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 October 3, 2021

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

978-370-2700
(Registrant's Telephone Number, Including Area Code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.125 per share	**TER**	**Nasdaq Stock Market LLC**

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 every Interactive Data File required to be submitted 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 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	☐	Emerging growth company	☐
Smaller reporting 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 November 1, 2021 was 163,004,340 shares.

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PART I

Item 1: Financial Statements

TERADYNE, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)

	October 3, 2021	December 31, 2020
	(in thousands, except per share amount)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 1,079,454	$ 914,121
Marketable securities	233,397	522,280
Accounts receivable, less allowance for credit losses of $1,913 and $2,034 at October 3, 2021 and December 31, 2020, respectively	597,124	497,506
Inventories, net	224,242	222,189
Prepayments and other current assets	386,967	259,338
Total current assets	2,521,184	2,415,434
Property, plant and equipment, net	390,545	394,800
Operating lease right-of-use assets, net	61,608	54,569
Marketable securities	136,664	117,980
Deferred tax assets	96,808	87,913
Retirement plans assets	16,958	17,468
Other assets	23,340	9,384
Acquired intangible assets, net	81,677	100,939
Goodwill	433,398	453,859
Total assets	$ 3,762,182	$ 3,652,346
LIABILITIES		
Current liabilities:		
Accounts payable	$ 154,912	$ 133,663
Accrued employees' compensation and withholdings	196,928	220,321
Deferred revenue and customer advances	140,380	134,662
Other accrued liabilities	135,492	77,581
Operating lease liabilities	20,601	20,573
Income taxes payable	73,077	80,728
Current debt	32,219	33,343
Total current liabilities	753,609	700,871
Retirement plans liabilities	153,249	151,140
Long-term deferred revenue and customer advances	60,022	58,359
Long-term contingent consideration	—	7,227
Long-term other accrued liabilities	19,704	19,352
Deferred tax liabilities	6,907	10,821
Long-term operating lease liabilities	48,492	42,073
Long-term incomes taxes payable	67,041	74,930
Debt	112,784	376,768
Total liabilities	1,221,808	1,441,541
Commitments and contingencies		
Mezzanine equity:		
Convertible common shares	2,881	3,787
SHAREHOLDERS' EQUITY		
Common stock, $0.125 par value, 1,000,000 shares authorized; 163,728 and 166,123 shares issued and outstanding at October 3, 2021 and December 31, 2020, respectively	20,466	20,765
Additional paid-in capital	1,800,373	1,765,323
Accumulated other comprehensive income	4,217	33,516
Retained earnings	712,437	387,414
Total shareholders' equity	2,537,493	2,207,018
Total liabilities, convertible common shares and shareholders' equity	$ 3,762,182	$ 3,652,346

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, 2020, are an integral part of the condensed consolidated financial statements.

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

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
	(in thousands, except per share amount)			
Revenues:				
Products	$825,448	$ 697,745	$2,437,901	$ 2,043,281
Services	125,053	121,739	379,934	319,219
Total revenues	950,501	819,484	2,817,835	2,362,500
Cost of revenues:				
Cost of products	333,229	300,174	989,859	882,902
Cost of services	46,271	60,382	148,368	143,647
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	379,500	360,556	1,138,227	1,026,549
Gross profit	571,001	458,928	1,679,608	1,335,951
Operating expenses:				
Selling and administrative	134,829	115,840	404,812	340,488
Engineering and development	107,220	94,909	317,644	274,170
Acquired intangible assets amortization	5,355	6,219	16,293	25,052
Restructuring and other	1,197	(27,701)	(3,426)	1,915
Total operating expenses	248,601	189,267	735,323	641,625
Income from operations	322,400	269,661	944,285	694,326
Non-operating (income) expense:				
Interest income	(626)	(1,071)	(2,066)	(5,189)
Interest expense	3,785	6,237	15,354	17,831
Other (income) expense, net	21,486	764	25,223	3,595
Income before income taxes	297,755	263,731	905,774	678,089
Income tax provision	41,037	41,013	115,225	90,274
Net income	$256,718	$ 222,718	$ 790,549	$ 587,815
Net income per common share:				
Basic	$ 1.56	$ 1.34	$ 4.77	$ 3.54
Diluted	$ 1.41	$ 1.21	$ 4.26	$ 3.23
Weighted average common shares—basic	164,583	166,014	165,690	166,131
Weighted average common shares—diluted	181,987	184,338	185,492	181,777

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, 2020, are an integral part of the condensed consolidated financial statements.

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

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
	(in thousands)			
Net income	$256,718	$ 222,718	$790,549	$ 587,815
Other comprehensive income, net of tax:				
Foreign currency translation adjustment, net of tax of $0, $0, $0, $0, respectively	(10,698)	17,104	(26,672)	24,131
Available-for-sale marketable securities:				
Unrealized (losses) gains on marketable securities arising during period, net of tax of $(44), $139, $(516), and $1,410, respectively	(176)	335	(1,952)	5,165
Less: Reclassification adjustment for gains included in net income, net of tax of $(65), $(194), $(186), $(615), respectively	(229)	(689)	(670)	(2,188)
	(405)	(354)	(2,622)	2,977
Defined benefit post-retirement plan:				
Amortization of prior service credit, net of tax of $0, $0, $(2), $(1), respectively	(2)	(2)	(5)	(6)
Other comprehensive (loss) income	(11,105)	16,748	(29,299)	27,102
Comprehensive income	$245,613	$ 239,466	$761,250	$ 614,917

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TERADYNE, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CONVERTIBLE COMMON SHARES AND SHAREHOLDERS' EQUITY
(Unaudited)

		Shareholders' Equity					
	Convertible Common Shares Value	Common Stock Shares	Common Stock Par Value	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings (Accumulated Deficit)	Total Shareholders' Equity
	(in thousands)						
For the Three Months Ended October 3, 2021							
Balance, July 4, 2021	$ 21,386	165,444	$ 20,680	$ 1,772,302	$ 15,322	$ 684,952	$ 2,493,256
Net issuance of common stock under stock-based plans		8	1	(259)			(258)
Stock-based compensation expense				10,042			10,042
Repurchase of common stock		(1,724)	(215)			(212,781)	(212,996)
Cash dividends ($0.10 per share)						(16,452)	(16,452)
Settlements of convertible notes		5,589	699	636,798			637,497
Exercise of convertible notes hedge call options		(5,589)	(699)	(637,015)			(637,714)
Convertible common shares	(18,505)			18,505			18,505
Net income						256,718	256,718
Other comprehensive loss					(11,105)		(11,105)
Balance, October 3, 2021	$ 2,881	163,728	$ 20,466	$ 1,800,373	$ 4,217	$ 712,437	$ 2,537,493
For the Three Months Ended September 27, 2020							
Balance, June 28, 2020	$ —	165,806	$ 20,725	$ 1,730,716	$ (8,500)	$ 1,610	$ 1,744,551
Net issuance of common stock under stock-based plans		237	30	13,515			13,545
Stock-based compensation expense				12,600			12,600
Cash dividends ($0.10 per share)						(16,618)	(16,618)
Net income						222,718	222,718
Other comprehensive income					16,748		16,748
Balance, September 27, 2020	$ —	166,043	$ 20,755	$ 1,756,831	$ 8,248	$ 207,710	$ 1,993,544
For the Nine Months Ended October 3, 2021							
Balance, December 31, 2020	$ 3,787	166,123	$ 20,765	$ 1,765,323	$ 33,516	$ 387,414	$ 2,207,018
Net issuance of common stock under stock-based plans		893	112	(48)			64
Stock-based compensation expense				35,915			35,915
Repurchase of common stock		(3,288)	(411)			(415,769)	(416,180)
Cash dividends ($0.30 per share)						(49,757)	(49,757)
Settlements of convertible notes		7,178	897	840,305			841,202
Exercise of convertible notes hedge call options		(7,178)	(897)	(842,028)			(842,925)
Convertible common shares	(906)			906			906
Net income						790,549	790,549
Other comprehensive loss					(29,299)		(29,299)
Balance, October 3, 2021	$ 2,881	163,728	$ 20,466	$ 1,800,373	$ 4,217	$ 712,437	$ 2,537,493
For the Nine Months Ended September 27, 2020							
Balance, December 31, 2019	$ —	166,410	$ 20,801	$ 1,720,129	$ (18,854)	$ (241,918)	$ 1,480,158
Net issuance of common stock under stock-based plans		1,150	144	3,019			3,163
Stock-based compensation expense				33,683			33,683
Repurchase of common stock		(1,517)	(190)			(88,275)	(88,465)
Cash dividends ($0.30 per share)						(49,912)	(49,912)
Net income						587,815	587,815
Other comprehensive income					27,102		27,102
Balance, September 27, 2020	$ —	166,043	$ 20,755	$ 1,756,831	$ 8,248	$ 207,710	$ 1,993,544

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, 2020, are an integral part of the condensed consolidated financial statements.

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

	For the Nine Months Ended	
	October 3, 2021	September 27, 2020
	(in thousands)	
Cash flows from operating activities:		
Net income	$ 790,549	$ 587,815
Adjustments to reconcile net income from operations to net cash provided by operating activities:		
Depreciation	67,866	58,111
Stock-based compensation	34,649	33,028
Amortization	27,626	36,577
Loss on convertible debt conversion	25,397	—
Provision for excess and obsolete inventory	11,775	13,116
Deferred taxes	(10,732)	(4,547)
Contingent consideration adjustment	(7,227)	(7,967)
Gains on investments	(4,750)	(3,515)
Retirement plan actuarial (gains) losses	(627)	2,589
Other	243	750
Changes in operating assets and liabilities, net of businesses acquired:		
Accounts receivable	(103,299)	(222,015)
Inventories	21,943	16,998
Prepayments and other assets	(138,564)	(40,751)
Accounts payable and other liabilities	65,064	81,557
Deferred revenue and customer advances	8,699	36,589
Retirement plans contributions	(4,123)	(3,884)
Income taxes	(17,406)	24,060
Net cash provided by operating activities	767,083	608,511
Cash flows from investing activities:		
Purchases of property, plant and equipment	(103,162)	(146,872)
Purchases of marketable securities	(509,470)	(488,428)
Proceeds from maturities of marketable securities	571,277	309,407
Proceeds from sales of marketable securities	209,437	32,611
Purchase of investment and acquisition of business	(12,000)	149
Proceeds from life insurance	—	546
Net cash provided by (used for) investing activities	156,082	(292,587)
Cash flows from financing activities:		
Issuance of common stock under stock purchase and stock option plans	32,590	26,528
Repurchase of common stock	(406,180)	(88,465)
Payments of convertible debt principal	(301,997)	—
Dividend payments	(49,711)	(49,870)
Payments related to net settlement of employee stock compensation awards	(32,045)	(22,735)
Payments of contingent consideration	—	(8,852)
Net cash used for financing activities	(757,343)	(143,394)
Effects of exchange rate changes on cash and cash equivalents	(489)	(1,274)
Increase in cash and cash equivalents	165,333	171,256
Cash and cash equivalents at beginning of period	914,121	773,924
Cash and cash equivalents at end of period	$1,079,454	$ 945,180
Non-cash investing activities:		
Capital expenditures incurred but not yet paid:	$ 2,286	$ 3,119

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, 2020, are an integral part of the condensed consolidated financial statements.

TERADYNE, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

A. THE COMPANY

Teradyne, Inc. (“Teradyne”) is a leading global supplier of automation equipment for test and industrial applications. Teradyne designs, develops, manufactures and sells automatic test systems used to test semiconductors, wireless products, data storage and complex electronics systems in many industries including 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, logistics and light industrial customers to improve quality, increase manufacturing and material handling efficiency and decrease manufacturing and logistics costs. Teradyne’s automatic test equipment and industrial automation products and services include:

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

B. ACCOUNTING POLICIES

Basis of Presentation

The consolidated interim financial statements include the accounts of Teradyne and its wholly owned subsidiaries. All significant intercompany balances and transactions have been eliminated. These interim financial statements are unaudited and reflect all normal recurring adjustments that are, in the opinion of management, necessary for the fair statement of such interim financial statements. Certain prior year amounts were reclassified to conform to the current year presentation. The December 31, 2020 condensed consolidated balance sheet data was derived from audited financial statements but does not include all disclosures required by United States of America generally accepted accounting principles (“U.S. GAAP”) for complete financial statements. The accompanying financial information should be read in conjunction with the consolidated financial statements and notes thereto contained in Teradyne’s Annual Report on Form 10-K, filed with the U.S. Securities and Exchange Commission (“SEC”) on February 22, 2021, for the year ended December 31, 2020.

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 of assets, liabilities, revenues and expenses, and related disclosures of contingent liabilities. On an on-going basis, management evaluates its estimates, including those related to inventories, investments, goodwill, intangible and other long-lived assets, accounts receivable, income taxes, deferred tax assets and liabilities, pensions, warranties, contingent consideration liabilities, and loss contingencies. Management bases its estimates on historical experience and on appropriate and customary assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgements about the carrying values of assets and liabilities that are not readily apparent from other sources. Due to the COVID-19 pandemic, there has been uncertainty and disruption in the global economy and our markets. Management is not aware of any specific event or circumstance that would require an update to its estimates or judgments or a revision of the carrying value of its assets or liabilities as of November 5, 2021, the date of issuance of this Quarterly Report on Form 10-Q. These estimates may change, as new events occur and additional information is obtained. Actual results may differ significantly from these estimates under different assumptions or conditions.

C. RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS

In August 2020, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2020-06 – “Debt—Debt with Conversion and Other Options and Derivatives and Hedging - Contracts in Entity’s Own Equity,” which simplifies the accounting for convertible debt instruments by reducing the number of accounting models and the number of embedded conversion features that could be recognized separately from the primary contract. This ASU requires a convertible debt instrument to be accounted for as a single liability measured at its amortized cost, as long as no other features require bifurcation and recognition as derivatives. This ASU requires an entity to use the if-converted method in the diluted earnings per share calculation for convertible instruments. This ASU will be effective for Teradyne on January 1, 2022. This ASU permits the use of either the modified retrospective or fully retrospective method of transition. Teradyne is evaluating the effects of the adoption of this ASU on its financial statements.

On November 4, 2021, Teradyne made an irrevocable election under the indenture entered into between Teradyne and Wilmington Trust, National Association, as trustee (the “Indenture”) for the issuance of the 1.25% convertible senior unsecured notes (the “Notes”) due December 15, 2023 to require the principal portion of the remaining Notes to be settled in cash. Upon adoption of ASU 2020-06, only the amounts settled in excess of the principal will be considered in diluted earnings per share under the if-converted method.

D. INVESTMENT IN OTHER COMPANY

On June 1, 2021, Teradyne invested $12.0 million in MachineMetrics, Inc. (“MachineMetrics”), a private company that develops and sells products to improve manufacturing performance through automated machine data collection, alerting, and analytics. Teradyne’s investment in MachineMetrics aligns with its strategy of providing and investing in leading edge products for automating industrial production processes in growing markets. The investment was recorded at cost and is evaluated for impairment or an indication of changes in fair value resulting from observable price changes in orderly transactions for the identical or similar investment of the same issuer on a quarterly basis. At October 3, 2021, the value of the investment was $12.0 million, and there was no change during the three months ended October 3, 2021.

E. REVENUE

Disaggregation of Revenue

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

	Semiconductor Test			Industrial Automation					
	System on-a-Chip	Memory	System Test	Universal Robots	Mobile Industrial Robots	AutoGuide	Wireless Test	Corporate and Other	Total
				(in thousands)					
For the Three Months Ended October 3, 2021 (1)									
Timing of Revenue Recognition									
Point in Time	$ 508,747	$105,454	$ 88,155	$ 76,008	$ 12,351	$ 226	$ 65,409	$ (63)	$ 856,287
Over Time	66,270	7,761	14,450	1,742	607	80	3,304	—	94,214
Total	$ 575,017	$113,215	$102,605	$ 77,750	$ 12,958	$ 306	$ 68,713	$ (63)	$ 950,501
Geographical Market									
Asia Pacific	$ 519,886	$110,362	$ 62,757	$ 19,654	$ 2,788	$ —	$ 54,344	$ —	$ 769,791
Americas	29,119	2,281	34,560	23,429	5,015	306	11,352	(63)	105,999
Europe, Middle East and Africa	26,012	572	5,288	34,667	5,155	—	3,017	—	74,711
Total	$ 575,017	$113,215	$102,605	$ 77,750	$ 12,958	$ 306	$ 68,713	$ (63)	$ 950,501
For the Three Months Ended September 27, 2020 (1)									
Timing of Revenue Recognition									
Point in Time	$ 393,717	$137,929	$101,045	$ 51,523	$ 10,175	$ 4,076	$ 37,901	$ (41)	$ 736,325
Over Time	55,988	4,507	17,124	1,686	59	1,192	2,603	—	83,159
Total	$ 449,705	$142,436	$118,169	$ 53,209	$ 10,234	$ 5,268	$ 40,504	$ (41)	$ 819,484
Geographical Market									
Asia Pacific	$ 420,821	$137,286	$ 78,534	$ 14,471	$ 1,566	$ —	$ 33,865	$ —	$ 686,543
Americas	17,678	3,730	35,140	16,527	3,981	5,268	5,211	(41)	87,494
Europe, Middle East and Africa	11,206	1,420	4,495	22,211	4,687	—	1,428	—	45,447
Total	$ 449,705	$142,436	$118,169	$ 53,209	$ 10,234	$ 5,268	$ 40,504	$ (41)	$ 819,484
For the Nine Months Ended October 3, 2021 (2)									
Timing of Revenue Recognition									
Point in Time	$1,548,895	$291,578	$295,666	$214,427	$ 41,506	$ 106	$154,908	$ (352)	$2,546,734
Over Time	188,022	21,776	44,595	5,001	1,483	628	9,596	—	271,101
Total	$1,736,917	$313,354	$340,261	$219,428	$ 42,989	$ 734	$164,504	$ (352)	$2,817,835
Geographical Market									
Asia Pacific	$1,618,117	$301,562	$223,507	$ 55,531	$ 8,674	$ —	$133,678	$ —	$2,341,069
Americas	71,562	9,373	98,475	66,390	17,065	734	24,228	(352)	287,475
Europe, Middle East and Africa	47,238	2,419	18,279	97,507	17,250	—	6,598	—	189,291
Total	$1,736,917	$313,354	$340,261	$219,428	$ 42,989	$ 734	$164,504	$ (352)	$2,817,835
For the Nine Months Ended September 27, 2020 (2)									
Timing of Revenue Recognition									
Point in Time	$1,261,468	$298,150	$259,498	$140,829	$ 30,468	$ 8,608	$125,304	$ (294)	$2,124,031
Over Time	162,159	14,000	46,553	5,628	176	2,083	7,870	—	238,469
Total	$1,423,627	$312,150	$306,051	$146,457	$ 30,644	$ 10,691	$133,174	$ (294)	$2,362,500
Geographical Market									
Asia Pacific	$1,330,463	$296,679	$197,208	$ 39,665	$ 4,391	$ —	$113,576	$ —	$1,981,982
Americas	51,315	11,481	91,924	42,634	9,836	10,691	15,253	(294)	232,840
Europe, Middle East and Africa	41,849	3,990	16,919	64,158	16,417	—	4,345	—	147,678
Total	$1,423,627	$312,150	$306,051	$146,457	$ 30,644	$ 10,691	$133,174	$ (294)	$2,362,500

(1) Includes $3.8 million and $1.7 million in 2021 and 2020, respectively, for leases of Teradyne’s systems recognized outside Accounting Standards Codification (“ASC”) 606 *“Revenue from Contracts with Customers.”*

(2) Includes $11.1 million and $6.1 million in 2021 and 2020, respectively, for leases of Teradyne’s systems recognized outside ASC 606 “*Revenue from Contracts with Customers*.”

Contract Balances

During the three and nine months ended October 3, 2021, Teradyne recognized $32.9 million and $82.5 million, respectively, that was previously included within the deferred revenue and customer advances balances at the beginning of the period. During the three and nine months ended September 27, 2020, Teradyne recognized $17.6 million and $78.2 million, respectively, that was previously included within the deferred revenue and customer advances balances at the beginning of the period. This revenue primarily relates to undelivered hardware, extended warranties, training, application support, and post contract support. Each of these represents a distinct performance obligation. As of October 3, 2021, Teradyne has $1,293.0 million of unsatisfied performance obligations. Teradyne expects to recognize 94% of the remaining performance obligations in the next 12 months, 5% in 1-3 years and 1% beyond 3 years.

Accounts Receivable

Teradyne sells certain trade accounts receivables on a non-recourse basis to third-party financial institutions pursuant to factoring agreements. Teradyne accounts for these transactions as sales of receivables and presents cash proceeds as cash provided by operating activities in the consolidated statements of cash flows. Total trade accounts receivable sold under the factoring agreements were $66.9 million and $16.5 million for the three months ended October 3, 2021 and September 27, 2020, respectively, and $81.7 million and $113.5 million for the nine months ended October 3, 2021 and September 27, 2020, respectively. Factoring fees for the sales of receivables were recorded in interest expense and were not material.

F. INVENTORIES

Inventories, net consisted of the following at October 3, 2021 and December 31, 2020:

	October 3, 2021	December 31, 2020
	(in thousands)	
Raw material	$131,807	$ 114,133
Work-in-process	34,911	25,408
Finished goods	57,524	82,648
	$224,242	$ 222,189

Inventory reserves at October 3, 2021 and December 31, 2020 were $112.5 million and $110.6 million, respectively.

G. FINANCIAL INSTRUMENTS

Cash Equivalents

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

Marketable Securities

Teradyne's available-for-sale debt securities are classified as Level 2 and equity and debt mutual funds are classified as Level 1. Contingent consideration is classified as Level 3. 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.

During the three and nine months ended October 3, 2021 and September 27, 2020, there were no transfers in or out of Level 1, Level 2, or Level 3 financial instruments.

Realized gains recorded in the three and nine months ended October 3, 2021 were $0.5 million and $2.6 million, respectively. Realized gains recorded in the three and nine months ended September 27, 2020 were $1.1 million and $4.1 million, respectively. No realized losses were recorded in the three and nine months ended October 3, 2021. Realized losses recorded in the three and nine months ended September 27, 2020 were $0.1 million and $0.3 million, respectively. Realized gains and losses are included in other (income) expense, net.

Unrealized gains on equity securities recorded in the nine months ended October 3, 2021 were $3.3 million. Unrealized losses on equity securities recorded in the three and nine months ended October 3, 2021 were $0.4 million and $1.1 million, respectively. Unrealized gains on equity securities recorded in the three and nine months ended September 27, 2020 were $2.0 million and $5.7 million, respectively. Unrealized losses on equity securities recorded in the nine months ended September 27, 2020 were $6.0 million. Unrealized gains and losses on equity securities are included in other (income) expense, net. Unrealized gains and losses on available-for-sale debt securities are included in accumulated other comprehensive income.

The cost of securities sold is based on average cost.

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The following table sets forth by fair value hierarchy Teradyne's financial assets and liabilities that were measured at fair value on a recurring basis as of October 3, 2021 and December 31, 2020.

	October 3, 2021			
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
	(in thousands)			
Assets				
Cash	$ 577,752	$ —	$ —	$ 577,752
Cash equivalents	176,703	324,999	—	501,702
Available-for-sale securities:				
Commercial paper	—	179,629	—	179,629
U.S. Treasury securities	—	80,519	—	80,519
Corporate debt securities	—	58,648	—	58,648
Debt mutual funds	8,937	—	—	8,937
U.S. government agency securities	—	4,616	—	4,616
Certificates of deposit and time deposits	—	1,346	—	1,346
Non-U.S. government securities	—	590	—	590
Equity securities:				
Mutual funds	35,776	—	—	35,776
	$ 799,168	$ 650,347	$ —	$1,449,515
Derivative assets	—	93	—	93
Total	$ 799,168	$ 650,440	$ —	$1,449,608
Liabilities				
Derivative liabilities	—	433	—	433
Total	$ —	$ 433	$ —	$ 433

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
Assets				
Cash and cash equivalents	$ 754,455	$ 324,999	$ —	$1,079,454
Marketable securities	—	233,397	—	233,397
Long-term marketable securities	44,713	91,951	—	136,664
Prepayments and other current assets	—	93	—	93
Total	$ 799,168	$ 650,440	$ —	$1,449,608
Liabilities				
Other current liabilities	$ —	$ 433	$ —	$ 433
Total	$ —	$ 433	$ —	$ 433

	December 31, 2020			
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
	(in thousands)			
Assets				
Cash	$ 443,166	$ —	$ —	$ 443,166
Cash equivalents	347,768	123,187	—	470,955
Available-for-sale securities:				—
U.S. Treasury securities	—	258,304	—	258,304
Commercial paper	—	254,413	—	254,413
Corporate debt securities	—	83,615	—	83,615
Debt mutual funds	8,565	—	—	8,565
U.S. government agency securities	—	4,339	—	4,339
Certificates of deposit and time deposits	—	979	—	979
Non-U.S. government securities	—	625	—	625
Equity securities:				
Equity mutual funds	29,420	—	—	29,420
	$ 828,919	$ 725,462	$ —	$1,554,381
Derivative assets	—	95	—	95
Total	$ 828,919	$ 725,557	$ —	$1,554,476
Liabilities				
Contingent consideration	$ —	$ —	$ 7,227	$ 7,227
Derivative liabilities	—	504	—	504
Total	$ —	$ 504	$ 7,227	$ 7,731

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
Assets				
Cash and cash equivalents	$ 790,934	$ 123,187	$ —	$ 914,121
Marketable securities	—	522,280	—	522,280
Long-term marketable securities	37,985	79,995	—	117,980
Prepayments and other current assets	—	95	—	95
Total	$ 828,919	$ 725,557	$ —	$1,554,476
Liabilities				
Other accrued liabilities	$ —	$ 504	$ —	$ 504
Long-term contingent consideration	—	—	7,227	7,227
Total	$ —	$ 504	$ 7,227	$ 7,731

Changes in the fair value of Level 3 contingent consideration for the three and nine months ended October 3, 2021 and September 27, 2020 were as follows:

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
	(in thousands)			
Balance at beginning of period	$ —	$ 49,737	$ 7,227	$ 39,705
Fair value adjustment (a)(b)(c)	—	(27,206)	(7,227)	(7,967)
Foreign currency impact	—	—	—	(355)
Payments (d)	—	—	—	(8,852)
Balance at end of period	$ —	$ 22,531	$ —	$ 22,531

(a) In the nine months ended October 3, 2021, the fair value of contingent consideration for the earn-outs in connection with the acquisition of AutoGuide was reduced to zero, which resulted in a benefit of $7.2 million, primarily due to a decrease in forecasted revenues and earnings before interest and taxes. As of October 3, 2021, the maximum amount of contingent consideration that could be paid in connection with the acquisition of AutoGuide is $100.2 million. The remaining earn-out periods end on December 31, 2021 and December 31, 2022. The sellers of AutoGuide have filed an arbitration claim against Teradyne related to allegations of non-compliance with its earn-out obligations. The ultimate amount of contingent consideration for the earn-outs in connection with the acquisition of AutoGuide may be affected by the outcome of the arbitration (see Note R: "Commitments and Contingencies").

