

TERADYNE, INC  
Form 10-Q  
August 10, 2018  
Table of Contents

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

**FORM 10-Q**

(Mark One)

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

**For the quarterly period ended July 1, 2018**

**OR**

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

**For the transition period from                      to**

**Commission File No. 001-06462**

**TERADYNE, INC.**

**(Exact name of registrant as specified in its charter)**

**Massachusetts**  
**(State or Other Jurisdiction of**

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

**Incorporation or Organization)**

**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)**

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

Accelerated filer

Non-accelerated filer

(Do not check if a smaller reporting company)

Smaller reporting company

Emerging growth company

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 standards 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 August 6, 2018 was 186,437,930 shares.



**Table of Contents**

**TERADYNE, INC.**

**INDEX**

	<b>Page No.</b>
<b>PART I. FINANCIAL INFORMATION</b>	
Item 1. Financial Statements (Unaudited):	
<u>Condensed Consolidated Balance Sheets as of July 1, 2018 and December 31, 2017</u>	1
<u>Condensed Consolidated Statements of Operations for the Three and Six months ended July 1, 2018 and July 2, 2017</u>	2
<u>Condensed Consolidated Statements of Comprehensive Income for the Three and Six months ended July 1, 2018 and July 2, 2017</u>	3
<u>Condensed Consolidated Statements of Cash Flows for the Six Months Ended July 1, 2018 and July 2, 2017</u>	4
<u>Notes to Condensed Consolidated Financial Statements</u>	5
Item 2. <u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	38
Item 3. <u>Quantitative and Qualitative Disclosures about Market Risk</u>	52
Item 4. <u>Controls and Procedures</u>	53
<b>PART II. OTHER INFORMATION</b>	
Item 1. <u>Legal Proceedings</u>	54
Item 1A. <u>Risk Factors</u>	54
Item 2. <u>Unregistered Sales of Equity Securities and Use of Proceeds</u>	54
Item 4. <u>Mine Safety Disclosures</u>	55
Item 6. <u>Exhibits</u>	55

**Table of Contents****PART I****Item 1: Financial Statements****TERADYNE, INC.****CONDENSED CONSOLIDATED BALANCE SHEETS****(Unaudited)**

	<b>July 1, 2018</b>	<b>December 31, 2017</b>
	<b>(in thousands, except per share amount)</b>	
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 480,384	\$ 429,843
Marketable securities	712,309	1,347,979
Accounts receivable, less allowance for doubtful accounts of \$2,216 and \$2,219 at July 1, 2018 and December 31, 2017, respectively	454,122	272,783
Inventories, net	135,550	107,525
Prepayments and other current assets	111,820	112,151
Total current assets	1,894,185	2,270,281
Property, plant and equipment, net	285,302	268,447
Marketable securities	111,417	125,926
Deferred tax assets	73,574	84,026
Retirement plans assets	18,252	17,491
Other assets	12,192	12,275
Acquired intangible assets, net	148,173	79,088
Goodwill	388,625	252,011
Total assets	\$ 2,931,720	\$ 3,109,545
<b>LIABILITIES</b>		
Current liabilities:		
Accounts payable	\$ 102,737	\$ 86,393
Accrued employees' compensation and withholdings	115,264	141,694
Deferred revenue and customer advances	82,491	83,614
Other accrued liabilities	83,681	59,083
Contingent consideration	35,911	24,497
Income taxes payable	32,226	59,055
Total current liabilities	452,310	454,336

Edgar Filing: TERADYNE, INC - Form 10-Q

Retirement plans liabilities	124,258	119,776
Long-term deferred revenue and customer advances	25,375	30,127
Deferred tax liabilities	22,281	6,720
Long-term other accrued liabilities	22,296	10,273
Long-term contingent consideration	25,003	20,605
Long-term incomes taxes payable	147,360	148,075
Long-term debt	372,897	365,987
<b>Total liabilities</b>	<b>1,191,780</b>	<b>1,155,899</b>

Commitments and contingencies (See Note Q)

**SHAREHOLDERS EQUITY**

Common stock, \$0.125 par value, 1,000,000 shares authorized; 187,962 and 195,548 shares issued and outstanding at July 1, 2018 and December 31, 2017, respectively	23,495	24,444
Additional paid-in capital	1,645,679	1,638,413
Accumulated other comprehensive (loss) income	(3,504)	18,776
Retained earnings	74,270	272,013
<b>Total shareholders equity</b>	<b>1,739,940</b>	<b>1,953,646</b>
<b>Total liabilities and shareholders equity</b>	<b>\$ 2,931,720</b>	<b>\$ 3,109,545</b>

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, 2017, are an integral part of the condensed consolidated financial statements.

Table of Contents

## TERADYNE, INC.

## CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

(Unaudited)

	For the Three Months Ended		For the Six Months Ended	
	July 1, 2018	July 2, 2017	July 1, 2018	July 2, 2017
	(in thousands, except per share amount)			
Revenues:				
Products	\$ 434,051	\$ 610,356	\$ 837,976	\$ 983,560
Services	92,878	86,545	176,420	170,254
Total revenues	526,929	696,901	1,014,396	1,153,814
Cost of revenues:				
Cost of products	180,777	267,752	361,735	422,634
Cost of services	38,818	38,511	75,495	75,525
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	219,595	306,263	437,230	498,159
Gross profit	307,334	390,638	577,166	655,655
Operating expenses:				
Selling and administrative	99,410	90,111	189,916	174,903
Engineering and development	75,342	82,270	149,750	158,248
Acquired intangible assets amortization	9,793	8,166	17,491	16,118
Restructuring and other	2,389	2,288	2,076	4,799
Total operating expenses	186,934	182,835	359,233	354,068
Income from operations	120,400	207,803	217,933	301,587
Non-operating (income) expense:				
Interest income	(5,427)	(3,292)	(11,407)	(6,812)
Interest expense	5,639	5,509	12,530	10,911
Other (income) expense, net	176	(1,291)	979	(1,405)
Income before income taxes	120,012	206,877	215,831	298,893
Income tax provision	18,975	31,901	27,821	38,696
Net income	\$ 101,037	\$ 174,976	\$ 188,010	\$ 260,197
Net income per common share:				
Basic	\$ 0.53	\$ 0.88	\$ 0.97	\$ 1.30

Edgar Filing: TERADYNE, INC - Form 10-Q

Diluted	\$ 0.52	\$ 0.87	\$ 0.94	\$ 1.29
Weighted average common shares basic	190,730	198,774	192,992	199,390
Weighted average common shares diluted	194,909	201,529	199,197	201,732
Cash dividend declared per common share	\$ 0.09	\$ 0.07	\$ 0.18	\$ 0.14

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, 2017, are an integral part of the condensed consolidated financial statements.

Table of Contents

## TERADYNE, INC.

## CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(Unaudited)

	For the Three Months Ended		For the Six Months Ended	
	July 1, 2018	July 2, 2017	July 1, 2018	July 2, 2017
	(in thousands)			
Net income	\$ 101,037	\$ 174,976	\$ 188,010	\$ 260,197
Other comprehensive income, net of tax:				
Foreign currency translation adjustment	(29,322)	15,981	(18,781)	24,944
Available-for-sale marketable securities:				
Unrealized gains (losses) on marketable securities arising during period, net of tax of \$(25), \$765, \$(744), \$1,185, respectively	198	985	(2,489)	1,498
Less: Reclassification adjustment for (gains) losses included in net income, net of tax of \$(68), \$(42), \$11, \$(106) respectively	(199)	(83)	1,469	(177)
	(1)	902	(1,020)	1,321
Defined benefit pension and post-retirement plans:				
Amortization of prior service benefit included in net periodic pension and post-retirement benefit, net of tax of \$(18), \$(38), \$(35), \$(77), respectively	(61)	(68)	(123)	(136)
Other comprehensive (loss) income	(29,384)	16,815	(19,924)	26,129
Comprehensive income	\$ 71,653	\$ 191,791	\$ 168,086	\$ 286,326

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, 2017, are an integral part of the condensed consolidated financial statements.

Table of Contents

## TERADYNE, INC.

## CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

(Unaudited)

	<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>
	<b>(in thousands)</b>	
<b>Cash flows from operating activities:</b>		
Net income	\$ 188,010	\$ 260,197
<b>Adjustments to reconcile net income to net cash provided by operating activities:</b>		
Depreciation	33,156	32,474
Amortization	20,177	22,412
Stock-based compensation	17,625	17,312
Deferred taxes	17,312	(3,563)
Provision for excess and obsolete inventory	6,175	5,295
Contingent consideration adjustment	(8,468)	2,133
Retirement plan actuarial gains	(71)	(2,504)
Other	1,168	1,153
<b>Changes in operating assets and liabilities, net of businesses acquired:</b>		
Accounts receivable	(179,403)	(214,189)
Inventories	(21,283)	(8,149)
Prepayments and other assets	1,641	4,425
Accounts payable and other accrued expenses	(8,155)	34,504
Deferred revenue and customer advances	10,518	5,312
Retirement plans contributions	(2,173)	(1,983)
Income taxes	(26,308)	14,363
<b>Net cash provided by operating activities</b>	<b>49,921</b>	<b>169,192</b>
<b>Cash flows from investing activities:</b>		
Purchases of property, plant and equipment	(62,663)	(45,967)
Purchases of marketable securities	(647,071)	(334,819)
Proceeds from sales of marketable securities	829,053	313,254
Proceeds from maturities of marketable securities	469,862	307,607
Acquisition of businesses, net of cash acquired	(170,632)	
<b>Net cash provided by investing activities</b>	<b>418,549</b>	<b>240,075</b>
<b>Cash flows from financing activities:</b>		
Issuance of common stock under stock purchase and stock option plans	10,681	15,215
Repurchase of common stock	(360,795)	(94,328)
Dividend payments	(34,682)	(27,925)

Edgar Filing: TERADYNE, INC - Form 10-Q

Payments related to net settlement of employee stock compensation awards	(19,751)	(12,438)
Payments of contingent consideration	(13,571)	(1,050)
Net cash used for financing activities	(418,118)	(120,526)
Effects of exchange rate changes on cash and cash equivalents	189	1,724
Increase in cash and cash equivalents	50,541	290,465
Cash and cash equivalents at beginning of period	429,843	307,884
Cash and cash equivalents at end of period	\$ 480,384	\$ 598,349

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, 2017, are an integral part of the condensed consolidated financial statements.

**Table of Contents**

**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 robotic arms, autonomous mobile robots, and advanced robotic control software used by global manufacturing and light industrial customers to improve quality, increase manufacturing and material handling efficiency and decrease manufacturing costs. Teradyne s automatic test equipment and industrial automation products and services include:

semiconductor test ( Semiconductor Test ) systems;

defense/aerospace ( Defense/Aerospace ) test instrumentation and systems, storage test ( Storage Test ) systems, and circuit-board test and inspection ( Production Board Test ) systems (collectively these products represent System Test );

industrial automation ( Industrial Automation ) products; 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, 2017 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, 2018, for the year ended December 31, 2017.

*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.

*Revenue from Contracts with Customers*

Teradyne adopted Accounting Standards Update ( ASU ) 2014-09, *Revenue from Contracts with Customers* ( ASC 606 ) on January 1, 2018 using the modified retrospective method for all contracts not completed as of the date of adoption. The reported results for 2018 reflect the application of ASC 606 while the reported results for 2017 were prepared under the guidance of ASC 605, *Revenue Recognition* ( ASC 605 ), which is also referred to herein as Legacy GAAP or the previous guidance. Teradyne recorded a net increase

## **Table of Contents**

to retained earnings of \$12.7 million as of January 1, 2018 due to the cumulative impact of adopting ASC 606. Refer to Note B: Accounting Policies in Teradyne's 2017 Annual Report on Form 10-K for the policies in effect for revenue prior to January 1, 2018. The adoption of ASC 606 represents a change in accounting principle that will more closely align revenue recognition with the delivery of Teradyne's hardware and services and will provide financial statement readers with enhanced disclosures. In accordance with ASC 606, revenue is recognized when or as a customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration to which Teradyne expects to be entitled to receive in exchange for fulfillment of the performance obligation. Teradyne's primary source of revenue will continue to be from the sale of systems, instruments, robots, and the delivery of services.

In accordance with ASC 606, Teradyne recognizes revenues, when or as control is transferred to a customer. Teradyne's determination of revenue is dependent upon a five step process outlined below.

### *Step 1: Identify the contract with the customer*

Teradyne accounts for a contract with a customer when there is written approval, the contract is committed, the rights of the parties, including payment terms, are identified, the contract has commercial substance and consideration is probable of collection.

### *Step 2: Identify the performance obligations in the contract*

Teradyne periodically enters into contracts with its customers in which a customer may purchase a combination of goods and or services, such as products with extended warranty obligations. Teradyne determines performance obligations by assessing whether the products or services are distinct from the other elements of the contract. In order to be distinct, the product or service must perform either on its own or with readily available resources and must be separate within the context of the contract.

### *Step 3: Determine the transaction price*

Teradyne considers the amount stated on the face of the purchase order to be the transaction price. Teradyne does not have material variable consideration, which could impact the stated purchase price agreed to by Teradyne and the customer.

### *Step 4: Allocate the transaction price to the performance obligations in the contract*

Transaction price is allocated to each individual performance obligation based on the standalone selling price of that performance obligation. Teradyne uses standalone transactions when available to value each performance obligation. If standalone transactions are not available, Teradyne will estimate the standalone selling price through market assessments or cost plus a reasonable margin analysis. Any discounts from standalone selling price are spread proportionally to each performance obligation.

