TERADYNE, INC
Form 10-Q
November 10, 2016
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended October 2, 2016

OR

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

For the transition period from to

Commission File No. 001-06462

TERADYNE, INC.

(Exact name of registrant as specified in its charter)

Massachusetts	**04-2272148**
(State or Other Jurisdiction of	**(I.R.S. Employer**
Incorporation or Organization)	**Identification No.)**
600 Riverpark Drive, North Reading,	
Massachusetts	**01864**
(Address of Principal Executive Offices)	**(Zip Code)**

978-370-2700

(Registrant s Telephone Number, Including Area Code)

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 the filing requirements for the past 90 days. Yes x 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 x No ¨

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	x	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 x

The number of shares outstanding of the registrant s only class of Common Stock as of November 4, 2016 was 201,222,112 shares.

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PART I

Item 1: Financial Statements

TERADYNE, INC.

CONDENSED CONSOLIDATED BALANCE SHEETS

(Unaudited)

	October 2, 2016	December 31, 2015
	(in thousands, except per share amount)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 297,937	$ 264,705
Marketable securities	598,501	477,696
Accounts receivable, less allowance for doubtful accounts of $2,372 and $2,407 at October 2, 2016 and December 31, 2015, respectively	163,213	211,293
Inventories, net:		
Parts	59,498	73,117
Assemblies in process	22,517	32,825
Finished goods	33,051	47,646
	115,066	153,588
Deferred tax assets		54,973
Prepayments	104,078	91,519
Other current assets	6,393	6,194
Total current assets	1,285,188	1,259,968
Property, plant and equipment, net	261,821	273,414
Marketable securities	357,751	265,928
Deferred tax assets	90,546	7,404
Other assets	12,777	13,080
Retirement plans assets	4,869	636
Intangible assets, net	114,146	239,831
Goodwill	238,589	488,413
Total assets	$ 2,365,687	$ 2,548,674
LIABILITIES		
Current liabilities:		

Accounts payable	$ 61,890	$ 92,358
Accrued employees compensation and withholdings	89,723	113,994
Deferred revenue and customer advances	138,916	85,527
Other accrued liabilities	56,580	43,727
Contingent consideration	1,050	15,500
Accrued income taxes	20,925	21,751
Total current liabilities	369,084	372,857
Long-term deferred revenue and customer advances	26,336	25,745
Retirement plans liabilities	108,095	103,531
Deferred tax liabilities	16,837	26,663
Long-term other accrued liabilities	31,354	32,156
Long-term contingent consideration	31,837	21,936
Total liabilities	583,543	582,888
Commitments and contingencies (See Note P)		
SHAREHOLDERS EQUITY		
Common stock, $0.125 par value, 1,000,000 shares authorized; 201,643 and 203,641 shares issued and outstanding at October 2, 2016 and December 31, 2015, respectively	25,205	25,455
Additional paid-in capital	1,517,957	1,480,647
Accumulated other comprehensive income (loss)	3,385	(8,144)
Retained earnings	235,597	467,828
Total shareholders equity	1,782,144	1,965,786
Total liabilities and shareholders equity	$ 2,365,687	$ 2,548,674

The accompanying notes, together with the Notes to Consolidated Financial Statements included in Teradyne s Annual Report on Form 10-K for the year ended December 31, 2015, are an integral part of the condensed consolidated financial statements.

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TERADYNE, INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

(Unaudited)

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands, except per share amount)			
Revenues:				
Products	$ 334,610	$ 386,488	$ 1,149,581	$ 1,096,056
Services	75,865	79,506	223,680	225,077
Total revenues	410,475	465,994	1,373,261	1,321,133
Cost of revenues:				
Cost of products	148,266	170,963	531,616	471,450
Cost of services	34,850	36,405	101,084	100,067
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	183,116	207,368	632,700	571,517
Gross profit	227,359	258,626	740,561	749,616
Operating expenses:				
Engineering and development	71,400	74,027	220,973	221,309
Selling and administrative	78,794	77,481	239,393	226,595
Acquired intangible assets amortization	8,487	20,053	44,725	49,119
Acquired intangible assets impairment			83,339	
Goodwill impairment			254,946	
Restructuring and other	12,177	261	16,372	(124)
Total operating expenses	170,858	171,822	859,748	496,899
Income (loss) from operations	56,501	86,804	(119,187)	252,717
Non-operating (income) expense:				
Interest income	(2,892)	(1,708)	(6,201)	(5,198)
Interest expense	633	508	2,034	1,114
Other (income) expense, net	(921)	596	(1,075)	(5,180)
Income (loss) before income taxes	59,681	87,408	(113,945)	261,981
Income tax (benefit) provision	(4,113)	15,955	(4,178)	54,863
Net income (loss)	$ 63,794	$ 71,453	$ (109,767)	$ 207,118

Net income (loss) per common share:								
Basic	$	0.32	$	0.34	$	(0.54)	$	0.97
Diluted	$	0.31	$	0.34	$	(0.54)	$	0.96
Weighted average common shares basic		202,211		210,032		203,167		213,688
Weighted average common shares diluted		203,929		211,736		203,167		215,348
Cash dividend declared per common share	$	0.06	$	0.06	$	0.18	$	0.18

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TERADYNE, INC.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(Unaudited)

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands)			
Net income (loss)	$ 63,794	$ 71,453	$ (109,767)	$ 207,118
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustments, net of tax of $0, $0, $0, $0	1,843	3,267	7,072	(3,000)
Available-for-sale marketable securities:				
Unrealized (losses) gains on marketable securities arising during period, net of tax of $51, $48, $2,405, $(896), respectively	(336)	283	5,110	(593)
Less: Reclassification adjustment for gains included in net income, net of tax of $(150), $(126), $(152), $(335), respectively	(334)	(247)	(468)	(808)
	(670)	36	4,642	(1,401)
Defined benefit pension and post-retirement plans:				
Amortization of net prior service (credit) cost included in net periodic pension and post-retirement expense/income, net of tax of $(46), $(42), $(139), $(127), respectively	(81)	(74)	(244)	(221)
Prior service income arising during period, net of tax of $0, $0, $34, $0, respectively			59	
	(81)	(74)	(185)	(221)
Other comprehensive income (loss)	1,092	3,229	11,529	(4,622)
Comprehensive income (loss)	$ 64,886	$ 74,682	$ (98,238)	$ 202,496

The accompanying notes, together with the Notes to Consolidated Financial Statements included in Teradyne s Annual Report on Form 10-K for the year ended December 31, 2015, are an integral part of the condensed consolidated financial statements.

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TERADYNE, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

(Unaudited)

	For the Nine Months Ended	
	October 2, 2016	October 4, 2015
	(in thousands)	
Cash flows from operating activities:		
Net (loss) income	$ (109,767)	$ 207,118
Adjustments to reconcile net (loss) income to net cash provided by operating activities:		
Depreciation	48,437	52,531
Amortization	46,275	52,159
Stock-based compensation	23,012	23,080
Provision for excess and obsolete inventory	15,148	18,939
Goodwill impairment	254,946	
Intangible assets impairment	83,339	
Deferred taxes	(42,568)	(13,973)
Contingent consideration adjustment	10,451	(2,600)
Impairment of fixed assets	4,179	
Property insurance recovery	(5,363)	
Retirement plans actuarial gains	(1,200)	
Gain from the sale of an equity investment		(5,406)
Non-cash charge for the sale of inventories revalued at date of acquisition		1,567
Tax benefit related to employee stock compensation awards	(3,399)	(3,213)
Other	151	2,523
Changes in operating assets and liabilities:		
Accounts receivable	45,660	(91,117)
Inventories	48,601	33,376
Prepayments and other assets	(12,961)	15,529
Accounts payable and other accrued expenses	(47,941)	52,663
Deferred revenue and customer advances	53,380	6,751
Retirement plans contributions	(5,871)	(2,998)
Income taxes	4,227	25,677
Net cash provided by operating activities	408,736	372,606
Cash flows from investing activities:		
Purchases of property, plant and equipment	(66,252)	(66,727)
Purchases of available-for-sale marketable securities	(875,837)	(957,606)
Proceeds from sales of available-for-sale marketable securities	466,744	843,734
Proceeds from maturities of available-for-sale marketable securities	202,162	330,363

Proceeds from property insurance	5,051	
Acquisition of business, net of cash acquired		(282,741)
Proceeds from the sale of an equity investment		5,406
Proceeds from life insurance		1,098
Net cash used for investing activities	(268,132)	(126,473)
Cash flows from financing activities:		
Issuance of common stock under stock purchase and stock option plans	20,085	18,145
Repurchase of common stock	(85,092)	(226,843)
Dividend payments	(36,548)	(38,434)
Payments of contingent consideration	(11,697)	
Tax benefit related to employee stock compensation awards	3,399	3,213
Payment of revolving credit facility costs		(2,253)
Net cash used for financing activities	(109,853)	(246,172)
Effects of exchange rate changes on cash and cash equivalents	2,481	
Increase (decrease) in cash and cash equivalents	33,232	(39)
Cash and cash equivalents at beginning of period	264,705	294,256
Cash and cash equivalents at end of period	$ 297,937	$ 294,217

The accompanying notes, together with the Notes to Consolidated Financial Statements included in Teradyne s Annual Report on Form 10-K for the year ended December 31, 2015, are an integral part of the condensed consolidated financial statements.

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TERADYNE, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

A. The Company

Teradyne, Inc. (Teradyne) is a leading global supplier of automation equipment for test and industrial applications. Teradyne designs, develops, manufactures and sells automatic test systems used to test semiconductors, wireless products, data storage and complex electronics systems in the consumer electronics, wireless, automotive, industrial, computing, communications, and aerospace and defense industries. Teradyne s industrial automation products include collaborative robots used by global manufacturing and light industrial customers to improve quality, increase manufacturing efficiency and decrease manufacturing costs. Teradyne s automatic test equipment and industrial automation products and services include:

- semiconductor test (Semiconductor Test) systems;
- defense/aerospace (Defense/Aerospace) test instrumentation and systems, storage test (Storage Test) systems, and circuit-board test and inspection (Production Board Test) systems (collectively these products represent System Test);
- wireless test (Wireless Test) systems; and
- industrial automation (Industrial Automation) products.

B. Accounting Policies

Basis of Presentation

The consolidated interim financial statements include the accounts of Teradyne and its wholly-owned subsidiaries. All significant intercompany balances and transactions have been eliminated. These interim financial statements are unaudited and reflect all normal recurring adjustments that are, in the opinion of management, necessary for the fair statement of such interim financial statements. Certain prior year amounts were reclassified to conform to the current year presentation. The December 31, 2015 condensed consolidated balance sheet data was derived from audited financial statements, but does not include all disclosures required by accounting principles generally accepted in the United States of America.

The accompanying financial information should be read in conjunction with the consolidated financial statements and notes thereto contained in Teradyne s Annual Report on Form 10-K, filed with the U.S. Securities and Exchange Commission (SEC) on February 29, 2016, for the year ended December 31, 2015.

Preparation of Financial Statements and Use of Estimates

The preparation of consolidated financial statements requires management to make estimates and judgments that affect the amounts reported in the financial statements. Actual results may differ significantly from these estimates.

C. Recently Issued Accounting Pronouncements

On October 24, 2016, the Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-16, *Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other than Inventory*. Under current Generally Accepted Accounting Principles (GAAP), the tax effects of intra-entity asset transfers are deferred until the transferred asset is sold to a third party or otherwise recovered through use. The new guidance requires recognition of the tax expense from the sale of the asset in the seller s tax jurisdiction when the transfer occurs, even though the pre-tax effects of that transaction are eliminated in consolidation. Any deferred tax asset that arises in the buyer s jurisdiction would also be recognized at the time of the transfer. The new guidance does not apply to intra-entity transfers of inventory. The income tax consequences from the sale of inventory from one member of a consolidated entity to another will continue to be deferred until the inventory is sold to a third party. The new guidance will be effective in fiscal years beginning after December 15, 2017. Early adoption is permitted. The modified retrospective approach will be required for transition to the new guidance, with a cumulative-effect adjustment recorded in retained earnings as of the beginning of the period of adoption. Teradyne is currently evaluating the impact of this ASU on its financial position, results of operations and statement of cash flows.

On March 31, 2016, the FASB issued ASU 2016-09, *Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting.* This ASU changes how companies account for certain aspects of share-based payment awards to employees, including the accounting for income taxes, forfeitures, and statutory tax withholding requirements, as well as classification in the statement of cash flows. This pronouncement is effective for annual periods beginning after December 15, 2016. Teradyne does not expect this ASU to have a material impact on its financial position, results of operations and statement of cash flows.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842).* The guidance in this ASU supersedes the lease recognition requirements in Accounting Standards Certification (ASC) Topic 840, *Leases.* The new standard establishes a right-of-use (ROU) model that requires a lessee to record ROU asset and a lease liability on the balance sheet for all leases with terms longer than twelve months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. The new standard is effective for annual periods beginning after December 15, 2018, with early adoption permitted. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements. Teradyne is currently evaluating the impact of this ASU on its financial position and results of operations.

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. This ASU provides guidance for the recognition, measurement, presentation, and disclosure of financial instruments. The new pronouncement revises accounting related to equity investments and the presentation of certain fair value changes for financial liabilities measured at fair value. Among other things, it amends the presentation and disclosure requirements of equity securities that do not result in consolidation and are not accounted for under the equity method. Changes in the fair value of these equity securities will be recognized directly in net income. This pronouncement is effective for fiscal years beginning after December 15, 2017. Teradyne is currently evaluating the impact of this ASU on its financial position and results of operations.

In November 2015, the FASB issued ASU 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes*. ASU 2015-17 simplifies the presentation of deferred income taxes by eliminating the separate classification of deferred income tax liabilities and assets into current and noncurrent amounts in the balance sheet. The amendments in the update require that all deferred tax liabilities and assets be classified as noncurrent in the balance sheet. This ASU is effective for annual periods beginning after December 15, 2016 and may be applied either prospectively or retrospectively to all periods presented. Early adoption is permitted. Teradyne early adopted this ASU prospectively in the first quarter of 2016.