(b) In the three and nine months ended September 27, 2020, the fair value of contingent consideration for the earn-outs in connection with the acquisition of AutoGuide decreased by $27.2 million and $4.4 million, respectively, due to lower forecasted revenues and earnings before interest and taxes.

(c) In the nine months ended September 27, 2020, the fair value of contingent consideration for the earn-outs in connection with the acquisition of Mobile Industrial Robots ("MiR") decreased by $3.5 million due to lower forecasted results.

(d) In the nine months ended September 27, 2020, Teradyne paid $8.9 million of contingent consideration for the earn-out in connection with the acquisition of MiR.

The carrying amounts and fair values of Teradyne's financial instruments at October 3, 2021 and December 31, 2020 were as follows:

	October 3, 2021		December 31, 2020	
	Carrying Value	Fair Value	Carrying Value	Fair Value
	(in thousands)			
Assets				
Cash and cash equivalents	$ 1,079,454	$1,079,454	$ 914,121	$ 914,121
Marketable securities	370,061	370,061	640,260	640,260
Derivative assets	93	93	95	95
Liabilities				
Contingent consideration	—	—	7,227	7,227
Derivative liabilities	433	433	504	504
Convertible debt (1)	145,003	546,464	410,111	1,739,553

(1) The carrying value represents the bifurcated debt component only, while the level 2 fair value is based on quoted market prices for the convertible note, which includes the equity conversion features.

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

The following table summarizes the composition of available-for-sale marketable securities at October 3, 2021:

	October 3, 2021				
	Available-for-Sale				
	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
			(in thousands)		
Commercial paper	$179,624	$ 5	$ —	$ 179,629	$ 20,799
U.S. Treasury securities	80,370	636	(487)	80,519	17,336
Corporate debt securities	53,329	5,421	(102)	58,648	22,010
Debt mutual funds	8,872	65	—	8,937	—
U.S. government agency securities	4,610	11	(5)	4,616	3,302
Certificates of deposit and time deposits	1,346	—	—	1,346	—
Non-U.S. government securities	590	—	—	590	—
	$328,741	$ 6,138	$ (594)	$ 334,285	$ 63,447

Reported as follows:

	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
			(in thousands)		
Marketable securities	$233,327	$ 92	$ (22)	$ 233,397	$ 28,773
Long-term marketable securities	95,414	6,046	(572)	100,888	34,674
	$328,741	$ 6,138	$ (594)	$ 334,285	$ 63,447

The following table summarizes the composition of available-for-sale marketable securities at December 31, 2020:

	December 31, 2020				
	Available-for-Sale				
	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
			(in thousands)		
U.S. Treasury securities	$257,132	$ 1,330	$ (158)	$ 258,304	$ 17,243
Commercial paper	254,404	10	(1)	254,413	12,173
Corporate debt securities	76,129	7,539	(53)	83,615	39,896
Debt mutual funds	8,413	152	—	8,565	—
U.S. government agency securities	4,294	46	(1)	4,339	1,106
Certificates of deposit and time deposits	979	—	—	979	—
Non-U.S. government securities	625	—	—	625	—
	$601,976	$ 9,077	$ (213)	$ 610,840	$ 70,418

Reported as follows:

	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
			(in thousands)		
Marketable securities	$522,228	$ 92	$ (40)	$ 522,280	$ 61,806
Long-term marketable securities	79,748	8,985	(173)	88,560	8,612
	$601,976	$ 9,077	$ (213)	$ 610,840	$ 70,418

As of October 3, 2021 and December 31, 2020, the fair market value of investments with unrealized losses less than one year totaled $57.3 million and $70.4 million, respectively. As of October 3, 2021, the fair market value of investments with unrealized losses for greater than one year totaled $6.2 million.

Teradyne reviews its investments to identify and evaluate investments that have an indication of possible impairment. Based on this review, Teradyne determined that the unrealized losses related to these investments at October 3, 2021 and December 31, 2020 were not other than temporary.

The contractual maturities of investments in available-for-sale securities held at October 3, 2021 were as follows:

	October 3, 2021	
	Cost	Fair Market Value
	(in thousands)	
Due within one year	$233,327	$ 233,397
Due after 1 year through 5 years	46,460	46,744
Due after 5 years through 10 years	6,120	6,586
Due after 10 years	33,962	38,621
Total	$319,869	$ 325,348

Contractual maturities of investments in available-for-sale securities held at October 3, 2021 exclude debt mutual funds with a fair market value of $8.9 million, 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 October 3, 2021 and December 31, 2020 was $181.8 million and $152.9 million, respectively.

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

The following table summarizes the fair value of derivative instruments as of October 3, 2021 and December 31, 2020:

	Balance Sheet Location	October 3, 2021	December 31, 2020
		(in thousands)	
Derivatives not designated as hedging instruments:			
Foreign exchange contracts	Prepayments	$ 93	$ 95
Foreign exchange contracts	Other current liabilities	(433)	(504)
Total derivatives		$ (340)	$ (409)

The following table summarizes the effect of derivative instruments recognized in the statement of operations for the three and nine months ended October 3, 2021 and September 27, 2020:

	Location of Losses (Gains) Recognized in Statement of Operations	For the Three Months Ended		For the Nine Months Ended	
		October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
		(in thousands)			
Derivatives not designated as hedging instruments:					
Foreign exchange contracts	Other (income) expense, net	$ 2,288	$ (551)	$ 5,937	$ 3,930

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(1) The table does not reflect the corresponding gains and losses from the remeasurement of the monetary assets and liabilities denominated in foreign currencies.
(2) For the three and nine months ended October 3, 2021, net gains from the remeasurement of monetary assets and liabilities denominated in foreign currencies were $1.0 million and $1.3 million, respectively.
(3) For the three months ended September 27, 2020, net losses from the remeasurement of monetary assets and liabilities denominated in foreign currencies were $1.2 million. For the nine months ended September 27, 2020, net gains from the remeasurement of monetary assets and liabilities denominated in foreign currencies were $0.4 million.

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

H. DEBT

Convertible Senior Notes

On December 12, 2016, Teradyne completed a private offering of $460.0 million aggregate principal amount of 1.25% convertible senior unsecured notes (the "Notes") due December 15, 2023 and received net proceeds, after issuance costs, of approximately $450.8 million, $33.0 million of which was used to pay the net cost of the convertible note hedge transactions and $50.1 million of which was used to repurchase 2.0 million shares of Teradyne's common stock under its existing stock repurchase program from purchasers of the Notes in privately negotiated transactions effected through one of the initial purchasers or its affiliates conducted concurrently with the pricing of the Note offering. 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 semiannually in arrears on June 15 and December 15 of each year. 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, only 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 dated as of December 12, 2016 between Teradyne and Wilmington Trust, National Association, as trustee (the "Indenture")) per $1,000 principal amount of Notes for each trading day of the measurement period was less than 98% of the product of the closing sale price of the Teradyne's common stock and the conversion rate on each such trading day; and (3) upon the occurrence of specified corporate events. On or after September 15, 2023 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their Notes at any time, regardless of the foregoing circumstances. Teradyne may satisfy its conversion obligation by paying or delivering cash, shares of its common stock or a combination of cash and shares of its common stock, at Teradyne's election. As of October 3, 2021, the conversion price was approximately $31.53 per share of Teradyne's common stock. The conversion rate is subject to adjustment under certain circumstances. As of November 5, 2021, seventy-nine holders had exercised the option to convert $343.0 million worth of Notes. On November 4, 2021, Teradyne made an irrevocable election under the Indenture to require the principal portion of the remaining Notes to be settled in cash.

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 $31.53. The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, approximately 8.7 million shares of Teradyne's common 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 currently cover, subject to customary anti-dilution adjustments, approximately 14.6 million shares of common stock. As of October 3, 2021, the strike price of the warrants was approximately $39.56 per share. The strike price is subject to adjustment 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 Note Hedge Transactions, after being partially offset by the proceeds from the sale of the warrants, was approximately $33.0 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 considered the guidance of ASC 815-40, *"Derivatives and Hedging—Contracts in Entity's Own Equity,"* and concluded that the convertible note hedge is both indexed to Teradyne's common stock and should be classified in stockholders' equity in its statements of financial position. The convertible note hedge is considered indexed to Teradyne's common 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 common stock.

Teradyne assessed whether the convertible note hedge should be classified as equity under ASC 815-40. In the Note Hedge Transactions contract the settlement terms permit net cash settlement or net share settlement, at the option of Teradyne. Therefore, the criteria as set forth in ASC 815-40 were evaluated by Teradyne. In reviewing the criteria, Teradyne noted the following: (1) the convertible note hedge does not require Teradyne to issue shares; (2) there is no requirement to net cash settle the convertible note hedge for failure to make timely filings with the SEC; (3) in the case of termination, the convertible note hedge is settled in the same consideration as the holders of the underlying stock; (4) the counterparty does not have rights that rank higher than those of a shareholder of the stock underlying the convertible note hedge; and (5) there is no requirement to post collateral. Based on its analysis of those criteria, Teradyne concluded that the convertible note hedge should be recorded in equity and no further adjustment should be made in future periods to adjust the value of the convertible note hedge.

Teradyne analyzed the Warrant Transactions under ASC 815-40, *"Derivatives and Hedging—Contracts in Entity's Own Equity,"* and other relevant literature, and determined that it met the criteria for classification as an equity transaction and is considered indexed to Teradyne's common stock. As a result, Teradyne recorded the proceeds from the warrants as an increase to additional paid-in capital. Teradyne does not recognize subsequent changes in fair value of the warrants in its financial statements.

The provisions of ASC 470-20, "*Debt with Conversion and Other Options,*" are applicable to the Notes. ASC 470-20 requires Teradyne to separately account for the liability (debt) and equity (conversion feature) components of the Notes in a manner that reflects Teradyne's nonconvertible debt borrowing rate at the date of issuance when interest cost is recognized in subsequent periods. Teradyne allocated $100.8 million of the $460.0 million principal amount of the Notes to the equity component, which represents a discount to the debt and will be amortized to interest expense using the effective interest method through December 2023. Accordingly, 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, except for the conversions that occurred during the third quarter of 2021, which are included in current debt. Debt issuance costs of approximately $7.2 million initially are amortized to interest expense using the effective interest method over the seven-year term of the Notes. As of October 3, 2021, unamortized debt issuance costs were approximately $0.9 million.

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

	October 3, 2021	December 31, 2020
	(in thousands)	
Debt principal	$157,972	$ 459,971
Unamortized discount	12,969	49,860
Net Carrying amount of convertible debt	$145,003	$ 410,111

Reported as follows:

	October 3, 2021	December 31, 2020
	(in thousands)	
Current debt	$ 32,219	$ 33,343
Long-term debt	112,784	376,768
Net carrying amount of convertible debt	$145,003	$ 410,111

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
	(in thousands)			
Contractual interest expense on the coupon	$ 355	$ 1,438	$ 2,666	$ 4,313
Amortization of the discount component and debt issue fees recognized as interest expense	2,424	3,887	9,771	11,518
Total interest expense on the convertible debt	$ 2,779	$ 5,325	$ 12,437	$ 15,831

As of October 3, 2021, the remaining unamortized discount was $13.0 million, which will be amortized over 2.3 years using the effective interest rate method. The carrying amount of the equity component was $100.8 million.

As of October 3, 2021, the conversion price was approximately $31.53 per share and the if-converted value of the notes was $1,364.6 million.

During the three and nine months ended October 3, 2021, certain debt holders elected to convert $235.2 million and $302.0 million, respectively, of debt principal. The conversions in the three and nine months ended October 3, 2021 resulted in a loss of $20.2 million and $25.4 million, respectively, recorded to other (income) expense, net in the consolidated statement of operations. The conversion of the debt was settled in cash for principal amount and in shares for the excess of conversion value over principal amount. The 7.2 million shares issued to the debt holders were received from exercising the convertible notes hedge call options.

Additional conversions of approximately $41.0 million of debt principal will occur in the fourth quarter of 2021. The liability component is included in current debt and the equity component is included in convertible common shares.

Revolving Credit Facility

On May 1, 2020, Teradyne entered into a credit agreement (the "Credit Agreement") with Truist Bank, as administrative agent and collateral agent, and the lenders party thereto. The Credit Agreement provides for a three-year, senior secured revolving credit facility of $400.0 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 $150.0 million.

Proceeds from the Credit Facility may be used for general corporate purposes and working capital. Teradyne incurred $3.5 million in costs related to the revolving credit facility. These costs are being amortized over the three-year term of the revolving credit facility and are included in interest expense in the statement of operations. As of November 5, 2021, 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 0.50% to 1.25% per annum or LIBOR, a minimum of 0.75%, plus a margin ranging from 1.50% to 2.25% per annum, based on the consolidated leverage ratio of Teradyne. In addition, Teradyne will pay a commitment fee on the unused portion of the commitments under the Credit Facility ranging from 0.25% to 0.40% 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 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.

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.

As of November 5, 2021, Teradyne was in compliance with all covenants.

I. PREPAYMENTS

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

	October 3, 2021	December 31, 2020
	(in thousands)	
Contract manufacturer and supplier prepayments	$334,660	$ 212,286
Prepaid maintenance and other services	13,574	13,116
Prepaid taxes	13,822	9,361
Other prepayments	12,093	15,329
Total prepayments	$374,149	$ 250,092

J. DEFERRED REVENUE AND CUSTOMER ADVANCES

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

	October 3, 2021	December 31, 2020
	(in thousands)	
Maintenance, service and training	$ 83,046	$ 77,654
Extended warranty	67,482	51,929
Customer advances, undelivered elements and other	49,874	63,438
Total deferred revenue and customer advances	$200,402	$ 193,021

K. PRODUCT WARRANTY

Teradyne generally provides a one-year warranty on its products, commencing upon installation, acceptance 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 balance below is included in other accrued liabilities.

