing our revenues and earnings. In addition, such adverse changes in economic conditions may, among other things, result in increased price competition for our products, increased risk of excess and obsolete inventories, increased risk

## **Table of Contents**

in the collectability of our accounts receivable, increased risk in potential reserves for doubtful accounts and write-offs of accounts receivable, and higher operating costs as a percentage of revenues.

We have taken actions to address the effects of economic variability, including implementing cost control and reduction measures. If our business has another downturn, we may need to take further cost control and reduction measures.

***Our business is dependent on the current and anticipated market for electronics, which historically has been highly cyclical.***

Our business and results of operations depend in significant part upon capital expenditures of manufacturers of semiconductors and other electronics, which in turn depend upon the current and anticipated market demand for those products. As evidenced by our 2009 and 2008 business and results of operations, the market demand for electronics is impacted by economic slowdowns. Historically, the electronics and semiconductor industry has been highly cyclical with recurring periods of over-supply, which often have had a severe negative effect on demand for test equipment, including systems we manufacture and market. We believe that the markets for newer generations of electronic products such as those that we manufacture and market will also be subject to similar fluctuations. We are dependent on the timing of orders from our customers, and the deferral or cancellation of previous customer orders could have an adverse effect on our results of operations. We cannot ensure that the level of revenues or new orders for a fiscal quarter will be sustained in subsequent quarters. In addition, any factor adversely affecting the electronics industry or particular segments within the electronics industry may adversely affect our business, financial condition or operating results.

***We are subject to intense competition.***

We face significant competition throughout the world in each of our reportable segments. Some of our competitors have substantial financial and other resources to pursue engineering, manufacturing, marketing and distribution of their products. In particular, our largest competitor in the Semiconductor Test segment spends considerably more than us on research and development which may provide it with a competitive advantage. We also face competition from emerging Asian equipment companies and internal development at several of our customers. Some of our competitors have introduced or announced new products with certain performance characteristics which may be considered equal or superior to those we currently offer. We expect our competitors to continue to improve the performance of their current products and to introduce new products or new technologies that provide improved cost of ownership and performance characteristics. New product introductions by competitors could cause a decline in revenues or loss of market acceptance of our products.

***The market for our products is concentrated, and our business depends, in part, on obtaining orders from a few significant customers.***

The market for our products is concentrated with a limited number of significant customers accounting for a substantial portion of the purchases of test equipment. In each of the years 2012, 2011 and 2010, our three largest customers in aggregate accounted for 29%, 19% and 21% of consolidated net revenues, respectively. In any one reporting period, a single customer or several customers may contribute even a larger percentage of our consolidated net revenues. In addition, our ability to increase sales will depend, in part, on our ability to obtain orders from current or new significant customers. The opportunities to obtain orders from these customers may be limited, which may impair our ability to grow revenues. We expect that sales of our products will continue to be concentrated with a limited number of significant customers for the foreseeable future. The loss of a significant 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 or results of operations.

## **Table of Contents**

### ***Our operating results are likely to fluctuate significantly.***

Our operating results are affected by a wide variety of factors that could materially adversely affect revenues or profitability. The following factors are expected to impact future operations:

a worldwide economic slowdown or disruption in the global financial markets;

competitive pressures on selling prices;

our ability to introduce, and the market acceptance of, new products;

changes in product revenues mix resulting from changes in customer demand;

the level of orders received which can be shipped in a quarter because of the tendency of customers to wait until late in a quarter to commit to purchase due to capital expenditure approvals and constraints occurring at the end of a quarter, or the hope of obtaining more favorable pricing from a competitor seeking the business;

engineering and development investments relating to new product introductions, and the expansion of manufacturing, outsourcing and engineering operations in Asia;

provisions for excess and obsolete inventory relating to the lack of demand for and the discontinuance of products;

impairment charges for certain long-lived and intangible assets and goodwill;

parallel or multi-site testing could lead to a decrease in the ultimate size of the market for our products; and

the ability of our suppliers and subcontractors to meet product quality or delivery requirements needed to satisfy customer orders for our products, especially if product demand continues to increase.

As a result of the foregoing and other factors, we have experienced and may continue to experience material fluctuations in future operating results on a quarterly or annual basis which could materially and adversely affect our business, financial condition, operating results or stock price.

### ***We are subject to risks of operating internationally.***

A significant portion of our total revenues is derived from customers outside the United States. Our international sales and operations are subject to significant risks and difficulties, including:

unexpected changes in legal and regulatory requirements affecting international markets;

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changes in tariffs and exchange rates;

social, political and economic instability, acts of terrorism and international conflicts;

difficulties in protecting intellectual property;

difficulties in accounts receivable collection;

cultural differences in the conduct of business;

difficulties in staffing and managing international operations; and

compliance with customs regulations.

In addition, an increasing portion of our products and the products we purchase from our suppliers are sourced or manufactured in foreign locations, including China, and a large portion of the devices our products test are fabricated and tested by foundries and subcontractors in Taiwan, Singapore, China and other parts of Asia. As a result, we are subject to a number of economic and other risks, particularly during times of political or financial instability in these regions. Disruption of manufacturing or supply sources in these international locations could materially adversely impact our ability to fill customer orders and potentially result in lost business.

## **Table of Contents**

*If we fail to develop new technologies to adapt to our customers' needs and if our customers fail to accept our new products, our revenues will be adversely affected.*

We believe that our technological position depends primarily on the technical competence and creative ability of our engineers. In a rapidly evolving market, such as ours, the development or acquisition of new technologies, commercialization of those technologies into products and market acceptance and customer demand for those products are critical to our success. Successful product development or acquisition, introduction and acceptance depend upon a number of factors, including:

new product selection;

ability to meet customer requirements;

development of competitive products by competitors;

timely and efficient completion of product design;

timely and efficient implementation of manufacturing and manufacturing processes;

timely remediation of product performance issues, if any, identified during testing;

assembly processes and product performance at customer locations;

differentiation of our products from our competitors' products;

management of customer expectations concerning product capabilities and product life cycles;

ability to attract and retain technical talent; and

innovation that does not infringe on the intellectual property rights of third parties.