### *Step 5: Recognize revenue when (or as) the entity satisfies a performance obligation*

In order to determine the appropriate timing for revenue recognition, Teradyne first determines if the transaction meets any of three criteria for over time recognition. If the transaction meets the criteria for over time recognition, Teradyne recognizes revenue as the good or service is delivered. Teradyne uses input variables such as hours or months utilized or costs incurred to determine the amount of revenue to recognize in a given period. Input variables are used as they best align consumption with benefit to the customer. For transactions that do not meet the criteria for

over time recognition, Teradyne will recognize revenue at a point in time based on an assessment of the five criteria for transfer of control. Teradyne has concluded that revenue should be recognized when shipped or delivered based on contractual terms. Typically acceptance of Teradyne's products and services is a formality as Teradyne delivers similar systems, instruments and robots to standard specifications. In cases where acceptance is not deemed a formality, Teradyne will defer revenue recognition until customer acceptance.

**Table of Contents**

Revenue recognized in accordance with ASC 606 was \$523.3 million and \$1,006.5 million for the three and six months ended July 1, 2018, respectively. For the three and six months ended July 1, 2018, Teradyne also recognized \$3.6 million and \$7.9 million, respectively, in revenue on leases of Teradyne systems, which are accounted for outside of ASC 606.

*Disaggregation of Revenue*

The following table provides information about disaggregated revenue by primary geographical market, major product line and timing of revenue recognition.

*For the Three Months Ended July 1, 2018*

	Semiconductor Test System on a chip (SOC)		System Test Defense/Aerospace Storage Test		Production Board Test		Industrial Automation Universal Robots	Mobile Industrial Robots	Wireless Test Elimination	Corporate and Consolidated
	Memory									
<i>Americas</i>										
Point in time	\$ 12,111	\$ 2,827	\$ 15,256	\$ 5	\$ 1,429	\$ 16,053	\$ 1,199	\$ 4,716	\$ (110)	\$ 53,486
Over time	8,934	710	6,237		795	327		122		17,125
<i>Europe, Middle East and Africa</i>										
Point in time	10,227	847	447		4,849	26,616	2,000	26		45,012
Over time	5,689	254	539		1,713	526		257		8,978
<i>Asia Pacific</i>										
Point in time	218,352	59,633	385	31,824	3,741	13,895	1,310	27,663		356,803
Over time	34,951	2,285	258	1,428	744	131		2,103		41,900
Lease revenue	3,268				32			325		3,625
<b>Total</b>	<b>\$ 293,532</b>	<b>\$ 66,556</b>	<b>\$ 23,122</b>	<b>\$ 33,257</b>	<b>\$ 13,303</b>	<b>\$ 57,548</b>	<b>\$ 4,509</b>	<b>\$ 35,212</b>	<b>\$ (110)</b>	<b>\$ 526,929</b>

*For the Six Months Ended July 1, 2018*

	Semiconductor Test SOC		System Test Defense/Aerospace Storage Test		Production Board Test		Industrial Automation Universal Robots	Mobile Industrial Robots	Wireless Test Elimination	Corporate and Consolidated
	Memory									

(in thousands)

<b>Americas</b>										
Point in										
time	\$ 21,711	\$ 5,691	\$ 26,853	\$ 284	\$ 3,189	\$ 30,190	\$ 1,199	\$ 9,695	\$ (332)	\$ 98,480
Over time	17,517	1,406	12,425		1,552	652		233		33,785
<b>Europe, Middle East and Africa</b>										
Point in										
time	22,352	986	1,943		8,886	49,190	2,000	1,066		86,423
Over time	10,888	523	1,090		3,272	668		484		16,925
<b>Asia Pacific</b>										
Point in										
time	446,543	125,904	487	41,946	5,603	25,478	1,310	41,329		688,600
Over time	68,173	4,607	466	2,961	1,479	204		4,399		82,289
<b>Lease revenue</b>	7,115				266			513		7,894
<b>Total</b>	\$ 594,299	\$ 139,117	\$ 43,264	\$ 45,191	\$ 24,247	\$ 106,382	\$ 4,509	\$ 57,719	\$ (332)	\$ 1,014,396

*Performance Obligations**Hardware*

Teradyne hardware consists primarily of semiconductor test systems and instruments, defense/aerospace test instrumentation and systems, storage test systems and instruments, circuit-board test and inspection systems and instruments, collaborative robots, autonomous mobile robots and wireless test systems. The hardware includes a standard 12-month warranty. This warranty is not considered a distinct performance obligation because it does

**Table of Contents**

not obligate Teradyne to provide a separate service to the customer and it cannot be purchased separately. Teradyne's hardware is recognized at a point in time upon transfer of control to the customer.

*Extended Warranty*

Customers have the option to purchase an extended warranty, which extends the warranty period for systems and robots beyond the one-year standard warranty. The extended warranty is purchased in the same transaction as the system or robot purchase and is classified as a separate performance obligation, which meets the criteria for over time recognition. The relative standalone selling price of the extended warranty is recognized ratably over the course of the extended warranty based on months completed.

*Training and Applications Support*

Teradyne sells training and applications support to customers either in standalone transactions or included with system purchases. The training and support allow the customer to use Teradyne's systems efficiently and effectively. Training and applications support included in system orders are valued based on their standalone selling price and all training and applications support is recognized over time as the customer receives and consumes the benefit associated with each. Both are recognized using an input method of hours consumed as this best depicts the transfer of services to the customer.

*Service Agreements*

Service agreements are recognized ratably over the period of agreement based on months completed.

*Post-Contract Customer Support ( PCS )*

Teradyne provides support services for certain systems and robots outside of warranty. These services include telephone support, bug fixes, and when-and-if available upgrades. Standalone selling price for PCS is not directly observable as Teradyne does not sell these services separately. Teradyne has estimated the standalone selling price for these services based on adjusted market assessments. Revenue for PCS is recognized ratably over the performance period.

Teradyne does not allow customer returns or provide refunds to customers for any products or services.

*Contract Balances*

The following table provides information about contract liabilities. Teradyne does not have material contract assets on the balance sheet.

	<b>July 1, 2018</b>	<b>January 1, 2018 (as adjusted) (in thousands)</b>	<b>Increase/ (Decrease)</b>
Deferred revenue and customer advances	\$ 82,491	\$ 76,638	\$ 5,853
Long-term deferred revenue and customer advances	25,375	20,848	4,527

The amount of revenue recognized during the three and six months ended July 1, 2018 that was included within the deferred revenue and customer advances balance at January 1, 2018 was \$24.7 million and \$46.5 million, respectively, and primarily relates to extended warranties, training, application support, and PCS. Each of these represents a distinct performance obligation. Customers typically pay for these services net 30 to 60 days from the date that transfer of control of the associated system or product occurs.

**Table of Contents***Remaining Performance Obligations*

Teradyne does not have material remaining performance obligations from contracts with an original expected duration of greater than one year.

*Significant Judgments*

Teradyne makes no significant judgements in determining the amount or timing of revenue recognition.

*Practical Expedients*

Teradyne has adopted the practical expedients available within ASC 340 *Other Assets and Deferred Costs* for contract assets, specifically in relation to incremental costs of obtaining a contract. Teradyne generally expenses sales commissions when incurred because the amortization period would be less than one year. Teradyne records these costs within selling and administrative expenses.

Teradyne has adopted the practical expedient, which states an entity need not adjust the promised amount of consideration for the effects of a significant financing component if the entity expects, at contract inception, that the period between when the entity transfers a promised good or service to the customer and when the customer pays for that good or service will be one year or less. Teradyne does not have material payments associated with performance obligations outside this one-year time frame.

*Impacts*

The following tables summarize the impact of ASC 606 to Teradyne's consolidated financial statements. Differences are the result of timing differences between the recognition of revenue under ASC 606 and ASC 605 primarily with respect to software transactions deferred due to lack of vendor specific objective evidence of price under ASC 605 and Teradyne's assessment of acceptance under ASC 606. Under Legacy GAAP, Teradyne did not recognize revenue prior to acceptance if payment, title, or risk of loss was tied to acceptance. Under ASC 606, Teradyne recognizes revenue prior to receipt of acceptance if acceptance is deemed a formality.

Condensed Consolidated Balance Sheet:

	<b>As Reported</b>	<b>July 1, 2018 Adjustments to Recognize Under Legacy GAAP</b>	<b>Legacy GAAP</b>
<b>(in thousands, except per share amount)</b>			
<b>ASSETS</b>			
Accounts receivable, less allowance for doubtful accounts	\$ 454,122	\$ (95,102)	\$ 359,020
Inventories, net	135,550	33,830	169,380
Deferred tax assets	73,574	(3,494)	70,080
<b>LIABILITIES</b>			
Deferred revenue and customer advances	\$ 82,491	\$ (7,254)	\$ 75,237
Income taxes payable	32,226	(9,002)	23,224

Edgar Filing: TERADYNE, INC - Form 10-Q

Long-term deferred revenue and customer advances	25,375	(9,836)	15,539
<b>SHAREHOLDERS EQUITY</b>			
Retained earnings	\$ 74,270	\$ (38,674)	\$ 35,596

**Table of Contents**

Condensed Consolidated Statement of Operation:

	<b>For the Three Months ended July 1, 2018</b>		
	<b>As Reported</b>	<b>Adjustments to Recognize Under Legacy GAAP</b>	<b>Legacy GAAP</b>
	<b>(in thousands, except per share amount)</b>		
Total revenues	\$ 526,929	\$ (28,626)	\$ 498,303
Total cost of revenues	219,595	(6,081)	213,514
Income tax provision	18,975	(4,569)	14,406
Net income	101,037	(17,976)	83,061
Net income per common share:			
Basic	\$ 0.53	\$ (0.09)	\$ 0.44
Diluted	\$ 0.52	\$ (0.09)	\$ 0.43

	<b>For the Six Months ended July 1, 2018</b>		
	<b>As Reported</b>	<b>Adjustments to Recognize Under Legacy GAAP</b>	<b>Legacy GAAP</b>
	<b>(in thousands, except per share amount)</b>		
Total revenues	\$ 1,014,396	\$ (94,268)	\$ 920,128
Total cost of revenues	437,230	(33,830)	403,400
Income tax provision	27,821	(9,084)	18,737
Net income	188,010	(51,354)	136,656
Net income per common share:			
Basic	\$ 0.97	\$ (0.27)	\$ 0.71
Diluted	\$ 0.94	\$ (0.26)	\$ 0.69

**Retirement Benefits**

In March 2017, the Financial Accounting Standards Board ( FASB ) issued ASU 2017-07, *Compensation Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. Teradyne retrospectively adopted the new accounting guidance on presentation of net periodic pension costs and net periodic postretirement benefit costs in the first quarter of 2018. This guidance requires the service cost component of net benefit costs to be reported in the same line item in the consolidated statement of operations as other employee compensation costs. The non-service components of net benefit costs such as interest cost, expected return on assets, amortization of prior service cost, and actuarial gains or losses, are required to be reported separately outside of income or loss from operations. Following the adoption of this guidance, Teradyne continues to record the service cost component in the same line item as other employee compensation costs and the non-service components of net benefit costs such as interest cost, expected return on assets, amortization of prior service cost, and actuarial gains or losses are reported within other (income) expense, net. The retrospective adoption of this standard decreased income from operations by \$2.1 million and \$1.7 million in the three and six months ended July 2, 2017, respectively,

due to the removal of net actuarial pension gains and increased non-operating (income) expense by the same amount with no impact to net income.

**Financial Assets and Financial Liabilities**

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. Teradyne adopted the new accounting guidance in the first quarter of 2018 using the modified retrospective approach. This guidance requires that changes in fair value of equity securities be accounted for directly in earnings. Previously, the

**Table of Contents**

changes in fair value were recorded in accumulated other comprehensive income on the balance sheet. Teradyne continues to record realized gains in interest income and realized losses in interest expense. The adoption of this new accounting guidance increased the January 1, 2018 retained earnings balance by \$3.1 million and decreased the accumulated other comprehensive income balance by the same amount.

**Contingencies and Litigation**

Teradyne may be subject to certain legal proceedings, lawsuits and other claims as discussed in Note Q: Commitments and Contingencies. 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 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 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 still assessing the potential changes from this ASU, but expects it to have a material impact on its financial position and immaterial impact on its results of operations.

**D. ACQUISITIONS***Mobile Industrial Robots*

On April 25, 2018, Teradyne acquired all the issued and outstanding shares of Mobile Industrial Robots ApS (MiR), a Danish limited liability company located in Odense, Denmark. MiR is the leading maker of collaborative autonomous

mobile robots for industrial applications. MiR is part of Teradyne's Industrial Automation segment.

The total preliminary purchase price of \$196.6 million consisted of \$145.2 million of cash paid and \$51.4 million of contingent consideration, measured at fair value. The contingent consideration is payable in

**Table of Contents**

Euros upon the achievement of certain thresholds and targets for revenue and earnings before interest and taxes for periods from January 1, 2018 to December 31, 2018; January 1, 2018 to December 31, 2019; and January 1, 2018 to December 31, 2020. At July 1, 2018, the maximum amount of contingent consideration that could be paid is \$117 million.

The valuation of the contingent consideration utilized the following assumptions: (1) probability of meeting each target; (2) expected timing of meeting each target; and (3) discount rate reflecting the risk associated with the expected payments. The probabilities and timing for each target were estimated based on a review of the historical and projected results. A significant portion of the risk in achieving the contingent consideration was captured in the probabilities assigned to meeting each target.

The MiR acquisition was accounted for as a business combination and, accordingly, the results have been included in Teradyne's consolidated results of operations from the date of acquisition. The allocation of the preliminary total purchase price to MiR's net tangible liabilities and identifiable intangible assets was based on their estimated fair values as of the acquisition date. The excess of the purchase price over the identifiable intangible assets and net tangible liabilities in the amount of \$135.7 million was allocated to goodwill, which is not deductible for tax purposes. The purchase price and purchase price allocation are preliminary pending the final determination of the fair value of contingent consideration, acquired assets and assumed liabilities. MiR's results have been included in Teradyne's Industrial Automation segment from the date of acquisition.