In April 2015, the FASB issued ASU 2015-03, *Simplifying the Presentation of Debt Issuance Costs,* which requires debt issuance costs to be presented in the balance sheet as a direct deduction from the carrying value of the associated debt liability, consistent with the presentation for debt discount. ASU 2015-03 does not specifically address requirements for the presentation or subsequent measurement of debt issuance costs related to line-of-credit arrangements. On August 8, 2015, the FASB issued ASU 2015-15, *Interest Imputation of Interest (Subtopic*

835-30) clarifying that debt issuance costs related to line-of-credit arrangements could be

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presented as an asset and amortized over the term of the line-of-credit arrangement, regardless of whether there are any outstanding borrowings on the line-of-credit arrangement. Teradyne adopted this ASU in the first quarter of 2016. Adoption of this ASU did not have a material impact on Teradyne s financial position and results of operations.

In August 2014, the FASB issued ASU 2014-15, *Presentation of Financial Statements - Going Concern (Subtopic 205-40).* ASU 2014-15 provides guidance on management s responsibility in evaluating whether there is substantial doubt about an entity s ability to continue as a going concern and to provide related footnote disclosures. This ASU is effective for annual periods beginning after December 15, 2016. Teradyne does not expect this ASU to have a material impact on its consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606),* which will replace numerous requirements in U.S. GAAP, including industry-specific requirements, and provide companies with a single revenue recognition model for recognizing revenue from contracts with customers. The core principle of the new standard is that a company should recognize revenue to show the transfer of promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled to in exchange for those goods or services. In August 2015, FASB issued ASU 2015-14, which deferred the effective date of the new revenue standard by one year. For Teradyne, the standard will be effective in the first quarter of 2018. Early adoption is permitted but not before the original effective date (that is, annual periods beginning after December 15, 2016). The two permitted transition methods under the new standard are the full retrospective method, in which case the standard would be applied to each prior reporting period presented, or the modified retrospective method, in which case the cumulative effect of applying the standard would be recognized at the date of initial application. Teradyne has not yet selected a transition method. Teradyne is currently evaluating the impact of this ASU on its financial position and results of operations.

D. Acquisitions

Universal Robots

On June 11, 2015, Teradyne acquired all of the outstanding equity of Universal Robots located in Odense, Denmark. Universal Robots is the leading supplier of collaborative robots, which are low-cost, easy-to-deploy and simple-to-program robots that work side by side with production workers to improve quality, increase manufacturing efficiency and decrease manufacturing costs. Universal Robots is a separate operating and reportable segment, Industrial Automation. The total purchase price of $315.4 million consisted of $283.8 million of cash paid and $31.6 million of contingent consideration, measured at fair value. The contingent consideration was valued using a Monte Carlo simulation based on the following key inputs: (1) forecasted revenue; (2) forecast for earnings before income taxes, depreciation and amortization (EBITDA); (3) revenue volatility; (4) EBITDA volatility; and (5) discount rate. The contingent consideration is payable upon the achievement of certain thresholds and targets for EBITDA for calendar year 2015, revenue for the period from July 1, 2015 to December 31, 2017 and revenue for the period from July 1, 2015 to December 31, 2018. The maximum amount of contingent consideration that could be paid is $65 million. Based on Universal Robots calendar year 2015 EBITDA results, in the first quarter of 2016, Teradyne paid $15 million or 100% of the eligible EBITDA contingent consideration amount.

In the fourth quarter of 2015, Teradyne finalized the valuation and purchase price allocation for the acquisition, which resulted in a $5.4 million decrease in goodwill as a result of a $2.2 million decrease in the fair value of contingent consideration, a $1.6 million increase in intangible assets and a $1.6 million decrease in acquired liabilities.

The Universal Robots acquisition was accounted for as a business combination and, accordingly, the results have been included in Teradyne s consolidated results of operations from the date of acquisition. The allocation of the total purchase price to Universal Robots net tangible liabilities and identifiable intangible assets was based on their estimated fair values as of the acquisition date. The excess of the purchase price over the identifiable intangible assets and net tangible liabilities in the amount of $221.1 million was allocated to goodwill, which is not deductible for tax purposes.

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The following table represents the final allocation of the purchase price:

		Purchase Price Allocation (in thousands)
Goodwill	$	221,128
Intangible assets		121,590
Tangible assets acquired and liabilities assumed:		
Current assets		10,853
Non-current assets		3,415
Accounts payable and current liabilities		(11,976)
Long-term deferred tax liabilities		(26,653)
Long-term other liabilities		(2,920)
Total purchase price	$	315,437

Teradyne estimated the fair value of intangible assets using the income and cost approaches. Acquired intangible assets are amortized on a straight-line basis over their estimated useful lives. Components of these intangible assets and their estimated useful lives at the acquisition date are as follows:

		Fair Value (in thousands)	Estimated Useful Life (in years)
Developed technology	$	89,240	4.9
Trademarks and tradenames		22,920	10.0
Customer relationships		9,430	2.0
Total intangible assets	$	121,590	5.6

For the period from June 12, 2015 to October 4, 2015, Universal Robots contributed $19.8 million of revenues and had a $(6.5) million loss from operations before income taxes.

The following unaudited pro forma information gives effect to the acquisition of Universal Robots as if the acquisition occurred on January 1, 2014. The unaudited pro forma results are not necessarily indicative of what actually would have occurred had the acquisition been in effect for the periods presented:

		For the Nine Months Ended October 4, 2015
Revenue	$	1,339,181
Net income		197,745
Net income per common share:		
Basic	$	0.93

Diluted	$	0.92

Pro forma results for the nine months ended October 4, 2015 were adjusted to exclude $1.6 million of non-recurring expense related to the fair value adjustment to acquisition-date inventory and $1.0 million of acquisition related costs incurred in 2015.

E. Financial Instruments and Derivatives

Cash Equivalents

Teradyne considers all highly liquid investments with maturities of three months or less at the date of acquisition to be cash equivalents.

Marketable Securities

Teradyne accounts for its investments in debt and equity securities in accordance with the provisions of ASC 320-10, *Investments Debt and Equity Securities.* ASC 320-10 requires that certain debt and equity securities be classified into one of three categories: trading, available-for-sale or held-to-maturity securities. As of October 2, 2016, Teradyne s investments in debt and equity securities were classified as available-for-sale and recorded at their fair market value.

On a quarterly basis, Teradyne reviews its 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.

Teradyne uses the market and income approach techniques to value its financial instruments and there were no changes in valuation techniques during the three and nine months ended October 2, 2016. As defined in ASC 820-10, *Fair Value Measurements and Disclosures,* fair value is the price that would be received from the sale of an asset or paid to transfer a liability in an orderly transaction between market participants. ASC 820-10 requires that assets and liabilities carried at fair value be classified and disclosed in one of the following three categories:

Level 1: Quoted prices in active markets for identical assets as of the reporting date;

Level 2: Inputs other than Level 1, that are observable either directly or indirectly as of the reporting date. For example, a common approach for valuing fixed income securities is the use of matrix pricing. Matrix pricing is a mathematical technique used to value securities by relying on the securities relationship to other benchmark quoted prices, and is considered a Level 2 input; or

Level 3: Unobservable inputs that are not supported by market data. Unobservable inputs are developed based on the best information available, which might include Teradyne s own data.

Teradyne s available-for-sale debt and equity securities are classified as Level 1 and Level 2. Acquisition-related contingent consideration is classified as Level 3. Teradyne s contingent consideration is valued using a Monte Carlo simulation model or a probability weighted discounted cash flow model. The majority of Level 2 securities are fixed income securities priced by third party pricing vendors. These pricing vendors utilize the most recent observable market information in pricing these securities or, if specific prices are not available, use other observable inputs like market transactions involving identical or comparable securities.

Realized gains recorded in the three and nine months ended October 2, 2016 were $0.7 million and $1.2 million, respectively. Realized losses recorded in the three and nine months ended October 2, 2016 were $0.1 million and $0.4 million, respectively. Realized gains recorded in the three and nine months ended October 4, 2015 were $0.4 million and $1.4 million, respectively. Realized losses recorded in the nine months ended October 4, 2015 were $0.2 million. Realized gains are included in interest income and realized losses are included in interest expense. Unrealized gains and losses are included in accumulated other comprehensive income (loss). The cost of securities sold is based on the specific identification method.

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During the three and nine months ended October 2, 2016 and October 4, 2015, there were no transfers in or out of Level 1, Level 2 or Level 3 financial instruments.

The following table sets forth by fair value hierarchy Teradyne s financial assets and liabilities that were measured at fair value on a recurring basis as of October 2, 2016 and December 31, 2015.

	October 2, 2016			
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
	(in thousands)			
Assets				
Cash	$ 241,687	$	$	$ 241,687
Cash equivalents	55,576	674		56,250
Available-for-sale securities:				
U.S. Treasury securities		676,310		676,310
Corporate debt securities		117,260		117,260
Certificates of deposit and time deposits		66,140		66,140
Commercial paper		52,324		52,324
U.S. government agency securities		25,802		25,802
Equity and debt mutual funds	17,666			17,666
Non-U.S. government securities		750		750
Total	314,929	939,260		1,254,189
Derivative assets		1		1
Total	$ 314,929	$ 939,261	$	$ 1,254,190
Liabilities				
Contingent consideration	$	$	$ 32,887	$ 32,887
Derivative liabilities		361		361
Total	$	$ 361	$ 32,887	$ 33,248

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
Assets				

Cash and cash equivalents	$ 297,263	$ 674	$	$ 297,937
Marketable securities		598,501		598,501
Long-term marketable securities	17,666	340,085		357,751
Prepayments		1		1
	$ 314,929	$ 939,261	$	$ 1,254,190
Liabilities	.			
Other current liabilities	$	$ 361	$	$ 361
Contingent consideration			1,050	1,050
Long-term contingent consideration			31,837	31,837
	$	$ 361	$ 32,887	$ 33,248

	December 31, 2015			
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
	(in thousands)			
Assets				
Cash	$ 213,336	$	$	$ 213,336
Cash equivalents	49,241	2,128		51,369
Available for sale securities:				
U.S. Treasury securities		419,958		419,958
Corporate debt securities		161,634		161,634
U.S. government agency securities		83,952		83,952
Certificates of deposit and time deposits		43,394		43,394
Commercial paper		20,308		20,308
Equity and debt mutual funds	13,954			13,954
Non-U.S. government securities		424		424
Total	$ 276,531	$ 731,798	$	$ 1,008,329
Derivative assets		109		109
Total	$ 276,531	$ 731,907	$	$ 1,008,438
Liabilities				
Contingent consideration	$	$	$ 37,436	$ 37,436
Derivative liabilities		146		146
Total	$	$ 146	$ 37,436	$ 37,582

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
Assets				
Cash and cash equivalents	$ 262,577	$ 2,128	$	$ 264,705
Marketable securities		477,696		477,696
Long-term marketable securities	13,954	251,974		265,928
Prepayments		109		109
	$ 276,531	$ 731,907	$	$ 1,008,438
Liabilities				

Other accrued liabilities	$	$ 146	$	$ 146
Contingent consideration			15,500	15,500
Long-term contingent consideration			21,936	21,936
	$	$ 146	$ 37,436	$ 37,582

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Changes in the fair value of Level 3 contingent consideration for the three and nine months ended October 2, 2016 and October 4, 2015 were as follows:

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands)			
Balance at beginning of period	$ 24,914	$ 35,595	$ 37,436	$ 3,350
Acquisition of Universal Robots				33,845
Payments (a)			(15,000)	
Fair value adjustment (b)(c)(d)(e)	7,973	(1,000)	10,451	(2,600)
Balance at end of period	$ 32,887	$ 34,595	$ 32,887	$ 34,595

(a) In the nine months ended October 2, 2016, based on Universal Robots calendar year 2015 EBITDA results, Teradyne paid $15 million or 100% of the eligible EBITDA contingent consideration amount.

(b) In the three and nine months ended October 2, 2016, the fair value of contingent consideration for the earn-out in connection with the acquisition of Universal Robots was increased by $8.0 million and $9.9 million, respectively, primarily due to an increase in forecasted revenue and a decrease in the discount rate.

(c) In the nine months ended October 2, 2016, the fair value of contingent consideration for the earn-out in connection with the acquisition of Avionics Interface Technology, LLC (AIT) was increased by $0.6 million due to an increase in forecasted revenue.

(d) In the three and nine months ended October 4, 2015, the fair value of contingent consideration for the earn-out in connection with the acquisition of AIT was reduced by $1.0 million due to a decrease in the revenue probabilities.

(e) In the nine months ended October 4, 2015, the fair value measurement of the contingent consideration for the earn-out in connection with the acquisition of ZTEC Instruments, Inc. was reduced by $1.6 million, to $0, because Teradyne and the Securityholder Representative, on behalf of the ZTEC securityholders, agreed to terminate the earn-out prior to the end of the December 31, 2015 earn-out period, with no payout in connection with the resolution of indemnity claims asserted by both Teradyne and the Securityholder Representative.

The following table provides quantitative information associated with the fair value measurement of Teradyne s Level 3 financial instruments:

Liability	October 2, 2016 Fair Value (in thousands)	Valuation Technique	Unobservable Inputs	Weighted Average
Contingent consideration	$19,824	Monte Carlo	Revenue volatility for the period July 1, 2015 December 31, 2017	10.7%
		Simulation	Discount Rate	3.2%

(Universal Robots)				
	$12,013	Monte Carlo Simulation	Revenue volatility for the period July 1, 2015 December 31, 2018	10.7%
			Discount Rate	3.2%
Contingent consideration (AIT)	$1,050	Income approach- discounted cash flow	Revenue probability for calendar year 2016	100%
			Discount rate	4.0%

As of October 2, 2016, the significant unobservable inputs used in the Monte Carlo simulation to fair value the Universal Robots contingent consideration include forecasted revenue, revenue volatility and discount rate. Increases or decreases in the inputs would result in a higher or lower fair value measurement. The maximum payment for each of the two Universal Robots revenue earn-outs is $25.0 million.

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The significant unobservable inputs used in the AIT fair value measurement of contingent consideration are the probabilities of successful achievement of the calendar year 2016 revenue threshold and target, and a discount rate. Increases or decreases in the revenue probabilities would result in a higher or lower fair value measurement. The maximum payment for the AIT earn-out is $1.05 million.

The carrying amounts and fair values of Teradyne s financial instruments at October 2, 2016 and December 31, 2015 were as follows:

	October 2, 2016		December 31, 2015	
	Carrying Value	Fair Value	Carrying Value	Fair Value
	(in thousands)			
Assets				
Cash and cash equivalents	$ 297,937	$ 297,937	$ 264,705	$ 264,705
Marketable securities	956,252	956,252	743,624	743,624
Derivative assets	1	1	109	109
Liabilities				
Contingent consideration	32,887	32,887	37,436	37,436
Derivative liabilities	361	361	146	146

The fair values of accounts receivable, net and accounts payable approximate the carrying value due to the short-term nature of these instruments.