*If our suppliers do not meet product or delivery requirements, we could have reduced revenues and earnings.*

Certain components, including semiconductor chips, may be in short supply from time to time because of high industry demand or the inability of some vendors to consistently meet our quality or delivery requirements. Approximately 30% of material purchases require some custom work where having multiple suppliers would be cost prohibitive. If any of our suppliers were to cancel contracts or commitments or fail to meet the quality or delivery requirements needed to satisfy customer orders for our products, we could lose time-sensitive customer orders, have significantly decreased revenues and earnings and be subject to contractual penalties, which would have a material adverse effect on our business, results of operations and financial condition. In addition, we rely on contract manufacturers for certain subsystems used in our products, and our ability to meet customer orders for those products depends upon the timeliness and quality of the work performed by these subcontractors, over whom we do not exercise any control.



## Edgar Filing: TERADYNE, INC - Form 10-K

To a certain extent, we are dependent upon the ability of our suppliers and contractors to help meet increased product or delivery requirements. It may be difficult for certain suppliers to meet delivery requirements in a period of rapid growth, therefore impacting our ability to meet our customers' demands.

We rely on the financial strength of our suppliers. There can be no assurance that the loss of suppliers either as a result of financial viability, bankruptcy or otherwise will not have a material adverse effect on our business, results of operations or financial condition.

***Our operations may be adversely impacted if our outsourced contract manufacturers or service providers fail to perform.***

We depend on Flextronics International Ltd. ( Flextronics ) to manufacture and test our FLEX and J750 family of products from its facility in China and on other contract manufacturers to manufacture other products. If for any reason these contract manufacturers cannot provide us with these products in a timely fashion, or at all, we may not be able to sell these products to our customers until we enter a similar arrangement with an alternative contract manufacturer. If we experience a problem with our supply of products from Flextronics or

## **Table of Contents**

our other contract manufacturers, it may take us significant time to either manufacture the product or find an alternate contract manufacturer, which could result in substantial expense and disruption to our business.

We have also outsourced a number of our general and administrative functions, including information technology, to reputable service providers, many of which are in foreign countries, sometimes impacting communication with them because of language and time differences. Their presence in foreign countries also increases the risk they could be exposed to political risk. Additionally, there may be difficulties encountered in coordinating the outsourced operations with existing functions and operations. If we fail in successfully coordinating and managing the outsourced service providers, it may cause an adverse effect on our operations which could have a material adverse effect on our business, results of operations or financial condition.

### ***We may not fully realize the benefits of our acquisitions or strategic alliances.***

We may acquire businesses, form strategic alliances or create joint ventures with third parties that we believe will complement or augment our existing businesses. We may not be able to realize the expected synergies and cost savings from the integration with our existing operations of other businesses or technologies that we may acquire. In addition, the integration process for our acquisitions may be complex, costly and time consuming and include unanticipated issues, expenses and liabilities. We may have difficulty in developing, manufacturing and marketing the products of a newly acquired company in a manner that enhances the performance of our combined businesses or product lines and allows us to realize value from expected synergies. Following an acquisition, we may not achieve the revenues or net income levels that justify the acquisition. Acquisitions may also result in one-time charges (such as acquisition-related expenses, write-offs or restructuring charges) or in the future, impairment of goodwill, that adversely affect our operating results. Additionally, we may fund acquisitions of new businesses, strategic alliances or joint ventures by utilizing our cash, raising debt, issuing shares of our common stock, or by other means.

### ***We have increased our indebtedness.***

On April 6, 2009, we completed a registered underwritten offering of \$190.0 million aggregate principal amount of 4.50% Convertible Senior Notes (the "Notes") due March 15, 2014 and received net proceeds of approximately \$163.0 million. We used approximately \$123.3 million of the net proceeds of this offering to repay all amounts outstanding under our revolving credit facility. Although we are no longer subject to the restrictive covenants under the revolving credit facility, we have incurred approximately \$190.0 million principal amount of new indebtedness that the holders of the Notes may require us to repurchase upon the occurrence of certain fundamental changes involving the Company or that the holders may elect to convert into shares of our common stock. In addition, on March 31, 2009, our wholly-owned subsidiary in Japan, Teradyne K.K., incurred approximately \$10.0 million in indebtedness that we guaranteed. The level of our indebtedness, among other things, could:

make it difficult to make payments on our other obligations;

make it difficult to obtain any necessary future financing for working capital, capital expenditures, debt service requirements or other purposes;

require the dedication of a substantial portion of any cash flow from operations to service for indebtedness, thereby reducing the amount of cash flow available for other purposes, including capital expenditures; and

limit our flexibility in planning for, or reacting to, changes in our business and the industries in which we compete.

### ***Our convertible note hedge and warrant transactions could impact the value of our stock.***

Concurrent with the offering of the Notes, we entered into a convertible note hedge transaction with Goldman, Sachs & Co. (the "hedge counterparty") with a strike price equal to the initial conversion price of the

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## **Table of Contents**

Notes. The convertible note hedges cover, subject to customary antidilution adjustments, approximately 34,703,196 shares of our common stock.

Separately and concurrent with the pricing of the Notes, we entered into a warrant transaction with the hedge counterparty with a strike price of \$7.67 per share, which was 75% higher than the closing price of our common stock on March 31, 2009. The warrants will be net share settled and cover, subject to customary antidilution adjustments, approximately 31,963,470 shares of our common stock. On April 1, 2009, the hedge counterparty exercised its option to purchase warrants covering, subject to customary antidilution adjustments, an additional 2,739,726 shares of our common stock. However, we will not be obligated to deliver to the hedge counterparty more than 34,526,500 shares of common stock upon exercise of the warrants (which amount represented less than 19.99% of our outstanding shares of common stock as of March 31, 2009, without giving effect to any shares of common stock issuable pursuant to the warrant transaction), subject to customary antidilution adjustments.