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
	(in thousands)			
Balance at beginning of period	$ 25,676	$ 13,016	$ 16,633	$ 8,996
Accruals for warranties issued during the period	6,641	8,255	28,719	19,522
Accruals related to pre-existing warranties	(963)	158	(3,966)	1,569
Settlements made during the period	(5,233)	(6,272)	(15,265)	(14,930)
Balance at end of period	$ 26,121	$ 15,157	$ 26,121	$ 15,157

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.

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
	(in thousands)			
Balance at beginning of period	$ 63,525	$ 40,178	$ 51,929	$ 30,677
Deferral of new extended warranty revenue	12,728	13,674	36,533	32,724
Recognition of extended warranty deferred revenue	(8,771)	(5,149)	(20,980)	(14,698)
Balance at end of period	$ 67,482	$ 48,703	$ 67,482	$ 48,703

L. STOCK-BASED COMPENSATION

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

Service-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 (b) the date of the following year's annual meeting of shareholders. Teradyne expenses the cost of the restricted stock unit awards subject to service-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.

Performance-based restricted stock units ("PRSUs") granted to Teradyne's executive officers may have a performance metric based on relative total shareholder return ("TSR"). 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 0% to 200% of the target shares. The TSR PRSUs will vest upon the three-year anniversary of the grant date. The TSR PRSUs are valued using a Monte Carlo simulation model. The number of units expected to be earned, based upon the achievement of the TSR market condition, is factored into the grant date Monte Carlo valuation. Compensation expense is recognized on a straight-line basis over the shorter of the three-year service period or the period from the grant to the date described in the retirement provisions below. Compensation expense for executive officers meeting the retirement provisions prior to the grant date is recognized during the year following 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.

PRSUs granted to Teradyne's executive officers may also have 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 0% to 200% 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 for executive officers meeting the retirement provisions prior to the grant date is recognized during the year following the 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.

If a PRSU 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.

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.

During the nine months ended October 3, 2021 and September 27, 2020, Teradyne granted 0.3 million and 0.4 million of service-based restricted stock unit awards to employees at a weighted average grant date fair value of $113.76 and $70.76, respectively, and 0.1 million of service-based restricted stock unit awards to non-employee directors at a weighted average grant date fair value of $127.77 and $64.99, respectively.

During the nine months ended October 3, 2021 and September 27, 2020, Teradyne granted 0.1 million of PBIT PRSUs with a grant date fair value of $113.65 and $70.94, respectively.

During the nine months ended October 3, 2021 and September 27, 2020, Teradyne granted 0.1 million of TSR PRSUs, with a grant date fair value of $125.02 and $89.93, respectively. The fair value was estimated using the Monte Carlo simulation model with the following assumptions:

	For the Nine Months Ended	
	October 3, 2021	September 27, 2020
Risk-free interest rate	0.2%	1.5%
Teradyne volatility-historical	43.9%	34.9%
NYSE Composite Index volatility-historical	22.9%	11.4%
Dividend yield	0.4%	0.6%

Expected volatility was based on the historical volatility of Teradyne's stock and the NYSE Composite Index 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 $0.40 per share divided by Teradyne's stock price on the grant date of $113.48 for the 2021 grant and an estimated annual dividend amount of $0.40 per share divided by Teradyne's stock price on the grant date of $72.10 for the 2020 grant.

During the nine months ended October 3, 2021 and September 27, 2020, Teradyne granted 0.1 million of service-based stock options to executive officers at a weighted average grant date fair value of $36.60 and $20.67, respectively.

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

	For the Nine Months Ended	
	October 3, 2021	September 27, 2020
Expected life (years)	5.0	5.0
Risk-free interest rate	0.4%	1.6%
Volatility-historical	37.8%	31.6%
Dividend yield	0.4%	0.6%

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 $0.40 per share divided by Teradyne's stock price on the grant date of $113.48 for the 2021 grant and an estimated annual dividend amount of $0.40 per share divided by Teradyne's stock price on the grant date of $72.10 for the 2020 grant.

M. ACCUMULATED OTHER COMPREHENSIVE INCOME

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

	Foreign Currency Translation Adjustment	Unrealized Gains (Losses) on Marketable Securities	Retirement Plans Prior Service Credit	Total
	(in thousands)			
Nine Months Ended October 3, 2021				
Balance at December 31, 2020, net of tax of $0, $1,910, $(1,126), respectively	$ 25,389	$ 6,954	$ 1,173	$ 33,516
Other comprehensive loss before reclassifications, net of tax of $0, $(516), $0, respectively	(26,672)	(1,952)	—	(28,624)
Amounts reclassified from accumulated other comprehensive income, net of tax of $0, $(186), $(2), respectively	—	(670)	(5)	(675)
Net current period other comprehensive loss, net of tax of $0, $(702), $(2), respectively	(26,672)	(2,622)	(5)	(29,299)
Balance at October 3, 2021, net of tax of $0, $1,208, $(1,128), respectively	$ (1,283)	$ 4,332	$ 1,168	$ 4,217
Nine Months Ended September 27, 2020				
Balance at December 31, 2019, net of tax of $0, $946, $(1,124), respectively	$ (23,514)	$ 3,480	$ 1,180	$(18,854)
Other comprehensive income before reclassifications, net of tax of $0, $1,410, $0, respectively	24,131	5,165	—	29,296
Amounts reclassified from accumulated other comprehensive income, net of tax of $0, $(615), $(1), respectively	—	(2,188)	(6)	(2,194)
Net current period other comprehensive income (loss), net of tax of $0, $795, $(1), respectively	24,131	2,977	(6)	27,102
Balance at September 27, 2020, net of tax of $0, $1,741, $(1,125), respectively	$ 617	$ 6,457	$ 1,174	$ 8,248

Reclassifications out of accumulated other comprehensive income to the statement of operations for the three and nine months ended October 3, 2021 and September 27, 2020 were as follows:

Details about Accumulated Other Comprehensive Income Components	For the Three Months Ended		For the Nine Months Ended		Affected Line Item in the Statements of Operations
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020	
	(in thousands)				
Available-for-sale marketable securities:					
Unrealized gains, net of tax of $65, $194, $186, $615, respectively	$ 229	$ 689	$ 670	$ 2,188	Other (income) expense, net
Defined benefit postretirement plan:					
Amortization of prior service credit, net of tax of $0, $0, $2, $1, respectively	2	2	5	6	(a)
Total reclassifications, net of tax of $65, $194, $188, $616, respectively	$ 231	$ 691	$ 675	$ 2,194	Net income

(a) The amortization of prior service credit is included in the computation of net periodic postretirement benefit cost. See Note Q: "Retirement Plans."

N. 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.

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The changes in the carrying amount of goodwill by reportable segments for the nine months ended October 3, 2021, were as follows:

	Industrial Automation	System Test	Wireless Test (in thousands)	Semiconductor Test	Total
Balance at December 31, 2020					
Goodwill	$ 433,752	$ 158,699	$ 361,819	$ 262,155	$1,216,425
Accumulated impairment losses	—	(148,183)	(353,843)	(260,540)	(762,566)
	433,752	10,516	7,976	1,615	453,859
Foreign currency translation adjustment	(20,373)	—	—	(88)	(20,461)
Balance at October 3, 2021					
Goodwill	413,379	158,699	361,819	262,067	1,195,964
Accumulated impairment losses	—	(148,183)	(353,843)	(260,540)	(762,566)
	$ 413,379	$ 10,516	$ 7,976	$ 1,527	$ 433,398

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:

	Gross Carrying Amount	Accumulated Amortization	Foreign Currency Translation Adjustment	Net Carrying Amount
Balance at October 3, 2021		(in thousands)		
Developed technology	$272,547	$ (220,147)	$ (3,489)	$ 48,911
Customer relationships	57,739	(48,351)	174	9,562
Tradenames and trademarks	70,120	(46,643)	(273)	23,204
Total intangible assets	$400,406	$ (315,141)	$ (3,588)	$ 81,677
Balance, December 31, 2020				
Developed technology	$272,547	$ (210,479)	$ (1,610)	$ 60,458
Customer relationships	66,239	(54,524)	305	12,020
Tradenames and trademarks	70,120	(42,344)	685	28,461
Total intangible assets	$408,906	$ (307,347)	$ (620)	$100,939

Aggregate intangible asset amortization expense was $5.4 million and $16.3 million, respectively, for the three and nine months ended October 3, 2021 and $6.2 million and $25.1 million, respectively, for the three and nine months ended September 27, 2020.

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

Year	Amortization Expense (in thousands)
2021 (remainder)	$ 5,199
2022	20,299
2023	19,815
2024	19,507
2025	11,645
Thereafter	5,212

O. NET INCOME PER COMMON SHARE

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

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
	(in thousands, except per share amounts)			
Net income for basic and diluted net income per share	$256,718	$ 222,718	$790,549	$ 587,815
Weighted average common shares-basic	164,583	166,014	165,690	166,131
Effect of dilutive potential common shares:				
Convertible note hedge warrant shares (1)	9,819	7,775	9,774	6,364
Incremental shares from assumed conversion of convertible notes (2)	6,464	9,156	8,784	8,029
Restricted stock units	1,035	1,237	1,147	1,104
Stock options	73	141	87	136
Employee stock purchase plan	13	15	10	13
Dilutive potential common shares	17,404	18,324	19,802	15,646
Weighted average common shares-diluted	181,987	184,338	185,492	181,777
Net income per common share-basic	$ 1.56	$ 1.34	$ 4.77	$ 3.54
Net income per common share-diluted	$ 1.41	$ 1.21	$ 4.26	$ 3.23

(1) Convertible notes hedge warrant shares were calculated using the difference between the average Teradyne stock price for the period and the warrant price of $39.56 and $39.58, multiplied by 14.6 million shares and 14.6 million shares for the three and nine months ended October 3, 2021, respectively. The result of this calculation, representing the total intrinsic value of the warrant, was divided by the average Teradyne stock price for the period.

(2) Incremental shares from assumed conversion of the convertible notes were calculated using the difference between the average Teradyne stock price for the period and the conversion price of $31.53 and $31.54, multiplied by 8.7 million shares and 11.7 million shares, for the three and nine months ended October 3, 2021, respectively. 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.

The computation of diluted net income per common share for the three and nine months ended October 3, 2021 excludes the effect of the potential vesting of 0.1 million and 0.1 million, respectively, 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 nine months ended September 27, 2020 excludes the effect of the potential vesting of 0.1 million and 0.2 million, respectively, of restricted stock units because the effect would have been anti-dilutive.

P. RESTRUCTURING AND OTHER

During the three months ended October 3, 2021, Teradyne recorded $0.6 million of severance charges primarily in Industrial Automation, $0.3 million of acquisition related compensation expenses and $0.3 million for other expenses.

During the three months ended September 27, 2020, Teradyne recorded a $27.2 million gain for the decrease in the fair value of the AutoGuide contingent consideration liability, a $1.1 million gain for the decrease in acquisition related compensation liability, partially offset by $0.5 million recorded for employee severance charges primarily in Industrial Automation.

During the nine months ended October 3, 2021, Teradyne recorded a gain of $7.2 million for the decrease in the fair value of the AutoGuide contingent consideration liability, partially offset by a charge of $1.7 million for an increase in environmental and legal liabilities, $1.2 million of severance charges primarily in Industrial Automation, $0.6 million for other expenses and $0.3 million of acquisition related compensation expenses.

During the nine months ended September 27, 2020, Teradyne recorded a $4.0 million contract termination settlement charge, $3.4 million of acquisition related compensation and expenses, $1.2 million of severance charges primarily in Industrial Automation, and $1.2 million of other expenses, partially offset by a $4.4 million gain for the decrease in the fair value of the AutoGuide contingent consideration liabilities, and a $3.5 million gain for the decrease in the fair value of the MiR contingent consideration liability.

Q. 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 at December 31. Teradyne uses a December 31 measurement date for all of its plans.

Defined Benefit Pension Plans

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

In the nine months ended October 3, 2021, and September 27, 2020, Teradyne contributed $2.5 million and $2.2 million, respectively, to the U.S. supplemental executive defined benefit pension plan and $0.8 million and $0.7 million, respectively, to certain qualified pension plans for non-U.S. subsidiaries.

For the three and nine months ended October 3, 2021 and September 27, 2020, Teradyne's net periodic pension cost was comprised of the following components:

	For the Three Months Ended			
	October 3, 2021		September 27, 2020	
	United States	Foreign	United States	Foreign
	(in thousands)			
Service cost	$ 452	$ 240	$ 417	$ 216
Interest cost	1,098	86	1,460	123
Expected return on plan assets	(936)	(17)	(1,170)	(16)
Net actuarial loss	—	—	2,238	—
Settlement loss	—	—	450	—
Total net periodic pension cost	$ 614	$ 309	$ 3,395	$ 323

	For the Nine Months Ended			
	October 3, 2021		September 27, 2020	
	United States	Foreign	United States	Foreign
	(in thousands)			
Service cost	$ 1,357	$ 720	$ 1,283	$ 648
Interest cost	3,295	257	4,505	369
Expected return on plan assets	(2,809)	(50)	(3,634)	(47)
Net actuarial (gain) loss	(400)	—	2,418	—
Settlement loss	—	—	450	—
Total net periodic pension cost	$ 1,443	$ 927	$ 5,022	$ 970

The net periodic pension cost components other than service cost were recorded in other (income) expense, net in the statement of operations.

Postretirement Benefit Plan

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

For the three and nine months ended October 3, 2021 and September 27, 2020, Teradyne's net periodic postretirement benefit cost (credit) was comprised of the following components:

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
	(in thousands)			
Service cost	$ 16	$ 14	$ 48	$ 43
Interest cost	43	60	128	180
Amortization of prior service credit	(2)	(2)	(7)	(7)
Net actuarial gain	—	—	(228)	(279)
Total net periodic postretirement benefit cost (credit)	$ 57	$ 72	$ (59)	$ (63)

The net periodic postretirement benefit cost (credit) components other than service cost were recorded in other (income) expense, net in the statement of operations.

