

# TERADYNE, INC

## FORM 10-Q (Quarterly Report)

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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

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**FORM 10-Q**

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(Mark One)

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

For the quarterly period ended October 1, 2017

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

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**TERADYNE, INC.**

(Exact name of registrant as specified in its charter)

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**Massachusetts**  
(State or Other Jurisdiction of  
Incorporation or Organization)

**04-2272148**  
(I.R.S. Employer  
Identification No.)

**600 Riverpark Drive, North Reading,  
Massachusetts**  
(Address of Principal Executive Offices)

**01864**  
(Zip Code)

**978-370-2700**

(Registrant's Telephone Number, Including Area Code)

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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  No

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

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

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	(Do not check if a smaller reporting company)	
Emerging Growth Company	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standard provided pursuant to Section 13(a) of the Exchange Act.

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

The number of shares outstanding of the registrant's only class of Common Stock as of November 3, 2017 was 196,157,730 shares.

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TERADYNE, INC.

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PART I

Item 1: Financial Statements

**TERADYNE, INC.**  
**CONDENSED CONSOLIDATED BALANCE SHEETS**  
**(Unaudited)**

	<b>October 1, 2017</b>	<b>December 31, 2016</b>
<b>(in thousands, except per share amount)</b>		
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 418,677	\$ 307,884
Marketable securities	1,217,830	871,024
Accounts receivable, less allowance for doubtful accounts of \$2,222 and \$2,356 at October 1, 2017 and December 31, 2016, respectively	268,068	192,444
Inventories, net	125,183	135,958
Prepayments	105,309	108,454
Other current assets	5,021	8,039
Total current assets	2,140,088	1,623,803
Property, plant and equipment, net	259,080	253,821
Marketable securities	211,943	433,843
Deferred tax assets	120,228	107,405
Other assets	12,028	12,165
Retirement plans assets	10,954	7,712
Acquired intangible assets, net	85,729	100,401
Goodwill	249,277	223,343
Total assets	\$ 3,089,327	\$ 2,762,493
<b>LIABILITIES</b>		
Current liabilities:		
Accounts payable	\$ 79,429	\$ 95,362
Accrued employees' compensation and withholdings	113,634	109,944
Deferred revenue and customer advances	111,506	84,478
Other accrued liabilities	62,611	51,382
Contingent consideration	21,818	1,050
Accrued income taxes	42,377	30,480
Total current liabilities	431,375	372,696
Retirement plans liabilities	114,316	106,938
Long-term deferred revenue and customer advances	31,686	23,463
Deferred tax liabilities	10,543	12,144
Long-term other accrued liabilities	11,604	28,642
Long-term contingent consideration	17,311	37,282
Long-term debt	362,595	352,669
Total liabilities	979,430	933,834
Commitments and contingencies (See Note P)		
<b>SHAREHOLDERS' EQUITY</b>		
Common stock, \$0.125 par value, 1,000,000 shares authorized; 196,711 and 199,177 shares issued and outstanding at October 1, 2017 and December 31, 2016, respectively		
	24,589	24,897
Additional paid-in capital	1,631,106	1,593,684
Accumulated other comprehensive income (loss)	16,001	(20,214)
Retained earnings	438,201	230,292
Total shareholders' equity	2,109,897	1,828,659
Total liabilities and shareholders' equity	\$ 3,089,327	\$ 2,762,493

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, 2016, are an integral part of the condensed consolidated financial statements.

**TERADYNE, INC.**  
**CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS**  
(Unaudited)

	For the Three Months Ended		For the Nine Months Ended	
	October 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
	(in thousands, except per share amount)			
Revenues:				
Products	\$ 412,854	\$ 334,610	\$ 1,396,413	\$ 1,149,581
Services	90,524	75,865	260,778	223,680
Total revenues	503,378	410,475	1,657,191	1,373,261
Cost of revenues:				
Cost of products	169,744	148,266	591,880	531,616
Cost of services	38,848	34,850	114,373	101,084
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	208,592	183,116	706,253	632,700
Gross profit	294,786	227,359	950,938	740,561
Operating expenses:				
Selling and administrative	86,244	78,794	260,282	239,393
Engineering and development	77,190	71,400	235,101	220,973
Acquired intangible assets amortization	7,028	8,487	23,145	44,725
Restructuring and other	(4,407)	12,177	392	16,372
Goodwill impairment	—	—	—	254,946
Acquired intangible assets impairment	—	—	—	83,339
Total operating expenses	166,055	170,858	518,920	859,748
Income (loss) from operations	128,731	56,501	432,018	(119,187)
Non-operating (income) expense:				
Interest income	(4,517)	(2,892)	(11,329)	(6,201)
Interest expense	5,372	633	16,283	2,034
Other (income) expense, net	439	(921)	735	(1,075)
Income (loss) before income taxes	127,437	59,681	426,329	(113,945)
Income tax provision (benefit)	24,017	(4,113)	62,713	(4,178)
Net income (loss)	<u>\$ 103,420</u>	<u>\$ 63,794</u>	<u>\$ 363,616</u>	<u>\$ (109,767)</u>
Net income (loss) per common share:				
Basic	<u>\$ 0.52</u>	<u>\$ 0.32</u>	<u>\$ 1.83</u>	<u>\$ (0.54)</u>
Diluted	<u>\$ 0.52</u>	<u>\$ 0.31</u>	<u>\$ 1.81</u>	<u>\$ (0.54)</u>
Weighted average common shares—basic	<u>197,485</u>	<u>202,211</u>	<u>198,755</u>	<u>203,167</u>
Weighted average common shares—diluted	<u>200,775</u>	<u>203,929</u>	<u>201,413</u>	<u>203,167</u>
Cash dividend declared per common share	<u>\$ 0.07</u>	<u>\$ 0.06</u>	<u>\$ 0.21</u>	<u>\$ 0.18</u>

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, 2016, are an integral part of the condensed consolidated financial statements.

**TERADYNE, INC.**  
**CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)**  
**(Unaudited)**

	<b>For the Three Months Ended</b>		<b>For the Nine Months Ended</b>	
	<b>October 1, 2017</b>	<b>October 2, 2016</b>	<b>October 1, 2017</b>	<b>October 2, 2016</b>
	(in thousands)			
Net income (loss)	\$ 103,420	\$ 63,794	\$ 363,616	\$(109,767)
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustments	9,291	1,843	34,235	7,072
Available-for-sale marketable securities:				
Unrealized gains (losses) on marketable securities arising during period, net of tax of \$481, \$51, \$1,666, \$2,405, respectively	950	(336)	2,448	5,110
Less: Reclassification adjustment for gains included in net income (loss), net of tax of \$(67), \$(150), \$(173), \$(152), respectively	(87)	(334)	(264)	(468)
	863	(670)	2,184	4,642
Defined benefit pension and post-retirement plans:				
Amortization of prior service (credit) cost included in net periodic pension and post-retirement expense/income, net of tax of \$(38), \$(46), \$(115), \$(139) respectively	(68)	(81)	(204)	(244)
Prior service income arising during the period, net of tax of \$0, \$0, \$0, \$34, respectively	—	—	—	59
	(68)	(81)	(204)	(185)
Other comprehensive income	10,086	1,092	36,215	11,529
Comprehensive income (loss)	<u>\$ 113,506</u>	<u>\$ 64,886</u>	<u>\$ 399,831</u>	<u>\$ (98,238)</u>

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**TERADYNE, INC.**  
**CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS**  
**(Unaudited)**

	For the Nine Months Ended	
	October 1, 2017	October 2, 2016
	(in thousands)	
Cash flows from operating activities:		
Net income (loss)	\$ 363,616	\$(109,767)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Depreciation	49,243	48,437
Amortization	32,313	46,275
Stock-based compensation	25,620	23,012
Provision for excess and obsolete inventory	7,154	15,148
Contingent consideration fair value adjustment	1,847	10,451
Deferred taxes	(679)	(42,568)
Retirement plans actuarial gains	(2,504)	(1,200)
Gain on insurance recovery	(4,309)	—
Tax benefit related to employee stock compensation awards	—	(3,399)
Goodwill impairment	—	254,946
Acquired intangible assets impairment	—	83,339
Other	429	151
Changes in operating assets and liabilities:		
Accounts receivable	(75,623)	45,660
Inventories	23,770	48,601
Prepayments and other assets	7,362	(13,273)
Accounts payable and other accrued expenses	5,298	(39,584)
Deferred revenue and customer advances	34,535	53,380
Retirement plans contributions	(4,858)	(5,871)
Income taxes	15,808	4,227
Net cash provided by operating activities	<u>479,022</u>	<u>417,965</u>
Cash flows from investing activities:		
Purchases of property, plant and equipment	(73,247)	(66,252)
Purchases of available-for-sale marketable securities	(1,036,523)	(875,837)
Proceeds from sales of available-for-sale marketable securities	443,169	466,744
Proceeds from maturities of available-for-sale marketable securities	473,255	202,162
Proceeds from property insurance	5,064	5,051
Net cash used for investing activities	<u>(188,282)</u>	<u>(268,132)</u>
Cash flows from financing activities:		
Issuance of common stock under stock purchase and stock option plans	24,462	20,085
Repurchase of common stock	(151,821)	(85,092)
Dividend payments	(41,730)	(36,548)
Payments related to net settlement of employee stock compensation awards	(12,584)	(9,229)
Payments of contingent consideration	(1,050)	(11,697)
Tax benefit related to employee stock compensation awards	—	3,399
Net cash used for financing activities	<u>(182,723)</u>	<u>(119,082)</u>
Effects of exchange rate changes on cash and cash equivalents	2,776	2,481
Increase in cash and cash equivalents	110,793	33,232
Cash and cash equivalents at beginning of period	307,884	264,705
Cash and cash equivalents at end of period	<u>\$ 418,677</u>	<u>\$ 297,937</u>

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, 2016, are an integral part of the condensed consolidated financial statements.

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;
- industrial automation (“Industrial Automation”) products
- 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”); and
- wireless test (“Wireless Test”) systems.

**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, 2016 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 March 1, 2017, for the year ended December 31, 2016.

*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.

*Stock-Based Compensation*

In March 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2016-09, “*Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting.*” Teradyne adopted this ASU in the first quarter of 2017. This ASU changes how Teradyne accounts 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 statements of cash flows.



Adoption of this ASU required recognition of a cumulative effect adjustment to retained earnings for any prior year excess tax benefits or tax deficiencies not previously recorded. The cumulative effect adjustment of \$39 million was recorded as an increase to retained earnings and deferred tax assets.

This ASU also required a change in how Teradyne recognizes the excess tax benefits or tax deficiencies related to stock-based compensation. Prior to adopting ASU 2016-09, these excess tax benefits or tax deficiencies were credited or charged to additional paid-in capital in Teradyne's consolidated balance sheets. In accordance with ASU 2016-09, starting in the first quarter of 2017, these excess tax benefits or tax deficiencies are recognized as a discrete tax benefit or discrete tax expense to the current income tax provision in Teradyne's consolidated statements of operations.