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

	<b>Purchase Price Allocation</b>	
	<b>(in thousands)</b>	
Goodwill	\$	135,747
Intangible assets		79,660
Tangible assets acquired and liabilities assumed:		
Current assets		6,039
Non-current assets		299
Accounts payable and current liabilities		(7,336)
Long-term deferred tax liabilities		(17,779)
Total purchase price	\$	196,630

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

	<b>Fair Value</b>	<b>Estimated Useful Life</b>
	<b>(in thousands)</b>	<b>(in years)</b>
Developed technology	\$ 63,820	7.0
Trademarks and tradenames	12,060	11.0
Customer relationships	3,770	2.5

Edgar Filing: TERADYNE, INC - Form 10-Q

Backlog	10	0.2
Total intangible assets	\$ 79,660	7.4

For the period from April 25, 2018 to July 1, 2018, MiR contributed \$4.5 million of revenues and had a \$(1.5) million loss from operations before income taxes.

**Table of Contents**

The following unaudited pro forma information gives effect to the acquisition of MiR as if the acquisition occurred on January 1, 2017. The unaudited pro forma results are not necessarily indicative of what actually would have occurred had the acquisition been in effect for the periods presented:

	For the Three Months Ended		For the Six Months Ended	
	July 1, 2018	July 2, 2017	July 1, 2018	July 2, 2017
	(in thousands)			
Revenue	\$ 528,238	\$ 699,790	\$ 1,021,194	\$ 1,158,228
Net income	101,780	172,238	186,787	251,728
Net income per common share:				
Basic	\$ 0.53	\$ 0.87	\$ 0.97	\$ 1.26
Diluted	\$ 0.52	\$ 0.85	\$ 0.94	\$ 1.25

Pro forma results for the three and six months ended July 1, 2018 were adjusted to exclude \$2.3 million and \$2.9 million, respectively, of acquisition related costs, and \$0.4 million of non-recurring expense related to fair value adjustment to acquisition-date inventory.

Pro forma results for the six months ended July 2, 2017 were adjusted to include \$2.9 million of acquisition related costs, and \$0.4 million of non-recurring expense related to fair value adjustment to acquisition-date inventory.

*Energid Technologies Corporation*

On February 26, 2018, Teradyne acquired all of the issued and outstanding shares of Energid Technologies Corporation ( Energid ) for a total purchase price of approximately \$27.6 million. Energid s technology enables and simplifies the programming of complex robotic motions used in a wide variety of end markets, ranging from heavy industry to healthcare, utilizing both traditional robots and collaborative robots. The Energid acquisition was accounted for as a business combination and, accordingly, Energid s results have been included in Teradyne s Industrial Automation segment from the date of acquisition. As of the acquisition date, Teradyne s purchase price allocation was goodwill of \$14.4 million, acquired intangible assets of \$12.3 million with an average estimated useful life of 7.7 years, and \$1.0 million of net tangible assets. The acquisition was not material to Teradyne s condensed consolidated financial statements.

**E. INVENTORIES**

Inventories, net consisted of the following at July 1, 2018 and December 31, 2017:

	July 1, 2018	December 31, 2017
	(in thousands)	
Raw material	\$ 76,888	\$ 62,668
Work-in-process	26,378	19,464

Edgar Filing: TERADYNE, INC - Form 10-Q

Finished goods	32,284	25,393
	\$ 135,550	\$ 107,525

Inventory reserves at July 1, 2018 and December 31, 2017 were \$103.2 million and \$102.9 million, respectively.

---

**Table of Contents**

**F. 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**

Effective January 1, 2018, Teradyne adopted ASU 2016-01, *Financial Instruments Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities* using the modified retrospective approach. This guidance requires that changes in fair value of equity securities be accounted for directly in earnings. Prior to 2018, the changes in fair value of equity securities were recorded in accumulated other comprehensive income on the balance sheet.

On a quarterly basis, Teradyne reviews its investments to identify and evaluate those that have an indication of a potential other-than-temporary impairment. Factors considered in determining whether a loss is other-than-temporary include:

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

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

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

Teradyne uses the market and income approach techniques to value its financial instruments and there were no changes in valuation techniques during the three and six months ended July 1, 2018 and July 2, 2017. 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 securities are classified as Level 2, and equity securities are classified as Level 1. 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, earnings before interest and taxes, 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 six months ended July 1, 2018 were \$0.1 million and \$0.4 million, respectively. Realized losses recorded in the three and six months ended July 1, 2018 were \$0.0 million and \$1.5 million, respectively. Realized gains recorded in the three and six months ended July 2, 2017 were

**Table of Contents**

\$0.2 million and \$0.5 million, respectively. Realized losses recorded in the three and six months ended July 2, 2017 were \$0.1 million and \$0.2 million, respectively. Realized gains are included in interest income and realized losses are included in interest expense.

Unrealized gains and losses on available-for-sale debt securities are included in accumulated other comprehensive income (loss). Changes in fair value of equity securities are included in other (income) expense, net. The cost of securities sold is based on the specific identification method.

During the three and six months ended July 1, 2018 and July 2, 2017, there were no transfers in or out of Level 1, Level 2 or Level 3 financial instruments.

The following table sets forth by fair value hierarchy Teradyne's financial assets and liabilities that were measured at fair value on a recurring basis as of July 1, 2018 and December 31, 2017.

	<b>July 1, 2018</b>			<b>Total</b>
	<b>Quoted Prices in Active Markets for Identical Instruments (Level 1)</b>	<b>Significant Other Observable Inputs (Level 2)</b>	<b>Significant Unobservable Inputs (Level 3)</b>	
<b>Assets</b>				
Cash	\$ 209,827	\$	\$	\$ 209,827
Cash equivalents	247,525	23,032		270,557
Available-for-sale securities:				
U.S. Treasury securities		528,857		528,857
Commercial paper		218,520		218,520
Corporate debt securities		38,372		38,372
U.S. government agency securities		10,009		10,009
Certificates of deposit and time deposits		1,318		1,318
Debt mutual funds	2,810			2,810
Non-U.S. government securities		551		551
Equity securities:				
Mutual funds	23,289			23,289
	\$ 483,451	\$ 820,659	\$	\$ 1,304,110
Derivative assets		7		7
<b>Total</b>	<b>\$ 483,451</b>	<b>\$ 820,666</b>	<b>\$</b>	<b>\$ 1,304,117</b>
<b>Liabilities</b>				
Contingent consideration	\$	\$	\$ 60,914	\$ 60,914
Derivative liabilities		253		253

Total	\$	\$	253	\$	60,914	\$	61,167
-------	----	----	-----	----	--------	----	--------

**Table of Contents**

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
<b>Assets</b>				
Cash and cash equivalents	\$ 457,352	\$ 23,032	\$	\$ 480,384
Marketable securities		712,309		712,309
Long-term marketable securities	26,099	85,318		111,417
Prepayments		7		7
<b>Total</b>	<b>\$ 483,451</b>	<b>\$ 820,666</b>	<b>\$</b>	<b>\$ 1,304,117</b>
<b>Liabilities</b>				
Other current liabilities	\$	\$ 253	\$	\$ 253
Contingent consideration			35,911	35,911
Long-term contingent consideration			25,003	25,003
<b>Total</b>	<b>\$</b>	<b>\$ 253</b>	<b>\$ 60,914</b>	<b>\$ 61,167</b>

	December 31, 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	\$ 197,955	\$	\$	\$ 197,955
Cash equivalents	206,335	25,553		231,888
Available for sale securities:				
U.S. Treasury securities		855,795		855,795
Commercial paper		282,840		282,840
Certificates of deposit and time deposits		167,342		167,342
Corporate debt securities		133,186		133,186
Equity and debt mutual funds	23,430			23,430
U.S. government agency securities		10,726		10,726
Non-U.S. government securities		586		586
	\$ 427,720	\$ 1,476,028	\$	\$ 1,903,748
Derivative assets		389		389

Edgar Filing: TERADYNE, INC - Form 10-Q

Total	\$ 427,720	\$ 1,476,417	\$	\$ 1,904,137
<b>Liabilities</b>				
Contingent consideration	\$	\$	\$ 45,102	\$ 45,102
Derivative liabilities		446		446
Total	\$	\$ 446	\$ 45,102	\$ 45,548

**Table of Contents**

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
<b>Assets</b>				
Cash and cash equivalents	\$ 404,290	\$ 25,553	\$	\$ 429,843
Marketable securities		1,347,979		1,347,979
Long-term marketable securities	23,430	102,496		125,926
Prepayments		389		389
<b>Total</b>	<b>\$ 427,720</b>	<b>\$ 1,476,417</b>	<b>\$</b>	<b>\$ 1,904,137</b>
<b>Liabilities</b>				
Other accrued liabilities	\$	\$ 446	\$	\$ 446
Contingent consideration			24,497	24,497
Long-term contingent consideration			20,605	20,605
<b>Total</b>	<b>\$</b>	<b>\$ 446</b>	<b>\$ 45,102</b>	<b>\$ 45,548</b>

Changes in the fair value of Level 3 contingent consideration for the three and six months ended July 1, 2018 and July 2, 2017 were as follows:

	For the Three Months Ended		For the Six Months Ended	
	July 1, 2018	July 2, 2017	July 1, 2018	July 2, 2017
	(in thousands)			
Balance at beginning of period	\$ 15,581	\$ 37,916	\$ 45,102	\$ 38,332
Acquisition of MiR	51,399		51,399	
Foreign currency impact	(2,566)		(2,566)	
Payments (a)			(24,553)	(1,050)
Fair value adjustment (b)	(3,500)	1,499	(8,468)	2,133
<b>Balance at end of period</b>	<b>\$ 60,914</b>	<b>\$ 39,415</b>	<b>\$ 60,914</b>	<b>\$ 39,415</b>

(a) In the six months ended July 1, 2018, Teradyne paid \$24.6 million of contingent consideration for the earn-out in connection with the acquisition of Universal Robots A/S ( Universal Robots ). In the six months ended July 2, 2017, Teradyne paid \$1.1 million of contingent consideration for the earn-out in connection with the acquisition of Avionics Interface Technology, LLC ( AIT ).

(b)

In the three and six months ended July 1, 2018, the fair value of contingent consideration for the earn-out in connection with the acquisition of Universal Robots was decreased by \$3.5 million and \$8.5 million, respectively, primarily due to a decrease in forecasted revenue. In the three and six months ended July 2, 2017, the fair value of contingent consideration for the earn-out in connection with the acquisition of Universal Robots was increased by \$1.5 million and \$2.1 million, respectively, primarily due to a decrease in the discount rate.

**Table of Contents**

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

<b>Liability</b>	<b>July 1, 2018 Fair Value (in thousands)</b>	<b>Valuation Technique</b>	<b>Unobservable Inputs</b>	
Contingent consideration (Universal Robots)	\$12,081	Monte Carlo Simulation	Revenue volatility	11.4%
			Discount Rate	3.2%
Contingent consideration (MiR)	\$48,833	Monte Carlo Simulation	Revenue volatility	18.0%
			Discount Rate	0.5%

As of July 1, 2018, 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 the remaining Universal Robots revenue earn-out is \$25.0 million.

As of July 1, 2018, the significant unobservable inputs used in the Monte Carlo simulation to fair value the MiR 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. As of July 1, 2018, the maximum amount of contingent consideration that could be paid in connection with the acquisition of MiR is \$117.0 million. The earn-out periods in connection with the MiR acquisition end on December 31, 2018, December 31, 2019 and December 31, 2020.

The carrying amounts and fair values of Teradyne's financial instruments at July 1, 2018 and December 31, 2017 were as follows:

	<b>July 1, 2018</b>		<b>December 31, 2017</b>	
	<b>Carrying Value</b>	<b>Fair Value</b>	<b>Carrying Value</b>	<b>Fair Value</b>
	<b>(in thousands)</b>			
<b>Assets</b>				
Cash and cash equivalents	\$ 480,384	\$ 480,384	\$ 429,843	\$ 429,843
Marketable securities	823,726	823,726	1,473,905	1,473,905
Derivative assets	7	7	389	389
<b>Liabilities</b>				
Contingent consideration	60,914	60,914	45,102	45,102
Derivative liabilities	253	253	446	446
Convertible debt (1)	372,897	612,693	365,987	659,525

(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.