R. COMMITMENTS AND CONTINGENCIES

Purchase Commitments

As of October 3, 2021, Teradyne had entered into purchase commitments for certain components and materials. The purchase commitments covered by the agreements aggregate to approximately $811.9 million, of which $777.8 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 such as, but not limited to, patent, employment, commercial and environmental matters. Teradyne believes that it has meritorious defenses against all pending claims and intends to vigorously contest them. While it is not possible to predict or determine the outcomes of any pending claims or to provide possible ranges of losses that may arise, Teradyne believes the potential losses associated with all of these actions are unlikely to have a material adverse effect on its business, financial position or results of operations.

On March 8, 2021, Industrial Automation LLC submitted a demand for arbitration against Teradyne and AutoGuide in Wilmington, Delaware alleging that Teradyne and AutoGuide breached certain provisions of the Membership Interests Purchase Agreement (the "Purchase Agreement"), dated as of October 18, 2019, among Industrial Automation LLC, Teradyne and AutoGuide. The arbitration demand seeks full acceleration of the maximum earnout amount payable under the Purchase Agreement, or $106.9 million, for the alleged breach of the earnout provisions of the Purchase Agreement. On March 26, 2021, Teradyne and AutoGuide filed an answer denying that Teradyne and AutoGuide breached any provisions of the Purchase Agreement. The arbitration hearing is scheduled for March 21, 2022. While it is not possible at this stage to predict the outcome of the arbitration, Teradyne and AutoGuide intend to vigorously defend against the Industrial Automation LLC claims.

S. INCOME TAXES

A reconciliation of the United States federal statutory corporate tax rate to Teradyne's effective tax rate was as follows:

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
U.S. statutory federal tax rate	21.0%	21.0%	21.0%	21.0%
Foreign taxes	(4.4)	(6.9)	(4.4)	(5.8)
Tax credits	(1.9)	(1.6)	(1.4)	(1.6)
International provisions of the U.S. Tax Cuts and Jobs Act of 2017	(1.5)	3.0	(1.6)	0.5
Discrete benefit related to equity compensation	(0.1)	(0.4)	(1.6)	(1.4)
Other, net	0.7	0.5	0.7	0.6
Effective tax rate	13.8%	15.6%	12.7%	13.3%

On a quarterly basis, Teradyne evaluates the realizability of the deferred tax assets by jurisdiction and assesses the need for a valuation allowance. As of October 3, 2021, Teradyne believes that it will ultimately realize the deferred tax assets recorded on the condensed consolidated balance sheet. However, should Teradyne believe that it is more-likely-than-not that the deferred tax assets would not be realized, the tax provision would increase in the period in which Teradyne determined that the realizability was not likely. Teradyne considers the probability of future taxable income and historical profitability, among other factors, in assessing the realizability of the deferred tax assets.

As of October 3, 2021, and December 31, 2020, Teradyne had $16.8 million and $17.9 million, respectively, of reserves for uncertain tax positions. The $1.1 million net decrease in reserves for uncertain tax positions is primarily related to U.S. state research and development credits generated in prior years, as well as U.S. federal research and development credits generated in the current year.

As of October 3, 2021, Teradyne estimates that it is reasonably possible that the balance of unrecognized tax benefits may decrease approximately $1.6 million in the next twelve months because of a lapse of statutes of limitation. The estimated decrease relates to loss carryforwards, research credits and U.S. manufacturing activities deductions.

Teradyne recognizes interest and penalties related to income tax matters in income tax expense. As of October 3, 2021, and December 31, 2020, $1.5 million and $1.2 million, respectively, of interest and penalties were accrued for uncertain tax positions. For the nine months ended October 3, 2021 and September 27, 2020, expense of $0.3 million and $0.0 million, respectively, was recorded for interest and penalties related to income tax items.

Teradyne qualifies for a tax holiday in Singapore by fulfilling the requirements of an agreement with the Singapore Economic Development Board under which certain headcount and spending requirements must be met. The tax savings due to the tax holiday for the nine months ended October 3, 2021 was $23.9 million, or $0.13 per diluted share. The tax savings due to the tax holiday for the nine months ended September 27, 2020 was $24.9 million, or $0.14 per diluted share. In November 2020, Teradyne entered into an agreement with the Singapore Economic Development Board which extended its Singapore tax holiday under substantially similar terms to the agreement which expired on December 31, 2020. The new tax holiday is scheduled to expire on December 31, 2025.

T. SEGMENT INFORMATION

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

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 and system level 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. Each operating segment has a segment manager who is directly accountable to and maintains regular contact with Teradyne’s chief operating decision maker (Teradyne’s chief executive officer) to discuss operating activities, financial results, forecasts, and plans for the segment.

Teradyne evaluates performance based on several factors, of which the primary financial measure is business segment income (loss) before income taxes. The accounting policies of the business segments in effect are described in Note B: “Accounting Policies” in Teradyne’s Annual Report on Form 10-K for the year ended December 31, 2020.

Segment information for the three and nine months ended October 3, 2021 and September 27, 2020 is as follows:

	Semiconductor Test	System Test	Industrial Automation	Wireless Test	Corporate and Other	Consolidated
	(in thousands)					
Three Months Ended October 3, 2021						
Revenues	$ 688,232	$102,605	$ 91,014	$ 68,713	$ (63)	$ 950,501
Income (loss) before income taxes (1)(2)	265,017	31,773	(4,226)	31,726	(26,535)	297,755
Total assets (3)	1,251,549	147,970	696,792	119,568	1,546,303	3,762,182
Three Months Ended September 27, 2020						
Revenues	$ 592,141	$118,169	$ 68,711	$ 40,504	$ (41)	$ 819,484
Income (loss) before income taxes (1)(2)	189,116	47,368	(5,302)	10,938	21,611	263,731
Total assets (3)	1,069,830	155,642	667,132	108,671	1,435,237	3,436,512
Nine Months Ended October 3, 2021 (4)						
Revenues	$ 2,050,271	$340,261	$ 263,151	$164,504	$ (352)	$2,817,835
Income (loss) before income taxes (1)(2)	778,687	116,788	(14,586)	63,810	(38,925)	905,774
Total assets (3)	1,251,549	147,970	696,792	119,568	1,546,303	3,762,182
Nine Months Ended September 27, 2020						
Revenues	$ 1,735,777	$306,051	$ 187,792	$133,174	$ (294)	$2,362,500
Income (loss) before income taxes (1)(2)	571,719	114,968	(32,041)	35,640	(12,197)	678,089
Total assets (3)	1,069,830	155,642	667,132	108,671	1,435,237	3,436,512

(1) Included in Corporate and Other are: contingent consideration adjustments, loss on convertible debt conversions, interest income, interest expense, net foreign exchange gains (losses), pension, intercompany eliminations and acquisition related: (a) charges; (b) legal fees; (c) compensation.
(2) Included in income (loss) before taxes are charges and credits related to restructuring and other, loss on convertible debt conversions and inventory charges.
(3) Total assets are attributable to each segment. Corporate assets consist of cash and cash equivalents, marketable securities and certain other assets.
(4) The (loss) before income taxes for the nine months ended October 3, 2021 for Industrial Automation has been decreased and Corporate and Other has been increased to correctly eliminate a $10.1 million immaterial error in the three and six months ended July 4, 2021 related to intercompany charges. The error is not material to any historical periods.

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

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
	(in thousands)			
Semiconductor Test:				
Cost of revenues—inventory charge	$ 3,725	$ 1,131	$ 4,959	$ 7,956
Restructuring and other—Contract termination settlement charge	—	—	—	4,000
Industrial Automation:				
Cost of revenues—inventory charge	$ 3,656	$ —	$ 4,941	$ 505
Restructuring and other—employee severance	476	—	965	664
Restructuring and other—acquisition related expenses and compensation	—	—	825	790
Wireless:				
Cost of revenues—inventory charge	$ 679	$ 1,802	$ 1,351	$ 3,957
System Test:				
Cost of revenues—inventory charge	$ —	$ —	$ 524	$ 698
Corporate and Other:				
Other (income) expense, net—loss on convertible debt conversion	$ 20,153	$ —	$ 25,397	$ —
Restructuring and other—other	—	—	1,846	—
Restructuring and other—AutoGuide contingent consideration adjustment	—	(27,206)	(7,227)	(4,421)
Restructuring and other—acquisition related expenses and compensation	—	(1,086)	(513)	2,629
Restructuring and other—MiR contingent consideration adjustment	—	—	—	(3,546)

U. SHAREHOLDERS' EQUITY

Stock Repurchase Program

In January 2021, Teradyne's Board of Directors cancelled the January 2020 repurchase program and approved a new repurchase program for up to $2.0 billion of common stock. Teradyne intends to repurchase a minimum of $600 million in 2021.

During the nine months ended October 3, 2021, Teradyne repurchased 3.3 million shares of common stock for $406.2 million at an average price of $123.53 per share. During the nine months ended September 27, 2020, Teradyne repurchased 1.5 million shares of common stock for $88.5 million at an average price of $58.33 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 2021, May 2021 and August 2021, Teradyne's Board of Directors declared a quarterly cash dividend of $0.10 per share. Dividend payments for the three and nine months ended October 3, 2021 were $16.4 million and $49.7 million, respectively.

In January 2020, May 2020 and August 2020, Teradyne's Board of Directors declared a quarterly cash dividend of $0.10 per share. Dividend payments for the three and nine months ended September 27, 2020 were $16.6 million and $49.9 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.

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, 2020. 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 many industries including the consumer electronics, wireless, automotive, industrial, computing, communications, and aerospace and defense industries. Our industrial automation products include collaborative robotic arms, autonomous mobile robots (“AMRs”) and advanced robotic control software used by global manufacturing, logistics and light industrial customers to improve quality, increase manufacturing and material handling efficiency and decrease manufacturing and logistics costs. Our automatic test equipment and industrial automation products and services include:

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

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. A few customers drive significant demand for our test products both through direct sales and sales to the customers’ 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.

Industrial Automation segment consists of Universal Robots A/S (“UR”), a leading supplier of collaborative robotic arms, Mobile Industrial Robots A/S (“MiR”), a leading maker of AMRs for industrial applications and AutoGuide, LLC (“AutoGuide”), a maker of high payload AMRs. The market for our industrial automation segment products is dependent on the adoption of new automation technologies by large manufacturers as well as small and medium enterprises (SMEs) throughout the world.

Our strategy is to focus on profitably growing market share in our test businesses, the introduction of differentiated products that target growth segments, and accelerating growth through continued investment in our Industrial Automation businesses. We plan to execute on our strategy while balancing capital allocations between returning capital to our shareholders through dividends and stock repurchases and using capital for opportunistic acquisitions.

Impact of the COVID-19 Pandemic on our Business

The novel coronavirus (COVID-19) pandemic resulted in government authorities implementing numerous measures in an effort to contain the spread of the virus, such as travel bans and restrictions, limitations on gatherings or social distancing requirements, quarantines, shelter-in-place orders, vaccine and testing mandates, and business limitations and shutdowns. These measures have impacted our day-to-day operations and disrupted our business, workforce and operations, as well as the operations of our customers, contract manufacturers and suppliers. We are continuing to monitor the rapidly evolving situation regarding the COVID-19 pandemic and the availability and impact of vaccinations globally. However, we are unable to accurately predict the full impact of COVID-19, which will depend on future developments that are highly uncertain and cannot be predicted with accuracy, including, but not limited to, any new surges in areas where we do business, the availability of vaccinations, any further government actions to contain the virus or treat its impact, and how quickly and to what extent normal economic and operating conditions can resume.

Health and Safety

In response to the COVID-19 pandemic, we have taken proactive, aggressive action to protect the health and safety of our employees, customers, contract manufacturers and suppliers and we have complied with all government orders around the globe. The spread of COVID- 19 has caused us to modify our business practices, including implementing vaccination, testing, masking and social distancing policies, suspending employee travel, requiring most employees to work remotely, cancelling physical participation in meetings, and extensively and frequently disinfecting our workspaces. Around the world, many of our employees are working from home. However, some of our engineering, operations, supply line and customer support teams must be on-site at our or our customers' facilities. We are providing those on-site employees with the necessary protective resources and procedures to minimize their exposure risk. We may take further actions as may be required or recommended by government authorities or that we determine are in the best interests of our employees, customers, contract manufacturers and suppliers.

Operations

We believe the COVID-19 pandemic, and the numerous measures implemented by authorities in response, has adversely impacted our results of operations, including by increasing costs, but we cannot accurately estimate the amount of the impact to our third quarter of 2021 financial results or to our future financial results. In addition, the pandemic has disrupted our contract manufacturers and suppliers, and has resulted in some instances in short-term cost increases to meet customer demand. While the duration and severity of the pandemic may further impact our workforce and operations, as well as those of our customers, contract manufacturers and suppliers, we expect that our manufacturing facilities will remain operational, at sufficient capacity to support production demand. We are monitoring our operations closely in an effort to avoid any potential productivity loss caused by responses to the COVID-19 pandemic.

Supply

We have experienced interruptions to our supply chain as a result of the COVID-19 pandemic. Our suppliers have faced and may continue to face difficulties maintaining operations in light of COVID-19 disruptions and government-ordered restrictions. Our supply chain team, and our suppliers, continue to manage numerous supply, production, and logistics obstacles caused by the pandemic. There is no assurance that these efforts will be successful. The COVID-19 pandemic may continue to disrupt our ability to obtain components required to manufacture our products, adversely affecting our operations and in some instances resulting in higher costs and delays, both for obtaining components and shipping finished goods to customers. The interruptions to our supply chain caused by the COVID-19 pandemic impacted our financial results in the quarter, particularly for our Industrial Automation businesses, and may continue to impact our business, revenue, and profitability.