ASU 2016-09 requires companies to adopt the amendment related to accounting for excess tax benefits or tax deficiencies on a prospective basis. For the three and nine months ended October 1, 2017, Teradyne recognized a discrete tax benefit of \$0.0 and \$6.0 million, respectively, related to net excess tax benefit.

In addition, under ASU 2016-09, all excess tax benefits related to share-based payments are reported as cash flows from operating activities. Previously, excess tax benefits from share-based payments arrangements were reported as cash flows from financing activities. The classification amendment was applied prospectively. This ASU also clarifies that all cash payments made to taxing authorities on the employees' behalf for withheld shares should be presented as financing activities on the statement of cash flows. Previously, Teradyne reported cash payments made to taxing authorities as operating activities on the statement of cash flows. This change was applied retrospectively.

Upon adoption of ASU 2016-09, Teradyne made an accounting policy election to continue accounting for forfeitures by applying an estimated forfeiture rate.

#### *Contingencies and Litigation*

Teradyne may be subject to certain legal proceedings, lawsuits and other claims as discussed in Note P. Teradyne accrues for a loss contingency, including legal proceedings, lawsuits, pending claims and other legal matters, when the likelihood of a loss is probable and the amount of the loss can be reasonably estimated. When the reasonable estimate of the loss is within a range of amounts, and no amount in the range constitutes a better estimate than any other amount, Teradyne accrues the amount at the low end of the range. Teradyne adjusts the accruals from time to time as additional information is received, but the loss incurred may be significantly greater than or less than the amount accrued. Loss contingencies are disclosed when they are material and there is at least a reasonable possibility that a loss has been incurred. Attorney fees related to legal matters are expensed as incurred.

#### **C. RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS**

On March 10, 2017, the FASB issued ASU 2017-07, "*Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*." This ASU provides guidance on presentation of net periodic pension cost and net periodic postretirement benefit cost. The new standard requires the service cost component to be presented in the same line item as other employee compensation costs arising from services rendered during the period. The other components of net benefit cost such as interest cost, amortization of prior service cost, and actuarial gains or losses, are required to be presented separately outside of income or loss from operations. The presentation of service cost should be applied retrospectively. The guidance is effective for fiscal years beginning after December 15, 2017. Early adoption is permitted. This guidance will impact the presentation of Teradyne's consolidated financial statements. Upon adoption of the new standard, Teradyne will present interest cost, amortization of prior service cost, and actuarial gains or losses within other (income) expense, net.

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On January 26, 2017, the FASB issued ASU 2017-04, *“Intangibles—Goodwill and Other (Topic 350): Simplifying the Accounting for Goodwill Impairment.”* The new guidance removes Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. Goodwill impairment will now be the amount by which a reporting unit’s carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. All other goodwill impairment guidance will remain largely unchanged. Entities will continue to have the option to perform a qualitative assessment to determine if a quantitative impairment test is necessary. The same one-step impairment test will be applied to goodwill at all reporting units, even those with zero or negative carrying amounts. Entities will be required to disclose the amount of goodwill at reporting units with zero or negative carrying amounts. The revised guidance will be applied prospectively, and is effective in 2020. Early adoption is permitted for any impairment tests performed after January 1, 2017. Teradyne is currently evaluating the impact of this ASU on its financial position, results of operations and statements of cash flows.

In October 2016, the FASB issued 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 does not expect this ASU to have a material impact on its financial position, results of operations and statements 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 Codification (“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 statements of operations. 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 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. 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 selected the modified retrospective transition method.

Teradyne has completed its preliminary assessment of the financial statement impact of the new standard and does not expect this ASU to have a material impact on its financial position or results of operations. This preliminary assessment is based on a review of the types and number of revenue arrangements currently in place including the review of individual customer contracts related to these revenue streams. The exact impact of the new standard will be dependent on facts and circumstances at adoption and could vary from quarter to quarter. Based on Teradyne's preliminary assessment Teradyne does not expect any major changes to be made to existing accounting systems or internal controls. Teradyne will be required to record cumulative effect adjustments to retained earnings upon adopting the new standard in the first quarter of 2018.

#### D. INVENTORIES

Inventories, net consisted of the following at October 1, 2017 and December 31, 2016:

	October 1, 2017	December 31, 2016
	(in thousands)	
Raw material	\$ 64,550	\$ 58,530
Work-in-process	17,189	22,946
Finished goods	43,444	54,482
	<u>\$ 125,183</u>	<u>\$ 135,958</u>

Inventory reserves for the periods ending October 1, 2017 and December 31, 2016 were \$112.2 million and \$116.0 million, respectively.

#### E. FINANCIAL INSTRUMENTS

##### 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 1, 2017, 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.

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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 1, 2017 and 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 determines the fair value of acquisition-related contingent consideration using a Monte Carlo simulation model. Assumptions utilized in the model include forecasted revenues, revenue volatility and discount rate. The vast 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 1, 2017 were \$0.2 million and \$0.7 million, respectively. Realized losses recorded in the three and nine months ended October 1, 2017 were \$0.0 million and \$0.3 million, respectively. Realized gains 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 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.

During the three and nine months ended October 1, 2017 and October 2, 2016, there were no transfers in or out of Level 1, Level 2 or Level 3 financial instruments.

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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 1, 2017 and December 31, 2016.

	October 1, 2017			Total
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
	(in thousands)			
<b>Assets</b>				
Cash	\$ 213,664	\$ —	\$ —	\$ 213,664
Cash equivalents	166,803	38,210	—	205,013
Available-for-sale securities:				
U.S. Treasury securities	—	942,250	—	942,250
Commercial paper	—	194,948	—	194,948
Corporate debt securities	—	118,487	—	118,487
Certificates of deposit and time deposits	—	95,469	—	95,469
U.S. government agency securities	—	55,938	—	55,938
Equity and debt mutual funds	22,104	—	—	22,104
Non-U.S. government securities	—	577	—	577
	402,571	1,445,879	—	1,848,450
Derivative assets	—	157	—	157
Total	\$ 402,571	\$ 1,446,036	\$ —	\$ 1,848,607
<b>Liabilities</b>				
Contingent consideration	\$ —	\$ —	\$ 39,129	\$ 39,129
Derivative liabilities	—	190	—	190
Total	\$ —	\$ 190	\$ 39,129	\$ 39,319

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
<b>Assets</b>				
Cash and cash equivalents	\$ 380,467	\$ 38,210	\$ —	\$ 418,677
Marketable securities	—	1,217,830	—	1,217,830
Long-term marketable securities	22,104	189,839	—	211,943
Prepayments	—	157	—	157
Total	\$ 402,571	\$ 1,446,036	\$ —	\$ 1,848,607
<b>Liabilities</b>				
Other current liabilities	\$ —	\$ 190	\$ —	\$ 190
Contingent consideration	—	—	21,818	21,818
Long-term contingent consideration	—	—	17,311	17,311
Total	\$ —	\$ 190	\$ 39,129	\$ 39,319

December 31, 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)			
<b>Assets</b>				
Cash	\$ 214,722	\$ —	\$ —	\$ 214,722
Cash equivalents	37,458	55,704	—	93,162
Available for sale securities:				
U.S. Treasury securities	—	902,800	—	902,800
Commercial paper	—	161,630	—	161,630
Corporate debt securities	—	100,153	—	100,153
Certificates of deposit and time deposits	—	82,133	—	82,133
U.S. government agency securities	—	39,252	—	39,252
Equity and debt mutual funds	18,171	—	—	18,171
Non-U.S. government securities	—	728	—	728
	<u>270,351</u>	<u>1,342,400</u>	<u>—</u>	<u>1,612,751</u>
Derivative assets	—	1	—	1
Total	<u>\$ 270,351</u>	<u>\$ 1,342,401</u>	<u>\$ —</u>	<u>\$ 1,612,752</u>
<b>Liabilities</b>				
Contingent consideration	\$ —	\$ —	\$ 38,332	\$ 38,332
Derivative liabilities	—	131	—	131
Total	<u>\$ —</u>	<u>\$ 131</u>	<u>\$ 38,332</u>	<u>\$ 38,463</u>

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
<b>Assets</b>				
Cash and cash equivalents	\$ 252,180	\$ 55,704	\$ —	\$ 307,884
Marketable securities	—	871,024	—	871,024
Long-term marketable securities	18,171	415,672	—	433,843
Prepayments	—	1	—	1
Total	<u>\$ 270,351</u>	<u>\$ 1,342,401</u>	<u>\$ —</u>	<u>\$ 1,612,752</u>
<b>Liabilities</b>				
Other accrued liabilities	\$ —	\$ 131	\$ —	\$ 131
Contingent consideration	—	—	1,050	1,050
Long-term contingent consideration	—	—	37,282	37,282
Total	<u>\$ —</u>	<u>\$ 131</u>	<u>\$ 38,332</u>	<u>\$ 38,463</u>

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Changes in the fair value of Level 3 contingent consideration for the three and nine months ended October 1, 2017 and October 2, 2016 were as follows:

	For the Three Months Ended		For the Nine Months Ended	
	October 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
	(in thousands)			
Balance at beginning of period	\$ 39,415	\$ 24,914	\$ 38,332	\$ 37,436
Payments (a)	—	—	(1,050)	(15,000)
Fair value adjustment (b)(c)	(286)	7,973	1,847	10,451
Balance at end of period	<u>\$ 39,129</u>	<u>\$ 32,887</u>	<u>\$ 39,129</u>	<u>\$ 32,887</u>

- (a) In the nine months ended October 1, 2017, Teradyne paid \$1.1 million of contingent consideration for the earn-out in connection with the acquisition of Avionics Interface Technology, LLC (“AIT”). In the nine months ended October 2, 2016, based on Universal Robots’ calendar year 2015 EBITDA results, Teradyne paid \$15.0 million or 100% of the eligible EBITDA contingent consideration amount in connection with the acquisition of Universal Robots.
- (b) In the nine months ended October 1, 2017, the fair value of contingent consideration for the earn-out in connection with the acquisition of Universal Robots was increased by \$1.8 million due to an increase in forecasted revenue. 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 AIT was increased by \$0.6 million due to an increase in forecasted revenue.