The following tables summarize the composition of available-for-sale marketable securities at October 2, 2016 and December 31, 2015:

	October 2, 2016				
	Available-for-Sale				Fair Market Value of Investments with Unrealized Losses
	Cost	Unrealized Gains	Unrealized (Losses)	Fair Market Value	
	(in thousands)				
U.S. Treasury securities	$ 675,745	$ 906	$ (341)	$ 676,310	$ 371,188
Corporate debt securities	114,752	2,755	(247)	117,260	43,552
Certificates of deposit and time deposits	66,115	30	(5)	66,140	14,402
Commercial paper	52,323	15	(14)	52,324	25,317
U.S. government agency securities	25,738	64		25,802	3,830
Equity and debt mutual funds	15,801	1,870	(5)	17,666	348
Non-U.S. government securities	756	17	(23)	750	137
	$ 951,230	$ 5,657	$ (635)	$ 956,252	$ 458,774

Reported as follows:

	Cost	Unrealized Gains	Unrealized (Losses) (in thousands)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
Marketable securities	$ 598,416	$ 218	$ (133)	$ 598,501	$ 273,604
Long-term marketable securities	352,814	5,439	(502)	357,751	185,170
	$ 951,230	$ 5,657	$ (635)	$ 956,252	$ 458,774

	December 31, 2015 Available-for-Sale				
	Cost	Unrealized Gains	Unrealized (Losses) (in thousands)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
U.S. Treasury securities	$ 421,060	$ 65	$ (1,167)	$ 419,958	$ 379,434
Corporate debt securities	163,297	902	(2,565)	161,634	145,373
U.S. government agency securities	84,032	42	(122)	83,952	55,120
Certificates of deposit and time deposits	43,391	6	(3)	43,394	10,527
Commercial paper	20,298	11	(1)	20,308	8,646
Equity and debt mutual funds	12,996	1,119	(161)	13,954	2,560
Non-U.S. government securities	424			424	
	$ 745,498	$ 2,145	$ (4,019)	$ 743,624	$ 601,660

Reported as follows:

	Cost	Unrealized Gains	Unrealized (Losses) (in thousands)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
Marketable securities	$ 478,306	$ 38	$ (648)	$ 477,696	$ 374,785
Long-term marketable securities	267,192	2,107	(3,371)	265,928	226,875
	$ 745,498	$ 2,145	$ (4,019)	$ 743,624	$ 601,660

As of October 2, 2016, the fair market value of investments with unrealized losses totaled $458.8 million. Of this value, $3.1 million had unrealized losses of $0.2 million for greater than one year and $455.7 million had unrealized losses of $0.4 million for less than one year.

As of December 31, 2015, the fair market value of investments with unrealized losses totaled $601.7 million. Of this value, $0.9 million had unrealized losses of $0.5 million for greater than one year and $600.8 million had unrealized losses of $3.6 million for less than one year.

Teradyne reviews its investments to identify and evaluate investments that have an indication of possible impairment. Based on this review, Teradyne determined that the unrealized losses related to these investments at October 2, 2016 and December 31, 2015, were temporary.

The contractual maturities of investments held at October 2, 2016 were as follows:

	October 2, 2016	
	Cost	Fair Market Value
	(in thousands)	
Due within one year	$ 598,416	$ 598,501
Due after 1 year through 5 years	288,344	288,370
Due after 5 years through 10 years	12,787	13,026
Due after 10 years	35,882	38,689
Total	$ 935,429	$ 938,586

Contractual maturities of investments held at October 2, 2016 exclude equity and debt mutual funds as they do not have contractual maturity dates.

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Derivatives

Teradyne conducts business in a number of foreign countries, with certain transactions denominated in local currencies. The purpose of Teradyne s foreign currency management is to minimize the effect of exchange rate fluctuations on certain foreign currency denominated monetary assets and liabilities. Teradyne does not use derivative financial instruments for trading or speculative purposes.

To minimize the effect of exchange rate fluctuations associated with the remeasurement of monetary assets and liabilities denominated in foreign currencies, Teradyne enters into foreign currency forward contracts. The change in fair value of these derivatives is recorded directly in earnings, and is used to offset the change in value of monetary assets and liabilities denominated in foreign currencies.

The notional amount of foreign currency forward contracts at October 2, 2016 and December 31, 2015 was $76.5 million and $114.1 million, respectively. The fair value of the outstanding contracts was a loss of $0.4 million and $0.0 million at October 2, 2016 and December 31, 2015, respectively.

For the three and nine months ended October 2, 2016, Teradyne recorded net realized losses of $0.7 million and $10.8 million, respectively, related to foreign currency forward contracts hedging net monetary positions.

For the three and nine months ended October 4, 2015, Teradyne recorded net realized losses of $0.8 million and $2.7 million, respectively, related to foreign currency forward contracts hedging net monetary positions.

The following table summarizes the fair value of derivative instruments at October 2, 2016 and December 31, 2015:

	Balance Sheet Location	October 2, 2016	December 31, 2015
		(in thousands)	
Derivatives not designated as hedging instruments:			
Foreign exchange contracts assets	Prepayments	$ 1	$ 109
Foreign exchange contracts liabilities	Other current liabilities	(361)	(146)
Total derivatives		$ (360)	$ (37)

Teradyne s foreign exchange contracts are subject to master netting agreements.

The following table summarizes the effect of derivative instruments recognized in the statement of operations during the three and nine months ended October 2, 2016 and October 4, 2015.

	Location of (Gains) Losses Recognized in Statement of Operations	For the Three Months Ended October 2, 2016	For the Three Months Ended October 4, 2015	For the Nine Months Ended October 2, 2016	For the Nine Months Ended October 4, 2015
		(in thousands)			

Derivatives not designated as hedging instruments:					
Foreign exchange contracts	Other (income) expense, net	$ 941	$ 677	$ 11,140	$ 2,555
Total Derivatives		$ 941	$ 677	$ 11,140	$ 2,555

The table above does not reflect the corresponding gains and losses from the remeasurement of monetary assets and liabilities denominated in foreign currencies recorded in other (income) expense, net. For the three and nine months ended October 2, 2016, net gains from the remeasurement of monetary assets and liabilities denominated in foreign currencies were $1.9 million and $12.2 million, respectively. For the three and nine months ended October 4, 2015, net gains from the remeasurement of monetary assets and liabilities denominated in foreign currencies were $0.1 million and $2.3 million, respectively.

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F. Debt

Revolving Credit Facility

On April 27, 2015, Teradyne entered into a Credit Agreement (the Credit Agreement) with Barclays Bank PLC, as administrative agent and collateral agent, and the lenders party thereto. The Credit Agreement provides for a five-year, senior secured revolving credit facility of up to $350 million (the Credit Facility). The Credit Agreement further provides that, subject to customary conditions, Teradyne may seek to obtain from existing or new lenders incremental commitments under the Credit Facility in an aggregate principal amount not to exceed $150 million.

Proceeds from the Credit Facility may be used for general corporate purposes and working capital. Teradyne incurred $2.3 million in costs related to the revolving credit facility. These costs are being amortized over the five-year term of the revolving credit facility and are included in interest expense in the statement of operations. As of November 10, 2016, Teradyne has not borrowed any funds under the Credit Facility.

The interest rates applicable to loans under the Credit Facility are, at Teradyne s option, equal to either a base rate plus a margin ranging from 0.00% to 1.00% per annum or LIBOR plus a margin ranging from 1.00% to 2.00% per annum, based on the Consolidated Leverage Ratio of Teradyne and its Restricted Subsidiaries. In addition, Teradyne will pay a commitment fee on the unused portion of the commitments under the Credit Facility ranging from 0.125% to 0.350% per annum, based on the then applicable Consolidated Leverage Ratio.

Teradyne is not required to repay any loans under the Credit Facility prior to maturity, subject to certain customary exceptions. Teradyne is permitted to prepay all or any portion of the loans under the Credit Facility prior to maturity without premium or penalty, other than customary LIBOR breakage costs.

The Credit Agreement contains customary events of default, representations, warranties and affirmative and negative covenants that, among other things, limit Teradyne s and its Restricted Subsidiaries ability to sell assets, grant liens on assets, incur other secured indebtedness and make certain investments and restricted payments, all subject to exceptions set forth in the Credit Agreement. The Credit Agreement also requires Teradyne to satisfy two financial ratios measured as of the end of each fiscal quarter: a consolidated leverage ratio and an interest coverage ratio. As of November 10, 2016, Teradyne was in compliance with all covenants.

The Credit Facility is guaranteed by certain of Teradyne s domestic subsidiaries and collateralized by assets of Teradyne and such subsidiaries, including a pledge of 65% of the capital stock of certain foreign subsidiaries.

G. Prepayments

Prepayments consist of the following and are included in prepayments on the balance sheet:

	October 2, 2016	December 31, 2015
	(in thousands)	
Contract manufacturer prepayments	$ 76,601	$ 66,283
Prepaid maintenance and other services	7,034	8,481
Prepaid taxes	4,665	3,781

Other prepayments	15,778	12,974
Total prepayments	$ 104,078	$ 91,519

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H. Deferred Revenue and Customer Advances

Deferred revenue and customer advances consist of the following and are included in short and long-term deferred revenue and customer advances on the balance sheet:

	October 2, 2016	December 31, 2015
	(in thousands)	
Extended warranty	$ 48,351	$ 46,499
Product maintenance and training	38,109	30,616
Customer advances	4,865	17,456
Undelivered elements and other	73,927	16,701
Total deferred revenue and customer advances	$ 165,252	$ 111,272

I. Product Warranty

Teradyne generally provides a one-year warranty on its products, commencing upon installation, acceptance, delivery or shipment. A provision is recorded upon revenue recognition to cost of revenues for estimated warranty expense based on historical experience. Related costs are charged to the warranty accrual as incurred. The warranty balance below is included in other accrued liabilities on the balance sheet.

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands)			
Balance at beginning of period	$ 8,784	$ 8,228	$ 6,925	$ 8,942
Acquisition				372
Accruals for warranties issued during the period	3,248	3,261	11,626	9,548
Adjustments related to pre-existing warranties	(460)	(1,211)	(637)	(3,039)
Settlements made during the period	(3,249)	(2,370)	(9,591)	(7,915)
Balance at end of period	$ 8,323	$ 7,908	$ 8,323	$ 7,908

When Teradyne receives revenue for extended warranties beyond one year, it is deferred and recognized on a straight-line basis over the contract period. Related costs are expensed as incurred. The extended warranty balance below is included in short and long-term deferred revenue and customer advances on the balance sheet.

	For the Three Months Ended	For the Nine Months Ended

	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
Balance at beginning of period	$ 47,723	$ 43,299	$ 46,499	$ 43,300
Acquisition				699
Deferral of new extended warranty revenue	7,048	10,442	22,773	22,818
Recognition of extended warranty deferred revenue	(6,420)	(6,252)	(20,921)	(19,328)
Balance at end of period	$ 48,351	$ 47,489	$ 48,351	$ 47,489

J. Stock-Based Compensation

Under Teradyne s stock compensation plans, Teradyne grants stock options, restricted stock units and performance-based restricted stock units, and employees are eligible to purchase Teradyne s common stock through its Employee Stock Purchase Plan (ESPP).

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Teradyne grants performance-based restricted stock units (PRSUs) to its executive officers with a performance metric based on relative total shareholder return (TSR). For TSR grants issued in 2014 and 2015, Teradyne s three-year TSR performance is measured against the Philadelphia Semiconductor Index. For TSR grants issued in January 2016, Teradyne s three-year TSR performance will be measured against the New York Stock Exchange (NYSE) Composite Index. The final number of TSR PRSUs that vest will vary based upon the level of performance achieved from 200% to 0% of the target shares. The TSR PRSUs will vest upon the three-year anniversary of the grant date. The TSR PRSUs are valued using a Monte Carlo simulation model. The number of units expected to be earned, based upon the achievement of the TSR market condition, is factored into the grant date Monte Carlo valuation. Compensation expense is recognized on a straight-line basis over the three-year service period. Compensation expense is recognized regardless of the eventual number of units that are earned based upon the market condition, provided the executive officer remains an employee at the end of the three-year period. Compensation expense is reversed if at any time during the three-year service period the executive officer is no longer an employee, subject to the retirement and termination eligibility provisions noted below.

In January 2016, Teradyne granted PRSUs to its executive officers with a performance metric based on three-year cumulative non-GAAP profit before interest and tax (PBIT). Non-GAAP PBIT is a financial measure equal to GAAP income from operations less restructuring and other, net; amortization of acquired intangible assets; acquisition and divestiture related charges or credits; pension actuarial gains and losses; and other non-recurring gains and charges. The final number of PBIT PRSUs that vest will vary based upon the level of performance achieved from 200% to 0% of the target shares. The PBIT PRSUs will vest upon the three-year anniversary of the grant date. Compensation expense is recognized on a straight-line basis over the three-year service period. Compensation expense is recognized based on the number of units that are earned based upon the three-year Teradyne PBIT as a percent of Teradyne s revenue, provided the executive officer remains an employee at the end of the three-year period subject to the retirement and termination eligibility provisions noted below.

Beginning with PRSUs granted in January 2014, if the recipient s employment ends prior to the determination of the performance percentage due to (1) permanent disability or death or (2) retirement or termination other than for cause, after attaining both at least age sixty and at least ten years of service, then all or a portion of the recipient s PRSUs (based on the actual performance percentage achieved on the determination date) will vest on the date the performance percentage is determined. Except as set forth in the preceding sentence, no PRSUs will vest if the executive officer is no longer an employee at the end of the three-year period.