**Table of Contents**

The following table summarizes the composition of available-for-sale marketable securities at July 1, 2018:

	<b>July 1, 2018</b>				<b>Fair Market Value of Investments with Unrealized Losses</b>
	<b>Available-for-Sale</b>				
	<b>Cost</b>	<b>Unrealized Gain</b>	<b>Unrealized (Loss)</b>	<b>Fair Market Value</b>	
	<b>(in thousands)</b>				
U.S. Treasury securities	\$ 530,944	\$ 29	\$ (2,116)	\$ 528,857	\$ 477,385
Commercial paper	218,594	9	(83)	218,520	184,349
Corporate debt securities	38,709	668	(1,005)	38,372	20,956
U.S. government agency securities	10,066	1	(58)	10,009	7,034
Debt mutual funds	2,878		(68)	2,810	1,681
Certificates of deposit and time deposits	1,318			1,318	
Non-U.S. government securities	552		(1)	551	179
	\$ 803,061	\$ 707	\$ (3,331)	\$ 800,437	\$ 691,584

Reported as follows:

	<b>July 1, 2018</b>				<b>Fair Market Value of Investments with Unrealized Losses</b>
	<b>Available-for-Sale</b>				
	<b>Cost</b>	<b>Unrealized Gain</b>	<b>Unrealized (Loss)</b>	<b>Fair Market Value</b>	
	<b>(in thousands)</b>				
Marketable securities	\$ 712,732	\$ 68	\$ (491)	\$ 712,309	\$ 620,327
Long-term marketable securities	90,329	639	(2,840)	88,128	71,257
	\$ 803,061	\$ 707	\$ (3,331)	\$ 800,437	\$ 691,584

The following table summarizes the composition of available-for-sale marketable securities at December 31, 2017:

	<b>December 31, 2017</b>				<b>Fair Market Value of Investments with Unrealized Losses</b>
	<b>Available-for-Sale</b>				
	<b>Cost</b>	<b>Unrealized Gain</b>	<b>Unrealized (Loss)</b>	<b>Fair Market Value</b>	
	<b>(in thousands)</b>				
U.S. Treasury securities	\$ 858,258	\$ 72	\$ (2,535)	\$ 855,795	\$ 850,163

Edgar Filing: TERADYNE, INC - Form 10-Q

Commercial paper	283,009	18	(187)	282,840	258,933
Certificates of deposit and time deposits	167,523	6	(187)	167,342	138,340
Corporate debt securities	131,179	2,380	(373)	133,186	91,010
Equity and debt mutual funds	19,403	4,102	(75)	23,430	1,723
U.S. government agency securities	10,775		(49)	10,726	10,726
Non-U.S. government securities	582	4		586	
	\$ 1,470,729	\$ 6,582	\$ (3,406)	\$ 1,473,905	\$ 1,350,895

**Table of Contents**

Reported as follows:

	<b>Cost</b>	<b>Unrealized Gain</b>	<b>Unrealized (Loss) (in thousands)</b>	<b>Fair Market Value</b>	<b>Fair Market Value of Investments with Unrealized Losses</b>
Marketable securities	\$ 1,349,970	\$ 38	\$ (2,029)	\$ 1,347,979	\$ 1,288,844
Long-term marketable securities	120,759	6,544	(1,377)	125,926	62,051
	\$ 1,470,729	\$ 6,582	\$ (3,406)	\$ 1,473,905	\$ 1,350,895

As of July 1, 2018, the fair market value of investments in available-for-sale securities with unrealized losses totaled \$691.6 million. Of this value, \$32.7 million had unrealized losses of \$1.6 million for greater than one year and \$658.9 million had unrealized losses of \$1.7 million for less than one year.

As of December 31, 2017, the fair market value of investments with unrealized losses totaled \$1,350.9 million. Of this value, \$141.0 million had unrealized losses of \$1.2 million for greater than one year and \$1,209.9 million had unrealized losses of \$2.2 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 July 1, 2018 and December 31, 2017 were temporary.

The contractual maturities of investments in available-for-sale securities held at July 1, 2018 were as follows:

	<b>July 1, 2018</b>	
	<b>Cost</b>	<b>Fair Market Value</b>
	<b>(in thousands)</b>	
Due within one year	\$ 712,732	\$ 712,309
Due after 1 year through 5 years	32,201	32,080
Due after 5 years through 10 years	15,455	14,587
Due after 10 years	39,795	38,651
<b>Total</b>	<b>\$ 800,183</b>	<b>\$ 797,627</b>

Contractual maturities of investments in available-for-sale securities held at July 1, 2018 exclude \$2.8 million of debt mutual funds as they do not have a contractual maturity date.

**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 July 1, 2018 and December 31, 2017 was \$93.4 million and \$116.8 million, respectively.

**Table of Contents**

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.

The following table summarizes the fair value of derivative instruments as of July 1, 2018 and December 31, 2017:

	<b>Balance Sheet Location</b>	<b>July 1, 2018</b>	<b>December 31, 2017</b>
<b>(in thousands)</b>			
<b>Derivatives not designated as hedging instruments:</b>			
Foreign currency forward contracts assets	Prepayments	\$ 7	\$ 389
Foreign currency forward contracts liabilities	Other current liabilities	(253)	(446)
Total derivatives		\$ (246)	\$ (57)

The following table summarizes the effect of derivative instruments recognized in the statement of operations for the three and six months ended July 1, 2018 and July 2, 2017.

<b>Location of Losses (Gains) Recognized in Statement of Operations</b>	<b>For the Three Months Ended</b>		<b>For the Six Months Ended</b>		
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>July 1, 2018</b>	<b>July 2, 2017</b>	
<b>(in thousands)</b>					
<b>Derivatives not designated as hedging instruments:</b>					
Foreign currency forward contracts	Other (income) expense, net	\$ 1,826	\$ (1,586)	\$ 3,401	\$ (575)

- (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 six months ended July 1, 2018, net gains from the remeasurement of monetary assets and liabilities denominated in foreign currencies were \$1.9 million and \$2.5 million, respectively.
- (3) For the three and six months ended July 2, 2017, net losses from the remeasurement of monetary assets and liabilities denominated in foreign currencies were \$2.4 million and \$0.9 million, respectively.

See Note G: Debt regarding derivatives related to the convertible senior notes.

**G. 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

---

**Table of Contents**

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 is 31.4463 shares per \$1,000 principal amount, which is equivalent to a conversion price of approximately \$31.80 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 conversion price of the Notes of approximately \$31.80. The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, approximately 14.5 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 14.5 million shares of common stock. The strike price of the warrants is approximately \$39.91 per share. The strike price is subject to adjustments under certain circumstances. 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. The net cost of the Notes Hedge Transactions, after being partially offset by the proceeds from the sale of the warrants, was approximately \$33 million.

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 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 will be approximately 5.0%. The Notes are classified as long-term debt in the balance sheet based on their December 15, 2023 maturity date. Debt issuance costs of approximately \$7.2 million are being amortized to interest expense using the effective interest method over the seven year term of the Notes. As of July 1, 2018, unamortized debt issuance costs were approximately \$5.8 million.



**Table of Contents**

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

	<b>July 1, 2018</b>	<b>December 31, 2017</b>
	<b>(in thousands)</b>	
Debt principal	\$ 460,000	\$ 460,000
Unamortized discount	87,103	94,013
<b>Net carrying amount of convertible debt</b>	<b>\$ 372,897</b>	<b>\$ 365,987</b>

	<b>For the Three Months Ended</b>		<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>July 1, 2018</b>	<b>July 2, 2017</b>
	<b>(in thousands)</b>			
Contractual interest expense on the coupon	\$ 1,438	\$ 1,438	\$ 2,875	\$ 2,875
Amortization of the discount component and debt issue fees recognized as interest expense	3,477	3,308	6,911	6,576
<b>Total interest expense on the convertible debt</b>	<b>\$ 4,915</b>	<b>\$ 4,746</b>	<b>\$ 9,786</b>	<b>\$ 9,451</b>

As of July 1, 2018, the remaining unamortized discount was \$87.1 million, which will be amortized over 5.5 years using the effective interest rate method. The carrying amount of the equity component was \$100.8 million. As of July 1, 2018, the if-converted value of the Notes was \$550.7 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 August 10, 2018, Teradyne has not borrowed any funds under the Credit Facility.

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

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

The Credit Agreement contains customary events of default, representations, warranties and affirmative and negative covenants that, among other things, limit Teradyne's and its Restricted Subsidiaries' ability to sell assets, grant liens on assets, incur other secured indebtedness and make certain investments and restricted payments, all subject to exceptions set forth in the Credit Agreement. The Credit Agreement also requires Teradyne to satisfy two financial ratios measured as of the end of each fiscal quarter: a consolidated leverage ratio and an interest coverage ratio. As of August 10, 2018, Teradyne was in compliance with all covenants.

**Table of Contents**

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.

**H. PREPAYMENTS**

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

	<b>July 1, 2018</b>	<b>December 31, 2017</b>
	<b>(in thousands)</b>	
Contract manufacturer and supplier prepayments	\$ 78,148	\$ 82,503
Prepaid maintenance and other services	8,651	8,189
Prepaid taxes	6,801	5,039
Other prepayments	13,114	12,386
<b>Total prepayments</b>	<b>\$ 106,714</b>	<b>\$ 108,117</b>

**I. 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>July 1, 2018</b>	<b>December 31, 2017</b>
	<b>(in thousands)</b>	
Maintenance and training	\$ 60,993	\$ 57,256
Extended warranty	25,971	24,438
Customer advances, undelivered elements and other	20,902	32,047
<b>Total deferred revenue and customer advances</b>	<b>\$ 107,866</b>	<b>\$ 113,741</b>

**J. 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.

<b>For the Three Months Ended</b>		<b>For the Six Months Ended</b>	
<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>July 1, 2018</b>	<b>July 2, 2017</b>

Edgar Filing: TERADYNE, INC - Form 10-Q

	<b>(in thousands)</b>			
Balance at beginning of period	\$ 7,548	\$ 7,054	\$ 8,200	\$ 7,203
Acquisition	41		41	
Accruals for warranties issued during the period	3,348	5,294	6,411	8,315
Adjustments related to pre-existing warranties	(34)	7	(173)	(464)
Settlements made during the period	(3,767)	(3,262)	(7,343)	(5,961)
Balance at end of period	\$ 7,136	\$ 9,093	\$ 7,136	\$ 9,093

**Table of Contents**

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 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 Six Months Ended	
	July 1, 2018	July 2, 2017	July 1, 2018	July 2, 2017
	(in thousands)			
Balance at beginning of period	\$ 24,590	\$ 24,969	\$ 24,438	\$ 28,200
Deferral of new extended warranty revenue	6,701	10,442	11,839	14,490
Recognition of extended warranty deferred revenue	(5,320)	(6,034)	(10,306)	(13,313)
Balance at end of period	\$ 25,971	\$ 29,377	\$ 25,971	\$ 29,377

**K. 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 ).

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 earlier of (a) the first anniversary of the grant date or the (b) the date of the following year's Annual Meeting of Shareholders. 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 2018 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 capped at four times the grant date value. The TSR PRSUs will vest upon the three-year anniversary of the grant date. The TSR PRSUs are valued using a Monte Carlo simulation model. The number of units expected to be earned, based upon the achievement of the TSR market condition, is factored into the grant date Monte Carlo valuation. Compensation expense is recognized on a straight-line basis over the shorter of the three-year service period or the period from the grant date to the date described in the retirement provisions below. Compensation expense for employees meeting the retirement provisions prior to the grant date will be recognized in full on the date of the grant. 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 2018 and 2017, 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 shorter of the three year service period or the period from the grant date to the date described in the retirement provisions below. Compensation expense

**Table of Contents**

for employees meeting the retirement provisions prior to the grant date will be recognized in full on the date of grant. 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 six months ended July 1, 2018 and July 2, 2017, Teradyne granted 0.1 million and 0.1 million TSR PRSUs, respectively, with a grant date fair value of \$54.85 and \$35.66, respectively. The fair value was estimated using the Monte Carlo simulation model with the following assumptions:

	<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>
Risk-free interest rate	2.2%	1.5%
Teradyne volatility-historical	26.8%	26.6%
NYSE Composite Index volatility-historical	12.4%	13.4%
Dividend yield	0.8%	1.0%

Expected volatility was based on the historical volatility of Teradyne's stock and the NYSE Composite Index for the 2018 and 2017 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 \$0.36 per share for 2018 grants and \$0.28 per share for 2017 grants, divided by Teradyne's stock price on the grant date of \$47.70 for the 2018 grant and \$28.56 for the 2017 grant.

During the six months ended July 1, 2018 and July 2, 2017, Teradyne granted 0.1 million and 0.1 million, respectively, of PBIT PRSUs with a grant date fair value of \$46.62 and \$27.72, respectively.

During the six months ended July 1, 2018, Teradyne granted 0.6 million of service-based restricted stock unit awards to employees at a weighted average grant date fair value of \$46.38, 0.1 million of service-based restricted stock unit awards to non-employee directors at a weighted average grant date fair value of \$35.81, and 0.1 million of service-based stock options to executive officers at a weighted average grant date fair value of \$12.17.

During the six months ended July 2, 2017, Teradyne granted 0.8 million of service-based restricted stock unit awards to employees at a weighted average grant date fair value of \$27.98, 0.1 million of service-based restricted stock unit awards to non-employee directors at a weighted average grant date fair value of \$35.21, and 0.1 million of service-based stock options to executive officers at a weighted average grant date fair value of \$7.13.

Restricted stock unit awards granted to employees vest in equal annual installments over four years. 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.



**Table of Contents**

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

	<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>
Expected life (years)	5.0	5.0
Risk-free interest rate	2.4%	2.0%
Volatility-historical	26.4%	27.8%
Dividend yield	0.8%	1.0%

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 \$0.36 per share for 2018 grants and \$0.28 per share for 2017 grants divided by Teradyne's stock price on the grant date of \$47.70 for the 2018 grant and \$28.56 for the 2017 grant.

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

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

	<b>Foreign Currency Translation Adjustment</b>	<b>Unrealized Gains (Losses) on Marketable Securities (in thousands)</b>	<b>Retirement Plans Prior Service Credit</b>	<b>Total</b>
<b><i>Six Months Ended July 1, 2018</i></b>				
Balance at December 31, 2017, net of tax of \$0, \$1,815, \$(932), respectively	\$ 15,919	\$ 1,362	\$ 1,495	\$ 18,776
Other comprehensive loss before reclassifications, net of tax of \$0, \$(744), \$0, respectively	(18,781)	(2,489)		(21,270)
Amounts reclassified from accumulated other comprehensive (loss) income, net of tax of \$0, \$11, \$(35), respectively		1,469	(123)	1,346
Net current period other comprehensive loss, net of tax of \$0, \$(733), \$(35), respectively	(18,781)	(1,020)	(123)	(19,924)
Reclassification of tax effects resulting of the Tax Reform Act, \$0, \$(691), \$(78), respectively (a)		691	78	769
Reclassification of unrealized gains on equity securities, net of tax of \$0, \$(902), \$0, respectively (b)		(3,125)		(3,125)

Edgar Filing: TERADYNE, INC - Form 10-Q

Balance at July 1, 2018, net of tax of \$0, \$(511), \$(1,045),  
respectively \$ (2,862) \$ (2,092) \$ 1,450 \$ (3,504)

- (a) In the six months ended July 1, 2018, Teradyne early adopted the ASU 2018-02, *Income Statement Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*. As a result, the stranded tax effects resulting from the Tax Reform Act enacted in December 2017 were reclassified from accumulated other comprehensive income to retained earnings.