Demand

The COVID-19 pandemic has significantly increased economic uncertainty in our markets. Demand for our Test products was strong throughout 2020 and in the first nine months of 2021. Our Industrial Automation business, however, experienced a significant decline in demand through the first half of 2020 due to COVID-19 related shutdowns affecting global manufacturing but demand recovered in the second half of 2020 from the low point in the second quarter and continued to recover in the first nine months of 2021. The COVID-19 pandemic could cause further global economic disruption that could cause demand for our products to decline, which would adversely affect our business.

Liquidity

Although there is continued uncertainty related to the impact of the COVID-19 pandemic on our future results, we believe our business model and our current cash reserves leave us well-positioned to manage our business through this crisis. We have a strong balance sheet as well as an operating model that we believe is capable of flexing up and down with extreme demand swings while still remaining profitable. Based on our analysis, we believe our existing balances of cash and cash equivalents and our currently anticipated operating cash flows will be sufficient to meet our working capital needs and other capital and liquidity requirements for the next twelve months. However, due to the uncertainty related to the future impact of the COVID-19 pandemic, in order to bolster our liquidity position, on May 1, 2020 we entered into a credit agreement providing for a three-year, senior secured revolving credit facility of $400 million as further described in Note H: "Debt." As of November 5, 2021, we have not borrowed any funds under the credit facility.

We are continuing to monitor the evolving situation regarding the COVID-19 pandemic, the availability of vaccinations where we do business and guidance from government authorities around the world. In these circumstances, there may be developments outside our control requiring us to adjust our operating plan. As a result, given the uncertain nature of this situation, we are not able to accurately predict the full extent of the impact of COVID-19 on our business, financial condition, results of operations, liquidity, or cash flows in the future. In addition, see Part II—Item 1A, "Risk Factors," included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2020 for our risk factors regarding risks associated with the COVID-19 pandemic.

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 nine months ended October 3, 2021 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, 2020.

Due to the COVID-19 pandemic, there has been uncertainty and disruption in the global economy and our markets. We are not aware of any specific event or circumstance that would require an update to our estimates or judgments or a revision of the carrying value of our assets or liabilities as of November 5, 2021, the date of issuance of this Quarterly Report on Form 10-Q. These estimates may change, as new events occur, and additional information is obtained. Actual results could differ significantly from these estimates under different assumptions or conditions.

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 under different assumptions or conditions.

SELECTED RELATIONSHIPS WITHIN THE CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Three Months Ended		For the Nine Months Ended	
	October 3, 2021	September 27, 2020	October 3, 2021	September 27, 2020
Percentage of revenues:				
Revenues:				
Products	87%	85%	87%	86%
Services	13	15	13	14
Total revenues	100	100	100	100
Cost of revenues:				
Cost of products	35	37	35	37
Cost of services	5	7	5	6
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	40	44	40	43
Gross profit	60	56	60	57
Operating expenses:				
Selling and administrative	14	14	14	14
Engineering and development	11	12	11	12
Acquired intangible assets amortization	1	1	1	1
Restructuring and other	—	(3)	—	—
Total operating expenses	26	23	26	27
Income from operations	34	33	34	29
Non-operating (income) expense:				
Interest income	—	—	—	—
Interest expense	—	1	1	1
Other (income) expense, net	2	—	1	—
Income before income taxes	31	32	32	29
Income tax provision	4	5	4	4
Net income	27%	27%	28%	25%

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Results of Operations

Third Quarter 2021 Compared to Third Quarter 2020

Revenues

Revenues by our reportable segments were as follows:

	For the Three Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
		(in millions)	
Semiconductor Test	$ 688.2	$ 592.1	$ 96.1
System Test	102.6	118.2	(15.6)
Industrial Automation	91.0	68.7	22.3
Wireless Test	68.7	40.5	28.2
Corporate and Other	(0.1)	—	(0.1)
	$ 950.5	$ 819.5	$131.0

The increase in Semiconductor Test revenues of $96.1 million, or 16.2%, was driven primarily by greater tester sales driven by testing of mobile application processors and industrial and automotive devices, partially offset by a decrease in tester sales for high performance compute processors and lower memory test sales of DRAM memory testers. The decrease in System Test revenues of $15.6 million, or 13.2%, was primarily due to lower sales in Storage Test of hard disk drive testers, partially offset by greater sales in Production Board Test, due to higher automotive electronics demand. The increase in Industrial Automation revenues of $22.3 million, or 32.5%, was driven by demand for collaborative robotic arms. The rise in Wireless Test revenues of $28.2 million, or 69.6%, was primarily due to an increase in WiFi tester sales, including our new WiFi 7 product, and higher demand in the ultra-wide band wireless test market.

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

	For the Three Months Ended	
	October 3, 2021	September 27, 2020
Taiwan	27%	37%
China	19	15
United States	11	10
Korea	8	16
Europe	8	6
Malaysia	6	2
Japan	5	2
Singapore	5	2
Philippines	5	2
Thailand	3	5
Rest of World	3	3
	100%	100%

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

Gross Profit

Our gross profit was as follows:

	For the Three Months Ended		
	October 3, 2021	September 27, 2020	Dollar/Point Change
		(in millions)	
Gross profit	$ 571.0	$ 458.9	$ 112.1
Percent of total revenues	60.1%	56.0%	4.1

Gross profit as a percent of revenue increased by 4.1 points, primarily due to product mix of higher margin products in Semiconductor Test and operating leverage due to higher revenues.

Selling and Administrative

Selling and administrative expenses were as follows:

	For the Three Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
		(in millions)	
Selling and administrative	$ 134.8	$ 115.8	$ 19.0
Percent of total revenues	14.2%	14.1%	

The increase of $19.0 million in selling and administrative expenses was primarily due to higher variable compensation, and greater selling and administrative spending across all segments.

Engineering and Development

Engineering and development expenses were as follows:

	For the Three Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
		(in millions)	
Engineering and development	$ 107.2	$ 94.9	$ 12.3
Percent of total revenues	11.3%	11.6%	

The increase of $12.3 million in engineering and development expenses was primarily due to higher spending across all segments and higher variable compensation.

Restructuring and Other

During the three months ended October 3, 2021, we recorded $0.6 million of severance charges primarily in Industrial Automation, $0.3 million of acquisition related compensation expenses and $0.3 million for other expenses.

During the three months ended September 27, 2020, we recorded a $27.2 million gain for the decrease in the fair value of the AutoGuide contingent consideration liability, and a $1.1 million gain for the decrease in acquisition related compensation liability, partially offset by $0.5 million recorded for employee severance charges primarily in Industrial Automation.

Interest and Other

	For the Three Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
	(in millions)		
Interest income	$ (0.6)	$ (1.1)	$ 0.5
Interest expense	3.8	6.2	$ (2.4)
Other (income) expense, net	21.5	0.8	$ 20.7

Interest income decreased by $0.5 million primarily due to lower interest rates in 2021 compared to 2020. Interest expense decreased by $2.4 million primarily due to lower convertible debt interest expenses, as a result of early conversions in 2021. Other (income) expense, rose by $20.7 million primarily due to $20.2 million losses on convertible debt conversions in 2021.

Income (Loss) Before Income Taxes

	For the Three Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
	(in millions)		
Semiconductor Test	$ 265.0	$ 189.1	$ 75.9
System Test	31.8	47.4	(15.6)
Wireless Test	31.7	10.9	20.8
Industrial Automation	(4.2)	(5.3)	1.1
Corporate and Other (1)	(26.5)	21.6	(48.1)
	$ 297.8	$ 263.7	$ 34.1

(1) Included in Corporate and Other are: contingent consideration adjustments, loss on convertible debt conversions, interest income, interest expense, net foreign exchange gains (losses), pension, intercompany eliminations and acquisition related: (a) charges; (b) legal fees; (c) compensation.

The increase in income before income taxes in Semiconductor Test was driven by testing of mobile application processors and industrial and automotive devices, partially offset by a decrease in tester sales for high performance compute processors and lower memory test sales of DRAM memory testers. The decrease in income before income taxes in System Test was primarily due to lower sales in Storage Test of hard disk drive testers, partially offset by greater sales in Production Board Test, due to higher automotive electronics demand. The increase in income before income taxes in Wireless Test was primarily due to growth in WiFi tester sales, including our new WiFi 7 product, and greater demand in the ultra-wide band wireless test market. The decrease in income (loss) before income taxes in Corporate and Other was primarily due to a gain for the decrease in the fair value of the AutoGuide contingent consideration liability in 2020 and losses on convertible debt conversions in 2021.

Income Taxes

The effective tax rate for the three months ended October 3, 2021 and September 27, 2020 was 13.8% and 15.6%, respectively. The decrease in the effective tax rate from the three months ended September 27, 2020 to the three months ended October 3, 2021 was primarily attributable to an increase in benefit from the international provisions of the U.S. Tax Cuts and Jobs Act of 2017 and an increase in benefit from tax credits partially offset by a projected shift in the geographic distribution of income, which increases the income subject to taxation in higher tax rate jurisdictions relative to lower tax rate jurisdictions and a decrease in discrete benefit related to equity compensation.

Nine Months 2021 Compared to Nine Months 2020

Revenues

Revenues by our four reportable segments were as follows:

	For the Nine Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
		(in millions)	
Semiconductor Test	$ 2,050.3	$ 1,735.8	$ 314.5
System Test	340.3	306.1	34.2
Industrial Automation	263.2	187.8	75.4
Wireless Test	164.5	133.2	31.3
Corporate and Other	(0.4)	(0.3)	(0.1)
	$ 2,817.8	$ 2,362.5	$ 455.3

The increase in Semiconductor Test revenues of $314.5 million, or 18.1%, was driven primarily by incremental tester sales driven by testing of high performance compute processors, automotive and industrial devices, and higher service, partially offset by lower mobile application processor testers. The rise in System Test revenues of $34.2 million, or 11.2%, was primarily due to elevated sales in Storage Test of system level testers, and greater sales in Production Board Test due to higher automotive electronics demand. The growth in Industrial Automation revenues of $75.4 million, or 40.1%, was driven by demand for collaborative robotic arms. The increase in Wireless Test revenues of $31.3 million, or 23.5%, was primarily due to greater sales in connectivity test products.

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

	For the Nine Months Ended	
	October 3, 2021	September 27, 2020
Taiwan	36%	40%
China	18	15
United States	10	9
Korea	8	12
Europe	7	6
Philippines	5	2
Japan	4	5
Thailand	4	4
Malaysia	4	2
Singapore	3	2
Rest of World	1	3
	100%	100%

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

Gross Profit

Our gross profit was as follows:

	For the Nine Months Ended		
	October 3, 2021	September 27, 2020	Dollar/Point Change
		(in millions)	
Gross profit	$ 1,679.6	$ 1,336.0	$ 343.6
Percent of total revenues	59.6%	56.5%	3.1

Gross profit as a percent of revenue increased by 3.1 points, primarily due to product mix of higher margin products in Semiconductor Test and operating leverage due to higher revenues.

Selling and Administrative

Selling and administrative expenses were as follows:

	For the Nine Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
		(in millions)	
Selling and administrative	$ 404.8	$ 340.5	$ 64.3
Percent of total revenues	14.4%	14.4%	

The increase of $64.3 million in selling and administrative expenses was primarily due to higher variable compensation and higher selling spending across all segments.

Engineering and Development

Engineering and development expenses were as follows:

	For the Nine Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
		(in millions)	
Engineering and development	$ 317.6	$ 274.2	$ 43.4
Percent of total revenues	11.3%	11.6%	

The increase of $43.4 million in engineering and development expenses was primarily due to higher spending across all segments and higher variable compensation.

Restructuring and Other

During the nine months ended October 3, 2021, we recorded a gain of $7.2 million for the decrease in the fair value of the AutoGuide contingent consideration liability, partially offset by a charge of $1.7 million for an increase in environmental and legal liabilities, $1.2 million of severance charges primarily in Industrial Automation, $0.6 million for other expenses and $0.3 million of acquisition related compensation expenses.

During the nine months ended September 27, 2020, we recorded a $4.0 million contract termination settlement charge, $3.4 million of acquisition related compensation and expenses, $1.2 million of severance charges primarily in Industrial Automation, and $1.2 million of other expenses, partially offset by a $4.4 million gain for the decrease in the fair value of the AutoGuide contingent consideration liabilities, and a $3.5 million gain for the decrease in the fair value of the MiR contingent consideration liability.

Interest and Other

	For the Nine Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
		(in millions)	
Interest income	$ (2.1)	$ (5.2)	$ 3.1
Interest expense	15.4	17.8	(2.4)
Other (income) expense, net	25.2	3.6	21.6

Interest income decreased by $3.1 million primarily due to lower interest rates and a lower marketable securities balance in 2021 compared to 2020. Interest expense decreased by $2.4 million primarily due to lower convertible debt interest expense due to early conversions in 2021. Other (income) expense, net increased by $21.6 million primarily due to $25.4 million losses on convertible debt conversions in 2021, partially offset by the change in unrealized gains/losses on equity securities, from losses in 2020 to gains in 2021 and the change in pension actuarial gains/losses, from losses in 2020 to gains in 2021.

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Income (Loss) Before Income Taxes

	For the Nine Months Ended		
	October 3, 2021	September 27, 2020	Dollar Change
		(in millions)	
Semiconductor Test	$ 778.7	$ 571.7	$ 207.0
System Test	116.8	115.0	1.8
Wireless Test	63.8	35.6	28.2
Industrial Automation	(14.6)	(32.0)	17.4
Corporate and Other (1)	(38.9)	(12.2)	(26.7)
	$ 905.8	$ 678.1	$ 227.7

(1) Included in Corporate and Other are contingent consideration adjustments, loss on convertible debt conversions, interest income, interest expense, net foreign exchange gains (losses), pension, intercompany eliminations, and acquisition related: (a) charges; (b) legal fees; (c) compensation.