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

Liability	October 1, 2017 Fair Value (in thousands)	Valuation Technique	Unobservable Inputs	Weighted Average
Contingent consideration (Universal Robots)	\$21,818	Monte Carlo Simulation	Revenue for the period July 1, 2015—December 31, 2017	11.5%
			Discount rate	2.6%
	\$17,311	Monte Carlo Simulation	Revenue for the period July 1, 2015—December 31, 2018	11.5%
			Discount rate	2.6%

As of October 1, 2017, 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 carrying amounts and fair values of Teradyne's financial instruments at October 1, 2017 and December 31, 2016 were as follows:

	October 1, 2017		December 31, 2016	
	Carrying Value	Fair Value	Carrying Value	Fair Value
	(in thousands)			
<b>Assets</b>				
Cash and cash equivalents	\$ 418,677	\$ 418,677	\$ 307,884	\$ 307,884
Marketable securities	1,429,773	1,429,773	1,304,867	1,304,867
Derivative assets	157	157	1	1
<b>Liabilities</b>				
Contingent consideration	39,129	39,129	38,332	38,332
Derivative liabilities	190	190	131	131
Convertible debt (1)	362,595	613,238	352,669	486,754

- (1) The carrying value represents the bifurcated debt component only, while the fair value is based on quoted market prices for the convertible note which includes the equity conversion features.

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 1, 2017 and December 31, 2016:

	October 1, 2017				Fair Market Value of Investments with Unrealized Losses
	Available-for-Sale				
	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	
	(in thousands)				
U.S. Treasury securities	\$ 944,120	\$ 64	\$ (1,934)	\$ 942,250	\$ 936,195
Commercial paper	194,985	11	(48)	194,948	140,562
Corporate debt securities	116,687	2,046	(246)	118,487	79,119
Certificates of deposit and time deposits	95,447	29	(7)	95,469	33,238
U.S. government agency securities	55,936	20	(18)	55,938	52,997
Equity and debt mutual funds	18,202	3,923	(21)	22,104	1,529
Non-U.S. government securities	570	7	—	577	—
Total	<u>\$1,425,947</u>	<u>\$ 6,100</u>	<u>\$ (2,274)</u>	<u>\$1,429,773</u>	<u>\$ 1,243,640</u>

Reported as follows:

	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
	(in thousands)				
Marketable securities	\$1,218,752	\$ 65	\$ (987)	\$ 1,217,830	\$ 1,088,881
Long-term marketable securities	207,195	6,035	(1,287)	211,943	154,759
Total	<u>\$1,425,947</u>	<u>\$ 6,100</u>	<u>\$ (2,274)</u>	<u>\$ 1,429,773</u>	<u>\$ 1,243,640</u>



	December 31, 2016				Fair Market Value of Investments with Unrealized Losses
	Available-for-Sale				
	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	
			(in thousands)		
U.S. Treasury securities	\$ 904,737	\$ 97	\$ (2,034)	\$ 902,800	\$ 572,284
Commercial paper	161,672	24	(66)	161,630	84,034
Corporate debt securities	99,708	1,065	(620)	100,153	53,642
Certificates of deposit and time deposits	82,080	54	(1)	82,133	7,760
U.S. government agency securities	39,264	7	(19)	39,252	13,461
Equity and debt mutual funds	16,505	1,724	(58)	18,171	1,661
Non-U.S. government securities	745	6	(23)	728	137
Total	<u>\$1,304,711</u>	<u>\$ 2,977</u>	<u>\$ (2,821)</u>	<u>\$1,304,867</u>	<u>\$ 732,979</u>

Reported as follows:

	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses			
						(in thousands)		
Marketable securities	\$ 871,321	\$ 134	\$ (431)	\$ 871,024	\$ 423,128			
Long-term marketable securities	433,390	2,843	(2,390)	433,843	309,851			
Total	<u>\$1,304,711</u>	<u>\$ 2,977</u>	<u>\$ (2,821)</u>	<u>\$1,304,867</u>	<u>\$ 732,979</u>			

As of October 1, 2017, the fair market value of investments with unrealized losses totaled \$1,243.6 million. Of this value, \$113.3 million had unrealized losses of \$0.9 million for greater than one year and \$1,130.3 million had unrealized losses of \$1.4 million for less than one year.

As of December 31, 2016, the fair market value of investments with unrealized losses totaled \$733.0 million. Of this value, \$2.9 million had unrealized losses of \$0.3 million for greater than one year and \$730.1 million had unrealized losses of \$2.5 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 1, 2017 and December 31, 2016 were temporary.

The contractual maturities of investments held at October 1, 2017 were as follows:

	October 1, 2017	
	Cost	Fair Market Value
	(in thousands)	
Due within one year	\$ 1,218,752	\$ 1,217,830
Due after 1 year through 5 years	136,081	135,889
Due after 5 years through 10 years	14,129	13,818
Due after 10 years	38,783	40,132
Total	<u>\$ 1,407,745</u>	<u>\$ 1,407,669</u>

Contractual maturities of investments held at October 1, 2017 exclude equity and debt mutual funds as they do not have contractual maturity dates.

## 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 1, 2017 and December 31, 2016 was \$79.2 million and \$83.9 million, respectively.

The following table summarizes the fair value of derivative instruments at October 1, 2017 and December 31, 2016:

	<u>Balance Sheet Location</u>	<u>October 1, 2017</u>	<u>December 31, 2016</u>
(in thousands)			
Derivatives not designated as hedging instruments:			
Foreign currency forward contracts assets	Prepayments	\$ 157	\$ 1
Foreign currency forward contracts liabilities	Other current liabilities	(190)	(131)
Total		<u>\$ (33)</u>	<u>\$ (130)</u>

The following table summarizes the effect of derivative instruments recognized in the statement of operations during the three and nine months ended October 1, 2017 and October 2, 2016.

	<u>Location of (Gains) Losses Recognized in Statement of Operations</u>	<u>For the Three Months Ended</u>		<u>For the Nine Months Ended</u>	
		<u>October 1, 2017</u>	<u>October 2, 2016</u>	<u>October 1, 2017</u>	<u>October 2, 2016</u>
		(in thousands)			
Derivatives not designated as hedging instruments:					
Foreign currency forward contracts	Other (income) expense, net	\$ (939)	\$ 941	\$ (1,514)	\$ 11,140
Total		<u>\$ (939)</u>	<u>\$ 941</u>	<u>\$ (1,514)</u>	<u>\$ 11,140</u>

- (1) The table does not reflect the corresponding gains and losses from the remeasurement of monetary assets and liabilities denominated in foreign currencies.
- (2) For the three and nine months ended October 1, 2017, net losses from the remeasurement of monetary assets and liabilities denominated in foreign currencies were \$1.4 million and \$2.3 million, respectively.
- (3) 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.

Gains and losses on foreign currency forward contracts and foreign currency remeasurement gains and losses on monetary assets and liabilities are included in other (income) expense, net.

## F. DEBT

### Convertible Senior Notes

On December 12, 2016, Teradyne completed a private offering of \$460.0 million convertible senior unsecured notes (the "Notes"). The Notes will mature on December 15, 2023, unless earlier repurchased or

converted. The Notes bear interest from December 12, 2016 at a rate of 1.25% per year payable semi-annually in arrears on June 15 and December 15 of each year, beginning on June 15, 2017.

The Notes will be convertible at the option of the noteholders at any time prior to the close of business on the business day immediately preceding September 15, 2023, under the following circumstances: (1) during any calendar quarter beginning after March 31, 2017 (and only during such calendar quarter), if the closing sale price of Teradyne's common stock, for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than 130% of the conversion price on each applicable trading day; (2) during the five business day period after any five consecutive trading day period (the "measurement period") in which the trading price (as defined in the Indenture) per \$1,000 principal amount of Notes for each trading day of the measurement period was less than 98% of the product of the closing sale price of the Teradyne's common stock and the conversion rate on each such trading day; and (3) upon the occurrence of specified corporate events. On or after September 15, 2023 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their Notes at any time, regardless of the foregoing circumstances. Teradyne may satisfy its conversion obligation by paying or delivering cash, shares of its common stock or a combination of cash and shares of its common stock, at Teradyne's election. The conversion rate for the Notes will initially be 31.4102 shares per \$1,000 principal amount, which is equivalent to an initial conversion price of approximately \$31.84 per share of Teradyne's common stock. The conversion rate is subject to adjustment under certain circumstances.

Concurrent with the offering of the Notes, Teradyne entered into convertible note hedge transactions (the "Note Hedge Transactions") with the initial purchasers or their affiliates (the "Option Counterparties"). The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, the number of shares of the common stock that underlie the Notes, with a strike price equal to the initial conversion price of the Notes of \$31.84. The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, approximately 14.4 million shares of Teradyne's common stock.

The convertible note hedge is considered indexed to Teradyne's stock as the terms of the Note Hedge Transactions do not contain an exercise contingency and the settlement amount equals the difference between the fair value of a fixed number of Teradyne's shares and a fixed strike price. Because the only variable that can affect the settlement amount is Teradyne's stock price, which is an input to the fair value of a fixed-for-fixed option contract, the convertible note hedge is considered indexed to Teradyne's stock.

Separately and concurrent with the pricing of the Notes, Teradyne entered into warrant transactions with the Option Counterparties (the "Warrant Transactions") in which it sold net-share-settled (or, at its election subject to certain conditions, cash-settled) warrants to the Option Counterparties. The Warrant Transactions cover, subject to customary anti-dilution adjustments, approximately 14.4 million shares of common stock. The strike price of the warrants will initially be \$39.95 per share (subject to adjustment). The Warrant Transactions could have a dilutive effect to Teradyne's common stock to the extent that the market price per share of Teradyne's common stock, as measured under the terms of the Warrant Transactions, exceeds the applicable strike price of the warrants.

The Note Hedge Transactions are expected to reduce the potential dilution to Teradyne's common stock upon any conversion of the Notes. However, the Warrant Transactions could separately have a dilutive effect to the extent that the market value per share of Teradyne's common stock exceeds the applicable strike price of the warrant.

In connection with establishing their initial hedge of these convertible note hedge and warrant transactions, the Option Counterparties have entered into various derivative transactions with respect to Teradyne's common stock and/or purchased shares of Teradyne's common stock or other securities, including the Notes, concurrent with, or shortly after, the pricing of the Notes. In addition, the Option Counterparties may modify their hedge

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positions by entering into or unwinding various derivative transactions with respect to Teradyne's common stock or by selling Teradyne's common stock or other securities, including the Notes, in secondary market transactions (and may do so during any observation period related to the conversion of the Notes). These activities could adversely affect the value of Teradyne's common stock and the Notes.

Teradyne's effective annual interest rate on the Notes is 5.0%. At October 1, 2017 and December 31, 2016, the Notes are classified as long-term debt in the balance sheets based on their December 15, 2023 maturity date. Debt issuance costs of approximately \$7.2 million are being amortized to interest expense over the seven-year term of the Notes. As of October 1, 2017, unamortized debt issuance costs were \$6.5 million.