During the nine months ended October 2, 2016 and October 4, 2015, Teradyne granted 0.1 million and 0.2 million TSR PRSUs, respectively, with a grant date fair value of $20.29 and $18.21, respectively. The fair value was estimated using the Monte Carlo simulation model with the following assumptions:

	For the Nine Months Ended	
	October 2, 2016	**October 4, 2015**
Risk-free interest rate	0.97%	0.77%
Teradyne volatility-historical	27.0%	28.2%
NYSE Composite Index volatility-historical	13.1%	
Philadelphia Semiconductor Index volatility-historical		19.7%
Dividend yield	1.24%	1.33%

Expected volatility was based on the historical volatility of Teradyne s stock and the NYSE Composite Index for the 2016 grant and Philadelphia Semiconductor Index for the 2015 grant, over the most recent three year period. The risk-free interest rate was determined using the U.S. Treasury yield curve in effect at the time of grant. Dividend yield was based upon an estimated annual dividend amount of $0.24 per share divided by Teradyne s stock price on the grant date of $19.43 for the 2016 grant and $18.10 for the 2015 grant.

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During the nine months ended October 2, 2016, Teradyne granted 0.1 million PBIT PRSUs with a grant date fair value of $18.71.

During the nine months ended October 2, 2016, Teradyne granted 1.2 million of service-based restricted stock unit awards to employees at a weighted average grant date fair value of $18.49, 0.1 million of service-based restricted stock unit awards to non-employee directors at a weighted average grant date fair value of $18.71 and 0.1 million of service-based stock options to executive officers at a weighted average grant date fair value of $5.30.

During the nine months ended October 4, 2015, Teradyne granted 1.5 million of service-based restricted stock unit awards to employees at a weighted average grant date fair value of $17.27, 0.1 million of service-based restricted stock unit awards to non-employee directors at a weighted average grant date fair value of $20.21 and 0.1 million of service-based stock options to executive officers at a weighted average grant date fair value of $4.43**.**

Restricted stock unit awards granted to employees vest in equal annual installments over four years. Restricted stock unit awards granted to non-employee directors vest after a one year period, with 100% of the award vesting on the first anniversary of the grant date. Stock options vest in equal annual installments over four years and have a term of seven years from the date of grant.

The fair value of stock options was estimated using the Black-Scholes option-pricing model with the following assumptions:

	For the Nine Months Ended	
	October 2, 2016	**October 4, 2015**
Expected life (years)	5.0	4.0
Risk-free interest rate	1.4%	1.1%
Volatility-historical	32.9%	33.4%
Dividend yield	1.24%	1.33%

Teradyne determined the stock options expected life based upon historical exercise data for executive officers, the age of the executive officers and the terms of the stock option grant. Volatility was determined using historical volatility for a period equal to the expected life. The risk-free interest rate was determined using the U.S. Treasury yield curve in effect at the time of grant. Dividend yield was based upon an estimated annual dividend amount of $0.24 per share divided by Teradyne s stock price on the grant date, of $19.43 for the 2016 grant and $18.10 for the 2015 grant.

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K. Accumulated Other Comprehensive Income (Loss)

Changes in accumulated other comprehensive income (loss), which is presented net of tax, consist of the following:

	For the Nine Months Ended October 2, 2016			
	Foreign Currency Translation Adjustment	Unrealized Gains (Losses) on Marketable Securities	Retirement Plans Prior Service Credit	Total
	(in thousands)			
Balance at December 31, 2015, net of tax of $0, $(459), $(622)	$ (8,759)	$ (1,414)	$ 2,029	$ (8,144)
Other comprehensive income before reclassifications, net of tax of $0, $2,405, $0	7,072	5,110		12,182
Amounts reclassified from accumulated other comprehensive income, net of tax of $0, $(152), $(105)		(468)	(185)	(653)
Net current period other comprehensive income (loss), net of tax of $0, $2,253, $(105)	7,072	4,642	(185)	11,529
Balance at October 2, 2016, net of tax of $0, $1,794, $(727)	$ (1,687)	$ 3,228	$ 1,844	$ 3,385

	For the Nine months ended October 4, 2015			
	Foreign Currency Translation Adjustments	Unrealized Gains (Losses) on Marketable Securities	Retirement Plans Prior Service Credit	Total
	(in thousands)			
Balance at December 31, 2014, net of tax of $0, $1,598, $(453)	$	$ 2,365	$ 2,324	$ 4,689
Other comprehensive loss before reclassifications, net of tax of $0, $(896), $0	(3,000)	(593)		(3,593)
Amounts reclassified from accumulated other comprehensive income, net of tax of $0, $(335), $(127)		(808)	(221)	(1,029)
Net current period other comprehensive loss, net of tax of $0, $(1,231), $(127)	(3,000)	(1,401)	(221)	(4,622)

Balance as October 4, 2015, net of tax of $0, $367, $(580)	$ (3,000)	$ 964	$ 2,103	$ 67

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Reclassifications out of accumulated other comprehensive income (loss) to the statement of operations for the three and nine months ended October 2, 2016 and October 4, 2015 were as follows:

Details about Accumulated Other Comprehensive Income Components	For the Three Months Ended October 2, 2016	For the Three Months Ended October 4, 2015	For the Nine Months Ended October 2, 2016	For the Nine Months Ended October 4, 2015	Affected Line Item in the Statements of Operations
	(in thousands)				
Available-for-sale marketable securities:					
Unrealized gains, net of tax of $150, $126, $152, $335	$ 334	$ 247	$ 468	$ 808	Interest income
Defined benefit pension and postretirement plans:					
Amortization of prior service credit, net of tax of $46, $42, $139, $127	81	74	244	221	(a)
Prior service income arising during period, net of tax of $0, $0, $(34), $0			(59)		
	81	74	185	221	
Total reclassifications, net of tax of $196, $168, $257, $462	$ 415	$ 321	$ 653	$ 1,029	Net income

(a) The amortization of prior service credit is included in the computation of net periodic pension cost and postretirement benefit; see Note O: Retirement Plans.

L. Goodwill and Intangible Assets

Goodwill

Teradyne performs its annual goodwill impairment test as required under the provisions of ASC 350-10, *Intangibles Goodwill and Other* on December 31 of each fiscal year unless interim indicators of impairment exist. Goodwill is considered impaired when the net book value of a reporting unit exceeds its estimated fair value.

In the second quarter of 2016, the Wireless Test reporting unit (which is Teradyne s Wireless Test operating and reportable segment) reduced headcount by 11% as a result of a sharp decline in projected demand attributable to an estimated smaller future wireless test market. The decrease in projected demand was due to lower forecasted buying from Teradyne s largest Wireless Test segment customer (who has contributed between 51% and 73% of annual Wireless Test sales since the LitePoint acquisition in 2011) as a result of the customer s numerous operational efficiencies; slower smartphone growth rates; and a slowdown of new wireless technology adoption. Teradyne considered the headcount reduction and sharp decline in projected demand to be a triggering event for an interim goodwill impairment test.

Teradyne used the income and market approaches to determine the fair value of the Wireless Test reporting unit for step 1 of the goodwill impairment test. With respect to the income approach, Teradyne used the discounted cash flow method, which included seven year future cash flow projections and an estimated terminal value. The cash flow projections were prepared using Teradyne s forecast, which was based upon underlying estimates of the total market size, and Teradyne s market share in the wireless test market developed using Teradyne and independent third party data. The estimated terminal value was calculated using the Gordon Growth model. The market approach used a revenue multiple to develop an estimate of fair value. The revenue multiple was estimated using enterprise value as a ratio of next twelve months revenue for comparable companies. Teradyne equally weighted the income and market approaches to determine the fair value of the Wireless Test reporting unit. The carrying amount of the Wireless Test reporting unit exceeded its fair value; therefore, the second step of the goodwill impairment test was performed to calculate implied goodwill and to measure the amount of the impairment loss.

Teradyne allocated the fair value of the Wireless Test reporting unit to all of its assets and liabilities (including unrecognized intangible assets). The net book value of raw materials inventory was estimated as an approximation of current replacement costs. The fair value of finished goods inventory was estimated at the present value of selling price less direct selling costs and profit on the selling effort. The selling price used in the inventory fair values was based upon the product gross margins included in Teradyne s forecast. The fair value of the deferred revenue liability was estimated by assessing the costs required to service the obligation plus a reasonable profit margin. The fair value for personal property assets, which consisted of furniture and fixtures, machinery and equipment, computer equipment, software and leasehold improvements, was estimated using the replacement cost approach, which approximated carrying value. The fair value of intangible assets was estimated using the income approach and, in particular, developed technology and trademarks/trade names were valued using the relief-from-royalty method and customer relationships and customer backlog were valued using the discounted cash flow method. Royalty rates were estimated using rates applicable to wireless testing equipment and other similar technologies. Based upon this allocation, Teradyne determined that the Wireless Test reporting unit goodwill is valued at $8.0 million and recorded an impairment loss of $255 million in the second quarter of 2016.

The changes in the carrying amount of goodwill by reportable segments for the nine months ended October 2, 2016, were as follows:

	Wireless Test	Industrial Automation	System Test (in thousands)	Semiconductor Test	Total
Balance at December 31, 2015					
Goodwill	$ 361,819	$ 214,975	$ 158,699	$ 260,540	$ 996,033
Accumulated impairment losses	(98,897)		(148,183)	(260,540)	(507,620)
	262,922	214,975	10,516		488,413
Foreign currency translation adjustment		5,122			5,122
Goodwill impairment loss	(254,946)				(254,946)
Balance at October 2, 2016					
Goodwill	361,819	220,097	158,699	260,540	1,001,155
Accumulated impairment losses	(353,843)		(148,183)	(260,540)	(762,566)
	$ 7,976	$ 220,097	$ 10,516	$	$ 238,589

Intangible Assets

Teradyne reviews long-lived assets for impairment whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable or that the useful lives of these assets are no longer appropriate. As a result of the Wireless Test segment goodwill impairment review in the second quarter of 2016, Teradyne performed an impairment test of the Wireless Test segment s intangible and long-lived assets. The impairment test is based on a comparison of the estimated undiscounted cash flows to the carrying value of the asset group. If undiscounted cash flows for the asset group are less than the carrying amount, the asset group is written down to its estimated fair value based on a discounted cash flow analysis. The cash flow estimates used to determine the impairment contain management s best estimates using appropriate assumptions and projections at that time. The fair value of intangible assets was estimated using the income approach and, in particular, developed technology and trademarks/trade names were valued using the relief-from-royalty method and customer relationships were valued using the discounted cash flow method. Royalty rates were estimated using rates applicable to wireless testing equipment and other similar technologies. As a result of the analysis, Teradyne recorded an $83 million impairment charge in the second quarter of 2016 in acquired intangible assets impairment on the statement of operations, resulting in a remaining intangible assets balance of $5.8 million for the Wireless Test segment.

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Amortizable intangible assets consist of the following and are included in intangible assets, net on the balance sheet:

	October 2, 2016				
	Gross Carrying Amount (1)	Accumulated Amortization (1)(2)	Foreign Currency Translation Adjustment	Net Carrying Amount	Weighted Average Useful Life
			(in thousands)		
Developed technology	$ 333,421	$ 264,248	$ (714)	$ 68,459	6.0 years
Customer relationships	110,602	92,139	(75)	18,388	7.9 years
Tradenames and trademarks	53,034	25,711	(184)	27,139	9.5 years
Non-compete agreement	320	160		160	4.0 years
Customer backlog	170	170			0.3 years
Total intangible assets	$ 497,547	$ 382,428	$ (973)	$ 114,146	6.8 years

(1) In 2016, $48 million of amortizable intangible assets became fully amortized and have been eliminated from the gross carrying amount and accumulated amortization.
(2) Includes an $83 million impairment of Wireless Test amortizable intangible assets.

	December 31, 2015				
	Gross Carrying Amount (1)	Accumulated Amortization (1)	Foreign Currency Translation Adjustment	Net Carrying Amount	Weighted Average Useful Life
			(in thousands)		
Developed technology	$ 382,262	$ 220,346	$ (2,444)	$ 159,472	6.0 years
Customer relationships	110,602	63,722	(258)	46,622	7.9 years
Tradenames and trademarks	53,034	18,889	(628)	33,517	9.5 years
Non-compete agreement	320	100		220	4.0 years
Customer backlog	170	170			0.3 years
Total intangible assets	$ 546,388	$ 303,227	$ (3,330)	$ 239,831	6.7 years

(1) In 2015, $98.2 million of amortizable intangible assets became fully amortized and have been eliminated from the gross carrying amount and accumulated amortization.

For the three and nine months ended October 2, 2016, aggregate intangible asset amortization expense was $8.5 million and $44.7 million, respectively.

For the three and nine months ended October 4, 2015, aggregate intangible asset amortization expense was $20.1 million and $49.1 million, respectively.

Estimated intangible asset amortization expense for each of the five succeeding fiscal years is as follows:

Year	**Amortization Expense (in thousands)**
2016 (remainder)	$ 8,084
2017	30,552
2018	28,270
2019	24,364
2020	10,684
Thereafter	12,192

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M. Net Income per Common Share

The following table sets forth the computation of basic and diluted net income per common share:

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands, except per share amounts)			
Net income (loss) for basic and diluted net income per share	$ 63,794	$ 71,453	$ (109,767)	$ 207,118
Weighted average common shares-basic	202,211	210,032	203,167	213,688
Effect of dilutive potential common shares:				
Restricted stock units	1,282	1,103		994
Stock options	421	578		626
Employee stock purchase plan	15	23		40
Dilutive potential common shares	1,718	1,704		1,660
Weighted average common shares-diluted	203,929	211,736	203,167	215,348
Net income (loss) per common share-basic	$ 0.32	$ 0.34	$ (0.54)	$ 0.97
Net income (loss) per common share-diluted	$ 0.31	$ 0.34	$ (0.54)	$ 0.96

The computation of diluted net income per common share for the three months ended October 2, 2016 excludes the effect of the potential exercise of stock options to purchase approximately 0.1 million shares because the effect would have been anti-dilutive.

The computation of diluted net income per common share for the nine months ended October 2, 2016 excludes the effect of the potential exercise of all outstanding stock options and restricted stock units because Teradyne had a net loss and inclusion would be anti-dilutive.

The computation of diluted net income per common share for the three and nine months ended October 4, 2015 excludes the effect of the potential exercise of stock options to purchase approximately 0.2 million shares because the effect would have been anti-dilutive.

N. Restructuring and Other

Other

On April 16, 2016, an earthquake in Kumamoto, Japan damaged Teradyne s main building at that location. The Teradyne owned building, which was used for engineering, production, and support operations, was damaged beyond repair and has no remaining utility to Teradyne. During the nine months ended October 2, 2016, Teradyne wrote off the building s carrying value of $4.2 million. In the three and nine months ended October 2, 2016, Teradyne recorded $0.3 million and $1.2 million, respectively, of earthquake related expenses. Teradyne has $10 million of earthquake insurance with a deductible of approximately $2.5 million for the location. The $5.4 million of total charges were offset by $5.4 million of property insurance recovery. The charges and property insurance recovery were recognized in restructuring and other in the statement of operations. Teradyne has temporarily transferred some operations to other facilities in Japan and elsewhere while its Kumamoto operations are restored.