The increase in income before income taxes in Semiconductor Test was driven primarily by an increase in tester sales driven by testing of high performance compute processors, automotive and industrial devices, and service, partially offset by lower mobile applications processor testers. The improvement in income before income taxes in System Test was primarily due to elevated sales in Storage Test of system level testers, and greater sales in Production Board Test due to higher automotive electronics demand. The increase in income before income taxes in Wireless Test was primarily due to higher sales in connectivity test products. The decrease in loss before income taxes in Industrial Automation was primarily due to higher sales and lower intangible assets amortization expense. The loss before income taxes in Corporate and Other was primarily due to losses on convertible debt conversions in 2021.

Income Taxes

The effective tax rate for the nine months ended October 3, 2021 and September 27, 2020 was 12.7% and 13.3%, respectively. The decrease in the effective tax rate from the nine months ended September 27, 2020 to the nine months ended October 3, 2021 was primarily attributable to an increase in benefits from the international provisions of the U.S. Tax Cuts and Jobs Act of 2017 and an increase in discrete benefits related to equity compensation partially offset by a projected shift in the geographic distribution of income, which increases the income subject to taxation in higher tax rate jurisdictions relative to lower tax rate jurisdictions, and a reduction in benefits from tax credits.

Contractual Obligations

There have been no changes outside of the ordinary course of business to our contractual obligations as disclosed in our Annual Report on Form 10-K for the year ended December 31, 2020.

Liquidity and Capital Resources

Our cash, cash equivalents, and marketable securities balances decreased by $104.9 million in the nine months ended October 3, 2021 to $1,449.5 million.

Operating activities during the nine months ended October 3, 2021 provided cash of $767.1 million. Changes in operating assets and liabilities used cash of $167.7 million. This was due to a $219.9 million increase in operating assets and a $52.2 million increase in operating liabilities.

The increase in operating assets was due to a $138.6 million increase in prepayments and other assets due to prepayments to our contract manufacturers, a $103.3 million increase in accounts receivable due to greater sales, partially offset by a $21.9 million decrease in inventories.

The change in operating liabilities was due to increases of $63.5 million in other accrued liabilities, $23.8 million in accounts payable, and $8.7 million in deferred revenue and customer advance payments, partially offset by a $17.4 million decrease in income taxes, a $22.3 million decrease in accrued employee compensation, and $4.1 million of retirement plan contributions.

Investing activities during the nine months ended October 3, 2021 provided cash of $156.1 million due to $571.3 million and $209.4 million in proceeds from maturities and sales of marketable securities, partially offset by $509.5 million used for purchases of marketable securities, $103.2 million used for purchases of property, plant and equipment and $12.0 million used for an investment in MachineMetrics, Inc. (“MachineMetrics”).

Financing activities during the nine months ended October 3, 2021 used cash of $757.3 million due to $406.2 million used for the repurchase of 3.3 million shares of common stock at an average price of $123.53 per share, $302.0 million used for payments of convertible debt principal, $49.7 million used for dividend payments, and $32.0 million used for payments related to net settlements of employee stock compensation awards, partially offset by $32.6 million from the issuance of common stock under employee stock purchase and stock option plans.

Operating activities during the nine months ended September 27, 2020 provided cash of $608.5 million. Changes in operating assets and liabilities used cash of $107.4 million. This was due to a $245.8 million increase in operating assets and a $138.3 million increase in operating liabilities.

The increase in operating assets was due to a $222.0 million increase in accounts receivable due to increased sales, a $40.8 million increase in prepayments and other assets, partially offset by a $17.0 million decrease in inventories.

The increase in operating liabilities was due to a $47.3 million increase in other accrued liabilities, a $36.6 million increase in deferred revenue and customer advance payments, a $24.1 million increase in income taxes, a $23.8 million increase in accounts payable, and a $10.5 million increase in accrued employee compensation, partially offset by $3.9 million of retirement plan contributions.

Investing activities during the nine months ended September 27, 2020 used cash of $292.6 million, due to $488.4 million used for purchases of marketable securities, and $146.9 million used for purchases of property, plant and equipment, partially offset by $309.4 million and $32.6 million in proceeds from maturities and sales of marketable securities, respectively, and proceeds from life insurance of $0.5 million related to the cash surrender value from the cancellation of a Teradyne owned life insurance policy.

Financing activities during the nine months ended September 27, 2020 used cash of $143.4 million, due to $88.5 million used for the repurchase of 1.5 million shares of common stock at an average price of $58.33 per share, $49.9 million used for dividend payments, $22.7 million used for payments related to net settlements of employee stock compensation awards, and $8.9 million used for a payment related to MiR acquisition contingent consideration, partially offset by $26.5 million from the issuance of common stock under employee stock purchase and stock option plans.

In January 2021, May 2021 and August 2021, our Board of Directors declared a quarterly cash dividend of $0.10 per share. Dividend payments for the nine months ended October 3, 2021 were $49.7 million.

In January 2020, May 2020 and August 2020, our Board of Directors declared a quarterly cash dividend of $0.10 per share. Dividend payments for the nine months ended September 27, 2020 were $49.9 million.

In January 2021, our Board of Directors cancelled the January 2020 repurchase program and approved a new repurchase program for up to $2.0 billion of common stock. Unless terminated by resolution of our Board of Directors, the repurchase program will expire when we have repurchased all shares authorized for repurchase under the share repurchase program. We intend to repurchase a minimum of $600 million in 2021.

During the nine months ended October 3, 2021, we repurchased 3.3 million shares of common stock for $406.2 million at an average price of $123.53 per share. During the nine months ended September 27, 2020, we repurchased 1.5 million shares of common stock for $88.5 million at an average price of $58.33 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.

On May 1, 2020, we entered into a credit agreement providing for a three-year, senior secured revolving credit facility of $400 million. As of November 5, 2021, we have not borrowed any funds under the credit facility.

We believe our cash, cash equivalents and marketable securities balance will be sufficient to pay our quarterly dividend 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. At this time, the COVID-19 pandemic has not had an impact on our liquidity, but there is no assurance that continued impacts resulting from the pandemic will not have an adverse effect in the future.

Equity Compensation Plans

As discussed in Note Q: "Stock-Based Compensation" in our 2020 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

In August 2020, the FASB issued ASU 2020-06 – "Debt—Debt with Conversion and Other Options and Derivatives and Hedging—Contracts in Entity's Own Equity," which simplifies the accounting for convertible debt instruments by reducing the number of accounting models and the number of embedded conversion features that could be recognized separately from the primary contract. This ASU requires a convertible debt instrument to be accounted for as a single liability measured at its amortized cost, as long as no other features require bifurcation and recognition as derivatives. This ASU requires an entity to use the if-converted method in the diluted earnings per share calculation for convertible instruments. This ASU will be effective for Teradyne on January 1, 2022. This ASU permits the use of either the modified retrospective or fully retrospective method of transition. We are evaluating the effects of the adoption of this ASU on our financial statements.

On November 4, 2021, we made an irrevocable election under the Indenture to require the principal portion of the remaining Notes to be settled in cash. Upon adoption of ASU 2020-06 only the amounts settled in excess of the principal will be considered in diluted earnings per share under the if-converted method.

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 February 22, 2021. There were no material changes in our exposure to market risk from those set forth in our Annual Report on Form 10-K for the fiscal year ended December 31, 2020.

In addition to market risks described in our Annual Report on Form 10-K, we have an equity price risk related to the fair value of our convertible senior unsecured notes issued in December 2016. In December 2016, Teradyne issued $460 million aggregate principal amount of 1.25% convertible senior unsecured notes (the "Notes") due December 15, 2023. As of October 3, 2021, $158.0 million of principal remained outstanding and the Notes had a fair value of $546.5 million. The table below provides a sensitivity analysis of hypothetical 10% changes of Teradyne's stock price as of the end of the third quarter of 2021 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 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.

Hypothetical Change in Teradyne Stock Price	Fair Value	Estimated change in fair value	Hypothetical percentage increase (decrease) in fair value
10% Increase	$601,331	$ 54,867	10.0%
No Change	546,464	—	—
10% Decrease	491,600	(54,864)	(10.0)

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(b) 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.

There have been no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the three months ended October 3, 2021 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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

On March 8, 2021, Industrial Automation LLC submitted a demand for arbitration against Teradyne and AutoGuide in Wilmington, Delaware alleging that Teradyne and AutoGuide breached certain provisions of the Membership Interests Purchase Agreement (the "Purchase Agreement"), dated as of October 18, 2019, among Industrial Automation LLC, Teradyne and AutoGuide. The arbitration demand seeks full acceleration of the maximum earnout amount payable under the Purchase Agreement, or $106.9 million, for the alleged breach of the earnout provisions of the Purchase Agreement. On March 26, 2021, Teradyne and AutoGuide filed an answer denying that Teradyne and AutoGuide breached any provisions of the Purchase Agreement. The arbitration hearing is scheduled for March 21, 2022. While it is not possible at this stage to predict the outcome of the arbitration, Teradyne and AutoGuide intend to vigorously defend against the Industrial Automation LLC claims.

Item 1A: Risk Factors

In addition to other information set forth in this Form 10-Q, including the risk discussed below, 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, 2020, 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 and many of these risks could be further increased due to the COVID-19 pandemic.

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 global supply shortage of electrical components may impact our ability to meet customer demand.

There is currently a global supply shortage of electrical components, including semiconductor chips. As a result, we have experienced increases in our lead times and costs for certain components for certain products and delays in the delivery of some orders placed by our customers. At this time, these supply chain challenges have not had a material impact on our business, results of operations or financial condition. However, if we are unable to secure manufacturing capacities from our current suppliers and contract manufacturers, our ability to deliver our products to our customers may be negatively impacted. Also, our suppliers and contract manufacturers may increase their fees, which would result in an increase in our manufacturing costs, which we may not be fully able to pass to our customers, which could have a negative impact on our results of operations and financial condition. Additionally, if any of our suppliers and contract manufacturers were to cancel contracts or commitments or fail to meet the quality or delivery requirements needed to satisfy customer orders for our products, we could lose time-sensitive customer orders, have significantly decreased revenues and earnings and be subject to contractual penalties, which would have a material adverse effect on our business, results of operations and financial condition.

The novel coronavirus (COVID-19) pandemic has impacted our business and could materially adversely affect our results of operations, financial condition, liquidity or cash flows.

The global pandemic of the novel strain of the coronavirus (COVID-19) has resulted in government authorities implementing numerous measures in an effort to contain the spread of the virus, such as travel bans and restrictions, limitations on gatherings or social distancing requirements, quarantines, shelter-in-place orders, vaccination and testing mandates, and business limitations and shutdowns. These measures have impacted our day-to-day operations and disrupted our business, workforce and operations, as well as the operations of our customers, contract manufacturers and suppliers. Most recently, on September 9, 2021, President Biden issued Executive Order 14042 requiring covered employees of certain Federal contractors and subcontractors to be "fully vaccinated," unless legally entitled to an accommodation due to a disability or religious belief, practice, or observance. Additionally, on September 9, 2021, President Biden announced that he has directed the Occupational Safety and Health Administration (OSHA) to develop a rule mandating vaccination or weekly testing for employers with 100+ employees. As Teradyne implements measures to comply with these new regulations, the Company may experience increased compliance costs, increased risk of non-compliance and increased risk of employee attrition. The COVID-19 pandemic, and the numerous measures implemented by authorities in response, has adversely impacted our results of operations, including increasing costs company-wide, but we cannot accurately estimate the full extent of the impact for our 2021 financial results or to our future financial results.

The COVID-19 pandemic has significantly increased economic and demand uncertainty in our markets. The uncertainty resulted in a significant decrease in demand for certain of our products and could continue to impact demand for an uncertain period of time. The spread of COVID-19 has caused us to modify our business practices, including implementing vaccination, testing, masking and social distancing policies, suspending employee travel, requiring most employees to work remotely, canceling physical participation in meetings, events and conferences, and extensively and frequently disinfecting our workspaces, and we may take further actions as may be required by government authorities or that we determine are in the best interests of our employees, customers, contract manufacturers and suppliers.

We are continuing to monitor the rapidly evolving situation regarding the COVID-19 pandemic and the availability of vaccinations where we do business. However, we are unable to accurately predict the full impact of COVID-19, which will depend on future developments that are highly uncertain and cannot be predicted with accuracy, including, but not limited to, any new surges of the virus, the availability of vaccines, further government actions to contain the virus, and how quickly and to what extent normal economic and operating conditions can resume.

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

In January 2020, Teradyne's Board of Directors authorized a new stock repurchase program for up to $1.0 billion of common stock. Effective April 1, 2020, Teradyne suspended its share repurchase program. In January 2021, Teradyne's Board of Directors cancelled the January 2020 repurchase program and approved a new repurchase program for up to $2.0 billion of common stock. During the nine months ended October 3, 2021, we repurchased 3.3 million shares of common stock for $406.2 million at an average price of $123.53 per share. During the nine months ended September 27, 2020, we repurchased 1.5 million shares of common stock for $88.5 million at an average price of $58.33 per share.