The convertible note hedges are expected to reduce the potential dilution to our common stock upon any conversion of the Notes. However, the warrant transaction could separately have a dilutive effect to the extent that the market value per share of our common stock exceeds the applicable strike price of the warrant. The net cost of the convertible note hedge transaction to us, after being partially offset by the proceeds from the sale of the warrants, was approximately \$21.7 million.

In connection with establishing its initial hedge of these convertible note hedge and warrant transactions, the hedge counterparty has entered into various derivative transactions with respect to our common stock and/or purchased shares of our common stock or other securities, including the Notes, concurrent with, or shortly after, the pricing of the Notes. In addition, the hedge counterparty may modify its hedge positions by entering into or unwinding various derivative transactions with respect to our common stock or by selling our common stock or other securities, including the Notes, in secondary market transactions (and may do so during any observation period related to the conversion of the Notes). These activities could adversely impact the value of our common stock and the Notes.

### ***We may incur significant liabilities if we fail to comply with environmental regulations.***

We are subject to both domestic and international environmental regulations and statutory strict liability relating to the use, storage, discharge, site cleanup and disposal of hazardous chemicals used in our manufacturing processes. If we fail to comply with present and future regulations, or are required to perform site remediation, we could be subject to future liabilities or cost, including penalties or the suspension of production. Present and future regulations may also:

restrict our ability to expand facilities;

restrict our ability to ship certain products;

require us to modify our operations logistics;

require us to acquire costly equipment; or

require us to incur other significant costs and expenses.

Pursuant to present regulations and agreements, we are conducting groundwater and subsurface assessment and monitoring and are implementing remediation and corrective action plans for facilities located in Massachusetts and New Hampshire which are no longer conducting manufacturing operations. As of December 31, 2012, we have not incurred material costs as result of the monitoring and remediation steps taken at the Massachusetts and New Hampshire sites.

On January 27, 2003, the European Union adopted the following directives: (i) the directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (the RoHS Directive ); and (ii) the directive on Waste Electrical and Electronic Equipment (the WEEE Directive ). The



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## **Table of Contents**

WEEE Directive became effective August 13, 2005 and the RoHS Directive became effective on July 6, 2006. Both the RoHS Directive and the WEEE Directive alter the form and manner in which electronic equipment is imported, sold and handled in the European Union. Other jurisdictions, such as China, have followed the European Union's lead in enacting legislation with respect to hazardous substances and waste removal. Ensuring compliance with the RoHS Directive, the WEEE Directive and similar legislation in other jurisdictions, and integrating compliance activities with our suppliers and customers could result in additional costs and disruption to operations and logistics and thus, could have a negative impact on our business, operations or financial condition.

***We currently are and in the future may be subject to litigation that could have an adverse effect on our business.***

From time to time, we may be subject to litigation or other administrative and governmental proceedings that could require significant management time and resources and cause us to incur expenses and, in the event of an adverse decision, pay damages in an amount that could have a material adverse effect on our financial position or results of operations.

***Third parties may claim we are infringing their intellectual property and we could suffer significant litigation costs, licensing expenses or be prevented from selling our products.***

We have been sued for patent infringement in the past and receive notifications from time to time that we may be in violation of patents held by others. An assertion of patent infringement against us, if successful, could have a material adverse effect on our ability to sell our products or it could force us to seek a license to the intellectual property rights of others or alter such products so that they no longer infringe the intellectual property rights of others. A license could be very expensive to obtain or may not be available at all. Similarly, changing our products or processes to avoid infringing the rights of others may be costly or impractical. Additionally, patent litigation could require a significant use of management resources and involve a lengthy and expensive defense, even if we eventually prevail. If we do not prevail, we might be forced to pay significant damages, obtain licenses, modify our products, or stop making our products; each of which could have a material adverse effect on our financial condition or operating results.

***We may incur higher tax rates than we expect and may have exposure to additional international tax liabilities and costs.***

We are subject to paying income taxes in the United States and various other countries where we operate. Our effective tax rate is dependent on where our earnings are generated and the tax regulations and the interpretation and judgment of administrative tax or revenue entities in the United States and other countries. We have pursued a global tax strategy which could adversely be affected by our failure to expand operations or earnings in certain countries, the mix of earnings and tax rates in the countries where we operate, changes to tax laws or an adverse tax ruling by administrative entities. We are also subject to tax audits in the countries where we operate. Any material assessment resulting from an audit from an administrative tax or revenue entity could also negatively affect our financial results.

As a multinational corporation, we are subject to income taxes as well as non-income based taxes, in both the United States and various foreign jurisdictions. In certain foreign jurisdictions, we qualify for tax incentives and tax holidays based on our ability to meet, on a continuing basis, various tests relating to our employment levels, research and development expenditures and other qualification requirements in a particular foreign jurisdiction. While we intend to operate in such a manner to maintain and maximize our tax incentives, no assurance can be given that we have so qualified or that we will so qualify for any particular year or jurisdiction. If we fail to qualify and to remain qualified for certain foreign tax incentives and tax holidays, we may be subject to further taxation or an increase in our effective tax rate which would adversely impact our financial results. In addition, we may incur additional costs, including headcount expenses, in order to obtain or maintain a foreign tax incentive in a particular foreign jurisdiction.

## **Table of Contents**

### ***We have significant guarantees, indemnification and customer confidentiality obligations.***

From time to time, we make guarantees to customers regarding the delivery and performance of our products and guarantee certain indebtedness, performance obligations or lease commitments of our subsidiary and affiliate companies. We also have agreed to provide indemnification to our officers, directors, employees and agents, to the extent permitted by law, arising from certain events or occurrences while the officer, director, employee or agent, is or was serving at our request in such capacity. Additionally, we have confidentiality obligations to certain customers. If we become liable under any of these obligations, it could materially and adversely affect our business, financial condition or operating results. For additional information see Note L: Commitments and Contingencies Guarantees and Indemnification Obligations in Notes to Consolidated Financial Statements.