**Table of Contents**

- (b) In the six months ended July 1, 2018, Teradyne adopted the ASU 2016-01, *Financial Instruments Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. See Note B: Accounting Policies.

	<b>Foreign Currency Translation Adjustments</b>	<b>Unrealized Gains (Losses) on Marketable Securities</b>	<b>Retirement Plans Prior Service Credit</b>	<b>Total</b>
	(in thousands)			
<b>Six Months Ended July 2, 2017</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, \$1,185, \$0, respectively	24,944	1,498		26,442
Amounts reclassified from accumulated other comprehensive income, net of tax of \$0, \$(106), \$(77), respectively		(177)	(136)	(313)
Net current period other comprehensive income (loss), net of tax of \$0, \$1,079, \$(77), respectively	24,944	1,321	(136)	26,129
Balance at July 2, 2017, net of tax of \$0, \$1,288, \$(855), respectively	\$ 3,023	\$ 1,261	\$ 1,631	\$ 5,915

Reclassifications out of accumulated other comprehensive income (loss) to the statement of operations for the three and six months ended July 1, 2018 and July 2, 2017 were as follows:

<b>Details about Accumulated Other Comprehensive Income Components</b>	<b>Affected Line Item for the Three Months Ended July 1, 2018</b>				<b>for the Six Months Ended July 2, 2017</b>				<b>in the Statements of Operations</b>
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>July 1, 2018</b>	<b>July 2, 2017</b>					
	(in thousands)								
<b>Available-for-sale marketable securities:</b>									
Unrealized gains (losses), net of tax of \$68, \$42, \$(11), \$106, respectively	\$ 199	\$ 83	\$ (1,469)	\$ 177	Interest income and Interest (expense)				
<b>Defined benefit pension and postretirement plans:</b>									
Amortization of prior service benefit, net of tax of \$18, \$38, \$35, \$77, respectively	61	68	123	136	(a)				
Total reclassifications, net of tax of \$86, \$80, \$24, \$183, respectively	\$ 260	\$ 151	\$ (1,346)	\$ 313	Net income				

- (a) The amortization of prior service benefit is included in the computation of net periodic pension cost and postretirement benefit. See Note P: Retirement Plans.

**M. 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.

**Table of Contents**

The changes in the carrying amount of goodwill by reportable segments for the six months ended July 1, 2018, were as follows:

	Wireless Test	Industrial Automation	System Test	Semiconductor Test	Total
	(in thousands)				
Balance at December 31, 2017					
Goodwill	\$ 361,819	\$ 233,519	\$ 158,699	\$ 260,540	\$ 1,014,577
Accumulated impairment losses	(353,843)		(148,183)	(260,540)	(762,566)
	7,976	233,519	10,516		252,011
MiR acquisition		135,747			135,747
Energid acquisition		14,394			14,394
Foreign currency translation adjustment		(13,527)			(13,527)
Balance at July 1, 2018					
Goodwill	361,819	370,133	158,699	260,540	1,151,191
Accumulated impairment losses	(353,843)		(148,183)	(260,540)	(762,566)
	\$ 7,976	\$ 370,133	\$ 10,516	\$	\$ 388,625

*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.

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

	July 1, 2018			
	Gross Carrying Amount (1)(2)	Accumulated Amortization (2)	Foreign Currency Translation Adjustment	Net Carrying Amount
	(in thousands)			
Developed technology	\$ 341,227	\$ (236,924)	\$ (2,687)	\$ 101,616
Customer relationships	100,891	(86,509)	(118)	14,264
Tradenames and trademarks	63,240	(30,530)	(437)	32,273
Non-compete agreement	320	(300)		20
Backlog	10	(10)		
Total intangible assets	\$ 505,688	\$ (354,273)	\$ (3,242)	\$ 148,173

	<b>December 31, 2017</b>			
	<b>Gross</b>		<b>Foreign</b>	
	<b>Carrying</b>	<b>Accumulated</b>	<b>Currency</b>	<b>Net</b>
	<b>Amount</b>	<b>Amortization</b>	<b>Translation</b>	<b>Carrying</b>
			<b>Adjustment</b>	<b>Amount</b>
	<b>(in thousands)</b>			
Developed technology	\$ 270,877	\$ (226,190)	\$ 1,618	\$ 46,305
Customer relationships	92,741	(83,585)	171	9,327
Tradenames and trademarks	50,100	(27,120)	416	23,396
Non-compete agreement	320	(260)		60
<b>Total intangible assets</b>	<b>\$ 414,038</b>	<b>\$ (337,155)</b>	<b>\$ 2,205</b>	<b>\$ 79,088</b>

**Table of Contents**

- (1) Includes intangible assets acquired in 2018, \$79.7 million from the MiR acquisition and \$12.3 million from the Energid acquisition.
- (2) In 2018, \$0.3 million of amortizable intangible assets became fully amortized and have been eliminated from the gross carrying amount and accumulated amortization.

Aggregate intangible asset amortization expense was \$9.8 million and \$17.5 million, respectively, for the three and six months ended July 1, 2018 and \$8.2 million and \$16.1 million, respectively, for the three and six months ended July 2, 2017.

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

Year	Amortization Expense (in thousands)
2018 (remainder)	20,856
2019	37,891
2020	23,671
2021	14,734
2022	13,841
Thereafter	37,180

**N. NET INCOME PER COMMON SHARE**

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

	For the Three Months Ended		For the Six Months Ended	
	July 1, 2018	July 2, 2017	July 1, 2018	July 2, 2017
	(in thousands, except per share amounts)			
Net income for basic and diluted net income per share	\$ 101,037	\$ 174,976	\$ 188,010	\$ 260,197
Weighted average common shares-basic	190,730	198,774	192,992	199,390
Effect of dilutive potential common shares:				
Incremental shares from assumed conversion of convertible notes (1)	2,643	752	3,520	376
Convertible note hedge warrant shares (2)			915	
Restricted stock units	1,219	1,622	1,444	1,576
Stock options	274	318	298	354
Employee stock purchase plan	43	63	28	36
Dilutive potential common shares	4,179	2,755	6,205	2,342
Weighted average common shares-diluted	194,909	201,529	199,197	201,732

Net income per common share-basic	\$ 0.53	\$ 0.88	\$ 0.97	\$ 1.30
Net income per common share-diluted	\$ 0.52	\$ 0.87	\$ 0.94	\$ 1.29

- (1) Incremental shares from assumed conversion of the convertible notes was calculated using the difference between the average Teradyne stock price for the period and the conversion price of \$31.80, multiplied by 14.5 million shares. The result of this calculation, representing the total intrinsic value of the convertible debt, was divided by the average Teradyne stock price for the period.
- (2) Convertible notes hedge warrant shares were calculated using the difference between the average Teradyne stock price for the period and the warrant price of \$39.91, multiplied by 14.5 million shares. The result of this calculation, representing the total intrinsic value of the warrant, was divided by the average Teradyne stock price for the period.

---

**Table of Contents**

The computation of diluted net income per common share for the three and six months ended July 1, 2018 excludes the effect of the potential vesting of 0.6 million and 0.5 million shares of restricted stock units because the effect would have been anti-dilutive.

The computation of diluted net income per common share for the three and six months ended July 2, 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.

**O. RESTRUCTURING AND OTHER**

During the three months ended July 1, 2018, Teradyne recorded \$2.5 million of acquisition related expenses, and \$2.4 million for employee severance charges, primarily in Semiconductor Test, partially offset by a \$3.5 million gain for the decrease in the fair value of the Universal Robots contingent consideration liability.

During the six months ended July 1, 2018, Teradyne recorded \$6.3 million for employee severance charges, primarily in Semiconductor Test and Industrial Automation, \$3.3 million for acquisition related expenses, partially offset by an \$8.5 million gain for the decrease in the fair value of the Universal Robots contingent consideration liability.

During the three months ended July 2, 2017, Teradyne recorded \$1.5 million for the increase in the fair value of the Universal Robots contingent consideration liability and \$0.8 million for employee severance charges.

During the six months ended July 2, 2017, Teradyne recorded \$2.1 million for the increase in the fair value of the Universal Robots contingent consideration liability, \$1.4 million for employee severance charges, primarily in Corporate and Industrial Automation, and a \$1.3 million charge for a lease impairment of a Wireless Test facility in Sunnyvale, CA, which was terminated in September 2017.

**P. RETIREMENT PLANS**

ASC 715, *Compensation Retirement Benefits* requires an employer with a 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 ).

During the three months ended July 1, 2018, Teradyne purchased a group annuity contract for its retiree participants in the U.S. qualified pension plan. Under the group annuity, the accrued pension obligations for approximately 1,700 retiree participants were transferred to an insurance company. The reduction in the pension benefit obligation and pension assets was \$150.9 million. During the three and six months ended July 1, 2018, Teradyne recorded a settlement loss of \$0.1 million related to the retiree group annuity transaction.



**Table of Contents**

In the six months ended July 1, 2018, Teradyne contributed \$1.3 million to the U.S. supplemental executive defined benefit pension plan and \$0.4 million to certain qualified pension plans for non-U.S. subsidiaries.

For the three and six months ended July 1, 2018 and July 2, 2017, Teradyne's net periodic pension cost was comprised of the following:

	For the Three Months Ended July 1, 2018		July 2, 2017	
	United States	Foreign	United States	Foreign
	(in thousands)			
Service cost	\$ 545	\$ 200	\$ 560	\$ 206
Interest cost	2,430	175	3,264	179
Expected return on plan assets	(2,550)	(5)	(3,004)	(6)
Amortization of prior service cost	14		18	
Net actuarial gain	(189)		(2,732)	243
Settlement loss	78			
<b>Total net periodic pension cost (benefit)</b>	<b>\$ 328</b>	<b>\$ 370</b>	<b>\$ (1,894)</b>	<b>\$ 622</b>

	For the Six Months Ended July 1, 2018		July 2, 2017	
	United States	Foreign	United States	Foreign
	(in thousands)			
Service cost	\$ 1,116	\$ 426	\$ 1,120	\$ 392
Interest cost	5,427	372	6,576	342
Expected return on plan assets	(5,919)	(10)	(6,004)	(12)
Amortization of prior service cost	29		35	
Net actuarial gain	(189)		(2,732)	243
Settlement loss	78			
<b>Total net periodic pension cost (benefit)</b>	<b>\$ 542</b>	<b>\$ 788</b>	<b>\$ (1,005)</b>	<b>\$ 965</b>

**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 six months ended July 1, 2018 and July 2, 2017, Teradyne's net periodic postretirement benefit cost (income) was comprised of the following:

	<b>For the Three Months Ended</b>		<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>July 1, 2018</b>	<b>July 2, 2017</b>
	<b>(in thousands)</b>			
Service cost	\$ 10	\$ 7	\$ 19	\$ 17
Interest cost	48	50	98	100
Amortization of prior service credit	(93)	(124)	(187)	(248)
Net actuarial loss (gain)	40	(15)	40	(15)
Special termination benefits	1,192		2,818	
Total net periodic postretirement benefit cost (income)	\$ 1,197	\$ (82)	\$ 2,788	\$ (146)

---

**Table of Contents****Q. COMMITMENTS AND CONTINGENCIES*****Purchase Commitments***

As of July 1, 2018, Teradyne had entered into purchase commitments for certain components and materials. The purchase commitments covered by the agreements aggregate to approximately \$310.4 million, of which \$302.7 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.

**R. INCOME TAXES**

The effective tax rate for the three months ended July 1, 2018 and July 2, 2017 was 15.8% and 15.4%, respectively. The effective tax rate for the six months ended July 1, 2018 and July 2, 2017 was 12.9%.

The increase in the effective tax rate from the three months ended July 2, 2017 to the three months ended July 1, 2018 primarily resulted from a projected shift in the geographic distribution of income, which increased income subject to taxation in the U.S. relative to lower tax rate jurisdictions. This increase was partially offset by an increase in discrete tax benefits recognized, the benefit of the reduction in the U.S. corporate tax rate from 35% to 21%, and the U.S. foreign derived intangible income deduction.

The effective tax rate for the six months ended July 1, 2018 and July 2, 2017 was unchanged notwithstanding a projected shift in the geographic distribution of income, which increased income subject to taxation in the U.S. relative to lower tax rate jurisdictions. The impact of the shift in income distribution was offset by the benefit of the reduction in the U.S. corporate tax rate from 35% to 21% and the U.S. foreign derived intangible income deduction.

The effective tax rates for the three and six months ended July 1, 2018 and July 2, 2017 differed from the expected federal statutory rate primarily because of the favorable effect of statutory rates applicable to income earned outside the United States. The tax rate for the three and six months ended July 1, 2018 and July 2, 2017 was 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 benefits recorded in the three and six months ended July 1, 2018 amounted to \$0.7 million and \$6.7 million respectively. The \$0.7 million of discrete tax benefit recorded in the three months ended July 1, 2018 consisted primarily of non-taxable foreign exchange gains. The \$6.7 million of discrete benefits recorded in the six months ended July 2, 2018 consisted of \$9.1 million of discrete tax benefit net of \$2.4 million of discrete tax expense. The \$9.1 million of discrete tax benefit was composed of \$7.6 million from stock based compensation, \$1.1 million of non-taxable foreign exchange gains and \$0.4 million of other discrete tax benefit. The \$2.4 million of discrete tax expense was composed of \$1.7 million from the remeasurement of deferred tax assets as a result of reductions in tax rates and \$0.7 million of other discrete tax expenses.