The below tables represent the key components of Teradyne's convertible senior notes:

	<u>October 1, 2017</u>	<u>December 31, 2016</u>
	(in thousands)	
Debt principal	\$ 460,000	\$ 460,000
Unamortized discount	97,405	107,331
Net carrying amount of convertible debt	<u>\$ 362,595</u>	<u>\$ 352,669</u>

  

	<u>For the Three Months Ended October 1, 2017</u>	<u>For the Nine Months Ended October 1, 2017</u>
	(in thousands)	
Contractual interest expense on the coupon	\$ 1,422	\$ 4,297
Amortization of the discount component and debt issue fees recognized as interest expense	3,350	9,926
Total interest expense on the convertible debt	<u>\$ 4,772</u>	<u>\$ 14,223</u>

As of October 1, 2017, the remaining unamortized discount was \$97.4 million, which will be amortized over 6.3 years using the effective interest rate method. The carrying amount of the equity component was \$100.8 million. As of October 1, 2017, the conversion rate was equal to the initial conversion price of approximately \$31.84 per share and the if-converted value of the Notes was \$538.7 million.

### 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 statements of operations. As of November 9, 2017, 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.

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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 9, 2017, 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:

	<b>October 1, 2017</b>	<b>December 31, 2016</b>
	<b>(in thousands)</b>	
Contract manufacturer prepayments	\$ 78,293	\$ 84,473
Prepaid taxes	9,658	4,664
Prepaid maintenance and other services	6,685	7,676
Other prepayments	10,673	11,641
Total	<u>\$ 105,309</u>	<u>\$ 108,454</u>

#### 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:

	<b>October 1, 2017</b>	<b>December 31, 2016</b>
	<b>(in thousands)</b>	
Extended warranty	\$ 26,492	\$ 28,200
Customer advances, undelivered elements and other	58,577	32,938
Maintenance and training	58,123	46,803
Total	<u>\$ 143,192</u>	<u>\$ 107,941</u>

**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 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
	(in thousands)			
Balance at beginning of period	\$ 9,093	\$ 8,784	\$ 7,203	\$ 6,925
Accruals for warranties issued during the period	2,734	3,248	11,049	11,626
Adjustments related to pre-existing warranties	(35)	(460)	(499)	(637)
Settlements made during the period	(3,055)	(3,249)	(9,016)	(9,591)
Balance at end of period	<u>\$ 8,737</u>	<u>\$ 8,323</u>	<u>\$ 8,737</u>	<u>\$ 8,323</u>

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 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
	(in thousands)			
Balance at beginning of period	\$ 29,377	\$ 30,422	\$ 28,200	\$ 30,024
Deferral of new extended warranty revenue	2,636	4,638	17,126	17,036
Recognition of extended warranty deferred revenue	(5,521)	(5,030)	(18,834)	(17,030)
Balance at end of period	<u>\$ 26,492</u>	<u>\$ 30,030</u>	<u>\$ 26,492</u>	<u>\$ 30,030</u>

**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").

Stock options to purchase Teradyne's common stock at 100% of the fair market value on the grant date vest in equal annual installments over four years from the grant date and have a maximum term of seven years.

Time-based 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. Teradyne expenses the cost of the restricted stock unit awards subject to time-based vesting, which is determined to be the fair market value of the shares at the date of grant, ratably over the period during which the restrictions lapse.

Commencing in January 2014, Teradyne granted 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 2016 and 2017, Teradyne's three-year TSR performance is 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

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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 2017 and 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") as a percent of Teradyne's revenue. 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; non-cash convertible debt interest expense; 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 1, 2017 and October 2, 2016, Teradyne granted 0.1 million TSR PRSUs with a grant date fair value of \$35.66 and \$20.29, respectively. The fair value was estimated using the Monte Carlo simulation model with the following assumptions:

	For the Nine Months Ended	
	October 1, 2017	October 2, 2016
Risk-free interest rate	1.5%	1.0%
Teradyne volatility-historical	26.6%	27.0%
NYSE Composite Index volatility-historical	13.4%	13.1%
Dividend yield	1.0%	1.2%

Expected volatility was based on the historical volatility of Teradyne's stock and the NYSE Composite Index for the 2017 and 2016 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 \$0.28 per share for 2017 grants and \$0.24 per share for 2016 grants, divided by Teradyne's stock price on the grant date of \$28.56 for the 2017 grant and \$19.43 for the 2016 grant.

During the nine months ended October 1, 2017, Teradyne granted 0.1 million of PBIT PRSUs with a grant date fair value of \$27.72.

During the nine months ended October 1, 2017, Teradyne granted 0.8 million of service-based restricted stock unit awards to employees at a weighted average grant date fair value of \$28.03, 0.1 million of service-based restricted stock unit awards to non-employee directors at a weighted average grant date fair value of \$34.48, and 0.1 million of service-based stock options to executive officers at a weighted average grant date fair value of \$7.13.

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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.

Restricted stock unit awards granted to employees vest in equal annual installments over four years. 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 1, 2017	October 2, 2016
Expected life (years)	5.0	5.0
Risk-free interest rate	2.0%	1.4%
Volatility-historical	27.8%	32.9%
Dividend yield	1.0%	1.2%

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 \$0.28 per share for 2017 grants and \$0.24 per share for 2016 grants, divided by Teradyne's stock price on the grant date of \$28.56 for the 2017 grant and \$19.43 for the 2016 grant.

**K. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)**

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

	Foreign Currency Translation Adjustment	Unrealized Gains (Losses) on Marketable Securities	Retirement Plans Prior Service Credit	Total
	(in thousands)			
<b><i>Nine Months Ended October 1, 2017</i></b>				
Balance at December 31, 2016, net of tax of \$0, \$209, \$(778), respectively	\$ (21,921)	\$ (60)	\$ 1,767	\$(20,214)
Other comprehensive income before reclassifications, net of tax of \$0, \$1,666, \$0, respectively	34,235	2,448	—	36,683
Amounts reclassified from accumulated other comprehensive income, net of tax of \$0, \$(173), \$(115), respectively	—	(264)	(204)	(468)
Net current period other comprehensive income (loss), net of tax of \$0, \$1,493, \$(115), respectively	34,235	2,184	(204)	36,215
Balance at October 1, 2017, net of tax of \$0, \$1,702, \$(893), respectively	<u>\$ 12,314</u>	<u>\$ 2,124</u>	<u>\$ 1,563</u>	<u>\$ 16,001</u>



	Foreign Currency Translation Adjustments	Unrealized Gains (Losses) on Marketable Securities	Retirement Plans Prior Service Credit	Total
(in thousands)				
<b>Nine Months Ended October 2, 2016</b>				
Balance at December 31, 2015, net of tax of \$0, \$(459), \$(622), respectively	\$ (8,759)	\$ (1,414)	\$ 2,029	\$ (8,144)
Other comprehensive income before reclassifications, net of tax of \$0, \$2,405, \$34, respectively	7,072	5,110	59	12,241
Amounts reclassified from accumulated other comprehensive income (loss), net of tax of \$0, \$(152), \$(139), respectively	—	(468)	(244)	(712)
Net current period other comprehensive income (loss), net of tax of \$0, \$2,253, \$(105), respectively	7,072	4,642	(185)	11,529
Balance as October 2, 2016, net of tax of \$0, \$1,749, \$(727), respectively	<u>\$ (1,687)</u>	<u>\$ 3,228</u>	<u>\$ 1,844</u>	<u>\$ 3,385</u>

Reclassifications out of accumulated other comprehensive (loss) income to the statement of operations for the three and nine months ended October 1, 2017 and October 2, 2016 were as follows:

Details about Accumulated Other Comprehensive Income Components	For the Three Months Ended		For the Nine Months Ended		Affected Line Item in the Statements of Operations
	October 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016	
	(in thousands)				
Available-for-sale marketable securities:					
Unrealized gains, net of tax of \$67, \$150, \$173, \$152, respectively	\$ 87	\$ 334	\$ 264	\$ 468	Interest income
Defined benefit pension and postretirement plans:					
Amortization of prior service benefit, net of tax of \$38, \$46, \$115, \$139, respectively	68	81	204	244	(a)
Total reclassifications, net of tax of \$105, \$196, \$288, \$291, respectively	<u>\$ 155</u>	<u>\$ 415</u>	<u>\$ 468</u>	<u>\$ 712</u>	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 ACQUIRED 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 had previously 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 goodwill was valued at \$8.0 million and recorded an impairment loss of \$254.9 million in the second quarter of 2016.

The changes in the carrying amount of goodwill by reportable segments for the nine months ended October 1, 2017, were as follows:

	<u>Industrial Automation</u>	<u>System Test</u>	<u>Wireless Test</u>	<u>Semiconductor Test</u>	<u>Total</u>
	(in thousands)				
Balance at December 31, 2016					
Goodwill	\$ 204,851	\$ 158,699	\$ 361,819	\$ 260,540	\$ 985,909
Accumulated impairment losses	—	(148,183)	(353,843)	(260,540)	(762,566)
	<u>204,851</u>	<u>10,516</u>	<u>7,976</u>	<u>—</u>	<u>223,343</u>
Foreign currency translation adjustment	25,934	—	—	—	25,934
Balance at October 1, 2017					
Goodwill	230,785	158,699	361,819	260,540	1,011,843
Accumulated impairment losses	—	(148,183)	(353,843)	(260,540)	(762,566)
	<u>\$ 230,785</u>	<u>\$ 10,516</u>	<u>\$ 7,976</u>	<u>\$ —</u>	<u>\$ 249,277</u>

*Acquired 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 \$83.3 million impairment charge in the second quarter of 2016 in acquired intangible assets impairment on the statements of operations.

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

	<b>October 1, 2017</b>			
	<b>Gross Carrying Amount</b>	<b>Accumulated Amortization</b>	<b>Cumulative Foreign Currency Translation Adjustment</b>	<b>Net Carrying Amount</b>
	(in thousands)			
Developed technology	\$270,877	\$ (221,051)	\$ 1,057	\$ 50,883
Customer relationships	92,741	(82,286)	111	10,566
Tradenames and trademarks	50,100	(26,171)	271	24,200
Non-compete agreement	320	(240)	—	80
Total	<u>\$414,038</u>	<u>\$ (329,748)</u>	<u>\$ 1,439</u>	<u>\$ 85,729</u>

	<b>December 31, 2016</b>			
	<b>Gross Carrying Amount</b>	<b>Accumulated Amortization</b>	<b>Cumulative Foreign Currency Translation Adjustment</b>	<b>Net Carrying Amount</b>
	(in thousands)			
Developed technology	\$270,877	\$ (206,376)	\$ (5,093)	\$ 59,408
Customer relationships	92,741	(76,707)	(538)	15,496
Tradenames and trademarks	50,100	(23,435)	(1,308)	25,357
Non-compete agreement	320	(180)	—	140
Total	<u>\$414,038</u>	<u>\$ (306,698)</u>	<u>\$ (6,939)</u>	<u>\$ 100,401</u>

Aggregate acquired intangible assets amortization expense was \$7.0 million and \$23.1 million, respectively, for the three and nine months ended October 1, 2017 and \$8.5 million and \$44.7 million, respectively, for the three and nine months ended October 2, 2016.