### ***If we are unable to protect our intellectual property ( IP ), we may lose a valuable asset or may incur costly litigation to protect our rights.***

We protect the technology that is incorporated in our products in several ways, including through patent, copyright, and trade secret protection and by contractual agreement. However, even with these protections, our IP may still be challenged, invalidated or subject to other infringement actions. While we believe that our IP has value in the aggregate, no single element of our IP is in itself essential. If a significant portion of our IP is invalidated or ineffective, our business could be materially adversely affected.

### ***Our business may suffer if we are unable to attract and retain key employees.***

Competition for employees with skills we require is intense in the high technology industry. Our success will depend on our ability to attract and retain key technical employees. The loss of one or more key or other employees, a decrease in our ability to attract additional qualified employees, or the delay in hiring key personnel could each have a material adverse effect on our business, results of operations or financial condition.

### ***New regulations related to conflict minerals may adversely affect us.***

The Dodd-Frank Wall Street Reform and Consumer Protection Act imposes new disclosure requirements regarding the use of conflict minerals mined from the Democratic Republic of Congo and adjoining countries in our products, whether or not these products are manufactured by third parties. This new requirement could affect the pricing, sourcing and availability of minerals used in the manufacture of components we use in our products. In addition, there will be additional costs associated with complying with the disclosure requirements, such as costs related to determining the source of any conflict minerals used in our products. Our supply chain is complex and we may be unable to verify the origins for all metals used in our products. As a result, we may be unable to certify that our products are conflict free.

### ***Our operations and the operations of our customers and suppliers are subject to risks of natural catastrophic events, widespread health epidemics, acts of war, terrorist attacks and the threat of domestic and international terrorist attacks, any one of which could result in cancellation of orders, delays in deliveries or other business activities, or loss of customers and could negatively affect our business and results of operations.***

Our business is international in nature, with our sales, service and administrative personnel and our customers and suppliers located in numerous countries throughout the world. Our operations and those of our customers and suppliers are subject to disruption for a variety of reasons, including work stoppages, acts of war, terrorism, health epidemics, fires, earthquakes, hurricanes, volcanic eruptions, energy shortages, telecommunication failures, tsunamis, flooding or other natural disasters. Such disruption could materially increase our costs and expenses as well as cause delays in, among other things, shipments of products to our customers, our ability to perform services requested by our customers, or the installation and acceptance of our products at customer sites. Any of these conditions could have a material adverse effect on our business, financial conditions or results of operations.

**Table of Contents*****Provisions of our charter and by-laws and Massachusetts law make a takeover of Teradyne more difficult.***

There are provisions in our basic corporate documents and under Massachusetts law that could discourage, delay or prevent a change in control, even if a change in control may be regarded as beneficial to some or all of our stockholders.

**Item 1B: *Unresolved Staff Comments***

None.

**Item 2: *Properties***

The following table provides information as to our principal facilities:

Location	Operating Segment	Major Activity+	Approximate Square Feet of Floor Space
<b>Properties Owned:</b>			
North Reading, Massachusetts	Semiconductor Test, Systems Test		
	Group & Corporate	1-2-3-4-5-6	413,000
Agoura Hills, California	Semiconductor Test	3-5	120,000
Kumamoto, Japan	Semiconductor Test	2-3-4-5	79,000
			612,000
<b>Properties Leased:</b>			
Cebu, Philippines	Semiconductor Test & Corporate	1-2-6	135,000
San Jose, California	Semiconductor Test	2-3-4-5	128,000
Buffalo Grove, Illinois	Semiconductor Test	2-3-4-5	95,000
Sunnyvale, California	Wireless Test	2-3-4-5-6	75,000
North Reading, Massachusetts	Corporate	1	60,000
Shanghai, China	Semiconductor Test & Systems Test Group	2-5-6	44,000
Hsinchu, Taiwan	Semiconductor Test & Systems Test Group	5	43,000
Heredia, Costa Rica	Semiconductor Test	2-6	42,000
			622,000

+ Major activities have been separated into the following categories: 1. Corporate Administration, 2. Sales Support and Manufacturing, 3. Engineering and Development, 4. Marketing, 5. Sales and Administration, 6. Storage and Distribution.

**Item 3: *Legal Proceedings***

We are subject to legal proceedings, claims and investigations that arise in the ordinary course of business such as, but not limited to, patent, employment, commercial and environmental matters. We believe that we have meritorious defenses against all pending claims and intend to vigorously contest them. While it is not possible to predict or determine the outcomes of any pending claims or to provide possible ranges of losses that may arise, we believe the potential losses associated with all of these actions are unlikely to have a material adverse effect on our business, financial position or results of operations.

**Item 4:**     *Mine Safety Disclosure: Not Applicable*



**Table of Contents****PART II****Item 5: Market for Registrant's Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities**

The following table shows the market range for our common stock based on reported sales price on the New York Stock Exchange.

Period	High	Low
2011		
First Quarter	\$ 19.19	\$ 13.38
Second Quarter	18.68	13.51
Third Quarter	15.30	10.76
Fourth Quarter	15.05	10.37
2012		
First Quarter	\$ 17.50	\$ 13.53
Second Quarter	18.01	13.18
Third Quarter	16.49	12.95
Fourth Quarter	16.90	13.40

The number of record holders of our common stock at February 22, 2013 was 2,423

We have never paid cash dividends because it has been our policy to use earnings to finance expansion and growth. Payment of future cash dividends will rest within the discretion of our Board of Directors and will depend, among other things, upon our earnings, capital requirements and financial condition.

See Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations Equity Compensation Plans, for information on our equity compensation plans and our performance graph.

In November 2010, the Board cancelled the November 2007 stock repurchase program and authorized a new stock repurchase program for up to \$200 million. The cumulative repurchases as of December 31, 2012 totaled 2.6 million shares of common stock for \$31.2 million at an average price of \$11.84 per share.