During the three months ended October 2, 2016, Teradyne recorded an expense of $8.0 million for the increase in the fair value of contingent consideration liability related to Universal Robots.

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During the nine months ended October 2, 2016, Teradyne recorded an expense of $10.5 million for the increase in the fair value of contingent consideration liability, of which $9.9 million was related to Universal Robots and $0.6 million was related to AIT.

During the three months ended October 4, 2015, Teradyne recorded a $1.0 million gain from the decrease in the fair value of the AIT contingent consideration liability, partially offset by $0.1 million of acquisition costs related to Universal Robots.

During the nine months ended October 4, 2015, Teradyne recorded a $2.6 million gain from the decrease in the fair value of contingent consideration liability, of which $1.6 million was related to the ZTEC acquisition and $1.0 million was related to the AIT acquisition, partially offset by $1.1 million of acquisition costs related to Universal Robots.

Restructuring

During the three months ended October 2, 2016, Teradyne recorded $4.2 million of severance charges related to headcount reductions of 72 people, of which 55 people were in Wireless Test and 17 people were in Semiconductor Test.

During the nine months ended October 2, 2016, Teradyne recorded $5.9 million of severance charges related to headcount reductions of 146 people, of which 102 people were in Wireless Test and 44 people were in Semiconductor Test.

During the three and nine months ended October 4, 2015, Teradyne recorded $1.1 million and $1.4 million, respectively, of severance charges related to headcount reductions of 18 and 22 people, respectively, primarily in System Test.

O. Retirement Plans

ASC 715, *Compensation Retirement Benefits* requires an employer with defined benefit plans or other postretirement benefit plans to recognize an asset or a liability on its balance sheet for the overfunded or underfunded status of the plans. The pension asset or liability represents a difference between the fair value of the pension plan s assets and the projected benefit obligation.

Defined Benefit Pension Plans

Teradyne has defined benefit pension plans covering a portion of domestic employees and employees of certain non-U.S. subsidiaries. Benefits under these plans are based on employees years of service and compensation. Teradyne s funding policy is to make contributions to these plans in accordance with local laws and to the extent that such contributions are tax deductible. The assets of these plans consist primarily of fixed income and equity securities. In addition, Teradyne has an unfunded supplemental executive defined benefit plan in the United States to provide retirement benefits in excess of levels allowed by the Employment Retirement Income Security Act (ERISA) and the Internal Revenue Code (IRC), as well as unfunded foreign plans.

In the nine months ended October 2, 2016, Teradyne contributed $1.9 million to the U.S. Qualified Pension Plan, $1.9 million to the U.S. supplemental executive defined benefit pension plan and $1.5 million to certain qualified plans for non-U.S. subsidiaries.

In the nine months ended October 4, 2015, Teradyne contributed $1.9 million to the U.S. supplemental executive defined benefit pension plan and $0.6 million to certain qualified plans for non-U.S. subsidiaries.

For the three and nine months ended October 2, 2016 and October 4, 2015, Teradyne s net periodic pension cost (income) was comprised of the following:

	For the Three Months Ended			
	October 2, 2016		October 4, 2015	
	United States	Foreign	United States	Foreign
	(in thousands)			
Service cost	$ 575	$ 208	$ 616	$ 259
Interest cost	3,407	209	3,285	357
Expected return on plan assets	(3,458)	(6)	(3,629)	(185)
Amortization of prior service cost	24		34	
Actuarial loss		662		
Total net periodic pension cost	$ 548	$ 1,073	$ 306	$ 431

	For the Nine Months Ended			
	October 2, 2016		October 4, 2015	
	United States	Foreign	United States	Foreign
	(in thousands)			
Service cost	$ 1,726	$ 614	$ 1,847	$ 768
Interest cost	10,222	614	9,856	1,101
Expected return on plan assets	(10,373)	(17)	(10,888)	(595)
Amortization of prior service cost	72		101	
Actuarial (gain) loss	(1,848)	662	(3)	
Settlement		(184)		
Total net periodic pension (income) cost	$ (201)	$ 1,689	$ 913	$ 1,274

Postretirement Benefit Plan

In addition to receiving pension benefits, U.S. Teradyne employees who meet early retirement eligibility requirements as of their termination dates may participate in Teradyne s Welfare Plan, which includes medical and dental benefits up to age 65. Death benefits provide a fixed sum to retirees survivors and are available to all retirees. Substantially all of Teradyne s current U.S. employees could become eligible for these benefits, and the existing benefit obligation relates primarily to those employees.

For the three months and nine months ended October 2, 2016 and October 4, 2015, Teradyne s net periodic postretirement income was comprised of the following:

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands)			
Service cost	$ 9	$ 12	$ 28	$ 36
Interest cost	54	59	163	177
Amortization of prior service credit	(151)	(150)	(455)	(449)
Actuarial gain			(15)	(19)
Total net periodic post-retirement income	$ (88)	$ (79)	$ (279)	$ (255)

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P. Commitments and Contingencies

Purchase Commitments

As of October 2, 2016, Teradyne had entered into purchase commitments for certain components and materials. The purchase commitments covered by the agreements aggregate to approximately $181.4 million, of which $179.0 million is for less than one year.

Legal Claims

Teradyne is subject to various 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 Teradyne s results of operations, financial condition or cash flows.

Q. Income Taxes

The effective tax rate for the three months ended October 2, 2016 and October 4, 2015 was (6.9)% and 18.3%, respectively. The effective tax rate for the nine months ended October 2, 2016 and October 4, 2015 was 3.7% and 20.9%, respectively.

The effective tax rates for the three and nine months ended October 2, 2016 differed from the expected federal statutory rate of 35% as a result of a non-deductible goodwill impairment charge, which reduced the benefit of the projected annual U.S. loss before income taxes, and increases in uncertain tax positions for transfer pricing, offset by the effect of lower statutory rates applicable to income earned outside the U.S., the benefit of U.S. research and development tax credits, and discrete tax benefits.

Discrete tax benefits recorded in the three and nine months ended October 2, 2016 amounted to $6.4 million and $13.3 million respectively. The $6.4 million of discrete tax benefits recorded in the three months ended October 2, 2016 included $3.1 million from out-of-period adjustments, $1.6 million related to tax credit carryforwards, $0.7 million from non-taxable foreign exchange gains and $1.0 million of benefit from other discrete tax items. The $13.3 million of discrete tax benefits recorded in the nine months ended October 2, 2016 included $4.1 million from non-taxable foreign exchange gains, $3.1 million from out-of-period adjustments, $2.6 million of tax reserve releases resulting from the settlement of a U.S. tax audit, $1.6 million related to tax credit carryforwards, $0.9 million related to marketable securities and $1.0 million of benefit from other discrete tax items.

During the three and nine months ended October 2, 2016, Teradyne recorded out-of-period adjustments of approximately $3.1 million to increase deferred tax assets and decrease income tax expense related to alternative minimum tax credits and capitalized inventory costs that should have been recognized previously. The out-of-period adjustments are not material to the current period or the relevant prior periods.

The effective tax rate for the three months ended October 4, 2015 differed from the expected federal statutory rate of 35% as a result of additions to the uncertain tax positions for transfer pricing, partially offset by $3.3 million of discrete tax benefits composed of $1.8 million of benefit attributable to a United States Tax Court opinion regarding intercompany cost sharing arrangements, $0.6 million of reductions in uncertain tax positions resulting from the expiration of statutes and $0.9 million from other discrete tax benefits.

The effective tax rate for the nine months ended October 4, 2015 differed from the expected federal statutory rate of 35% primarily because of the favorable effect of statutory rates applicable to income earned outside the United States.

The effective tax rate for the nine months ended October 4, 2015 was increased by additions to the uncertain tax positions for transfer pricing, partially offset by $5.0 million of discrete tax benefits composed of $1.8 million of benefit attributable to a United States Tax Court opinion regarding intercompany cost sharing arrangements, $1.3 million of reductions in uncertain tax positions resulting from the expiration of statutes and the settlement of an audit, $0.9 million from disqualifying dispositions of incentive stock options and employee stock purchase plan shares and $1.0 million from other discrete tax benefits.

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On a quarterly basis, Teradyne evaluates the realizability of the deferred tax assets by jurisdiction and assesses the need for a valuation allowance. As of October 2, 2016, Teradyne believes that it will ultimately realize the deferred tax assets recorded on the condensed consolidated balance sheet. However, should Teradyne believe that it is more-likely-than-not that the deferred tax assets would not be realized, the tax provision would increase in the period in which Teradyne determined that the realizability was not likely. Teradyne considers the probability of future taxable income and historical profitability, among other factors, in assessing the realizability of the deferred tax assets.

As of October 2, 2016 and December 31, 2015, Teradyne had $34.7 million and $33.7 million, respectively, of reserves for uncertain tax positions. The $1.0 million net increase in reserves for uncertain tax positions is composed of additions related to transfer pricing exposures, partially offset by tax reserve releases resulting from the settlement of a U.S. tax audit.

As of October 2, 2016, Teradyne estimates that it is reasonably possible that the balance of unrecognized tax benefits may decrease approximately $4.4 million in the next twelve months, as a result of a lapse of statutes of limitation. The estimated decrease is composed primarily of reserves relating to transfer pricing.

Teradyne recognizes interest and penalties related to income tax matters in income tax expense. As of October 2, 2016 and December 31, 2015, $0.8 million and $0.5 million, respectively, of interest and penalties were accrued for uncertain tax positions. For the nine months ended October 2, 2016, an expense of $0.3 million was recorded for interest and penalties related to income tax items. For the nine months ended October 4, 2015, a benefit of $0.3 million was recorded for interest and penalties related to income tax items.

Teradyne qualifies for a tax holiday in Singapore by fulfilling the requirements of an agreement with the Singapore Economic Development Board under which certain headcount and spending requirements must be met. The tax savings due to the tax holiday for the nine months ended October 2, 2016 was $25.2 million, or $0.12 per diluted share. The tax savings due to the tax holiday for the nine months ended October 4, 2015 was $9.9 million, or $0.05 per diluted share. The tax holiday is scheduled to expire on December 31, 2020.

R. Segment Information

Teradyne has four operating segments (Semiconductor Test, System Test, Wireless Test, and Industrial Automation), which are its reportable segments. The Semiconductor Test segment includes operations related to the design, manufacturing and marketing of semiconductor test products and services. The System Test segment includes operations related to the design, manufacturing and marketing of products and services for defense/aerospace instrumentation test, storage test and circuit-board test. The Wireless Test segment includes operations related to the design, manufacturing and marketing of wireless test products and services. The Industrial Automation segment includes operations related to the design, manufacturing and marketing of collaborative robots. Each operating segment has a segment manager who is directly accountable to and maintains regular contact with Teradyne s chief operating decision maker (Teradyne s chief executive officer) to discuss operating activities, financial results, forecasts, and plans for the segment.

Teradyne evaluates performance based on several factors, of which the primary financial measure is business segment income before income taxes. The accounting policies of the business segments in effect are described in Note B: Accounting Policies in Teradyne s Annual Report on Form 10-K for the year ended December 31, 2015.

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Segment information for the three months and nine months ended October 2, 2016 and October 4, 2015 is as follows:

	Semiconductor Test	System Test	Wireless Test	Industrial Automation	Corporate and Eliminations	Consolidated
			(in thousands)			
Three Months Ended October 2, 2016						
Revenues	$ 322,021	$ 37,030	$ 27,919	$ 23,505	$	$ 410,475
Income (loss) before income taxes (1)(2)	67,710	1,550	1,049	(4,695)	(5,933)	59,681
Total assets (3)	522,529	90,713	65,953	340,030	1,346,462	2,365,687
Three Months Ended October 4, 2015						
Revenues	$ 325,516	$ 69,062	$ 55,359	$ 16,057	$	$ 465,994
Income (loss) before income taxes (1)(2)	73,957	13,751	2,997	(4,847)	1,550	87,408
Total assets (3)	591,445	109,078	447,461	360,068	1,153,832	2,661,884
Nine Months Ended October 2, 2016						
Revenues	$ 1,097,608	$ 139,640	$ 70,660	$ 65,353	$	$ 1,373,261
Income (loss) before income taxes (1)(2)	262,127	20,033	(375,596)	(16,364)	(4,145)	(113,945)
Total assets (3)	522,529	90,713	65,953	340,030	1,346,462	2,365,687
Nine Months Ended October 4, 2015						
Revenues	$ 996,748	$ 152,320	$ 152,285	$ 19,780	$	$ 1,321,133
Income (loss) before income taxes (1)(2)	246,627	10,423	(603)	(6,547)	12,081	261,981
Total assets (3)	591,445	109,078	447,461	360,068	1,153,832	2,661,884

(1) Interest income, interest expense, and other (income) expense, net are included in Corporate and Eliminations.
(2) Included in the income (loss) before income taxes for each of the segments are charges related to inventory and other.
(3) Total business assets are directly attributable to each business. Corporate assets consist of cash and cash equivalents, marketable securities and certain other assets.

Included in the Semiconductor Test segment are charges in the following line items in the statements of operations:

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
		(in thousands)		
Cost of revenues inventory charge	$ 2,351	$ 1,697	$ 8,270	$ 8,637
Restructuring and other	2,047	194	2,798	499
Total	$ 4,398	$ 1,891	$ 11,068	$ 9,136

Included in the System Test segment are charges and credits in the following line items in the statements of operations:

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands)			
Cost of revenues inventory charge	$ 121	$ 460	$ 441	$ 8,225
Restructuring and other	(48)	923	(48)	923
Total	$ 73	$ 1,383	$ 393	$ 9,148

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Included in the Wireless Test segment are charges in the following line items in the statements of operations:

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands)			
Goodwill impairment	$	$	$ 254,946	$
Intangible assets impairment			83,339	
Cost of revenues inventory charge	561	901	6,437	2,077
Restructuring and other	1,672		2,639	
Total	$ 2,233	$ 901	$ 347,361	$ 2,077

Included in the Industrial Automation segment are charges in the following line items in the statements of operations:

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands)			
Cost of revenues inventory step-up (1)	$	$ 972	$	$ 1,567
Restructuring and other	532		532	
Total	$ 532	$ 972	$ 532	$ 1,567

(1) Included in the cost of revenues for the three and nine months ended October 4, 2015 is the cost for purchase accounting inventory step-up.