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

<u>Year</u>	<u>Amortization Expense</u> (in thousands)
2017(remainder)	7,348
2018	29,268
2019	25,295
2020	11,134
2021	3,703
Thereafter	8,981

#### M. NET INCOME (LOSS) PER COMMON SHARE

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

	<u>For the Three Months</u> <u>Ended</u>		<u>For the Nine Months</u> <u>Ended</u>	
	<u>October 1,</u> <u>2017</u>	<u>October 2,</u> <u>2016</u>	<u>October 1,</u> <u>2017</u>	<u>October 2,</u> <u>2016</u>
	(in thousands, except per share amounts)			
Net income (loss) for basic and diluted net income (loss) per share	<u>\$ 103,420</u>	<u>\$ 63,794</u>	<u>\$ 363,616</u>	<u>\$ (109,767)</u>
Weighted average common shares-basic	197,485	202,211	198,755	203,167
Effect of dilutive potential common shares:				
Restricted stock units	1,832	1,282	1,663	—
Incremental shares from assumed conversion of convertible note	1,144	—	632	—
Stock options	306	421	337	—
Employee stock purchase plan	8	15	26	—
Dilutive potential common shares	<u>3,290</u>	<u>1,718</u>	<u>2,658</u>	<u>—</u>
Weighted average common shares-diluted	<u>200,775</u>	<u>203,929</u>	<u>201,413</u>	<u>203,167</u>
Net income (loss) per common share-basic	<u>\$ 0.52</u>	<u>\$ 0.32</u>	<u>\$ 1.83</u>	<u>\$ (0.54)</u>
Net income (loss) per common share-diluted	<u>\$ 0.52</u>	<u>\$ 0.31</u>	<u>\$ 1.81</u>	<u>\$ (0.54)</u>

- (1) Incremental shares from assumed conversion of the convertible notes for the three and nine months ended October 1, 2017 are calculated using the difference between the average Teradyne stock price for the period and the conversion price of \$31.84, multiplied by the 14.4 million shares that would be issued upon conversion. The result of this calculation, representing the total intrinsic value of the convertible debt, is divided by the average Teradyne stock price for the period.

The computation of diluted net income per common share for the three and nine months ended October 1, 2017 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 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.

## **N. RESTRUCTURING AND OTHER**

During the three months ended October 1, 2017, Teradyne recorded \$5.1 million of property insurance recovery related to the Japan earthquake, a \$0.4 million credit related to a previously impaired lease termination of a Wireless Test facility in Sunnyvale, CA, and a \$0.3 million credit for the decrease in the fair value of the Universal Robots contingent consideration liability, partially offset by \$0.8 million of Japan earthquake related expenses and \$0.6 million recorded for employee severance charges, primarily in Semiconductor Test.

During the three months ended October 2, 2016, Teradyne recorded \$8.0 million for the increase in the fair value of the Universal Robots contingent consideration liability and \$4.2 million for employee severance charges, primarily in Semiconductor Test and Wireless Test.

During the nine months ended October 1, 2017, Teradyne recorded \$2.0 million for employee severance charges, primarily in Industrial Automation and Corporate, \$1.8 million for the increase in the fair value of the Universal Robots contingent consideration liability, \$0.9 million for a lease impairment of a Wireless Test facility in Sunnyvale, CA, which was terminated in September 2017, and \$0.8 million of Japan earthquake related expenses, partially offset by \$5.1 million of property insurance recovery related to the Japan earthquake.

During the nine months ended October 2, 2016, Teradyne recorded \$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, \$5.9 million for employee severance charges, primarily in Semiconductor Test and Wireless Test, \$4.2 million for an impairment of fixed assets, and \$0.9 million for Japan earthquake related expenses, partially offset by \$5.1 million of property insurance recovery related to the Japan earthquake.

## **O. RETIREMENT PLANS**

ASC 715, "*Compensation—Retirement Benefits*" requires an employer with defined benefit plan or other postretirement benefit plan to recognize an asset or a liability on its balance sheet for the overfunded or underfunded status of the plan. 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 the U.S. qualified pension plan consist primarily of fixed income and equity securities. In addition, Teradyne has unfunded qualified foreign plans as well as 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").

In the nine months ended October 1, 2017, 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 \$0.6 million to certain qualified pension plans for non-U.S. subsidiaries.

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 pension plans for non-U.S. subsidiaries.

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For the three and nine months ended October 1, 2017 and October 2, 2016, Teradyne's net periodic pension cost (income) was comprised of the following:

	For the Three Months Ended			
	October 1, 2017		October 2, 2016	
	United States	Foreign	United States	Foreign
	(in thousands)			
Service cost	\$ 560	\$ 215	\$ 575	\$ 208
Interest cost	3,288	186	3,407	209
Expected return on plan assets	(3,002)	(6)	(3,458)	(6)
Amortization of prior service cost	18	—	24	—
Net actuarial loss	—	—	—	662
Total	<u>\$ 864</u>	<u>\$ 395</u>	<u>\$ 548</u>	<u>\$ 1,073</u>

	For the Nine Months Ended			
	October 1, 2017		October 2, 2016	
	United States	Foreign	United States	Foreign
	(in thousands)			
Service cost	\$ 1,679	\$ 606	\$ 1,726	\$ 614
Interest cost	9,863	527	10,222	614
Expected return on plan assets	(9,006)	(19)	(10,373)	(17)
Amortization of prior service cost	53	—	72	—
Net Actuarial (gain) loss	(2,732)	243	(1,848)	662
Settlement	—	—	—	(184)
Total	<u>\$ (143)</u>	<u>\$ 1,357</u>	<u>\$ (201)</u>	<u>\$ 1,689</u>

**Postretirement Benefit Plan**

In addition to receiving pension benefits, Teradyne employees in the United States 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 and nine months ended October 1, 2017 and October 2, 2016, Teradyne's net periodic postretirement income was comprised of the following:

	For the Three Months Ended		For the Nine Months Ended	
	October 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
	(in thousands)			
Service cost	\$ 8	\$ 9	\$ 25	\$ 28
Interest cost	50	54	151	163
Amortization of prior service benefit	(124)	(151)	(372)	(455)
Actuarial gain	—	—	(15)	(15)
Total	<u>\$ (66)</u>	<u>\$ (88)</u>	<u>\$ (211)</u>	<u>\$ (279)</u>

## **P. COMMITMENTS AND CONTINGENCIES**

### ***Purchase Commitments***

As of October 1, 2017, Teradyne had entered into purchase commitments for certain components and materials. The purchase commitments covered by the agreements aggregate to approximately \$234.2 million, of which \$226.3 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 1, 2017 and October 2, 2016 was 18.8% and (6.9%), respectively. The effective tax rate for the nine months ended October 1, 2017 and October 2, 2016 was 14.7% and 3.7%, respectively.

The increase in the effective tax rate from the three and nine months ended October 2, 2016 to the three and nine months ended October 1, 2017 is primarily attributable to a shift in the geographic distribution of income which increased income subject to taxation in the U.S. relative to lower tax rate jurisdictions, the effect of a U.S. non-deductible goodwill impairment charge and decreases in discrete tax benefits.

The effective tax rates for the three and nine months ended October 1, 2017 differed from the expected federal statutory rate of 35% primarily because of the favorable effect of statutory rates applicable to income earned outside the U.S. The tax rates for the three and nine months ended October 1, 2017 were also reduced by the benefit from U.S. research and development tax credits, partially offset by additions to the uncertain tax positions for transfer pricing, both of which are included in the projected annual effective tax rate.

Discrete tax items recorded in the three and nine months ended October 1, 2017 amounted to expense of \$0.3 million and benefit of \$6.1 million, respectively. The \$0.3 million of discrete tax expense recorded in the three months ended October 1, 2017 was primarily composed of \$0.8 million of expense related to non-taxable foreign exchange loss, \$0.2 million of benefit from reductions in tax reserves and \$0.2 million of benefit from stock based compensation. The \$6.1 million of discrete tax benefit recorded in the nine months ended October 1, 2017 was primarily composed of \$6.7 million of benefit from stock-based compensation, \$1.0 million of expense related to actuarial gains, \$0.7 million of benefit related to U.S. research and development tax credits, \$0.5 million of benefit from reductions in tax reserves and \$1.1 million of expense related to non-taxable foreign exchange loss.

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 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. and the benefit of U.S. research and development tax credits, all of which were included in the projected annual effective tax rate.

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,

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\$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 were not material to the relevant prior periods.

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 1, 2017, Teradyne believes that it will ultimately realize the deferred tax assets recorded on the condensed consolidated balance sheets. 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 1, 2017 and December 31, 2016, Teradyne had \$44.2 million and \$39.0 million, respectively, of reserves for uncertain tax positions. The \$5.2 million net increase in reserves for uncertain tax positions is primarily composed of additions related to transfer pricing exposures and tax credits.

As of October 1, 2017, Teradyne estimates that there will be no material change in the balance of uncertain tax positions in the next twelve months.

Teradyne recognizes interest and penalties related to income tax matters in income tax expense. As of October 1, 2017 and December 31, 2016, \$0.4 million and \$0.4 million, respectively, of interest and penalties were accrued for uncertain tax positions. For the nine months ended October 1, 2017, a benefit of \$0.1 million was recorded for interest and penalties related to income tax items. 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.

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 1, 2017 was \$20.5 million, or \$0.10 per diluted share. 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 holiday is scheduled to expire on December 31, 2020.

## **R. SEGMENT INFORMATION**

Teradyne has four operating segments (Semiconductor Test, Industrial Automation, System Test and Wireless Test), 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 Industrial Automation segment includes operations related to the design, manufacturing and marketing of collaborative robots. 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. 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 (loss) 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, 2016.