The following table includes information with respect to repurchases we made of our common stock during the quarter ended December 31, 2012 (in thousands except per share price):

Period	(a) Total Number of Shares (or Units) Purchased	(b) Average Price Paid per Share (or Unit)	(c) Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number (or Approximate Dollar Value) of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs
October 1, 2012 – October 28, 2012		\$		\$ 168,825
October 29, 2012 – November 25, 2012		\$		\$ 168,825
November 26, 2012 – December 31, 2012		\$		\$ 168,825

We satisfy the U.S. minimum withholding tax obligation due upon the vesting and the conversion of restricted stock units into shares of our common stock, by automatically withholding from the shares being issued, a number of shares with an aggregate fair market value on the date of such vesting and conversion that would satisfy the withholding amount due.



## Table of Contents

### Item 6: Data

Information in items 6, 7 and 8 for the years ended December 31, 2011, 2010, 2009 and 2008 has been revised, as applicable, for the retrospective application of our change in accounting policy for recognizing pension and postretirement benefit plans expense. See Note C: Change in Accounting Principle of the Notes to the Financial Statements for a discussion of the change.

	2012	Years Ended December 31,				2008
		2011	2010	2009		
		(dollars in thousands, except per share amounts)				
Consolidated Statement of Operations Data (1)(2)(3)(4)(5)(6)(7):						
Net revenues	\$ 1,656,750	\$ 1,429,061	\$ 1,566,162	\$ 777,425	\$ 1,047,917	
Income (loss) from continuing operations	217,049	343,957	379,692	(129,520)	(496,784)	
Net income (loss)	\$ 217,049	\$ 369,873	\$ 384,820	\$ (127,994)	\$ (490,026)	
Income (loss) from continuing operations per common share basic	\$ 1.16	\$ 1.86	\$ 2.11	\$ (0.75)	\$ (2.91)	
Income (loss) from continuing operations per common share diluted	\$ 0.94	\$ 1.52	\$ 1.73	\$ (0.75)	\$ (2.91)	
Net income (loss) per common share basic	\$ 1.16	\$ 2.00	\$ 2.14	\$ (0.74)	\$ (2.87)	
Net income (loss) per common share diluted	\$ 0.94	\$ 1.63	\$ 1.75	\$ (0.74)	\$ (2.87)	
Consolidated Balance Sheet Data:						
Total assets	\$ 2,429,345	\$ 2,188,639	\$ 1,810,355	\$ 1,235,337	\$ 1,241,655	
Long-term debt obligations	171,059	159,956	150,182	141,100		

- (1) As a result of the divestiture of Diagnostic Test Solutions in 2011, we are reporting this business unit as discontinued operations for all periods presented.
- (2) The Consolidated Statement of Operations Data for the year ended December 31, 2011 includes the results of operations of LitePoint from October 5, 2011, and for the year ended December 31, 2008 includes the results of operations of Nextest from January 24, 2008 and the results of operations of Eagle Test from November 15, 2008.
- (3) The Consolidated Statement of Operations Data for the year ended December 31, 2011 includes a tax benefit of \$129.5 million due primarily to the release of the deferred tax valuation allowance.
- (4) The Consolidated Statement of Operations Data for the year ended December 31, 2009 includes \$32.6 million of severance charges and \$3.7 million of facilities charges related to the early exit of leased facilities.
- (5) The Consolidated Statement of Operations Data for the year ended December 31, 2008 includes a \$329.7 million goodwill impairment charge.
- (6) The Consolidated Statement of Operations Data for the year ended December 31, 2008 includes \$27.3 million of restructuring charges, primarily related to severance, \$20.9 million of charges related to loss on sale of land and buildings and \$12.0 million of facility charges related to accelerated depreciation.

**Table of Contents**

- (7) The impact of the adjustments resulting from the retrospective application of the change in accounting policy for recognizing pension and postretirement benefits plans expense is summarized below:

	Originally Reported	Effect of Accounting Change (in thousands, except per share amounts)	As Adjusted
Year ended December 31, 2011:			
Income from continuing operations	\$ 347,893	\$ (3,936)	\$ 343,957
Net income	\$ 373,809	\$ (3,936)	\$ 369,873
Net income per common share from continuing operations:			
Basic	\$ 1.88	\$ (0.02)	\$ 1.86
Diluted	\$ 1.53	\$ (0.01)	\$ 1.52
Net income per common share:			
Basic	\$ 2.02	\$ (0.02)	\$ 2.00
Diluted	\$ 1.65	\$ (0.02)	\$ 1.63
Year ended December 31, 2010:			
Income from continuing operations	\$ 374,602	\$ 5,090	\$ 379,692
Net income	\$ 379,730	\$ 5,090	\$ 384,820
Net income per common share from continuing operations:			
Basic	\$ 2.08	\$ 0.03	\$ 2.11
Diluted	\$ 1.71	\$ 0.02	\$ 1.73
Net income per common share:			
Basic	\$ 2.11	\$ 0.03	\$ 2.14
Diluted	\$ 1.73	\$ 0.02	\$ 1.75
Year ended December 31, 2009:			
Loss from continuing operations	\$ (135,363)	\$ 5,843	\$ (129,520)
Net loss	\$ (133,837)	\$ 5,843	\$ (127,994)
Net loss per common share from continuing operations:			
Basic	\$ (0.78)	\$ 0.03	\$ (0.75)
Diluted	\$ (0.78)	\$ 0.03	\$ (0.75)
Net loss per common share:			
Basic	\$ (0.77)	\$ 0.03	\$ (0.74)
Diluted	\$ (0.77)	\$ 0.03	\$ (0.74)
Year ended December 31, 2008:			
Loss from continuing operations	\$ (400,985)	\$ (95,799)	\$ (496,784)
Net loss	\$ (394,227)	\$ (95,799)	\$ (490,026)
Net loss per common share from continuing operations:			
Basic	\$ (2.35)	\$ (0.56)	\$ (2.91)
Diluted	\$ (2.35)	\$ (0.56)	\$ (2.91)
Net loss per common share:			
Basic	\$ (2.31)	\$ (0.56)	\$ (2.87)
Diluted	\$ (2.31)	\$ (0.56)	\$ (2.87)

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

Statements in this Annual Report on Form 10-K which are not historical facts, so called forward looking statements, are made pursuant to the safe harbor provisions of Section 21E of the Securities Exchange Act of 1934, as amended. Investors are cautioned that all forward looking statements involve risks and uncertainties, including those detailed in Teradyne's filings with the Securities and Exchange Commission. Readers are cautioned not to place undue reliance on these forward-looking statements which reflect management's analysis only as of the date hereof. We assume no obligation to update these forward-looking statements to reflect actual results or changes in factors or assumptions affecting forward-looking statements, except as may be required by law.