Discrete tax items recorded in the three and six months ended July 2, 2017 amounted to expense of \$0.5 million and benefit of \$6.5 million, respectively. The \$0.5 million of discrete tax expense recorded in the three months ended July 2, 2017 was primarily composed of \$1.0 million of expense related to actuarial gains, \$0.7 million of expense

from non-taxable foreign exchange loss and \$1.0 million of benefit from stock based compensation, and \$0.2 million of other discrete tax benefit. The \$6.5 million of discrete tax benefit recorded in the six months ended July 2, 2017 was primarily composed of \$6.5 million of benefit from stock-based

---

**Table of Contents**

compensation, \$1.0 million of expense related to actuarial gains, \$0.7 million of benefit related to U.S. research and development tax credits and \$0.3 million of expense from non-taxable foreign exchange loss, and \$0.6 million of other discrete benefit.

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 July 1, 2018, Teradyne believes that it will ultimately realize the deferred tax assets recorded on the condensed consolidated balance sheet. However, should Teradyne believe that it is more-likely-than-not that the deferred tax assets would not be realized, the tax provision would increase in the period in which Teradyne determined that the realizability was not likely. Teradyne considers the probability of future taxable income and historical profitability, among other factors, in assessing the realizability of the deferred tax assets.

As of July 1, 2018 and December 31, 2017, Teradyne had \$37.9 million and \$36.3 million, respectively, of reserves for uncertain tax positions. The \$1.6 million net increase in reserves for uncertain tax positions is primarily composed of additions related to transfer pricing exposures and U.S. research and development tax credits.

Teradyne is currently under examination by the Internal Revenue Service. The timing of resolution and closure of the tax audit is highly unpredictable. Given the uncertainty, it is reasonably possible that the balance of unrecognized tax benefits could significantly change within the next twelve months. However, an estimate of the range of reasonably possible adjustments cannot presently be made.

Teradyne recognizes interest and penalties related to income tax matters in income tax expense. As of July 1, 2018 and December 31, 2017, \$0.3 million and \$0.3 million, respectively, of interest and penalties were accrued for uncertain tax positions. For the six months ended July 1, 2018, an expense of \$0.1 million was recorded for interest and penalties related to income tax items. For the six months ended July 2, 2017, a benefit of \$0.1 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 six months ended July 1, 2018 was \$4.8 million, or \$0.02 per diluted share. The tax savings due to the tax holiday for the six months ended July 2, 2017 was \$15.1 million, or \$0.07 per diluted share. The tax holiday is scheduled to expire on December 31, 2020.

In the fourth quarter of 2017, Teradyne recorded a provisional amount of \$186.0 million of additional income tax expense, which represents Teradyne's best estimate of the impact of the Tax Cuts and Jobs Act of 2017 (the Tax Reform Act) in accordance with Teradyne's understanding of the Tax Reform Act and guidance available at that time. The \$186.0 million is composed of expense of \$161.0 million related to the one-time transition tax on the mandatory deemed repatriation of foreign earnings, \$33.6 million of expense related to the remeasurement of certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, a benefit of \$10.3 million associated with the impact of correlative adjustments on uncertain tax positions, and \$1.7 million of expense related to the remeasurement of certain uncertain tax positions resulting from the reduction in the federal tax rate. Although the provisional estimates are based on the best available interpretations of the Tax Reform Act, the final impacts may differ from the estimates due to, among other things, the issuance of additional regulatory and legislative guidance related to the Tax Reform Act. As of July 1, 2018, there has been no material change to the provisional amount recorded. Any adjustment to the provisional amounts will be recorded in 2018 when the analysis is complete.

**S. SEGMENT INFORMATION**

Teradyne has four reportable segments (Semiconductor Test, System Test, Industrial Automation and Wireless Test). Each of the Semiconductor Test, System Test, and Wireless Test segments is also an individual

**Table of Contents**

operating segment. The Industrial Automation reportable segment consists of operating segments with discrete financial information, which have been combined into one reportable segment as they share similar economic characteristics, types of products, production processes, distribution channels, and currency risks. The Semiconductor Test segment includes operations related to the design, manufacturing and marketing of semiconductor test products and services. The System Test segment includes operations related to the design, manufacturing and marketing of products and services for defense/aerospace instrumentation test, storage test and circuit-board test. The Industrial Automation segment includes operations related to the design, manufacturing and marketing of collaborative robotic arms, autonomous mobile robots and advanced robotic control software. The Wireless Test segment includes operations related to the design, manufacturing and marketing of wireless test products and services.

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, 2017, and Note B: Accounting Policies in this filing for any changes in the three and six months ended July 1, 2018.

Segment information for the three months ended July 1, 2018 and July 2, 2017 is as follows:

	Semiconductor System Test Test		Industrial Automation	Wireless Test	Corporate and Eliminations	Consolidated
	(in thousands)					
<b>Three Months Ended July 1, 2018</b>						
Revenues	\$ 360,088	\$ 69,682	\$ 62,057	\$ 35,212	\$ (110)	\$ 526,929
Income (loss) before income taxes						
(1)(2)	91,159	20,352	(2,922)	10,308	1,115	120,012
Total assets (3)	765,484	107,199	597,293	77,638	1,384,106	2,931,720
<b>Three Months Ended July 2, 2017</b>						
Revenues	\$ 593,152	\$ 36,732	\$ 39,337	\$ 27,680	\$	\$ 696,901
Income (loss) before income taxes						
(1)(2)	211,278	(5,692)	(1,081)	4,514	(2,142)	206,877
Total assets (3)	766,395	108,083	349,023	62,900	1,743,824	3,030,225
<b>Six Months Ended July 1, 2018</b>						
Revenues	\$ 733,416	\$ 112,702	\$ 110,891	\$ 57,719	\$ (332)	\$ 1,014,396
Income (loss) before income taxes						
(1)(2)	179,238	26,240	(2,138)	10,772	1,719	215,831
Total assets (3)	765,484	107,199	597,293	77,638	1,384,106	2,931,720
<b>Six Months Ended July 2, 2017</b>						
Revenues	\$ 948,679	\$ 76,578	\$ 75,610	\$ 52,947	\$	\$ 1,153,814
Income (loss) before income taxes						
(1)(2)	309,244	(8,451)	(3,652)	6,046	(4,294)	298,893
Total assets (3)	766,395	108,083	349,023	62,900	1,743,824	3,030,225

(1) Included in Corporate and Other are: contingent consideration adjustments, severance charges, interest income, interest expense, net foreign exchange gains (losses), and acquisition related charges.

(2)

Included in the income (loss) before income taxes for each of the segments are charges and credits related to restructuring and other and inventory charges.

- (3) Total business assets are directly attributable to each business. Corporate assets consist of cash and cash equivalents, marketable securities and certain other assets.

**Table of Contents**

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

	<b>For the Three Months Ended</b>		<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>July 1, 2018</b>	<b>July 2, 2017</b>
	(in thousands)			
Restructuring and other employee severance	\$ 2,179	\$ 132	\$ 5,940	\$ (133)
Cost of revenues inventory charge	1,613	1,624	3,779	2,943

Included in the System Test segment are charges in the following line item in the statements of operations:

	<b>For the Three Months Ended</b>		<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>July 1, 2018</b>	<b>July 2, 2017</b>
	(in thousands)			
Cost of revenues inventory charge	\$ 256	\$ 473	\$ 576	\$ 1,358

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

	<b>For the Three Months Ended</b>		<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>July 1, 2018</b>	<b>July 2, 2017</b>
	(in thousands)			
Restructuring and other employee severance	\$ 218	\$ 321	\$ 338	\$ 945

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

	<b>For the Three Months Ended</b>		<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>July 1, 2018</b>	<b>July 2, 2017</b>
	(in thousands)			
Cost of revenues inventory charge	\$ 627	\$ 472	\$ 1,463	\$ 994
Restructuring and other lease impairment				1,313

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 Six Months Ended	
	July 1, 2018	July 2, 2017	July 1, 2018	July 2, 2017
	(in thousands)			
Restructuring and other consideration adjustment	\$ (3,500)	\$ 1,499	\$ (8,468)	\$ 2,133
Restructuring and other acquisition related expense	2,544		3,318	
Restructuring and other	872		872	
Restructuring and other employee severance		325		530

**Table of Contents**

**T. SHAREHOLDERS EQUITY**

***Stock Repurchase Program***

In January 2018, Teradyne's Board of Directors cancelled the December 2016 stock repurchase program and authorized a new stock repurchase program for up to \$1.5 billion of common stock. Teradyne intends to repurchase \$750 million in 2018. During the six months ended July 1, 2018, Teradyne repurchased 8.8 million shares of common stock for \$360.8 million at an average price of \$40.82 per share.

In December 2016, the Board of Directors approved a \$500 million share repurchase authorization which commenced on January 1, 2017. During the six months ended July 2, 2017, Teradyne repurchased 3.0 million shares of common stock for \$94.3 million at an average price of \$31.77 per share.

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 2018 and May 2018, Teradyne's Board of Directors declared a quarterly cash dividend of \$0.09 per share. Dividend payments for the three and six months ended July 1, 2018 were \$17.1 million and \$34.7 million, respectively.

In January 2017 and May 2017, Teradyne's Board of Directors declared a quarterly cash dividend of \$0.07 per share. Dividend payments for the three and six months ended July 2, 2017 were \$13.9 million and \$27.9 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.

**Table of Contents****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, 2017. 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 robotic arms, autonomous mobile robots and advanced robotic control software used by global manufacturing and light industrial customers to improve quality, increase manufacturing and material handling 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, autonomous mobile robots and wireless test systems.

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.

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. During the first quarter of 2018, demand outlook for mobile device test capacity in 2018 declined sharply for our Semiconductor Test business. As a result, we reduced our revenue outlook for 2018 to reflect the demand decline.

---

**Table of Contents**

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. The acquisition of Universal Robots provides a growth engine to our business. 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. The contingent consideration related to revenue for the period from July 1, 2015 to December 31, 2017 in the amount of \$24.6 million was paid in March 2018. The remaining maximum contingent consideration that could be paid in 2019 is \$25 million.

On February 26, 2018, we acquired Energid Technologies Corporation ( Energid ) for a total purchase price of approximately \$27.6 million. Energid s technology enables and simplifies the programming of complex robotic motions used in a wide variety of end markets, ranging from heavy industry to healthcare, utilizing both traditional robots and collaborative robots.

On April 25, 2018, we acquired Mobile Industrial Robots ApS ( MiR ), a Danish limited liability company. The total purchase price for MiR was approximately \$197 million, which included cash paid of approximately \$146 million and \$51 million in fair value of contingent consideration payable upon achievement of revenue and earnings targets through 2020.

MiR and Energid are included in our Industrial Automation segment.

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

**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 six months ended July 1, 2018 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, 2017, except as noted below.

**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.

**Revenue from Contracts with Customers**

We adopted Accounting Standards Update ( ASU ) 2014-09, *Revenue from Contracts with Customers* ( ASC 606 ) on January 1, 2018 using the modified retrospective method for all contracts not completed as of the date of adoption. The reported results for 2018 reflect the application of ASC 606 while the reported results for 2017 were prepared under the guidance of ASC 605, *Revenue Recognition* ( ASC 605 ), which is also referred to herein as Legacy GAAP or the previous guidance. We recorded a net increase to retained earnings of \$12.7 million as of January 1, 2018 due to the cumulative impact of adopting ASC 606. Refer to Note B: Accounting Policies in our 2017 annual report on Form 10-K for the policies in effect for revenue prior to January 1, 2018. The adoption of ASC 606 represents a change in accounting principle that will more closely align revenue recognition with the delivery of our

hardware and services and will provide financial statement readers with enhanced disclosures. In accordance with ASC 606, revenue is recognized when or as a

## **Table of Contents**

customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration to which we expect to be entitled to receive in exchange for fulfillment of the performance obligation. Our primary source of revenue will continue to be from the sale of systems, instruments, robots, and the delivery of services.

In accordance with ASC 606, we recognize revenues, when or as control is transferred to a customer. Our determination of revenue is dependent upon a five step process outlined below.

### *Step 1: Identify the contract with the customer*

We account for a contract with a customer when there is written approval, the contract is committed, the rights of the parties, including payment terms, are identified, the contract has commercial substance and consideration is probable of collection.

### *Step 2: Identify the performance obligations in the contract*

We periodically enter into contracts with its customers in which a customer may purchase a combination of goods and or services, such as products with extended warranty obligations. We determine performance obligations by assessing whether the products or services are distinct from the other elements of the contract. In order to be distinct, the product or service must perform either on its own or with readily available resources and must be separate within the context of the contract.

### *Step 3: Determine the transaction price*

We consider the amount stated on the face of the purchase order to be the transaction price. We do not have variable consideration, which could impact the stated purchase price agreed to by us and the customer.

### *Step 4: Allocate the transaction price to the performance obligations in the contract*

Transaction price is allocated to each individual performance obligation based on the standalone selling price of that performance obligation. We use standalone transactions when available to value each performance obligation. If standalone transactions are not available, we will estimate the standalone selling price through market assessments or cost plus a reasonable margin analysis. Any discounts from standalone selling price are spread over each performance obligation.

### *Step 5: Recognize revenue when (or as) the entity satisfies a performance obligation*

In order to determine the appropriate timing for revenue recognition, we first determine if the transaction meets any of three criteria for over time recognition. If the transaction meets the criteria for over time recognition, we recognize revenue as the good or service is delivered. We use input variables such as hours or months utilized or costs incurred to determine the amount of revenue to recognize in a given period. Input variables are used as they best align consumption with benefit to the customer. For transactions that do not meet the criteria for over time recognition, we will recognize revenue at a point in time based on an assessment of the five criteria for transfer of control. We have concluded that revenue should be recognized when shipped or delivered based on contractual terms. Typically acceptance of our products and services is a formality as we deliver similar systems, instruments and robots to standard specifications. In cases where acceptance is not deemed a formality, we will wait for customer acceptance before recognizing revenue.