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Segment information for the three and nine months ended October 1, 2017 and October 2, 2016 is as follows:

	Semiconductor Test	Industrial Automation	System Test	Wireless Test	Corporate and Eliminations	Consolidated
(in thousands)						
<b>Three Months Ended October 1, 2017</b>						
Revenues	\$ 396,881	\$ 40,063	\$ 35,569	\$ 30,865	\$ —	\$ 503,378
Income (loss) before income taxes (1)(2)	116,836	3,373	(3,344)	7,461	3,111	127,437
Total assets (3)	598,925	508,943	100,083	61,206	1,820,170	3,089,327
<b>Three Months Ended October 2, 2016</b>						
Revenues	\$ 322,021	\$ 23,505	\$ 37,030	\$ 27,919	\$ —	\$ 410,475
Income (loss) before income taxes (1)(2)	67,710	(4,695)	1,550	1,049	(5,933)	59,681
Total assets (3)	522,529	340,030	90,713	65,953	1,346,462	2,365,687
<b>Nine Months Ended October 1, 2017</b>						
Revenues	\$ 1,345,560	\$ 115,672	\$ 112,147	\$ 83,812	\$ —	\$ 1,657,191
Income (loss) before income taxes (1)(2)	426,081	(279)	(11,795)	13,508	(1,186)	426,329
Total assets (3)	598,925	508,943	100,083	61,206	1,820,170	3,089,327
<b>Nine Months Ended October 2, 2016</b>						
Revenues	\$ 1,097,608	\$ 65,353	\$ 139,640	\$ 70,660	\$ —	\$ 1,373,261
Income (loss) before income taxes (1)(2)	262,127	(16,364)	20,033	(375,596)	(4,145)	(113,945)
Total assets (3)	522,529	340,030	90,713	65,953	1,346,462	2,365,687

- (1) Included in Corporate and Eliminations are: contingent consideration adjustments, pension and postretirement plans' actuarial gains (losses), impairment of fixed assets and expenses related to the Japan earthquake, property insurance recovery, interest income, interest expense and net foreign exchange gains (losses).
- (2) Included in income (loss) before income taxes are charges and credits related to restructuring and other, inventory charges, a goodwill impairment charge and an acquired intangible assets impairment charge.
- (3) Total assets are attributable to each segment. 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 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
(in thousands)				
Cost of revenues—inventory charge	\$ 743	\$ 2,351	\$ 3,686	\$ 8,270
Restructuring and other—employee severance	375	2,047	242	2,798

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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 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
	(in thousands)			
Cost of revenues—inventory charge	\$ 130	\$ —	\$ 130	\$ —
Restructuring and other—employee severance	206	532	1,150	532

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 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
	(in thousands)			
Cost of revenues—inventory charge	\$ 251	\$ 121	\$ 1,609	\$ 441
Restructuring and other—employee severance	—	(48)	—	(48)

Included in the Wireless 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 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
	(in thousands)			
Cost of revenues—inventory charge	\$ 735	\$ 561	\$ 1,729	\$ 6,437
Restructuring and other—lease impairment	(393)	—	900	—
Goodwill impairment	—	—	—	254,946
Acquired intangible assets impairment	—	—	—	83,339
Restructuring and other—employee severance	—	1,672	31	2,639

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 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
	(in thousands)			
Cost of revenues—pension actuarial losses (gains)	\$ —	\$ 364	\$ (664)	\$ (250)
Selling and administrative—pension actuarial losses (gains)	—	192	(1,094)	(441)
Engineering and development—pension actuarial losses (gains)	—	106	(746)	(509)
Restructuring and other—Universal Robots contingent consideration adjustment	(286)	7,973	1,847	9,902
Restructuring and other—property insurance recovery	(5,064)	—	(5,064)	(5,051)
Restructuring and other—expenses related to Japan earthquake and impairment of fixed assets	755	—	755	5,051
Restructuring and other—employee severance	—	—	530	—
Restructuring and other—AIT contingent consideration adjustment	—	—	—	550

## S. SHAREHOLDERS' EQUITY

### *Stock Repurchase Program*

In December 2016, the Board of Directors approved a \$500 million share repurchase authorization which commenced on January 1, 2017. Teradyne intends to repurchase at least \$200 million in 2017. During the nine months ended October 1, 2017, Teradyne repurchased 4.6 million shares of common stock at an average price of \$32.66 per share, for a total price of \$151.8 million.

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 price of \$85.1 million.

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 2017, May 2017 and August 2017, Teradyne's Board of Directors declared a quarterly cash dividend of \$0.07 per share. Dividend payments for the three and nine months ended October 1, 2017 were \$13.8 million and \$41.7 million, respectively.

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.

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.

## **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, 2016. 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”);
- industrial automation (“Industrial Automation”) products; and
- wireless test (“Wireless Test”) systems.

We have a customer base which includes integrated device manufacturers (“IDMs”), outsourced semiconductor assembly and test providers (“OSATs”), original equipment manufacturers (“OEMs”), 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.

The market for our test products is concentrated with a limited number of significant customers accounting for a substantial portion of the purchases of test equipment. One customer drives significant demand for our products both through direct sales and sales to the customer’s supply partners. We expect that sales of our test products will continue to be concentrated with a limited number of significant customers for the foreseeable future.

In 2015, we acquired Universal Robots A/S (“Universal Robots”), 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 acquisition of Universal Robots provides a growth engine to our business and complements our existing System Test and Wireless Test segments. The total purchase price for Universal Robots was approximately \$315 million, which included cash paid of approximately \$284 million and \$32 million in fair value of contingent consideration payable upon achievement of revenue and earnings targets through 2018. Contingent consideration paid for 2015 was \$15 million. The remaining maximum contingent consideration that could be paid is \$50 million.

We believe our recent acquisition has 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.

For several years, this cyclical demand became an even/odd year trend where demand increased in even years and decreased in odd years due principally to demand swings in the mobility market of our Semiconductor Test business. We expect the even/odd year demand trend in the mobility market to lessen in 2017 and future years due to slower smart phone unit growth, along with rising device complexity and the reduced impact of parallel test in our Semiconductor Test business.

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 had previously 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 \$254.9 million, with approximately \$8.0 million of goodwill remaining, and \$83.3 million for the impairment of acquired intangible assets with approximately \$4.0 million of acquired intangible assets remaining.

### **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 1, 2017 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, 2016.

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

	For the Three Months Ended		For the Nine Months Ended	
	October 1, 2017	October 2, 2016	October 1, 2017	October 2, 2016
Percentage of revenues:				
Revenues:				
Products	82%	82%	84%	84%
Services	18	18	16	16
Total revenues	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
Cost of revenues:				
Cost of products	34	36	36	39
Cost of services	8	8	7	7
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	<u>41</u>	<u>45</u>	<u>43</u>	<u>46</u>
Gross profit	59	55	57	54
Operating expenses:				
Selling and administrative	17	19	16	17
Engineering and development	15	17	14	16
Acquired intangible assets amortization	1	2	1	3
Restructuring and other	(1)	3	—	1
Goodwill impairment	—	—	—	19
Acquired intangible assets impairment	—	—	—	6
Total operating expenses	<u>33</u>	<u>42</u>	<u>31</u>	<u>63</u>
Income (loss) from operations	26	14	26	(9)
Non-operating (income) expense:				
Interest income	(1)	(1)	(1)	—
Interest expense	1	—	1	—
Other (income) expense, net	—	—	—	—
Income (loss) before income taxes	25	15	26	(8)
Income tax provision (benefit)	5	(1)	4	—
Net income (loss)	<u>21%</u>	<u>16%</u>	<u>22%</u>	<u>(8)%</u>

**Results of Operations**

*Third Quarter 2017 Compared to Third Quarter 2016*

*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 1, 2017	October 2, 2016
Semiconductor Test	0.7	0.8
Industrial Automation	1.0	1.0
System Test	1.2	2.1
Wireless Test	1.1	1.0
Total Company	0.8	0.9

[Table of Contents](#)*Revenues*

Revenues by our four reportable segments were as follows:

	<b>For the Three Months Ended</b>		<b>Dollar Change</b>
	<b>October 1, 2017</b>	<b>October 2, 2016</b>	
	(in millions)		
Semiconductor Test	\$ 396.9	\$ 322.0	\$ 74.9
Industrial Automation	40.1	23.5	16.6
System Test	35.6	37.0	(1.4)
Wireless Test	30.9	27.9	3.0
	<u>\$ 503.4</u>	<u>\$ 410.5</u>	<u>\$ 92.9</u>

The increase in Semiconductor Test revenues of \$74.9 million, or 23.3%, was driven primarily by increased sales in automotive safety, power management, image sensor, flash memory, and microcontroller test segments, and an increase in service revenue. The increase in Industrial Automation revenues of \$16.6 million, or 70.6%, was due to higher demand for collaborative robots. The decrease in System Test revenues of \$1.4 million, or 3.8%, was primarily due to lower sales in Storage Test of 3.5" hard disk drive testers for cloud storage. The increase in Wireless Test revenues of \$3.0 million, or 10.8%, was primarily due to higher demand for cellular test systems and increased service revenue.

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

	<b>For the Three Months Ended</b>	
	<b>October 1, 2017</b>	<b>October 2, 2016</b>
Taiwan	31%	42%
China	14	10
United States	13	10
Korea	9	7
Europe	8	7
Malaysia	6	6
Japan	6	5
Singapore	4	4
Philippines	4	4
Thailand	2	2
Rest of World	3	3
	<u>100%</u>	<u>100%</u>

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

*Gross Profit*

Our gross profit was as follows:

	<b>For the Three Months Ended</b>		<b>Dollar/Point Change</b>
	<b>October 1, 2017</b>	<b>October 2, 2016</b>	
	(in millions)		
Gross profit	\$ 294.8	\$ 227.4	\$ 67.4
Percent of total revenues	58.6%	55.4%	3.2

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Gross profit as a percent of revenue increased by 3.2 points, as a result of a 1.9 point increase related to favorable product mix in Semiconductor Test and 1.3 points due to higher sales primarily in Semiconductor Test and Industrial Automation.

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 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 1, 2017, we recorded an inventory provision of \$1.9 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels for certain products. Of the \$1.9 million of total excess and obsolete provisions, \$0.7 million was related to Semiconductor Test, \$0.7 million was related to Wireless Test, \$0.3 million was related to System Test, and \$0.1 million was related to Industrial Automation.

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 for certain products. 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 1, 2017 and October 2, 2016, we scrapped \$1.2 million and \$4.6 million of inventory, respectively. During the three months ended October 1, 2017 and October 2, 2016, we sold \$3.1 million and \$1.8 million of previously written-down or written-off inventory, respectively. As of October 1, 2017, we had inventory related reserves for inventory which had been written-down or written-off totaling \$112.2 million. We have no pre-determined timeline to scrap the remaining inventory.

#### *Selling and Administrative*

Selling and administrative expenses were as follows:

	For the Three Months Ended		Dollar Change
	October 1, 2017	October 2, 2016	
	(in millions)		
Selling and administrative	\$ 86.2	\$ 78.8	\$ 7.4
Percent of total revenues	17.1%	19.2%	

The increase of \$7.4 million in selling and administrative expenses was due primarily to higher variable compensation and higher spending in Industrial Automation.

#### *Engineering and Development*

Engineering and development expenses were as follows:

	For the Three Months Ended		Dollar Change
	October 1, 2017	October 2, 2016	
	(in millions)		
Engineering and development	\$ 77.2	\$ 71.4	\$ 5.8
Percent of total revenues	15.3%	17.4%	



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The increase of \$5.8 million in engineering and development expenses was primarily due to higher variable compensation and higher spending in System Test and Industrial Automation, partially offset by lower spending in Wireless Test.

*Acquired Intangible Assets Amortization*

Acquired intangible assets amortization expense was as follows:

	For the Three Months Ended		Dollar Change
	October 1, 2017	October 2, 2016	
	(in millions)		
Acquired intangible assets amortization	\$ 7.0	\$ 8.5	\$ (1.5)
Percent of total revenues	1.4%	2.1%	

Acquired intangible assets amortization expense decreased primarily in the Industrial Automation segment due to intangible assets that became fully amortized in June, 2017.