## **Table of Contents**

### **Overview**

We are a leading global supplier of automatic test equipment. We design, develop, manufacture and sell automatic test systems and solutions used to test semiconductors, wireless products, hard disk drives and circuit boards in the consumer electronics, wireless, automotive, industrial, computing, communications and aerospace and defense industries. Our automatic test equipment products and services include:

semiconductor test ( Semiconductor Test ) systems;

wireless test ( Wireless Test ) systems; and

military/aerospace ( Mil/Aero ) test instrumentation and systems, storage test ( Storage Test ) systems, circuit-board test and inspection ( Commercial Board Test ) systems, collectively these products represent Systems Test Group .

We have a broad customer base which includes integrated device manufacturers ( IDMs ), outsourced semiconductor assembly and test providers ( OSATs ), wafer foundries, fabless companies that design, but contract with others for the manufacture of integrated circuits ( ICs ), developers of wireless devices and consumer electronics, manufacturers of circuit boards, automotive suppliers, wireless product manufacturers, storage device manufacturers, aerospace and military contractors.

In 2011, we acquired LitePoint Corporation ( LitePoint ) to expand our product portfolio of test equipment in the wireless test sector. LitePoint designs, develops, and supports advanced wireless test solutions for the development and manufacturing of wireless devices, including smart phones, tablets, notebooks/laptops, personal computer peripherals, and other Wi-Fi and cellular enabled devices. LitePoint is our Wireless Test segment.

The sales of our products and services are dependent, to a large degree, on customers who are subject to cyclical trends in the demand for their products. These cyclical periods have had, and will continue to have, a significant effect on our business since our customers often delay or accelerate purchases in reaction to changes in their businesses and to demand fluctuations in the semiconductor industry. Historically, these demand fluctuations have resulted in significant variations in our results of operations. This was particularly relevant beginning in the fourth quarter of fiscal year 2008 where we saw a significant decrease in revenues in our Semiconductor Test business which was impacted by the deteriorating global economy, which negatively impacted the entire semiconductor industry. The sharp swings in the semiconductor industry in recent years have generally affected the semiconductor test equipment and services industry more significantly than the overall capital equipment sector.

We believe our acquisitions of LitePoint, Eagle Test and Nextest, and our entry into the high speed memory and storage test markets have enhanced our opportunities for growth. We will continue to invest in our business to expand further our addressable markets while tightly managing our costs.

On March 21, 2011, we completed the sale of our Diagnostic Solutions business unit, which was included in the Systems Test Group segment, to SPX Corporation for \$40.2 million in cash. We sold this business as its growth potential as a stand-alone business was significantly less than if it was part of a larger automotive supplier. The financial information for Diagnostic Solutions has been reclassified to discontinued operations.

### **Critical Accounting Policies and Estimates**

We have identified the policies discussed below as critical to understanding our business and our results of operations and financial condition. The impact and any associated risks related to these policies on our business operations is discussed throughout Management's Discussion and Analysis of Financial Condition and Results of Operations where such policies affect our reported and expected financial results.

## **Table of Contents**

### ***Preparation of Financial Statements and Use of Estimates***

The preparation of consolidated financial statements requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues, and expenses and related disclosure of contingent liabilities. On an on-going basis, management evaluates its estimates, including those related to inventories, investments, goodwill, intangible and other long-lived assets, bad debts, income taxes, deferred tax assets, pensions, warranties, contingencies, and litigation. Management bases its estimates on historical experience and on appropriate and customary assumptions 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 significantly from these estimates.

### ***Revenue Recognition***

We recognize revenues when there is persuasive evidence of an arrangement, title and risk of loss have passed, delivery has occurred or the services have been rendered, the sales price is fixed or determinable and collection of the related receivable is reasonably assured. Title and risk of loss generally pass to our customers upon shipment or at delivery destination point. In circumstances where either title or risk of loss pass upon destination, acceptance or cash payment, we defer revenue recognition until such events occur.

Our equipment has non-software and software components that function together to deliver the equipment's essential functionality. Revenue is recognized upon shipment or at delivery destination point, provided that customer acceptance criteria can be demonstrated prior to shipment. Certain contracts require us to perform tests of the product to ensure that performance meets the published product specifications or customer requested specifications, which are generally conducted prior to shipment. Where the criteria cannot be demonstrated prior to shipment, revenue is deferred until customer acceptance has been received. We also defer the portion of the sales price that is not due until acceptance, which represents deferred profit.

For multiple element arrangements, we allocate revenue to all deliverables based on their relative selling prices. In such circumstances, a hierarchy is used to determine the selling price for allocating revenue to deliverables as follows: (i) vendor-specific objective evidence of selling price ( VSOE ), (ii) third-party evidence of selling price ( TPE ), and (iii) best estimate of the selling price ( BEBP ). For a delivered item to be considered a separate unit, the delivered item must have value to the customer on a standalone basis and the delivery or performance of the undelivered item must be considered probable and substantially in our control.

Our post-shipment obligations include installation, training services, one-year standard warranties, and extended warranties. Installation does not alter the product capabilities, does not require specialized skills or tools and can be performed by the customers or other vendors. Installation is typically provided within five days of product shipment and is completed within one to two days thereafter. Training services are optional and do not affect the customers' ability to use the product. We defer revenue for the selling price of installation and training. Extended warranties constitute warranty obligations beyond one year and we defer revenue in accordance with Financial Accounting Standards Board ( FASB ) Accounting Standards Codification ( ASC ) 605-20, *Separately Priced Extended Warranty and Product Maintenance Contracts* and ASC 605-25, Revenue Recognition Multiple-Element Arrangements. Service revenue is recognized over the contractual period or as services are performed.