## **Retirement Benefits**

In March 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*. We retrospectively adopted the new accounting guidance on presentation of net periodic pension costs and net

## **Table of Contents**

periodic postretirement benefit costs in the first quarter of 2018. This guidance requires the service cost component of net benefit costs to be reported in the same line item in the consolidated statement of operations as other employee compensation costs. The non-service components of net benefit costs such as interest cost, expected return on assets, amortization of prior service cost, and actuarial gains or losses, are required to be reported separately outside of income or loss from operations. Following the adoption of this guidance, we continue to record the service cost component in the same line item as other employee compensation costs and the non-service components of net benefit costs such as interest cost, expected return on assets, amortization of prior service cost, and actuarial gains or losses are reported within other (income) expense, net. The retrospective adoption of this standard decreased the three and six months ended July 2, 2017 income from operations by \$2.1 million and \$1.7 million, respectively, due to the removal of net actuarial pension gains and increased non-operating (income) expense by the same amount with no impact to net income.

## **Financial Assets and Financial Liabilities**

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. We adopted the new accounting guidance in the first quarter of 2018 using the modified retrospective approach. This guidance requires that changes in fair value of equity securities be accounted for directly in earnings. Previously, the changes in fair value were recorded in accumulated other comprehensive income on the balance sheet. We continue to record realized gains in interest income and realized losses in interest expense. The adoption of this new accounting guidance increased the January 1, 2018 retained earnings balance by \$3.1 million and decreased the accumulated other comprehensive income balance by the same amount.

**Table of Contents**

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

	For the Three Months Ended		For the Six Months Ended	
	July 1, 2018	July 2, 2017	July 1, 2018	July 2, 2017
Percentage of revenues:				
Revenues:				
Products	82%	88%	83%	85%
Services	18	12	17	15
<b>Total revenues</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Cost of revenues:				
Cost of products	34	38	36	37
Cost of services	7	6	7	7
<b>Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)</b>	<b>42</b>	<b>44</b>	<b>43</b>	<b>43</b>
Gross profit	58	56	57	57
Operating expenses:				
Selling and administrative	19	13	19	15
Engineering and development	14	12	15	14
Acquired intangible assets amortization	2	1	2	1
Restructuring and other				
<b>Total operating expenses</b>	<b>35</b>	<b>26</b>	<b>35</b>	<b>31</b>
<b>Income from operations</b>	<b>23</b>	<b>30</b>	<b>21</b>	<b>26</b>
Non-operating (income) expense:				
Interest income	(1)		(1)	(1)
Interest expense	1	1	1	1
Other (income) expense, net				
<b>Income before income taxes</b>	<b>23</b>	<b>30</b>	<b>21</b>	<b>26</b>
<b>Income tax provision</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>3</b>
<b>Net income</b>	<b>19%</b>	<b>25%</b>	<b>19%</b>	<b>23%</b>

**Results of Operations***Second Quarter 2018 Compared to Second Quarter 2017*

*Revenues*

Revenues by our four reportable segments were as follows:

	<b>For the Three Months Ended</b>		
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>Dollar Change</b>
	<b>(in millions)</b>		
Semiconductor Test	\$ 360.1	\$ 593.2	\$ (233.1)
System Test	69.7	36.7	33.0
Industrial Automation	62.1	39.3	22.8
Wireless Test	35.2	27.7	7.5
Corporate and Other	(0.1)		(0.1)
	\$ 526.9	\$ 696.9	\$ (170.0)

**Table of Contents**

The decrease in Semiconductor Test revenues of \$233.1 million, or 39.3%, was driven primarily by a decrease in mobility test segment sales. The increase in System Test revenues of \$33.0 million, or 89.9%, was primarily due to higher sales in Storage Test of 3.5 hard disk drive and system level testers. The increase in Industrial Automation revenues of \$22.8 million, or 58.0%, was due to higher demand for collaborative robotic arms and the acquisition of MiR, completed in April of 2018. MiR added \$4.5 million of revenue in the three months ended July 1, 2018. The increase in Wireless Test revenues of \$7.5 million, or 27.1%, was primarily due to higher demand for connectivity test systems.

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

	<b>For the Three Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>
Taiwan	25%	51%
China	16	8
United States	13	9
Europe	10	6
Korea	8	5
Japan	7	5
Malaysia	7	5
Thailand	6	1
Singapore	4	5
Philippines	3	5
Rest of World	1	
	100%	100%

(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>July 1, 2018</b>	<b>July 2, 2017</b>	
	<b>(in millions)</b>		
Gross profit	\$ 307.3	\$ 390.6	\$ (83.3)
Percent of total revenues	58.3%	56.1%	2.2

Gross profit as a percent of revenue increased by 2.2 points, as a result of an increase related to product mix primarily in Semiconductor Test.

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.

**Table of Contents**

During the three months ended July 1, 2018, we recorded an inventory provision of \$2.7 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels. Of the \$2.7 million of total excess and obsolete provisions, \$1.6 million was related to Semiconductor Test, \$0.6 million was related to Wireless Test, \$0.3 million was related to System Test, and \$0.2 million was related to Industrial Automation.

During the three months ended July 2, 2017, we recorded an inventory provision of \$2.6 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels. Of the \$2.6 million of total excess and obsolete provisions, \$1.6 million was related to Semiconductor Test, \$0.5 million was related to System Test, and \$0.5 million was related to Wireless Test.

During the three months ended July 1, 2018 and July 2, 2017, we scrapped \$1.1 million of inventory. During the three months ended July 1, 2018 and July 2, 2017, we sold \$1.9 million and \$2.1 million of previously written-down or written-off inventory, respectively. As of July 1, 2018, we had inventory related reserves for inventory, which had been written-down or written-off totaling \$103.2 million. We have no pre-determined timeline to scrap the remaining inventory.

*Selling and Administrative*

Selling and administrative expenses were as follows:

	<b>For the Three Months Ended</b>		
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>Dollar Change</b>
	<b>(in millions)</b>		
Selling and administrative	\$ 99.4	\$ 90.1	\$ 9.3
Percent of total revenues	18.9%	12.9%	

The increase of \$9.3 million in selling and administrative expenses was due primarily to higher spending in Industrial Automation, partially offset by lower variable compensation.

*Engineering and Development*

Engineering and development expenses were as follows:

	<b>For the Three Months Ended</b>		
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>Dollar Change</b>
	<b>(in millions)</b>		
Engineering and development	\$ 75.3	\$ 82.3	\$ (7.0)
Percent of total revenues	14.3%	11.8%	

The decrease of \$7.0 million in engineering and development expenses was primarily due to lower variable compensation and lower spending in Storage Test, partially offset by higher spending in Industrial Automation.

*Acquired Intangible Assets Amortization*

Acquired intangible assets amortization expense was as follows:

	<b>For the Three Months Ended</b>		
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>Dollar Change</b>
	<b>(in millions)</b>		
Acquired intangible assets amortization	\$ 9.8	\$ 8.2	\$ 1.6
Percent of total revenues	1.9%	1.2%	

**Table of Contents**

Acquired intangible assets amortization expense increased primarily due to acquisitions in the Industrial Automation segment in 2018.

*Restructuring and Other*

During the three months ended July 1, 2018, we recorded \$2.5 million of acquisition related expenses and \$2.4 million for employee severance charges, primarily in Semiconductor Test, partially offset by a \$3.5 million gain for the decrease in the fair value of the Universal Robots contingent consideration liability.

During the three months ended July 2, 2017, we recorded \$1.5 million for the increase in the fair value of the Universal Robots contingent consideration liability and \$0.8 million for employee severance charges.

*Interest and Other*

	<b>For the Three Months Ended</b>		
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>Dollar Change</b>
	(in millions)		
Interest income	\$ (5.4)	\$ (3.3)	\$ (2.1)
Interest expense	5.6	5.5	0.1
Other (income) expense, net	0.2	(1.3)	1.5

Interest income increased by \$2.1 million due primarily to higher interest rates in 2018. Other (income) expense, net included net foreign exchange losses and non-service components of net periodic pension costs and net periodic postretirement benefit costs.

*Income (Loss) Before Income Taxes*

	<b>For the Three Months Ended</b>		
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>Dollar Change</b>
	(in millions)		
Semiconductor Test	\$ 91.2	\$ 211.3	\$ (120.1)
System Test	20.4	(5.7)	26.1
Wireless Test	10.3	4.5	5.8
Industrial Automation	(2.9)	(1.1)	(1.8)
Corporate and eliminations (1)	1.1	(2.1)	3.2
	\$ 120.0	\$ 206.9	\$ (86.9)

(1)

Included in Corporate and Other are: contingent consideration adjustments, employee severance, interest income, interest expense, net foreign exchange gains and losses and acquisition related expenses.

The decrease in income before income taxes in Semiconductor Test was driven primarily by lower revenues due to a decrease in mobility test segment sales. The increase in income before income taxes in System Test was primarily due to higher sales in Storage Test of 3.5 hard disk drive and system level testers. The increase in income before income taxes in Wireless Test was primarily due to higher demand for connectivity test systems. The increase in loss before income taxes in Industrial Automation was primarily due to increased intangible assets amortization expense from the acquisitions of MiR and Energid in 2018.

*Income Taxes*

The effective tax rate for the three months ended July 1, 2018 and July 2, 2017 was 15.8% and 15.4%, respectively.

**Table of Contents**

The increase in the effective tax rate from the three months ended July 2, 2017 to the three months ended July 1, 2018 primarily resulted from a projected shift in the geographic distribution of income, which increased income subject to taxation in the U.S. relative to lower tax rate jurisdictions. This increase was partially offset by an increase in discrete tax benefits recognized, the benefit of the reduction in the U.S. corporate tax rate from 35% to 21% and the U.S. foreign derived intangible income deduction.

**Six Months 2018 Compared to Six Months 2017***Revenues*

Revenues by our four reportable segments were as follows:

	<b>For the Six Months Ended</b>		
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>Dollar Change</b>
	<b>(in millions)</b>		
Semiconductor Test	\$ 733.4	\$ 948.7	\$ (215.3)
System Test	112.7	76.6	36.1
Industrial Automation	110.9	75.6	35.3
Wireless Test	57.7	52.9	4.8
Corporate and eliminations (1)	(0.3)		(0.3)
	\$ 1,014.4	\$ 1,153.8	\$ (139.4)

The decrease in Semiconductor Test revenues of \$215.3 million, or 22.7%, was driven primarily by a decrease in sales in the mobility and image sensor test segments, partially offset by an increase in memory test segment sales. The increase in System Test revenues of \$36.1 million, or 47.1%, was primarily due to higher sales of 3.5 hard disk drive and system level testers in Storage Test. The increase in Industrial Automation revenues of \$35.3 million, or 46.7%, was due to higher demand for collaborative robotic arms and the acquisition of MiR, completed in April of 2018. MiR added \$4.5 million of revenue in the six months ended July 1, 2018. The increase in Wireless Test revenues of \$4.8 million, or 9.0%, was primarily due to increased sales of connectivity test systems.

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

	<b>For the Six Months Ended</b>	
	<b>July 1, 2018</b>	<b>July 2, 2017</b>
Taiwan	27%	41%
China	16	9
United States	13	10
Korea	10	6
Europe	10	7

Edgar Filing: TERADYNE, INC - Form 10-Q

Japan	6	8
Malaysia	5	7
Philippines	5	5
Singapore	4	5
Thailand	4	1
Rest of World		1
	100%	100%

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

**Table of Contents***Gross Profit*

Our gross profit was as follows:

	<b>For the Six Months Ended</b>		<b>Dollar/ Point Change</b>
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	
	<b>(in millions)</b>		
Gross profit	\$ 577.2	\$ 655.7	\$ (78.5)
Percent of total revenues	56.9%	56.8%	0.1

Gross profit as a percent of revenue increased by 0.1 points, as a result of an increase related to product mix primarily in Semiconductor Test, partially offset by a decrease due to lower sales in Semiconductor Test.

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 six months ended July 1, 2018, we recorded an inventory provision of \$6.2 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels. Of the \$6.2 million of total excess and obsolete provisions, \$3.8 million was related to Semiconductor, \$1.5 million was related to Wireless Test, \$0.6 million was related to System Test, and \$0.3 million was related to Industrial Automation.

During the six months ended July 2, 2017, we recorded an inventory provision of \$5.3 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels. Of the \$5.3 million of total excess and obsolete provisions, \$2.9 million was related to Semiconductor Test, \$1.4 million was related to System Test, and \$1.0 million was related to Wireless Test.

During the six months ended July 1, 2018 and July 2, 2017, we scrapped \$1.5 million and \$2.9 million of inventory, respectively. During the six months ended July 1, 2018 and July 2, 2017, we sold \$4.2 million and \$3.3 million of previously written-down or written-off inventory, respectively. As of July 1, 2018, we had inventory related reserves for inventory, which had been written-down or written-off totaling \$103.2 million. We have no pre-determined timeline to scrap the remaining inventory.

*Selling and Administrative*

Selling and administrative expenses were as follows:

	<b>For the Six Months Ended</b>	<b>Dollar Change</b>
--	-------------------------------------	--------------------------

	<b>July 1, 2018</b>	<b>July 2, 2017</b>	
	<b>(in millions)</b>		
Selling and administrative	\$ 189.9	\$ 174.9	\$ 15.0
Percent of total revenues	18.7%	15.2%	

The increase of \$15.0 million in selling and administrative expenses was due primarily to higher spending in Industrial Automation, partially offset by lower variable compensation.

**Table of Contents***Engineering and Development*

Engineering and development expenses were as follows:

	<b>For the Six Months Ended</b>		<b>Dollar Change</b>
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	
	<b>(in millions)</b>		
Engineering and development	\$ 149.8	\$ 158.2	\$ (8.4)
Percent of total revenues	14.8%	13.7%	

The decrease of \$8.4 million in engineering and development expenses was primarily due to lower variable compensation and lower spending in Storage Test, partially offset by higher spending in Industrial Automation.