*Restructuring and Other*

During the three months ended October 1, 2017, we recorded \$5.1 million of property insurance recovery related to the Japan earthquake, a \$0.4 million credit related to previously impaired lease termination of a Wireless Test facility in Sunnyvale, CA, and a \$0.3 million credit for the decrease in the fair value of the Universal Robots contingent consideration liability, partially offset by \$0.8 million of Japan earthquake related expenses, and \$0.6 million recorded for employee severance charges, primarily in Semiconductor Test.

During the three months ended October 2, 2016, we recorded \$8.0 million for the increase in the fair value of the Universal Robots contingent consideration liability, and \$4.2 million for employee severance charges, primarily in Semiconductor Test and Wireless Test.

*Interest and Other*

	For the Three Months Ended		Dollar Change
	October 1, 2017	October 2, 2016	
	(in millions)		
Interest income	\$ (4.5)	\$ (2.9)	\$ (1.6)
Interest expense	5.4	0.6	4.8
Other (income) expense, net	0.4	(0.9)	1.3

Interest income increased by \$1.6 million due primarily to higher cash and marketable securities balances and higher interest rates in the third quarter of 2017. Interest expense increased by \$4.8 million due primarily to interest expense related to our convertible senior notes. Other (income) expense, net included net foreign exchange losses in the third quarter of 2017 and net foreign exchange gains in the third quarter of 2016.

*Income (Loss) Before Income Taxes*

	<b>For the Three Months Ended</b>		<b>Dollar Change</b>
	<b>October 1, 2017</b>	<b>October 2, 2016</b>	
	(in millions)		
Semiconductor Test	\$ 116.8	\$ 67.7	\$ 49.1
Wireless Test	7.5	1.1	6.4
Industrial Automation	3.4	(4.7)	8.1
System Test	(3.3)	1.6	(4.9)
Corporate (1)	3.1	(6.0)	9.1
Total	<u>\$ 127.4</u>	<u>\$ 59.7</u>	<u>\$ 67.7</u>

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

The increase in income before income taxes in Semiconductor Test was driven primarily by increased sales and higher gross margin due to favorable product mix. The increase in income before income taxes in Wireless Test was primarily due to lower intangible assets amortization, lower operating expenses and higher demand for cellular test systems in the third quarter of 2017. The increase in income before income taxes in Industrial Automation was primarily due to higher demand for collaborative robots. 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 and increased spending for new product development.

*Income Taxes*

The effective tax rate for the three months ended October 1, 2017 and October 2, 2016 was 18.8% and (6.9%), respectively. The increase in the effective tax rate is primarily attributable to a shift in the geographic distribution of income which increased income subject to taxation in the U.S. relative to lower tax rate jurisdictions, the effect of a U.S. non-deductible goodwill impairment charge and decreases in discrete tax benefits.

***Nine Months 2017 Compared to Nine Months 2016***

*Revenues*

Revenues by our four reportable segments were as follows:

	<b>For the Nine Months Ended</b>		<b>Dollar Change</b>
	<b>October 1, 2017</b>	<b>October 2, 2016</b>	
	(in millions)		
Semiconductor Test	\$ 1,345.6	\$ 1,097.6	\$248.0
Industrial Automation	115.7	65.4	50.3
System Test	112.1	139.6	(27.5)
Wireless Test	83.8	70.7	13.1
Total	<u>\$ 1,657.2</u>	<u>\$ 1,373.3</u>	<u>\$283.9</u>

The increase in Semiconductor Test revenues of \$248.0 million, or 22.6%, was driven primarily by increased sales in the microcontroller, power management, automotive safety and flash memory test segments

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and an increase in service revenue. The increase in Industrial Automation revenues of \$50.3 million, or 76.9%, was due to higher demand for collaborative robots. The decrease in System Test revenues of \$27.5 million, or 19.7%, was primarily due to lower sales in Storage Test of 3.5” hard disk drive testers for cloud storage. The increase in Wireless Test revenues of \$13.1 million, or 18.5%, was primarily due to higher demand for cellular and connectivity test systems and increased service revenue.

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

	For the Nine Months Ended	
	October 1, 2017	October 2, 2016
Taiwan	38%	44%
United States	11	11
China	11	9
Japan	7	7
Europe	7	6
Korea	7	6
Malaysia	6	5
Singapore	5	4
Philippines	5	3
Thailand	2	2
Rest of World	1	3
	<u>100%</u>	<u>100%</u>

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

#### Gross Profit

Our gross profit was as follows:

	For the Nine Months Ended		Dollar/ Point Change
	October 1, 2017	October 2, 2016	
Gross profit	\$ 950.9	\$ 740.6	\$210.3
Percent of Total Revenues	57.4%	53.9%	3.5

Gross profit as a percent of revenue increased by 3.5 points, as a result of a 2.3 point increase related to favorable product mix in Semiconductor Test and 1.2 points due to higher sales primarily in Semiconductor Test and Industrial Automation.

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 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 1, 2017, we recorded an inventory provision of \$7.2 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels for certain

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products. Of the \$7.2 million of total excess and obsolete provisions, \$3.7 million was related to Semiconductor Test, \$1.7 million was related to Wireless Test, \$1.6 million was related to System Test, and \$0.1 million was related to Industrial Automation.

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 for certain products. 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 1, 2017 and October 2, 2016, we scrapped \$4.1 million and \$6.8 million of inventory, respectively. During the nine months ended October 1, 2017 and October 2, 2016, we sold \$6.4 million and \$8.0 million of previously written-down or written-off inventory, respectively. As of October 1, 2017, we had inventory related reserves for inventory which had been written-down or written-off totaling \$112.2 million. We have no pre-determined timeline to scrap the remaining inventory.

#### *Selling and Administrative*

Selling and administrative expenses were as follows:

	For the Nine Months Ended		Dollar Change
	October 1, 2017	October 2, 2016	
	(in millions)		
Selling and administrative	\$ 260.3	\$ 239.4	\$ 20.9
Percent of Total Revenues	15.7%	17.4%	

The increase of \$20.9 million in selling and administrative expenses was due primarily to higher variable compensation and higher spending in Industrial Automation, partially offset by lower spending in Wireless Test.

#### *Engineering and Development*

Engineering and development expenses were as follows:

	For the Nine Months Ended		Dollar Change
	October 1, 2017	October 2, 2016	
	(in millions)		
Engineering and development	\$ 235.1	\$ 221.0	\$ 14.1
Percent of Total Revenues	14.2%	16.1%	

The increase of \$14.1 million in engineering and development expenses was primarily due to higher variable compensation and higher spending in System Test and Industrial Automation, partially offset by lower spending in Wireless Test.

#### *Acquired Intangible Assets Amortization*

Acquired intangible assets amortization expense was as follows:

	For the Nine Months Ended		Dollar Change
	October 1, 2017	October 2, 2016	
	(in millions)		
Acquired intangible assets amortization	\$ 23.1	\$ 44.7	\$ (21.6)
Percent of Total Revenues	1.4%	3.3%	

Acquired intangible assets amortization expense decreased primarily in the Wireless Test segment due to the impairment of acquired intangible assets in the second quarter of 2016 and in the Industrial Automation segment due to intangible assets that became fully amortized in June, 2017.

#### *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 had previously 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 \$254.9 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.

#### *Restructuring and Other*

During the nine months ended October 1, 2017, we recorded \$2.0 million for employee severance charges, primarily in Industrial Automation and Corporate, \$1.8 million for the increase in the fair value of the Universal Robots contingent consideration liability, \$0.9 million for a lease impairment of a Wireless Test facility in Sunnyvale, CA, which was terminated in September 2017, and \$0.8 million of Japan earthquake related expenses, partially offset by \$5.1 million of property insurance recovery related to the Japan earthquake.

During the nine months ended October 2, 2016, we recorded \$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, \$5.9 million for employee severance charges, primarily in Semiconductor Test and Wireless Test, \$4.2 million for an impairment of fixed assets, and \$0.9 million for Japan earthquake related expenses, partially offset by \$5.1 million of property insurance recovery related to the Japan earthquake.

*Interest and Other*

	For the Nine Months Ended		Dollar Change
	October 1, 2017	October 2, 2016	
	(in millions)		
Interest income	\$ (11.3)	\$ (6.2)	\$ (5.1)
Interest expense	16.3	2.0	14.3
Other (income) expense, net	0.7	(1.1)	1.8

Interest income increased by \$5.1 million due primarily to higher cash and marketable securities balances and higher interest rates in 2017. Interest expense increased by \$14.3 million due primarily to interest expense related to our convertible senior notes. Other (income) expense, net included net foreign exchange losses in the nine months ended October 1, 2017 and net foreign exchange gains in the nine months ended October 2, 2016.

*Income (Loss) Before Income Taxes*

	For the Nine Months Ended		Dollar Change
	October 1, 2017	October 2, 2016	
	(in millions)		
Semiconductor Test	\$ 426.1	\$ 262.2	\$163.9
Wireless Test	13.5	(375.6)	389.1
Industrial Automation	(0.3)	(16.4)	16.1
System Test	(11.8)	20.0	(31.8)
Corporate (1)	(1.2)	(4.1)	2.9
Total	<u>\$ 426.3</u>	<u>\$ (113.9)</u>	<u>\$540.2</u>

- (1) Included in Corporate are: contingent consideration adjustments, pension and postretirement plans actuarial gains (losses), impairment of fixed assets and expenses related to the Japan earthquake, property insurance recovery and proceeds, interest income, interest expense and net foreign exchange gains (losses).

The increase in income before income taxes in Semiconductor Test was driven primarily by increased sales and higher gross margin due to favorable product mix. The increase in income before income taxes in Wireless Test was primarily due to goodwill and intangible assets impairment charges in 2016 and lower intangible assets amortization, lower operating expenses and higher demand for cellular and connectivity test systems in 2017. The increase in income before income taxes in Industrial Automation was due to higher demand for collaborative robots. 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 and increased spending for new product development.

*Income Taxes*

The effective tax rate for the nine months ended October 1, 2017 and October 2, 2016 was 14.7% and 3.7%, respectively. The increase in the effective tax rate is primarily attributable to a shift in the geographic distribution of income which increased income subject to taxation in the U.S. relative to lower tax rate jurisdictions, the effect of a U.S. non-deductible goodwill impairment charge and decreases in discrete tax benefits.