Included in Corporate and Eliminations are charges and credits in the following line items in the statements of operations:

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
	(in thousands)			
Restructuring and other Universal Robots contingent consideration adjustment	$ 7,974	$	$ 9,902	$
	312		5,363	

Restructuring and other	Impairment of fixed assets and expenses related to Japan Earthquake				
Restructuring and other	Property insurance recovery	(312)		(5,363)	
Restructuring and other	AIT contingent consideration adjustment		(1,000)	550	(1,000)
Restructuring and other	ZTEC contingent consideration adjustment				(1,600)
Other (income) expense, net	Gain from the sale of an equity investment				(5,406)
Restructuring and other	Universal Robots acquisition costs		144		1,104
Total		$ 7,974	$ (856)	$ 10,452	$ (6,902)

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S. Shareholders Equity

Stock Repurchase Program

In January 2015, the Board of Directors authorized Teradyne to repurchase up to $500 million of common stock, of which $300 million was repurchased in 2015. In 2016, Teradyne intends to repurchase between $100 million and $200 million of common stock. During the nine months ended October 2, 2016, Teradyne repurchased 4.3 million shares of common stock at an average price per share of $19.69, for a total cost of $85.1 million. Cumulative repurchases as of October 2, 2016 totaled 19.9 million shares of common stock for a total purchase price of $385 million at an average price per share of $19.31. The total price includes commissions and is recorded as a reduction to retained earnings.

Dividend

Holders of Teradyne s common stock are entitled to receive dividends when they are declared by Teradyne s Board of Directors.

In January 2016, May 2016, and August 2016, Teradyne s Board of Directors declared a quarterly cash dividend of $0.06 per share. Dividend payments for the three and nine months ended October 2, 2016 were $12.1 million and $36.5 million, respectively.

In January 2015, May 2015, and August 2015, Teradyne s Board of Directors declared a quarterly cash dividend of $0.06 per share. Dividend payments for the three and nine months ended October 4, 2015 were $12.6 million and $38.4 million, respectively.

While Teradyne declared a quarterly cash dividend and authorized a share repurchase program, it may reduce or eliminate the cash dividend or share repurchase program in the future. Future cash dividends and stock repurchases are subject to the discretion of Teradyne s Board of Directors which will consider, among other things, Teradyne s earnings, capital requirements and financial condition.

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Item 2: Management s Discussion and Analysis of Financial Condition and Results of Operations

Statements in this Quarterly Report on Form 10-Q 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 our filings with the Securities and Exchange Commission. See also Part II, Item 1A of this Quarterly Report on Form 10-Q and Part I, Item 1A Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2015. 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.

Overview

We are a leading global supplier of automation equipment for test and industrial applications. We design, develop, manufacture and sell automatic test systems used to test semiconductors, wireless products, data storage and complex electronics systems in the consumer electronics, wireless, automotive, industrial, computing, communications, and aerospace and defense industries. Our industrial automation products include collaborative robots used by global manufacturing and light industrial customers to improve quality, increase manufacturing efficiency and decrease manufacturing costs. Our automatic test equipment and industrial automation products and services include:

- semiconductor test (Semiconductor Test) systems;
- defense/aerospace (Defense/Aerospace) test instrumentation and systems, storage test (Storage Test) systems, and circuit-board test and inspection (Production Board Test) systems (collectively these products represent System Test);
- wireless test (Wireless Test) systems; and
- industrial automation (Industrial Automation) products.

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, and distributors that sell collaborative robots.

On June 11, 2015, we acquired Universal Robots A/S (Universal Robots) for approximately $284 million of cash plus up to an additional $65 million of cash if certain performance targets are met extending through 2018. Universal Robots is the leading supplier of collaborative robots which are low-cost, easy-to-deploy and simple-to-program robots that work side by side with production workers to improve quality and increase manufacturing efficiency. Universal Robots is a separate operating and reportable segment, Industrial Automation. The acquisition of Universal Robots provides a growth engine to our business and complements our existing System Test and Wireless Test segments.

We believe our recent acquisitions have enhanced our opportunities for growth. We intend to continue to invest in our business, grow market share in our markets and expand further our addressable markets while tightly managing our costs.

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 because our customers often delay or accelerate purchases in reaction to changes in their businesses and to demand fluctuations in the semiconductor and electronics industries. Historically, these demand fluctuations have resulted in significant variations in our results of operations. The sharp swings in the semiconductor and electronics industries have generally affected the semiconductor and electronics test equipment and services industries more significantly than the overall capital equipment sector.

In recent years, this cyclical demand has become an even/odd year trend where demand has increased in even years and decreased in odd years due principally to demand swings in the mobility market of our Semiconductor Test business. In 2015, the even/odd year trend continued, but had less of an impact on our annual revenue due to the sale in 2015 of testers that were previously leased to customers in 2014. We expect the even/odd year demand trend in the mobility market to most likely lessen in the future due to slower smart phone unit growth, along with rising device complexity and the reduced impact of parallel test in our Semiconductor Test business.

On April 16, 2016, an earthquake in Kumamoto, Japan damaged our main building at that location. The building, which was used for engineering, production, and support operations, was damaged beyond repair. With respect to the location, we have $10 million of earthquake insurance with a deductible of approximately $2.5 million. As a result, we impaired the building and recorded a charge of $4.2 million and a charge of $1.2 million for other earthquake related expenses. The $5.4 million of total charges were offset by $5.4 million of property insurance recovery. We have temporarily transferred some operations to other facilities in Japan and elsewhere while our Kumamoto operations are restored.

In the second quarter of 2016, the Wireless Test reporting unit (which is our Wireless Test operating and reportable segment) reduced headcount by 11% as a result of a sharp decline in projected demand attributable to an estimated smaller future wireless test market. The decrease in projected demand was due to lower forecasted buying from our largest Wireless Test segment customer (who has contributed between 51% and 73% of annual Wireless Test sales since the LitePoint acquisition in 2011) as a result of the customer s numerous operational efficiencies; slower smartphone growth rates; and a slowdown of new wireless technology adoption. We considered the headcount reduction and sharp decline in projected demand to be a triggering event for an interim goodwill impairment test. Following the interim goodwill impairment test, we recorded a goodwill impairment charge of $255 million, with approximately $8.0 million of goodwill remaining, and $83 million for the impairment of acquired intangible assets with approximately $5.8 million of intangible assets remaining. In the third quarter of 2016, the Wireless Test reporting unit reduced headcount by an additional 14%. We expect demand to improve in 2018, but may need to take further cost control measures.

Critical Accounting Policies and Estimates

We have identified the policies which are critical to understanding our business and our results of operations. There have been no significant changes during the three and nine months ended October 2, 2016 to the items disclosed as our critical accounting policies and estimates in Management s Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the fiscal year ended December 31, 2015.

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SELECTED RELATIONSHIPS WITHIN THE CONDENSED CONSOLIDATED

STATEMENTS OF OPERATIONS

	For the Three Months Ended		For the Nine Months Ended	
	October 2, 2016	October 4, 2015	October 2, 2016	October 4, 2015
Percentage of revenues:				
Revenues:				
Products	82%	83%	84%	83%
Services	18	17	16	17
Total revenues	100	100	100	100
Cost of revenues:				
Cost of products	36	37	39	36
Cost of services	8	8	7	8
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	45	45	46	43
Gross profit	55	55	54	57
Operating expenses:				
Engineering and development	17	16	16	17
Selling and administrative	19	17	17	17
Acquired intangible assets amortization	2	4	3	4
Acquired intangible assets impairment			6	
Goodwill impairment			19	
Restructuring and other	3		1	
Total operating expenses	42	37	63	38
Income (loss) from operations	14	19	(9)	19
Non-operating (income) expense:				
Interest income	(1)			
Interest expense				
Other (income) expense, net				
Income (loss) before income taxes	15	19	(8)	20
Income tax (benefit) provision	(1)	3		4
Net income (loss)	16%	15%	(8)%	16%

Results of Operations

Third Quarter 2016 Compared to Third Quarter 2015

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:

	For the Three Months Ended	
	October 2, 2016	October 4, 2015
Semiconductor Test	0.8	0.6
System Test	2.1	0.7
Wireless Test	1.0	0.7
Industrial Automation	1.0	1.0
Total Company	0.9	0.7

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Revenues

Revenues by our four reportable segments were as follows:

	For the Three Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Semiconductor Test	$ 322.0	$ 325.5	$ (3.5)
System Test	37.0	69.1	(32.1)
Wireless Test	27.9	55.4	(27.5)
Industrial Automation	23.5	16.1	7.4
	$ 410.5	$ 466.0	$ (55.5)

The decrease in Semiconductor Test revenues of $3.5 million, or 1.1%, was primarily due to lower service revenue. The decrease in System Test revenue of $32.1 million, or 46.5%, was primarily due to lower sales in Storage Test of 3.5 hard disk drive testers for cloud storage. The decrease in Wireless Test revenue of $27.5 million, or 49.6%, was driven by lower demand for connectivity and cellular test systems primarily from our largest Wireless Test segment customer. As a result of significant customer concentration in our Wireless Test segment, quarterly revenue in that segment is subject to significant fluctuations based on our largest customer s order levels. The increase in Industrial Automation revenues of $7.4 million, or 46.0%, was primarily due to higher product volume.

Revenues by country as a percentage of total revenues were as follows (1):

	For the Three Months Ended	
	October 2, 2016	October 4, 2015
Taiwan	42%	31%
United States	10	12
China	10	15
Europe	7	7
Korea	7	6
Malaysia	6	3
Japan	5	6
Singapore	4	6
Philippines	4	8
Thailand	2	5
Rest of World	3	1
	100%	100%

(1) Revenues attributable to a country are based on location of customer site.

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Gross Profit

Our gross profit was as follows:

	For the Three Months Ended		Dollar/ Point Change
	October 2, 2016	October 4, 2015	
	(in millions)		
Gross profit	$ 227.4	$ 258.6	$ (31.2)
Percent of total revenues	55.4%	55.5%	(0.1)

Gross profit as a percent of revenue decreased by 0.1 points, as a result of a 0.9 point decrease related to sales of previously leased testers in Semiconductor Test in 2015 and lower Wireless Test sales in 2016, partially offset by a 0.5 point increase due to lower freight costs and a 0.2 point increase due to lower variable compensation.

We assess the carrying value of our inventory on a quarterly basis by estimating future demand and comparing that demand against on-hand and on-order inventory positions. Forecasted revenue information is obtained from the sales and marketing groups and incorporates factors such as backlog and future revenue demand. This quarterly process identifies obsolete and excess inventory. Obsolete inventory, which represents items for which there is no demand, is fully reserved. Excess inventory, which represents inventory items that are not expected to be consumed during the next twelve quarters for our Semiconductor Test, System Test and Industrial Automation segments and the next four quarters for our Wireless Test segment, is written-down to estimated net realizable value.

During the three months ended October 2, 2016, we recorded an inventory provision of $3.0 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels. Of the $3.0 million of total excess and obsolete provisions, $2.3 million was related to Semiconductor Test, $0.6 million was related to Wireless Test, and $0.1 million was related to System Test.

During the three months ended October 4, 2015, we recorded an inventory provision of $3.1 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels. Of the $3.1 million of total excess and obsolete provisions, $1.7 million was related to Semiconductor Test, $0.9 million was related to Wireless Test, and $0.5 million was related to System Test.

During the three months ended October 2, 2016 and October 4, 2015, we scrapped $4.6 million and $3.6 million of inventory, respectively. During the three months ended October 2, 2016 and October 4, 2015, we sold $1.8 million and $2.0 million of previously written-down or written-off inventory, respectively. As of October 2, 2016, we had inventory related reserves for inventory which had been written-down or written-off totaling $123.4 million. We have no pre-determined timeline to scrap the remaining inventory.

Engineering and Development

Engineering and development expenses were as follows:

	For the Three Months Ended		Dollar Change
	October 2, 2016	October 4, 2015	
	(in millions)		
Engineering and development	$ 71.4	$ 74.0	$ (2.6)
Percent of total revenues	17.4%	15.9%	

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The decrease of $2.6 million in engineering and development expenses was primarily due to lower variable compensation and lower spending in Semiconductor Test and Wireless Test, partially offset by additional spending in Industrial Automation.

Selling and Administrative

Selling and administrative expenses were as follows:

	For the Three Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Selling and administrative	$ 78.8	$ 77.5	$ 1.3
Percent of total revenues	19.2%	16.6%	

The increase of $1.3 million in selling and administrative expenses was due primarily to additional spending in Industrial Automation, partially offset by lower variable compensation.

Acquired Intangible Assets Amortization

Acquired intangible assets amortization expense was as follows:

	For the Three Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Acquired intangible assets amortization	$ 8.5	$ 20.1	$ (11.6)
Percent of total revenues	2.1%	4.3%	

Acquired intangible assets amortization expense decreased due to lower amortization expense in the Wireless Test segment due to the impairment of intangible assets in the second quarter of 2016.

Restructuring and Other

Other

During the three months ended October 2, 2016, we recorded an expense of $8.0 million for the increase in the fair value of contingent consideration liability related to Universal Robots and $0.3 million of expenses related to an April 16, 2016 earthquake in Kumamoto, Japan, offset by $0.3 million of property insurance recovery.

During the three months ended October 4, 2015, we recorded a $1.0 million gain from the decrease in the fair value of the AIT contingent consideration liability, partially offset by $0.1 million of acquisition costs related to Universal Robots.

Restructuring

During the three months ended October 2, 2016, we recorded $4.2 million of severance charges related to headcount reductions of 72 people, of which 55 people were in Wireless Test and 17 people were in Semiconductor Test.

During the three months ended October 4, 2015, we recorded $1.1 million of severance charges related to headcount reductions of 18 people, primarily in System Test.

Interest and Other

	For the Three Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Interest income	$ (2.9)	$ (1.7)	$ (1.2)
Interest expense	0.6	0.5	0.1
Other (income) expense, net	(0.9)	0.6	(1.5)

Interest income increased by $1.2 million due primarily to higher cash and marketable securities balances in 2016. Other (income) expense, net increased primarily due to net foreign exchange gains.