Our products are generally subject to warranty and the related costs of the warranty are provided for in cost of revenues when product revenue is recognized. We classify shipping and handling costs in cost of revenue.

We generally do not provide our customers with contractual rights of return for any of our products.

### ***Retirement and Postretirement Plans***

Effective January 1, 2012, we changed the method of recognizing actuarial gains and losses for our defined benefit pension plans and postretirement benefit plan and calculating the expected return on plan assets for our

## **Table of Contents**

defined benefit pension plans. Historically, we recognized net actuarial gains and losses in accumulated other comprehensive income within shareholders' equity on our consolidated balance sheets on an annual basis and amortized them into operating results over the average remaining years of service of the plan participants, to the extent such gains and losses were outside of a range ( "corridor" ). We elected to immediately recognize net actuarial gains and losses and the change in the fair value of the plan assets in our operating results in the year in which they occur or upon any interim remeasurement of the plans. In addition, we used to calculate the expected return on plan assets using a calculated market-related value of plan assets. Effective January 1, 2012, we elected to calculate the expected return on plan assets using the fair value of the plan assets.

We believe that this new method is preferable as it eliminates the delay in recognizing gains and losses in our operating results and it will improve the transparency by faster recognition of the effects of economic and interest rate trends on plan obligations and investments. These actuarial gains and losses are generally measured annually as of December 31 and, accordingly, will be recorded during the fourth quarter of each year or upon any interim remeasurement of the plans. In accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 250, Accounting Changes and Error Corrections, all prior periods presented in this Annual Report on Form 10-K have been adjusted to apply the new accounting method retrospectively.

### ***Inventories***

Inventories are stated at the lower of cost (first-in, first-out basis) or net realizable value. On a quarterly basis, we use consistent methodologies to evaluate all inventories for net realizable value. We record a provision for both excess and obsolete inventory when such write-downs or write-offs are identified through the quarterly review process. The inventory valuation is based upon assumptions about future demand, product mix, and possible alternative uses.

### ***Equity Incentive and Stock Purchase Plans***

Stock-based compensation expense is based on the grant-date fair value estimated in accordance with the provisions of ASC 718

*Compensation* *Stock Compensation* . As required by ASC 718, we have made an estimate of expected forfeitures and are recognizing compensation costs only for those stock-based compensation awards expected to vest.

### ***Income Taxes***

On a quarterly basis, we evaluate the realizability of our deferred tax assets by jurisdiction and assess the need for a valuation allowance. We consider the probability of future taxable income and our historical profitability, among other factors, in assessing the amount of the valuation allowance. As a result of this review, undertaken at December 31, 2002, we concluded under applicable accounting criteria that it was more likely than not that our deferred tax assets would not be realized and established a valuation allowance in several jurisdictions, most notably the United States. At December 31, 2011, we reassessed this judgment and concluded that it is more likely than not that a substantial majority of our deferred tax assets will be realized through consideration of both the positive and negative evidence. The evidence consisted primarily of our three year U.S. historical cumulative profitability, projected future taxable income, forecasted utilization of the deferred tax assets and the fourth quarter of 2011 acquisition of LitePoint offset by the volatility of the industries we operate in, primarily the semiconductor industry. As such, we reduced the valuation allowance by \$190.2 million, which was recorded as a tax benefit in the year ended December 31, 2011. At December 31, 2012 and 2011, we maintained a valuation allowance for certain deferred tax assets of \$55.4 million and \$51.1 million, respectively, primarily related to excess stock compensation deductions associated with pre-2006 activity, state net operating losses and state tax credit carryforwards, due to uncertainty regarding their realization. Adjustments could be required in the future if we estimate that the amount of deferred tax assets to be realized is more or less than the net amount we have recorded.



## **Table of Contents**

On January 2, 2013, the American Taxpayer Relief Act of 2012 was enacted which retrospectively reinstated the research and development tax credit for 2012 and extended it through December 31, 2013. As a result, in the first quarter of 2013, we expect to record a discrete benefit related to 2012 of approximately \$7.0 million.

### ***Investments***

We account for our investments in debt and equity securities in accordance with the provisions of ASC 320-10, *Investments Debt and Equity Securities*. On a quarterly basis, we review our investments to identify and evaluate those that have an indication of a potential other-than-temporary impairment. Factors considered in determining whether a loss is other-than-temporary include:

The length of time and the extent to which the market value has been less than cost;

The financial condition and near-term prospects of the issuer; and

The intent and ability to retain the investment in the issuer for a period of time sufficient to allow for any anticipated recovery in market value.

### ***Goodwill, Intangible and Long-Lived Assets***

We assess the impairment of intangible and long-lived assets whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Factors we consider important in the determination of an impairment include significant underperformance relative to historical or projected future operating results, significant changes in the manner that we use the acquired asset and significant negative industry or economic trends. When we determine that the carrying value of intangibles and long-lived assets may not be recoverable based upon the existence of one or more of the above indicators of impairment, we measure any impairment based on a projected discounted cash flow method using a discount rate commensurate with the associated risks. We assess goodwill for impairment at least annually in the fourth quarter, on a reporting unit basis, 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 in an amount equal to that excess. No goodwill impairment was identified in 2012 or 2011.