## Contractual Obligations

The following table reflects our contractual obligations as of October 1, 2017:

	Payments Due by Period					
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years	Other
	(in thousands)					
Convertible debt	\$ 460,000	\$ —	\$ —	\$ —	\$ 460,000	\$ —
Purchase obligations	234,228	226,280	7,948	—	—	—
Retirement plans contributions	118,263	4,019	8,060	8,791	97,393	—
Operating lease obligations	66,788	16,862	26,463	15,337	8,126	—
Interest on long-term debt	37,375	5,750	11,500	11,500	8,625	—
Fair value of contingent consideration	39,129	21,818	17,311	—	—	—
Other long-term liabilities reflected on the balance sheet under GAAP (1)	53,833	—	31,686	—	—	22,147
Total	<u>\$1,009,616</u>	<u>\$274,729</u>	<u>\$102,968</u>	<u>\$35,628</u>	<u>\$ 574,144</u>	<u>\$22,147</u>

(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 \$235.7 million in the nine months ended October 1, 2017 to \$1,848 million.

In the nine months ended October 1, 2017, changes in operating assets and liabilities provided cash of \$6.3 million. This was due to a \$44.5 million increase in operating assets partially offset by a \$50.8 million increase in operating liabilities.

The increase in operating assets was primarily due to a \$75.6 million increase in accounts receivable due to higher sales, partially offset by a \$23.8 million decrease in inventories and a \$7.4 million decrease in prepayments and other assets.

The increase in operating liabilities was due to a \$20.5 million increase in other accrued liabilities, a \$15.8 million increase in income taxes, a \$3.0 million increase in accrued employee compensation due primarily to variable compensation, and a \$34.5 million increase in deferred revenue and customer advance payments, partially offset by an \$18.1 million decrease in accounts payable and \$4.9 million of retirement plan contributions.

Investing activities during the nine months ended October 1, 2017, used cash of \$188.3 million, due to \$1,036.5 million used for purchases of marketable securities and \$73.2 million used for purchases of property, plant and equipment, partially offset by \$473.3 million and \$443.2 million in proceeds from maturities and sales 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 1, 2017, used cash of \$182.7 million, due to \$151.8 million used for the repurchase of 4.6 million shares of common stock at an average price of \$32.66 per share, \$41.7 million used for dividend payments, \$12.6 million used for payment related to net settlement of employee stock compensation awards and \$1.1 million used for a payment related to AIT acquisition contingent consideration, partially offset by \$24.5 million from the issuance of common stock under employee stock purchase and stock option plans.

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In the nine months ended October 2, 2016, changes in operating assets and liabilities provided cash of \$93.1 million. This was due to an \$81.0 million decrease in operating assets and a \$12.1 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 \$13.3 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 \$15.4 million increase in other accrued liabilities and a \$4.2 million increase in accrued income taxes, partially offset by a \$24.2 million decrease in accrued employee compensation due primarily to variable compensation, 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 \$119.1 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, \$11.7 million used for a payment related to the Universal Robots acquisition contingent consideration, and \$9.2 million used for payment related to net settlement of employee stock compensation awards 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 January 2017, May 2017 and August 2017, our Board of Directors declared a quarterly cash dividend of \$0.07 per share. In the nine months ended October 1, 2017, dividend payments were \$41.7 million.

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 December 2016, the Board of Directors approved a \$500 million share repurchase authorization which commenced on January 1, 2017. We intend to repurchase at least \$200 million in 2017. During the nine months ended October 1, 2017, we repurchased 4.6 million shares of common stock at an average price of \$32.66 per share, for a total price of \$151.8 million. The total price includes commissions and is recorded as a reduction to retained earnings.

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.

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 \$1,106 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 O: “Stock Based Compensation” in our 2016 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 March 10, 2017, the FASB issued ASU 2017-07, “*Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*.” This ASU provides guidance on presentation of net periodic pension cost and net periodic postretirement benefit cost. The new standard requires the service cost component to be presented in the same line item as other employee compensation costs arising from services rendered during the period. The other components of net benefit cost such as interest cost, amortization of prior service cost, and actuarial gains or losses, are required to be presented separately outside of income or loss from operations. The presentation of service cost should be applied retrospectively. The guidance is effective for fiscal years beginning after December 15, 2017. Early adoption is permitted. This guidance will impact the presentation of our consolidated financial statements. Upon adoption of the new standard, we will present interest cost, amortization of prior service cost, and actuarial gains or losses within other (income) expense, net.

On January 26, 2017, the FASB issued ASU 2017-04, “*Intangibles—Goodwill and Other (Topic 350): Simplifying the Accounting for Goodwill Impairment*.” The new guidance removes Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. Goodwill impairment will now be the amount by which a reporting unit’s carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. All other goodwill impairment guidance will remain largely unchanged. Entities will continue to have the option to perform a qualitative assessment to determine if a quantitative impairment test is necessary. The same one-step impairment test will be applied to goodwill at all reporting units, even those with zero or negative carrying amounts. Entities will be required to disclose the amount of goodwill at reporting units with zero or negative carrying amounts. The revised guidance will be applied prospectively, and is effective in 2020. Early adoption is permitted for any impairment tests performed after January 1, 2017. We are currently evaluating the impact of this ASU on our financial position, results of operations and statements of cash flows.

In October 2016, the FASB issued 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 do not expect this ASU to have a material impact on our financial position, results of operations and statements 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 Codification (“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 statements of operations. 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 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 us, the standard will be effective in the first quarter of 2018. 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 selected the modified retrospective transition method.

We have completed our preliminary assessment of the financial statement impact of the new standard and do not expect this ASU to have a material impact on our financial position or results of operations. This preliminary assessment is based on a review of the types and number of revenue arrangements currently in place including the review of individual customer contracts related to these revenue streams. The exact impact of the new standard will be dependent on facts and circumstances at adoption and could vary from quarter to quarter. Based on our preliminary assessment we do not expect any major changes to be made to existing accounting systems or internal controls. We will be required to record cumulative effect adjustments to retained earnings upon adopting the new standard in the first quarter of 2018.

### **Item 3: Quantitative and Qualitative Disclosures about Market Risks**

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 March 1, 2017. 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, 2016.

In addition to market risks described in our Annual Report on Form 10-K, we have an equity price risk related to the fair value of our convertible senior unsecured notes issued in December 2016. In December 2016, Teradyne issued \$460 million aggregate principal amount of 1.25% convertible senior unsecured notes (the

“Notes”) due December 15, 2023. As of October 1, 2017, the Notes had a fair value of \$613.2 million. The table below provides a sensitivity analysis of hypothetical 10% changes of Teradyne’s stock price as of the end of the third quarter of 2017 and the estimated impact on the fair value of the Notes. The selected scenarios are not predictions of future events, but rather are intended to illustrate the effect such event may have on the fair value of the Notes. The fair value of the Notes is subject to equity price risk due to the convertible feature. The fair value of the Notes will generally increase as Teradyne’s common stock price increases and will generally decrease as the common stock price declines in value. The change in stock price affects the fair value of the convertible senior notes, but does not impact Teradyne’s financial position, cash flows or results of operations due to the fixed nature of the debt obligation. Additionally, we carry the Notes at face value less unamortized discount on our balance sheet, and we present the fair value for required disclosure purposes only. In connection with the offering of the Notes we also sold warrants to the option counterparties. These transactions have been accounted for as an adjustment to our shareholders’ equity. The convertible note hedge transactions are expected to reduce the potential equity dilution upon conversion of the Notes. The warrants along with any shares issuable upon conversion of the Notes will have a dilutive effect on our earnings per share to the extent that the average market price of our common stock for a given reporting period exceeds the applicable strike price or conversion price of the warrants or Notes, respectively.

<u>Hypothetical Change in Teradyne Stock Price</u>	<u>Fair Value</u>	<u>Estimated Change in Fair Value</u>	<u>Hypothetical Percentage Increase (Decrease) in Fair Value</u>
10% Increase	\$ 655,362	\$ 42,124	6.9%
No Change	613,238	—	—
10% Decrease	573,327	(39,911)	(6.5)

See Note F: “Debt” for further information.

#### **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.

**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, 2016, 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.

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

In December 2016, the Board of Directors approved a \$500 million share repurchase authorization which commenced on January 1, 2017. We intend to repurchase at least \$200 million in 2017. During the nine months ended October 1, 2017, we repurchased 4.6 million shares of common stock at an average price of \$32.66 per share, for a total price of \$151.8 million. The total price includes commissions and is recorded as a reduction to retained earnings.

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 following table includes information with respect to repurchases we made of our common stock during the three months ended October 1, 2017 (in thousands except per share price):

<u>Period</u>	<u>(a) Total Number of Shares (or Units) Purchased</u>	<u>(b) Average Price Paid per Share (or Unit)</u>	<u>(c) Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs</u>	<u>(d) Maximum Number (or Approximate Dollar Value) of Shares (or Units) that may Yet Be Purchased Under the Plans or Programs</u>
July 3, 2017 – July 30, 2017	524	\$ 32.68	522	\$ 388,600
July 31, 2017 – August 27, 2017	528	\$ 34.08	527	\$ 370,641
August 28, 2017 – October 1, 2017	632	\$ 35.62	631	\$ 348,178
Total	<u>1,684</u> (1)	<u>\$ 34.22</u> (1)	<u>1,680</u>	

(1) Includes 4,425 shares at an average price of \$32.90 withheld from employees for the payment of taxes.

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

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**Item 6: Exhibits**

<b><u>Exhibit Number</u></b>	<b><u>Description</u></b>
31.1	<a href="#">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)</a>
31.2	<a href="#">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)</a>
32.1	<a href="#">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)</a>
32.2	<a href="#">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)</a>
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

**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 / G REGORY R. BEECHER

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**Gregory R. Beecher**  
**Vice President,**  
**Chief Financial Officer and Treasurer**  
**(Duly Authorized Officer**  
**and Principal Financial Officer)**

**November 9, 2017**

## CERTIFICATIONS

I, Mark E. Jagiela, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Teradyne, Inc.;

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

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

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

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

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

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

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

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

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

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

Date: November 9, 2017

By: \_\_\_\_\_ / s / M A R K E. J A G I E L A  
Mark E. Jagiela  
Chief Executive Officer





**CERTIFICATION PURSUANT TO  
18 U.S.C SECTION 1350,  
AS ADOPTED PURSUANT TO  
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of Teradyne, Inc. (the "Company") on Form 10-Q for the period ended October 1, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Mark E. Jagiela, Chief Executive Officer of the Company, certify pursuant to 18 U.S.C (S) 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

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

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

/ S / M A R K E . J A G I E L A

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**Mark E. Jagiela**  
**Chief Executive Officer**  
**November 9, 2017**

**CERTIFICATION PURSUANT TO  
18 U.S.C SECTION 1350,  
AS ADOPTED PURSUANT TO  
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of Teradyne, Inc. (the "Company") on Form 10-Q for the period ended October 1, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Gregory R. Beecher, Chief Financial Officer of the Company, certify pursuant to 18 U.S.C (S) 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

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

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

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**Gregory R. Beecher**  
**Chief Financial Officer**  
**November 9, 2017**