Income (Loss) Before Income Taxes

	For the Three Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Semiconductor Test	$ 67.7	$ 74.0	$ (6.3)
System Test	1.6	13.8	(12.2)
Wireless Test	1.1	3.0	(1.9)
Industrial Automation	(4.7)	(4.9)	0.2
Corporate (1)	(6.0)	1.5	(7.5)
	$ 59.7	$ 87.4	$ (27.7)

(1) Included in Corporate are: contingent consideration adjustments, interest income, interest expense, other (income) expense, pension actuarial losses, expenses related to the Japan earthquake and property insurance recovery, and net foreign exchange gains.

The decrease in income before income taxes in Semiconductor Test was primarily due to lower service revenue. The decrease in income before income taxes in System Test was primarily due to lower sales in Storage Test of 3.5 hard disk drive testers for cloud storage. The decrease in income before income taxes in Wireless Test was primarily due to lower revenue driven by lower connectivity and cellular test system sales.

Income Taxes

The effective tax rate for the three months ended October 2, 2016 and October 4, 2015 was (6.9)% and 18.3%, respectively. The change in the effective tax rate is primarily attributable to the effect of the non-deductible goodwill impairment charge which reduced the benefit of the forecast annual loss before income taxes in the U.S. The rate for the three months ended October 2, 2016 also reflects $6.4 million of discrete tax benefits composed of $3.1 million from out-of-period adjustments, $1.6 million related to tax credit carryforwards, $0.7 million from non-taxable foreign exchange gains and $1.0 million of benefit from other discrete tax items. The rate for the three months ended October 4, 2015 includes $3.3 million of discrete tax benefits composed of $1.8 million of benefit attributable to a United States Tax Court opinion regarding intercompany cost sharing arrangements, $0.6 million of reductions in uncertain tax positions resulting from the expiration of statutes of limitations and $0.9 million from other discrete tax benefits.

During the three months ended October 2, 2016, we recorded out-of-period adjustments of approximately $3.1 million to increase deferred tax assets and decrease income tax expense related to alternative minimum tax credits and capitalized inventory costs that should have been recognized previously. The out-of-period adjustments are not material to the current period or the relevant prior.

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Nine Months of 2016 Compared to Nine Months of 2015

Revenues

Revenues by our four reportable segments were as follows:

	For the Nine Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Semiconductor Test	$ 1,097.6	$ 996.7	$ 100.9
System Test	139.6	152.3	(12.7)
Wireless Test	70.7	152.3	(81.6)
Industrial Automation	65.4	19.8	45.6
	$ 1,373.3	$ 1,321.1	$ 52.2

The increase in Semiconductor Test revenues of $100.9 million, or 10.1%, was primarily due to higher product volume in the application processor market. The decrease in System Test revenue of $12.7 million, or 8.3%, was primarily due to lower sales in Storage Test. The decrease in Wireless Test revenue of $81.6 million, or 53.6%, was driven by lower demand for connectivity and cellular test systems primarily from our largest Wireless Test segment customer. As a result of significant customer concentration in our Wireless Test segment, quarterly revenue in that segment is subject to significant fluctuations based on our largest customer s order levels. The acquisition of Universal Robots, which is our Industrial Automation segment, completed in June 2015, added $65.4 million of revenue in the nine months ended October 2, 2016.

Revenues by country as a percentage of total revenues were as follows (1):

	For the Nine Months Ended	
	October 2, 2016	October 4, 2015
Taiwan	44%	29%
United States	11	12
China	9	16
Japan	7	7
Korea	6	8
Europe	6	6
Malaysia	5	4
Singapore	4	7
Philippines	3	6
Thailand	2	4
Rest of World	3	1

	100%	100%

(1) Revenues attributable to a country are based on location of customer site.

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Gross Profit

Our gross profit was as follows:

	For the Nine Months Ended		Dollar/
	October 2, 2016	October 4, 2015	Point Change
	(in millions)		
Gross profit	$ 740.6	$ 749.6	$ (9.0)
Percent of total revenues	53.9%	56.7%	(2.8)

Gross profit as a percent of revenue decreased by 2.8 points, of which a 3.6 point decrease was related to product mix and sales of previously leased testers in Semiconductor Test in 2015 and lower Wireless Test sales in 2016, partially offset by a 0.4 point increase due to lower excess and obsolete inventory provisions and a 0.3 point increase due to higher product volume.

We assess the carrying value of our inventory on a quarterly basis by estimating future demand and comparing that demand against on-hand and on-order inventory positions. Forecasted revenue information is obtained from the sales and marketing groups and incorporates factors such as backlog and future revenue demand. This quarterly process identifies obsolete and excess inventory. Obsolete inventory, which represents items for which there is no demand, is fully reserved. Excess inventory, which represents inventory items that are not expected to be consumed during the next twelve quarters for our Semiconductor Test, System Test and Industrial Automation segments and the next four quarters for our Wireless Test segment, is written-down to estimated net realizable value.

During the nine months ended October 2, 2016, we recorded an inventory provision of $15.1 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels. Of the $15.1 million of total excess and obsolete provisions, $8.3 million was related to Semiconductor Test, $6.4 million was related to Wireless Test, and $0.4 million was related to System Test.

During the nine months ended October 4, 2015, we recorded an inventory provision of $18.9 million included in cost of revenues primarily due to $7.7 million related to downward revisions to previously forecasted demand levels for our 2.5 hard disk drive testers in Storage Test, $6.0 million related to product transition in Semiconductor Test, and $2.1 million related to downward revision to previously forecasted demand levels in Wireless Test. Of the $18.9 million of total excess and obsolete provisions, $8.6 million was related to Semiconductor Test, $8.2 million was related to System Test, and $2.1 million was related to Wireless Test.

During the nine months ended October 2, 2016 and October 4, 2015, we scrapped $6.8 million and $5.0 million of inventory, respectively. During the nine months ended October 2, 2016 and October 4, 2015, we sold $8.0 million and $6.4 million of previously written-down or written-off inventory, respectively. As of October 2, 2016, we had inventory related reserves for inventory which had been written-down or written-off totaling $123.4 million. We have no pre-determined timeline to scrap the remaining inventory.

Engineering and Development

Engineering and development expenses were as follows:

	For the Nine Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Engineering and development	$ 221.0	$ 221.3	$ (0.3)
Percent of total revenues	16.1%	16.8%	

The decrease of $0.3 million in engineering and development expenses was due primarily to lower variable compensation, partially offset by additional costs as a result of the acquisition of Universal Robots in June 2015.

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Selling and Administrative

Selling and administrative expenses were as follows:

	For the Nine Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Selling and administrative	$ 239.4	$ 226.6	$ 12.8
Percent of total revenues	17.4%	17.2%	

The increase of $12.8 million in selling and administrative expenses was due primarily to additional costs as a result of the acquisition of Universal Robots in June 2015, partially offset by lower variable compensation.

Acquired Intangible Assets Amortization

Acquired intangible assets amortization expense was as follows:

	For the Nine Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Acquired intangible assets amortization	$ 44.7	$ 49.1	$ (4.4)
Percent of total revenues	3.3%	3.7%	

Acquired intangible assets amortization expense decreased due to lower amortization expense in the Wireless Test segment due to the impairment of intangible assets in the second quarter of 2016, partially offset by the Universal Robots acquisition in June 2015.

Goodwill Impairment

We assess goodwill for impairment at least annually, in the fourth quarter, as of December 31, or on an interim basis between annual tests when events or circumstances indicate that it is more-likely-than-not that the fair value of a reporting unit is less than its carrying value. In the second quarter of 2016, the Wireless Test reporting unit (which is our Wireless Test operating and reportable segment) reduced headcount by 11% as a result of a sharp decline in projected demand attributable to an estimated smaller future wireless test market. The decrease in projected demand was due to lower forecasted buying from our largest Wireless Test segment customer (who has contributed between 51% and 73% of annual Wireless Test sales since the LitePoint acquisition in 2011) as a result of the customer s numerous operational efficiencies; slower smartphone growth rates; and a slowdown of new wireless technology adoption. We considered the headcount reduction and sharp decline in projected demand to be a triggering event for an interim goodwill impairment test. Following the interim goodwill impairment test, we recorded a goodwill impairment charge of $255 million in the second quarter of 2016.

Acquired Intangible Assets Impairment

We review long-lived assets for impairment whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable or that the useful lives of these assets are no longer appropriate. As a result of the Wireless Test segment goodwill impairment review in the second quarter of 2016, we performed an impairment test of the Wireless Test segment s intangible and long-lived assets based on a comparison of the estimated undiscounted cash flows to the recorded value of the assets. If undiscounted cash flows for the asset are less than the carrying amount, the asset is written down to its estimated fair value based on a discounted cash flow analysis. The cash flow estimates used to determine the impairment contain management s best estimates using appropriate assumptions and projections at that time. As a result of the analysis, we recorded an $83.3 million impairment charge in the second quarter of 2016 in acquired intangible assets impairment on the statement of operations.

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Restructuring and Other

Other

During the nine months ended October 2, 2016, we recorded $4.2 million for an impairment of fixed assets and $1.2 million for expenses related to an earthquake in Kumamoto, Japan and $10.5 million for the increase in the fair value of contingent consideration liability, of which $9.9 million was related to Universal Robots and $0.6 million was related to AIT, partially offset by $5.4 million of property insurance recovery related to the Japan earthquake.

During the nine months ended October 4, 2015, we recorded a $2.6 million gain from the decrease in the fair value of contingent consideration liability, of which $1.6 million was related to the ZTEC acquisition and $1.0 million was related to the AIT acquisition, partially offset by $1.1 million of acquisition costs related to Universal Robots.

Restructuring

During the nine months ended October 2, 2016, we recorded $5.9 million of severance charges related to headcount reductions of 146 people, of which 102 people were in Wireless Test and 44 people were in Semiconductor Test.

During the nine months ended October 4, 2015, we recorded $1.4 million of severance charges related to headcount reductions of 22 people, primarily in System Test.

Interest and Other

	For the Nine Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Interest income	$ (6.2)	$ (5.2)	$ (1.0)
Interest expense	2.0	1.1	0.9
Other (income) expense, net	(1.1)	(5.2)	4.1

Interest income increased by $1.0 million due primarily to higher cash and marketable securities balances in 2016. Interest expense increased by $0.9 million due primarily to costs related to the revolving credit facility and realized losses on sales of marketable securities in 2016. In 2015, other (income) expense, net included a $4.8 million gain from the sale of an equity investment.

Income (Loss) Before Income Taxes

	For the Nine Months Ended		
	October 2, 2016	October 4, 2015	Dollar Change
		(in millions)	
Semiconductor Test	$ 262.2	$ 246.6	$ 15.6

System Test	20.0	10.4	9.6
Wireless Test	(375.6)	(0.6)	(375.0)
Industrial Automation	(16.4)	(6.5)	(9.9)
Corporate (1)	(4.1)	12.1	(16.2)
	$ (113.9)	$ 262.0	$ (375.9)

(1) Included in Corporate are: impairment of fixed assets and expenses related to the Japan earthquake, property insurance recovery, pension actuarial gains, contingent consideration adjustments, gain from the sale of an equity investment, proceeds from life insurance, interest income and interest expense.

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The increase in income before income taxes in Semiconductor Test was primarily due to higher revenues in the application processor market. The increase in income before income taxes in System Test was primarily due to lower excess and obsolete inventory provisions. The increase in loss before income taxes in Wireless Test was primarily due to goodwill and intangible assets impairment charges and lower revenue driven by lower connectivity and cellular test system sales. In June 2015, we completed the acquisition of Universal Robots, which is our Industrial Automation segment. The loss before income taxes in Industrial Automation in the nine months ended October 2, 2016 and the nine months ended October 4, 2015 was primarily due to amortization of intangible assets.

Income Taxes

The effective tax rate for the nine months ended October 2, 2016 and October 4, 2015 was 3.7% and 20.9%, respectively. The decrease in the effective tax rate is primarily attributable to the effect of the non-deductible goodwill impairment charge which reduced the benefit of the forecast annual loss before income taxes in the U.S. The rate for the nine months ended October 2, 2016 includes the impact of a projected decrease in income subject to tax in the U.S. as compared to lower rate foreign jurisdictions. The rate for the nine months ended October 2, 2016 also reflects $13.3 million of discrete tax benefits composed of $4.1 million from non-taxable foreign exchange gains, $3.1 million from out-of-period adjustments, $2.6 million of tax reserve releases resulting from the settlement of a U.S. tax audit, $1.6 million related to tax credit carryforwards, $0.9 million related to marketable securities and $1.0 million of benefit from other discrete tax items. The effective tax rate for the nine months ended October 4, 2015 includes $5.0 million of discrete tax benefits composed of $1.8 million of benefit attributable to a United States Tax Court opinion regarding intercompany cost sharing arrangements, $1.3 million of reductions in uncertain tax positions resulting from the expiration of statutes and the settlement of an audit, $0.9 million from disqualifying dispositions of incentive stock options and employee stock purchase plan shares and $1.0 million from other discrete tax benefits.

During the nine months ended October 2, 2016, we recorded out-of-period adjustments of approximately $3.1 million to increase deferred tax assets and decrease income tax expense related to alternative minimum tax credits and capitalized inventory costs that should have been recognized previously. The out-of-period adjustments are not material to the current period or the relevant prior periods.

Contractual Obligations

The following table reflects our contractual obligations as of October 2, 2016:

	Payments Due by Period					
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years	Other
			(in thousands)			
Purchase obligations	$ 181,394	$ 179,019	$ 2,375	$	$	$
Retirement plans contributions	112,063	4,031	8,183	22,611	77,238	
Operating lease obligations	72,371	16,162	27,996	17,105	11,108	
Fair value of contingent consideration	32,887	1,050	31,837			
Other long-term liabilities reflected on the balance sheet under GAAP (1)	74,527		26,336			48,191
Total	$ 473,242	$ 200,262	$ 96,727	$ 39,716	$ 88,346	$ 48,191

(1) Included in Other Long-Term Liabilities are liabilities for customer advances, extended warranty, uncertain tax positions, deferred tax liabilities and other obligations. For certain long-term obligations, we are unable to provide a reasonably reliable estimate of the timing of future payments relating to these obligations and therefore we included these amounts in the column marked Other.

Liquidity and Capital Resources

Our cash, cash equivalents and marketable securities balances increased by $245.9 million in the nine months ended October 2, 2016 to $1,254 million.