**Table of Contents**

**SELECTED RELATIONSHIPS WITHIN THE CONSOLIDATED  
STATEMENTS OF OPERATIONS**

	Year Ended December 31,		
	2012	2011	2010
Percentage of net revenues:			
Net revenues:			
Products	83.5%	81.2%	85.0%
Services	16.5	18.8	15.0
Total net revenues	100.0	100.0	100.0
Cost of revenues:			
Cost of products	38.8	40.5	37.7
Cost of services	7.7	9.7	7.6
Total cost of revenues	46.5	50.2	45.2
Gross profit	53.5	49.8	54.8
Operating expenses:			
Engineering and development	15.2	13.8	12.3
Selling and administrative	17.0	16.5	14.4
Acquired intangible assets amortization	4.4	2.8	1.9
Restructuring and other	(0.5)	0.5	(0.2)
Total operating expenses	36.1	33.6	28.3
Income from operations	17.3	16.2	26.5
Interest income	0.2	0.5	0.4
Interest expense and other	(1.5)	(1.7)	(1.6)
Income from continuing operations before income taxes	16.1	15.0	25.3
Provision (benefit) for income taxes	3.0	(9.1)	1.1
Income from continuing operations	13.1	24.1	24.2
Income from discontinued operations before income taxes		0.1	0.3
(Benefit) provision for income taxes		0.0	0.0
Income from discontinued operations		0.1	0.3
Gain on disposal of discontinued operations (net of tax)		1.7	
Net income	13.1%	25.9%	24.6%

**Results of Operations*****Book to Bill Ratio***

Book to bill ratio is calculated as net bookings divided by net sales. Book to bill ratio by reportable segment was as follows:

	Three months ended December 31,		
	2012	2011	2010
Semiconductor Test	1.0	1.2	1.1
Wireless Test	1.1	0.7	

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Systems Test Group	1.6	1.9	1.0
Total Company	1.1	1.3	1.1

**Table of Contents*****Revenues***

Net revenues for our three reportable segments were as follows:

	2012	2011	2010 (in millions)	2011-2012 Dollar Change	2010-2011 Dollar Change
Semiconductor Test	\$ 1,127.7	\$ 1,106.2	\$ 1,413.3	\$ 21.5	\$ (307.1)
Wireless Test	286.4	28.4		258.0	28.4
Systems Test Group	242.7	294.5	152.9	(51.8)	141.6
	\$ 1,656.8	\$ 1,429.1	\$ 1,566.2	\$ 227.7	\$ (137.1)

The increase in Semiconductor Test revenues of \$21.5 million or approximately 2% from 2011 to 2012 was primarily due to an increase in system-on-a-chip ( SOC ) test products for mobility applications, partially offset by a decrease in memory system sales.

Semiconductor Test revenues decreased \$307.1 million or approximately 22% from 2010 to 2011, due to a decrease in SOC product sales. Semiconductor Test product demand can fluctuate significantly from year to year based upon semiconductor device unit growth and installed base utilization. The 2011 decrease was due to lower volume from reduced demand.

The decrease in Systems Test Group revenues of \$51.8 million or approximately 18% from 2011 to 2012 was primarily due to a decrease in sales due to lower volume in both Storage Test systems and Commercial Board Test systems, partially offset by an increase in Mil/Aero systems and instruments.

The increase in Systems Test Group revenues of \$141.6 million or approximately 93% from 2010 to 2011 was primarily due to an increase in sales of Storage Test systems, which was driven by new customers and new product applications.

The acquisition of LitePoint, which was completed in October of 2011, added \$286.4 million and \$28.4 million of revenues in 2012 and 2011, respectively. LitePoint is our Wireless Test segment.

Our three reportable segments accounted for the following percentages of consolidated net revenues for each of the last three years:

	2012	2011	2010
Semiconductor Test	68%	77%	90%
Wireless Test	17	2	
Systems Test Group	15	21	10
	100%	100%	100%

Net revenues by region as a percentage of total revenues were as follows:

	2012	2011	2010
China	21%	13%	9%
Taiwan	18	12	18
United States	14	16	15
Korea	14	10	8
Japan	6	10	5
Philippines	6	9	12

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Europe	5	7	6
Singapore	5	6	9
Thailand	5	6	4
Malaysia	4	10	13
Rest of the World	2	1	1
	100%	100%	100%

## Table of Contents

The breakout of product and service revenues for the past three years was as follows:

	2012	2011	2010 (in millions)	2011-2012 Dollar Change	2010-2011 Dollar Change
Product Revenues	\$ 1,383.6	\$ 1,160.2	\$ 1,331.0	\$ 223.4	\$ (170.8)
Service Revenues	273.2	268.9	235.2	4.3	33.7
	\$ 1,656.8	\$ 1,429.1	\$ 1,566.2	\$ 227.7	\$ (137.1)

Our product revenues increased \$223.4 million or 19% in 2012 from 2011 primarily due to \$282.4 million of product revenues from the addition of LitePoint, an increase in SOC Semiconductor Test products for mobility applications and an increase in Mil/Aero systems and instruments. The increase was partially offset by a decrease in sales in our memory test and Storage Test systems. Service revenues, which are derived from the servicing of our installed base of products and includes maintenance contracts, repairs, extended warranties, parts sales, and applications support, increased \$4.3 million or 2% due to higher volume.

Our product revenues decreased \$170.8 million or 13% in 2011 from 2010 primarily due to lower sales of SOC Semiconductor Test products. Semiconductor Test product sales demand can fluctuate significantly from year to year based upon semiconductor device unit growth and installed base utilization. The 2011 decrease was due to lower volume from reduced demand. The decrease was partially offset by an increase in sales of Storage Test systems, which was driven by new customers and new product applications. The LitePoint acquisition which was completed in October of 2011 added \$27.8 million of product revenue in 2011. Service revenues, which are derived from the servicing of our installed base of products and includes maintenance contracts, repairs, extended warranties, parts sales, and applications support, increased \$33.7 million or 14% due to higher volume.

In 2012, revenues from one customer accounted for 10% of our consolidated net revenues. In 2011 and 2010, no single customer accounted for 10% or more of our consolidated net revenues. In each of the years 2012, 2011 and 2010, our three largest customers in aggregate accounted for 29%, 19% and 21% of our consolidated net revenues, respectively.

## Gross Profit

	2012	2011	2010 (dollars in millions)	2011-2012 Dollar / Point Change	2010-2011 Dollar / Point Change
Gross Profit	\$ 886.0	\$ 711.8	\$ 857.6	\$ 174.2	\$ (145.8)
Percent of Total Revenues	53.5%	49.8%	54.8%	3.7	(5.0)

Gross profit as a percentage of revenues increased from 2011 to 2012 by 3.7 percentage points. This increase was a result of an increase of 4.6 points primarily due to the addition of LitePoint, partially offset by a decrease of 1.2 points due to higher inventory provisi