*Acquired Intangible Assets Amortization*

Acquired intangible assets amortization expense was as follows:

	<b>For the Six Months Ended</b>		<b>Dollar Change</b>
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	
	<b>(in millions)</b>		
Acquired intangible assets amortization	\$ 17.5	\$ 16.1	\$ 1.4
Percent of total revenues	1.7%	1.4%	

Acquired intangible assets amortization expense increased primarily due to acquisitions in the Industrial Automation segment in 2018.

*Restructuring and Other*

During the six months ended July 1, 2018, we recorded \$6.3 million for employee severance charges, primarily in Semiconductor Test and Industrial Automation, and \$3.3 million for acquisition related expenses, partially offset by an \$8.5 million gain for the decrease in the fair value of the Universal Robots contingent consideration liability.

During the six months ended July 2, 2017, we recorded \$2.1 million for the increase in the fair value of the Universal Robots contingent consideration liability, \$1.4 million for employee severance charges, primarily in Corporate and Industrial Automation, and a \$1.3 million charge for a lease impairment of a Wireless Test facility in Sunnyvale, CA, which was terminated in September 2017.

*Interest and Other*

	<b>For the Six Months Ended</b>		<b>Dollar Change</b>
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	
	<b>(in millions)</b>		
Interest income	\$ (11.4)	\$ (6.8)	\$ (4.6)
Interest expense	12.5	10.9	1.6
Other (income) expense, net	1.0	(1.4)	2.4

Interest income increased by \$4.6 million due primarily to higher interest rates in 2018. Interest expense increased by \$1.6 million due primarily to realized losses on sales of marketable securities. Other (income) expense, net included net foreign exchange losses and non-service components of net periodic pension costs and net periodic postretirement benefit costs.

**Table of Contents***Income (Loss) Before Income Taxes*

	<b>For the Six Months Ended</b>		
	<b>July 1, 2018</b>	<b>July 2, 2017</b>	<b>Dollar Change</b>
	<b>(in millions)</b>		
Semiconductor Test	\$ 179.2	\$ 309.2	\$ (130.0)
System Test	26.2	(8.5)	34.7
Wireless Test	10.8	6.0	4.8
Industrial Automation	(2.1)	(3.7)	1.6
Corporate and eliminations (1)	1.7	(4.3)	6.0
	\$ 215.8	\$ 298.9	\$ (83.1)

(1) Included in Corporate and Other are: contingent consideration adjustments, employee severance, interest income, interest expense, net foreign exchange gains and losses and acquisition related expenses.

The decrease in income before income taxes in Semiconductor Test was driven primarily by lower revenues due to a decrease in sales in the mobility and image sensor test segments, partially offset by an increase in memory test segment sales. The increase in income before income taxes in System Test was primarily due to higher sales in Storage Test of 3.5 hard disk drive and system level testers. The increase in income before income taxes in Wireless Test was primarily due to higher sales of connectivity test systems. The decrease in loss before income taxes in Industrial Automation was primarily due to an increase in sales for collaborative robotic arms and the acquisition of MiR, partially offset by an increase in intangible assets amortization expense from the acquisitions of MiR and Energid in 2018.

*Income Taxes*

The effective tax rate for the six months ended July 1, 2018 and July 2, 2017 was 12.9%. The effective tax rate was unchanged notwithstanding a projected shift in the geographic distribution of income, which increased income subject to taxation in the U.S. relative to lower tax rate jurisdictions. The impact of the shift in income distribution was offset by the benefit of the reduction in the U.S. corporate tax rate from 35% to 21% and the U.S. foreign derived intangible income deduction.

**Contractual Obligations**

The following table reflects our contractual obligations as of July 1, 2018:

<b>Total</b>	<b>Payments Due by Period</b>				<b>Other</b>
	<b>Less than 1 year</b>	<b>1-3 years</b>	<b>3-5 years</b>	<b>More than 5 years</b>	

Edgar Filing: TERADYNE, INC - Form 10-Q

	<b>(in thousands)</b>					
Convertible debt	\$ 460,000	\$	\$	\$	\$ 460,000	\$
Purchase obligations	310,416	302,723	7,693			
Retirement plans contributions	128,212	5,058	8,808	9,144	105,202	
Operating lease obligations	63,069	17,311	26,403	13,754	5,601	
Interest on long-term debt	31,625	5,750	11,500	11,500	2,875	
Fair value of contingent consideration	60,914	35,911	25,003			
Transition tax payable (1)	160,896	13,535	25,641	25,707	96,013	
Other long-term liabilities reflected on the balance sheet under GAAP (2)	69,951		25,375			44,576
<b>Total</b>	<b>\$ 1,285,083</b>	<b>\$ 380,288</b>	<b>\$ 130,423</b>	<b>\$ 60,105</b>	<b>\$ 669,691</b>	<b>\$ 44,576</b>

**Table of Contents**

- (1) Represents our estimate of a provisional tax amount for the transition tax liability associated with our accumulated foreign earnings as a result of the enactment of the Tax Reform Act on December 22, 2017.
- (2) 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 decreased by \$599.6 million in the six months ended July 1, 2018 to \$1,304.1 million.

Operating activities during the six months ended July 1, 2018 provided cash of \$49.9 million. Changes in operating assets and liabilities used cash of \$225.2 million. This was due to a \$199.0 million increase in operating assets and a \$26.1 million decrease in operating liabilities.

The increase in operating assets was primarily due to a \$179.4 million increase in accounts receivable due to an increase in shipments during the last month of the quarter and the impact of the new revenue recognition standard, a \$21.3 million increase in inventories, partially offset by a \$1.6 million decrease in prepayments and other assets.

The decrease in operating liabilities was due to a \$27.3 million decrease in accrued employee compensation due primarily to first quarter payments related to variable compensation, a \$26.3 million decrease in income taxes, and \$2.2 million of retirement plan contributions, partially offset by a \$14.7 million increase in accounts payable, a \$10.5 million increase in deferred revenue and customer advance payments, and a \$4.5 million increase in other accrued liabilities.

Investing activities during the six months ended July 1, 2018 provided cash of \$418.5 million, due to \$829.1 million and \$469.9 million in proceeds from sales and maturities of marketable securities, respectively, partially offset by \$647.1 million used for purchases of marketable securities, \$170.6 million used for acquisitions of MiR and Energid, and \$62.7 million used for purchases of property, plant and equipment.

Financing activities during the six months ended July 1, 2018 used cash of \$418.1 million, due to \$360.8 million used for the repurchase of 8.8 million shares of common stock at an average price of \$40.82 per share, \$34.7 million used for dividend payments, \$19.8 million used for payment related to net settlement of employee stock compensation awards, and \$13.6 million used for a payment related to Universal Robots acquisition contingent consideration, partially offset by \$10.7 million from the issuance of common stock under employee stock purchase and stock option plans.

Operating activities during the six months ended July 2, 2017 provided cash of \$169.2 million. Changes in operating assets and liabilities used cash of \$165.7 million. This was due to a \$217.9 million increase in operating assets partially offset by a \$52.2 million increase in operating liabilities.

The increase in operating assets was primarily due to a \$214.2 million increase in accounts receivable due to the delivery profile of second quarter shipments and an \$8.1 million increase in inventories, partially offset by a \$4.4 million decrease in prepayments and other assets.

The increase in operating liabilities was due to a \$21.1 million increase in other accrued liabilities, a \$14.4 million increase in income taxes, an \$11.9 million increase in accrued employee compensation due primarily to variable compensation, a \$5.3 million increase in deferred revenue and customer advance payments, and a \$1.6 million increase in accounts payable, partially offset by \$2.0 million of retirement plan contributions.

## **Table of Contents**

Investing activities during the six months ended July 2, 2017 provided cash of \$240.1 million, due to \$313.3 million and \$307.6 million in proceeds from maturities and sales of marketable securities, respectively, partially offset by \$334.8 used for purchases of marketable securities and \$46.0 million used for purchases of property, plant and equipment.

Financing activities during the six months ended July 2, 2017 used cash of \$120.5 million, due to \$94.3 million used for the repurchase of 3.0 million shares of common stock at an average price of \$31.77 per share, \$27.9 million used for dividend payments, \$12.4 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 \$15.2 million from the issuance of common stock under employee stock purchase and stock option plans.

In January 2018 and May 2018, our Board of Directors declared a quarterly cash dividend of \$0.09 per share. Dividend payments for the six months ended July 1, 2018 were \$34.7 million.

In January 2017 and May 2017, our Board of Directors declared a quarterly cash dividend of \$0.07 per share. Dividend payments for the six months ended July 2, 2017 were \$27.9 million.

In January 2018, our Board of Directors cancelled the December 2016 stock repurchase program and authorized a new stock repurchase program for up to \$1.5 billion of common stock. We intend to repurchase \$750 million in 2018. During the six months ended July 1, 2018, we repurchased 8.8 million shares of common stock for \$360.8 million at an average price of \$40.82 per share.

In December 2016, our Board of Directors approved a \$500 million share repurchase authorization, which commenced on January 1, 2017. During the six months ended July 2, 2017, we repurchased 3.0 million shares of common stock for \$94.3 million at an average price of \$31.77 per share.

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

We believe our cash, cash equivalents and marketable securities balance will be sufficient to pay our quarterly dividend, execute our authorized share repurchase program and meet our working capital and expenditure needs for at least the next twelve months. Inflation has not had a significant long-term impact on earnings.

## **Equity Compensation Plans**

As discussed in Note O: Stock Based Compensation in our 2017 Annual Report on 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 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

---

**Table of Contents**

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 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 still assessing the potential changes from this ASU, but expect it to have a material impact on our financial position and immaterial impact on our results of operations.

**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, 2018. 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, 2017.

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 July 1, 2018, the Notes had a fair value of \$612.7 million. The table below provides a sensitivity analysis of hypothetical 10% changes of Teradyne's stock price as of the end of the second quarter of 2018 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.

<b>Hypothetical Change in Teradyne Stock Price</b>	<b>Fair Value</b>	<b>Estimated Change in Fair Value</b>	<b>Hypothetical Percentage Increase (Decrease) in Fair Value</b>
10% Increase	\$ 657,458	\$ 44,765	7.3%
No Change	612,693		
10% Decrease	569,864	(42,829)	(7.0)

See Note G: Debt for further information.

**Table of Contents**

**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.

**Table of Contents**

**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, 2017, which could materially affect our business, financial condition or future results. The risk factors described in our Annual Report on Form 10-K remain applicable to our business.

The risks described in our Annual Report on Form 10-K are not the only risks that we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.

*The implementation of tariffs and export controls on our products may have a material impact on our business.*

Our business operations and supply chain are global and may be disrupted by the implementation of tariffs and export controls on our products.

On July 6, 2018, the United States Trade Representative imposed a 25% tariff on a list of products, including certain Teradyne products that are made in China and imported into the United States. We intend to submit requests for exclusion of our products from the tariff, but there is no assurance that our requests will be approved. We have implemented operational changes that will mitigate the impact of the 25% tariff on the import of our impacted products into the United States. As a result, we do not expect that the tariff will have a material adverse effect on our business, financial condition or results of operations.

On July 10, 2018, the United States Trade Representative announced a proposed 10% tariff on many additional products made in China and imported into the United States. It is uncertain whether this proposed tariff will be implemented and, if implemented, as to the products that will be covered. At this time, we do not expect that this proposed 10% tariff will significantly impact any Teradyne products and thus the proposed tariff should not have a material adverse effect on our business, financial condition or results of operations.

On June 29, 2018, the United States Commerce Department announced that it has commenced a review of new export controls focusing on emerging technologies. While there is uncertainty as to whether any new export controls will be implemented and, if implemented, as to the products that will be covered, new export controls could have a material adverse effect on our business, financial condition or results of operations.

In addition to any actions taken by the United States, any tariffs or other trade restrictions implemented by China could disrupt our business operations, sales and supply chain and, therefore, have a material adverse effect on our business, financial condition or results of operations.

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

In January 2018, our Board of Directors cancelled the December 2016 stock repurchase program and authorized a new stock repurchase program for up to \$1.5 billion of common stock. We intend to repurchase \$750 million in 2018. During the six months ended July 1, 2018, we repurchased 8.8 million shares of common stock for \$360.8 million at an average price of \$40.82 per share.

**Table of Contents**

In December 2016, our Board of Directors approved a \$500 million share repurchase authorization, which commenced on January 1, 2017. During the six months ended July 2, 2017, we repurchased 3.0 million shares of common stock for \$94.3 million at an average price of \$31.77 per share.

The following table includes information with respect to repurchases we made of our common stock during the three months ended July 1, 2018 (in thousands except per share price):

Period		(a) Total Number of Shares (or Units) Purchased	(b) Average Price Paid per Share (or Unit)	(c) Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number (or Approximate Dollar Value) of Shares (or Units) that may yet be Purchased Under the Plans or Programs
April 2, 2018	April 29, 2018	1,578	\$ 42.45	1,577	\$ 1,298,779
April 30, 2018	May 27, 2018	2,346	\$ 35.31	2,345	\$ 1,215,955
May 28, 2018	July 1, 2018	1,979	\$ 38.81	1,977	\$ 1,139,205
		5,903	(1) \$ 38.40	(1) 5,900	

(1) Includes 3,135 shares at an average price of \$38.87 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

**Item 6: Exhibits****Exhibit****Number****Description**

- 31.1 Certification of Principal Executive Officer, pursuant to Rule 13a-14(a) of Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
- 31.2 Certification of Principal Financial Officer, pursuant to Rule 13a-14(a) of Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)

32.1	<u>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)</u>
32.2	<u>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)</u>
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

Table of Contents

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

**TERADYNE, INC.**  
Registrant

/s/ GREGORY R. BEECHER  
**Gregory R. Beecher**

**Vice President,**

**Chief Financial Officer and Treasurer**

**(Duly Authorized Officer**

**and Principal Financial Officer)**

**August 10, 2018**