In the nine months ended October 2, 2016, changes in operating assets and liabilities provided cash of $85.1 million. This was due to an $81.3 million decrease in operating assets and a $3.8 million increase in operating liabilities.

The decrease in operating assets was due to a $45.7 million decrease in accounts receivable due to increased collections and a $48.6 million decrease in inventories, partially offset by a $13.0 million increase in prepayments and other assets. The increase in operating liabilities was due to a $53.4 million increase in deferred revenue and customer advance payments, a $16.3 million increase in other accrued liabilities and a $4.2 million increase in accrued income taxes, partially offset by a $33.4 million decrease in accrued employee compensation due primarily to variable compensation and employee stock compensation awards payroll tax payments, a $30.8 million decrease in accounts payable, and $5.9 million of retirement plan contributions.

Investing activities during the nine months ended October 2, 2016 used cash of $268.1 million, due to $875.8 million used for purchases of marketable securities and $66.3 million used for purchases of property, plant and equipment, partially offset by $466.7 million and $202.2 million in proceeds from sales and maturities of marketable securities, respectively, and proceeds from property insurance of $5.1 million related to the Japan earthquake.

Financing activities during the nine months ended October 2, 2016 used cash of $109.9 million, due to $85.1 million used for the repurchase of 4.3 million shares of common stock at an average price of $19.69 per share, $36.5 million used for dividend payments and $11.7 million used for a payment related to the Universal Robots acquisition contingent consideration, partially offset by $20.1 million from the issuance of common stock under employee stock purchase and stock option plans and $3.4 million from the tax benefit related to employee stock compensation awards.

In the nine months ended October 4, 2015, changes in operating assets and liabilities provided cash of $39.9 million. This was due to a $42.2 million increase in operating assets and an $82.1 million increase in operating liabilities.

The increase in operating assets was due to a $91.1 million increase in accounts receivable due to higher sales, partially offset by a $33.4 million decrease in inventories and a $15.5 million decrease in prepayments and other assets. The increase in operating liabilities was due to a $41.8 million increase in other accrued liabilities, a $25.9 million increase in accounts payable due to higher sales, a $25.7 million increase in accrued income taxes, and a $6.8 million increase in customer advance payments and deferred revenue partially offset by a $15.1 million decrease in accrued employee compensation due primarily to variable compensation and employee stock compensation awards payroll tax payments, and $3.0 million of retirement plans contributions.

Investing activities during the nine months ended October 4, 2015 used cash of $126.5 million, due to $957.7 million used for purchases of marketable securities, $282.7 million used for the acquisition of Universal Robots, and $66.7 million used for purchases of property, plant and equipment, partially offset by proceeds from maturities and sales of marketable securities of $330.4 million and $843.7 million, respectively, proceeds from the sale of an equity investment of $5.4 million, and proceeds from life insurance of $1.1 million related to the cash surrender value from the cancellation of Teradyne owned life insurance policies.

Financing activities during the nine months ended October 4, 2015 used cash of $246.2 million, due to $226.8 million used for the repurchase of 11.9 million shares of common stock at an average price of $19.09 per share, $38.4 million used for dividend payments, and $2.3 million used for debt issuance costs related to our

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April 2015 revolving credit facility, partially offset by $18.1 million from the issuance of common stock under employee stock purchase and stock option plans and $3.2 million from the tax benefit related to employee stock compensation awards.

In January 2016, May 2016, and August 2016, our Board of Directors declared a quarterly cash dividend of $0.06 per share. In the nine months ended October 2, 2016, dividend payments were $36.5 million.

In January 2015, May 2015, and August 2015, our Board of Directors declared a quarterly cash dividend of $0.06 per share. In the nine months ended October 4, 2015, dividend payments were $38.4 million.

In January 2015, our Board of Directors authorized the repurchase of up to $500 million of common stock of which $300 million was repurchased in 2015. In 2016, we intend to repurchase between $100 million and $200 million. During the nine months ended October 2, 2016, we repurchased 4.3 million shares of common stock at an average price of $19.69, for a total cost of $85.1 million. The cumulative repurchases under this program as of October 2, 2016 totaled 19.9 million shares of common stock for $385 million at an average price of $19.31 per share.

While we declared a quarterly cash dividend and authorized a share repurchase program, we may reduce or eliminate the cash dividend or share repurchase program in the future. Future cash dividends and stock repurchases are subject to the discretion of our Board of Directors which will consider, among other things, our earnings, capital requirements and financial condition.

We believe our cash, cash equivalents and marketable securities balance will be sufficient to pay our quarterly dividend, execute our authorized share repurchase program and meet our working capital and expenditure needs for at least the next twelve months. The amount of cash, cash equivalents and marketable securities in the U.S. and our operations in the U.S. provide sufficient liquidity to fund our business activities in the U.S. We have $826 million of cash, cash equivalents and marketable securities outside the U.S. that if repatriated would incur additional taxes. Determination of the additional taxes that would be incurred is not practicable due to uncertainty regarding the remittance structure, the mix of earnings and earnings and profit pools in the year of remittance, and overall complexity of the calculation. Inflation has not had a significant long-term impact on earnings.

Equity Compensation Plans

As discussed in Note N: Stock Based Compensation in our 2015 Form 10-K, we have a 1996 Employee Stock Purchase Plan and a 2006 Equity and Cash Compensation Incentive Plan (the 2006 Equity Plan).

The purpose of the 1996 Employee Stock Purchase Plan is to encourage stock ownership by all eligible employees of Teradyne. The purpose of the 2006 Equity Plan is to provide equity ownership and compensation opportunities in Teradyne to our employees, officers, directors, consultants and/or advisors. Both plans were approved by our shareholders.

Recently Issued Accounting Pronouncements

On October 24, 2016, the Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-16, *Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other than Inventory*. Under current Generally Accepted Accounting Principles (GAAP), the tax effects of intra-entity asset transfers are deferred until the transferred asset is sold to a third party or otherwise recovered through use. The new guidance requires recognition of the tax expense from the sale of the asset in the seller s tax jurisdiction when the transfer occurs, even though the pre-tax effects of that transaction are eliminated in consolidation. Any deferred tax asset that arises in the buyer s jurisdiction would also be recognized at the time of the transfer. The new guidance does not apply to intra-entity transfers of inventory. The income tax consequences from the sale of inventory from one member of a consolidated entity to another will continue to be deferred until the inventory is sold to a third party. The new guidance will be effective in fiscal years beginning after December 15, 2017. Early adoption is permitted. The modified retrospective approach will be required for transition to the new guidance, with a cumulative-effect adjustment recorded in retained earnings as of the beginning of the period of adoption. We are currently evaluating the impact of this ASU on our financial position, results of operations and statement of cash flows.

On March 31, 2016, the FASB issued ASU 2016-09, *Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*. This ASU changes how companies account for certain aspects of share-based payment awards to employees, including the accounting for income taxes, forfeitures, and statutory tax withholding requirements, as well as classification in the statement of cash flows. This pronouncement is effective for annual periods beginning after December 15, 2016. We do not expect this ASU to have a material impact on our financial position, results of operations and statement of cash flows.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842).* The guidance in this ASU supersedes the lease recognition requirements in Accounting Standards Certification (ASC) Topic 840, *Leases.* The new standard establishes a right-of-use (ROU) model that requires a lessee to record an ROU asset and a lease liability on the balance sheet for all leases with terms longer than twelve months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. The new standard is effective for annual periods beginning after December 15, 2018 with early adoption permitted. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements. We are currently evaluating the impact of this ASU on our financial position and results of operations.

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. This ASU provides guidance for the recognition, measurement, presentation, and disclosure of financial instruments. The new pronouncement revises accounting related to equity investments and the presentation of certain fair value changes for financial liabilities measured at fair value. Among other things, it amends the presentation and disclosure requirements of equity securities that do not result in consolidation and are not accounted for under the equity method. Changes in the fair value of these equity securities will be recognized directly in net income. This pronouncement is effective for fiscal years beginning after December 15, 2017. We are currently evaluating the impact of this ASU on our financial position and results of operations.

In November 2015, the FASB issued ASU 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes*. ASU 2015-17 simplifies the presentation of deferred income taxes by eliminating the separate classification of deferred income tax liabilities and assets into current and noncurrent amounts in the balance sheet. The amendments in the update require that all deferred tax liabilities and assets be classified as noncurrent in the balance sheet. This ASU is effective for annual periods beginning after December 15, 2016, and may be applied either prospectively or retrospectively to all periods presented. Early adoption is permitted. We early adopted this ASU prospectively in the first quarter of 2016.

In April 2015, the FASB issued ASU 2015-03, *Simplifying the Presentation of Debt Issuance Costs,* which requires debt issuance costs to be presented in the balance sheet as a direct deduction from the carrying value of the associated debt liability, consistent with the presentation for debt discount. ASU 2015-03 does not specifically address requirements for the presentation or subsequent measurement of debt issuance costs related to line-of-credit arrangements. On August 8, 2015, the FASB issued ASU 2015-15, *Interest Imputation of Interest (Subtopic 835-30)* clarifying that debt issuance costs related to line-of-credit arrangements could be presented as an asset and amortized over the term of the line-of-credit arrangement, regardless of whether there are any outstanding borrowings on the line-of-credit arrangement. We adopted this ASU in the first quarter of 2016. Adoption of this ASU did not have a material impact on our financial position and results of operations.

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In August 2014, the FASB issued ASU 2014-15, *Presentation of Financial Statements - Going Concern (Subtopic 205-40).* ASU 2014-15 provides guidance on management s responsibility in evaluating whether there is substantial doubt about an entity s ability to continue as a going concern and to provide related footnote disclosures. This ASU is effective for annual periods beginning after December 15, 2016. We do not expect this ASU to have a material impact on our consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606),* which will replace numerous requirements in U.S. GAAP, including industry-specific requirements, and provide companies with a single revenue recognition model for recognizing revenue from contracts with customers. The core principle of the new standard is that a company should recognize revenue to show the transfer of promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled to in exchange for those goods or services. In August 2015, FASB issued ASU 2015-14, which deferred the effective date of the new revenue standard by one year. For Teradyne, the standard will be effective in the first quarter of 2018. Early adoption is permitted but not before the original effective date (that is, annual periods beginning after December 15, 2016). The two permitted transition methods under the new standard are the full retrospective method, in which case the standard would be applied to each prior reporting period presented, or the modified retrospective method, in which case the cumulative effect of applying the standard would be recognized at the date of initial application. We have not yet selected a transition method. We are currently evaluating the impact of this ASU on our financial position and results of operations.

Item 3: Quantitative and Qualitative Disclosures about Market Risk

For Quantitative and Qualitative Disclosures about Market Risk affecting Teradyne, see Part 2 Item 7a, Quantitative and Qualitative Disclosures about Market Risks, in our Annual Report on Form 10-K filed with the SEC on February 29, 2016. There were no material changes in our exposure to market risk from those set forth in our Annual Report for the fiscal year ended December 31, 2015.

Item 4: Controls and Procedures

As of the end of the period covered by this report, our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures pursuant to Rule 13a-15(b) or Rule 15d-15(f) promulgated under the Exchange Act. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of the end of the period covered by this report, our disclosure controls and procedures were effective in ensuring that material information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC s rules and forms, including ensuring that such material information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

During the period covered by this report, except for any changes in internal controls related to the integration of Universal Robots, acquired on June 11, 2015, there have been no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

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PART II. OTHER INFORMATION

Item 1: Legal Proceedings

We are subject to various 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 1A: Risk Factors

In addition to other information set forth in this Form 10-Q, you should carefully consider the factors discussed in Part I, Item 1A: Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2015, which could materially affect our business, financial condition or future results. The risk factors described in our Annual Report on Form 10-K remain applicable to our business.

The risks described in our Annual Report on Form 10-K 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.

The recent natural disaster in Japan could disrupt our operations and adversely affect our results of operations.

The recent earthquake in Japan has damaged our building and impacted our operations located in Kumamoto. We have temporarily transferred the manufacturing operations to other facilities so we do not expect the damage to have a significant impact on our ability to manufacture our products or sell products to our customers. However, the situation in Kumamoto remains uncertain so the events could have a short-term impact to our business in Japan. In addition, we may incur significant uninsured costs in order to rebuild our operations which could have an adverse effect on our financial condition and results of operations.

Item 2: Unregistered Sales of Equity Securities and Use of Proceeds

In January 2015, our Board of Directors authorized the repurchase of up to $500 million of common stock of which $300 million was repurchased in 2015. In 2016, we intend to repurchase between $100 million and $200 million. During the nine months ended October 2, 2016, we repurchased 4.3 million shares of common stock at an average price of $19.69, for a total cost of $85.1 million. The cumulative repurchases under this program as of October 2, 2016 totaled 19.9 million shares of common stock for $385 million at an average price of $19.31 per share.

The following table includes information with respect to repurchases we made of our common stock during the three months ended October 2, 2016 (in thousands except per share price):

Period	(a) Total Number of Shares (or Units)	(b) Average Price Paid per Share (or Unit)	(c) Total Number of Shares (or Units) Purchased as Part of Publicly	(d) Maximum Number (or Approximate Dollar Value) of Shares (or

	Purchased					Announced Plans or Programs	Units) that may Yet Be Purchased Under the Plans or Programs	
July 4, 2016 July 31, 2016	421		$	20.33		421	$	134,715
August 1, 2016 August 28, 2016	444		$	20.24		443	$	125,751
August 29, 2016 October 2, 2016	515		$	21.01		513	$	114,960
	1,380	(1)	$	20.56	(1)	1,377		

(1) Includes 3.3 thousand shares at an average price of $20.56 withheld from employees for the payment of taxes.

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We satisfy U.S. federal and state minimum withholding tax obligations 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 minimum withholding amount due.

Item 4: Mine Safety Disclosures
Not Applicable

Item 6: Exhibits

Exhibit Number	Description
31.1	Certification of Principal Executive Officer, pursuant to Rule 13a-14(a) of Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
31.2	Certification of Principal Financial Officer, pursuant to Rule 13a-14(a) of Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
32.1	Certification of Principal Executive Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
32.2	Certification of Principal Financial Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

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SIGNATURES

Pursuant to the requirements 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.

TERADYNE, INC.
Registrant

/s/ Gregory R. Beecher
Gregory R. Beecher

Vice President,

Chief Financial Officer and Treasurer

(Duly Authorized Officer

and Principal Financial Officer)

November 10, 2016