The following table includes information with respect to repurchases we made of our common stock during the three months ended October 3, 2021 (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
July 5, 2021 - August 1, 2021	501	$ 125.31	500	$ 1,740,717
August 2, 2021 – August 29, 2021	545	121.08	545	1,674,719
August 30, 2021 – October 3, 2021	679	119.22	679	1,593,820
	1,725 (1)	$ 121.58 (1)	1,724	

(1) Includes approximately two thousand shares at an average price of $125.40 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

Table of Contents

Item 6: Exhibits

Exhibit Number	Description
4.1	First Supplemental Indenture dated as of November 4, 2021 between Teradyne Inc. and Wilmington Trust, National Association, as trustee (filed herewith)
10.1	Deferral Plan for Non-Employee Directors, as amended (filed herewith)*
31.1	Certification of Principal Executive Officer, pursuant to Rule 13a-14(a) of Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
31.2	Certification of Principal Financial Officer, pursuant to Rule 13a-14(a) of Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
32.1	Certification of Principal Executive Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
32.2	Certification of Principal Financial Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as Inline XBRL, and contained in Exhibit 101)

* Management Contract or Compensatory Plan

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/ SANJAY MEHTA

Sanjay Mehta
Vice President,
Chief Financial Officer and Treasurer
(Duly Authorized Officer
and Principal Financial Officer)
November 5, 2021

Exhibit 4.1

TERADYNE, INC.
and

WILMINGTON TRUST, NATIONAL ASSOCIATION
as Trustee

FIRST SUPPLEMENTAL INDENTURE
Dated as of November 4, 2021

Supplementing the

INDENTURE

Dated as of December 12, 2016

1.25% Senior Convertible Notes due 2023

FIRST SUPPLEMENTAL INDENTURE (this "**Supplemental Indenture**"), dated as of November 4, 2021, between Teradyne, Inc., a Massachusetts corporation, as issuer (the "**Company**"), and Wilmington Trust, National Association, as trustee (the "**Trustee**").

WHEREAS, the Company and the Trustee have executed and delivered that certain indenture (the "**Existing Indenture**," and the Existing Indenture, as supplemented by this Supplemental Indenture, the "**Indenture**"), dated as of December 12, 2016, relating to the Company's 1.25% Senior Convertible Notes due 2023 (the "**Notes**"); and

WHEREAS, the execution and delivery of this Supplemental Indenture without the consent of Holders is authorized by Section 9.01(k) of the Existing Indenture.

NOW, THEREFORE, each party to this Supplemental Indenture agrees as follows for the benefit of the other party and for the equal and ratable benefit of the Holders of the Notes.

Capitalized terms used in this Supplemental Indenture without definition have the respective meanings given to them in the Existing Indenture.

Article 1. AMENDMENTS

Notwithstanding anything to the contrary in Section 10.02(b) of the Existing Indenture, the following Settlement Methods will in no event apply to the conversion of any Note with a Conversion Date that is on or after the date of this Supplemental Indenture: (A) Physical Settlement; or (B) Combination Settlement with a Specified Dollar Amount that is less than $1,000 per $1,000 principal amount of Notes.

Article 2. MISCELLANEOUS

SECTION 2.01. INCORPORATION BY REFERENCE OF CERTAIN PROVISIONS OF THE EXISTING INDENTURE.

The provisions of Sections 11.01 and 11.08 to 11.17 of the Existing Indenture will apply to this Supplemental Indenture with the same force and effect as if such Sections were reproduced in this Supplemental Indenture, *mutatis mutandis*.

SECTION 2.02. RECITALS.

The Recitals set forth in this Supplemental Indenture are set forth exclusively by the Company, and the Trustee will not have any liability or responsibility with respect to such Recitals.

SECTION 2.03. THE TRUSTEE.

The Trustee shall not be responsible in any manner whatsoever for or in respect of the validity or sufficiency of this Supplemental Indenture or for or in respect of the statements contained herein, all of which are made solely by the Issuer, and the Trustee assumes no responsibility for their correctness.

SECTION 2.04. CONTINUING EFFECT.

Except as expressly supplemented and amended by this Supplemental Indenture, the Existing Indenture shall continue in full force and effect in accordance with the provisions thereof, and the Existing Indenture (as supplemented and amended by this Supplemental Indenture) is in all respects hereby ratified and confirmed. This Supplemental Indenture and all the terms and conditions of this Supplemental Indenture, with respect to the Notes, shall be and be deemed to be part of the terms and conditions of the Indenture for any and all purposes.

[***The Remainder of This Page Intentionally Left Blank; Signature Page Follows***]

IN WITNESS WHEREOF, the parties to this Supplemental Indenture have caused this Supplemental Indenture to be duly executed as of the date first written above.

TERADYNE, INC.

By: /s/ Sanjay Mehta
Name: Sanjay Mehta
Title: Chief Financial Officer

WILMINGTON TRUST, NATIONAL ASSOCIATION, AS TRUSTEE

By: /s/ Arlene Thelwell
Name: Arlene Thelwell
Title: Vice President

[Signature Page to First Supplemental Indenture]

Exhibit 10.1

Teradyne, Inc.
Deferral Plan for Non-Employee Directors
(Restated Effective January 1, 2005)

WHEREAS, Teradyne, Inc. (the “Company”) has established the Teradyne, Inc. Deferral Plan for Non-Employee Directors, effective January 1, 2001, and amended as of March 1, 2003, (the “Prior Plan”) which provides each Non-Employee Director of the Company with an election to defer receipt of his or her Compensation from the Company; and

WHEREAS, the Company wishes to amend and restate such Prior Plan to comply with Section 409A with respect to Compensation deferred after December 31, 2004 and expand the elections permitted under the Prior Plan.

NOW, THEREFORE, the Company hereby amends and restates the Prior Plan to read in its entirety as set forth below, as so amended and restated (the “Plan”). The Plan has been operated in compliance with Section 409A since January 1, 2005 with respect to amounts subject to Section 409A. This amendment and restatement is intended to memorialize any changes in operation of the Plan as of that date as required by Section 409A. All other changes are effective as otherwise provided herein.

1. *Eligibility.*

Each person who is a Non-Employee Director on December 1, 2004 is eligible to participate in the Plan for the Plan Year beginning January 1, 2005. All other persons who are Non-Employee Directors on December 1 of any calendar year beginning in or after December 1, 2005 are eligible to participate in the Plan Year beginning the immediately following January 1. A Non-Employee Director who is eligible to participate may become a Participant by making a deferral election with respect to Compensation payable in the following Plan Year under Section 2. Eligibility to participate in the Plan for any Non-Employee Director automatically ends upon the termination of the individual’s status as a member of the Board of Directors. If the Non-Employee Director becomes an Employee then any deferral election for Compensation payable in the Plan Year in which such employment commences shall remain in effect for the balance of the Plan Year but no further deferral elections may be made under the Plan.

2. *Participation.*

A. Each Non-Employee Director who makes an election to defer the receipt of Compensation for any Plan Year must complete a Deferral Election Form, no later than the December 1 prior to the first day of the Plan Year with respect to which it is intended to be effective and deliver such completed form to the Company’s HR director or other designated Company Employee. A Deferral Election Form may be modified or withdrawn by the Participant prior to December 1 preceding the Plan Year to which it relates. The last completed form delivered to the HR director prior to or on December 1 and not withdrawn as of that date, shall be considered the Deferral Election Form for the upcoming Plan Year and shall be irrevocable after such December 1.

B. Each Non-Employee Director who does not timely complete and deliver a Deferral Election Form for any Plan Year shall not defer receipt of any Compensation for such Plan Year and shall receive any and all Compensation to which he or she is entitled during such Plan Year in accordance with the Company's customary practices.

3. *Elections.*

The Deferral Election Form for each Plan Year Deferral shall include the following elections:

A. An election to defer all the cash Compensation or, effective for Plan Years beginning January 1, 2007, all the Shares or both that are otherwise payable to the Non-Employee Director in the next Plan Year.

B. An election of the manner in which the cash portion of the Plan Year Deferral shall be allocated under the terms of Section 4(B)(1), as amended from time to time.

C. An election as to whether the Plan Year Deferral is payable, on distribution, in a lump sum or, effective for Plan Years beginning on or after January 1, 2007, such number of annual installments (up to a maximum of 15) as the Non-Employee Director elects.

4. *Accounting*.

A. The Company or its designee shall establish an account for each Participant for recordkeeping purposes only, including sufficient subaccounts to reflect all of Participant's elections in Section 3 for all such Participant's Plan Year Deferrals. The account and subaccounts are intended only for the purposes of determining the amounts to be distributed to the Participant under the Plan. Grandfathered Accounts shall be subject only to the terms of the Plan which were in effect under the Prior Plan, unless the Board elects at any time, to make them subject to the terms of the amended and restated Plan by a resolution to that effect.

B. The account and subaccount shall be adjusted as follows:

1. Cash deferred by any Participant will be allocated, in accordance with the Participant's election, to either (a) a notional account, or (b) a Deferred Stock Unit account ("DSU Account").

a. <u>Notional Account</u>. Any amount which the Participant has allocated to a notional account, shall be credited with earnings, quarterly, at the rate in effect at the beginning of each Plan Year on 10 year Treasury Notes.

b. <u>DSU Account</u>. Any amount which the Participant has allocated to the DSU Account will be converted into a number of Deferred Stock Units on the date the cash amounts deferred would have been paid to the Participant. The number of Deferred Stock Units credited to the Participant's DSU Account with respect to each cash deferral shall be determined by dividing the cash amount deferred by the Fair Market Value of the Common Stock on such date. If any cash dividends are subsequently declared with respect to the Common Stock then the cash that would have been paid to the Participant as dividends if he or she had owned the number of whole shares of Common Stock represented by the Deferred Stock Units shall, on the date such dividend is paid, be deemed to be invested in Deferred Stock Units. The number of Deferred Stock Units credited to the Participant's DSU Account with respect to each dividend shall be determined by dividing the amount of the cash dividend by the Fair Market Value of the Common Stock on the date the dividend would have been paid.

2. Any Shares deferred by the Participant shall be separately accounted for under this Section 4(B)(2), in a subaccount of the DSU Account. The number of Shares deferred shall also be converted into Deferred Stock Units, crediting the Participant with one Deferred Stock Unit for each Share deferred. Any Shares which are not vested at the time they are credited to the DSU Account shall continue to vest in accordance with the terms of the applicable agreement evidencing the award of such Shares. Any cash dividends payable with respect to the deferred Shares shall be treated as specified in Section 4(B)(1)(b) and shall vest in accordance with the terms applicable to the Shares.

5. *Voting Rights in Deferred Stock Units.*

No Participant shall be entitled to any voting rights with respect to any amounts or Shares treated as converted into Deferred Stock Units.

6. *Distributions.*

A. Generally. Distributions of each Plan Year Deferral shall be made as a lump sum, or in installments, in accordance with the terms of the Deferral Election Form the Participant has completed with respect to the Plan Year Deferral. A Participant shall become entitled to distributions following his or her separation from service as defined in Section 409A. Such distributions shall be made or commence within 90 days after the date of the Participant's separation from service, subject to the provisions of Section 6(F). If distributions are to be made in installments then each annual installment shall be made within 30 days before or after the anniversary of the first installment distribution, except that if the first installment is delayed in accordance with Section 6(F), then each successive annual installment will be made within 90 days day following the anniversary of the Participant's separation from service.

B. Lump Sum. Any distributions of a Plan Year Deferral to be made in a lump sum shall consist of (i) cash, which is an amount equal to the aggregate balance in the Participant's notional account with respect to such Plan Year Deferral on the distribution date, and (ii) that number of shares of Common Stock equal to the aggregate number of vested Deferred Stock Units with respect to such Plan Year Deferral in the Participant's DSU Account on the distribution date. Any unvested Deferred Stock Units shall be forfeited upon the Participant's termination of service as a member of the Board of Directors. The cash and the shares of Common Stock may be distributed separately and at different times within the 90 day payment period.

C. Installments. Each installment distribution of any Plan Year Deferral shall consist of (i) such amount of cash as is determined by dividing the aggregate balance in the Participant's notional account with respect to such Plan Year Deferral on the date of such installment distribution by the total number of remaining installment distributions elected by the Participant in his or her Deferral Election Form with respect to such Plan Year Deferral and (ii) that number of shares of Common Stock equal to the aggregate number of vested Deferred Stock Units in the Participant's DSU Account with respect to such Plan Year Deferral on the date of such installment distribution divided by the total number of remaining installment distributions elected by the Participant in his or her Deferral Election Form with respect to such Plan Year Deferral; provided that the number of shares of Common Stock distributed may be rounded up or down to the nearest one share for ease of administration.

D. Form of Distribution. Amounts allocated to the notional account shall be distributed in cash and amounts allocated to DSU Account shall be distributed in shares of Common Stock. Shares of Common Stock distributed under the Plan shall be issued from either the 2006 Equity and Cash Compensation Incentive Plan of the Company (the "2006 Compensation Plan") with respect to any Shares deferred subsequent to the adoption of the 2006 Compensation Plan by the Company's shareholders, or the Company's 1997 Employee Stock Option Plan with respect to any Shares deferred prior to the adoption of the 2006 Compensation Plan by the Company's shareholders. Distribution shall be made to the Participant, or if the Participant has died to the Participant's Beneficiary. The Company may distribute the value of any fractional Deferred Stock Unit in cash, based on the Fair Market Value on the date any shares of Common Stock are distributed.

E. Death. If the Participant dies prior to the total distribution of his or her account then the vested balance that is undistributed at the time of the Participant's death, notwithstanding any prior election by the Participant for installment distributions, shall be distributed to the Participant's Beneficiary, in a lump sum, within 90 days following the Participant's death.

F. Specified Employee. If at the time of separation from service the Participant is considered a specified employee as defined in Section 409A then, notwithstanding the foregoing, the distribution of his or her account shall not be made, or commence, until six months and one day after such separation from service, but installments shall thereafter be distributed as if the initial installment had been made on the date of separation.

G. Special 2008 Election. Notwithstanding the foregoing terms of the Plan, in accordance with the transition provisions of IRS Notice 2007-86, the Participants who have previously made a proper election to defer Compensation for 2005, 2006, 2007 and 2008 may designate, in such manner as the HR director determines, prior to December 31, 2008, whether such Plan Year Deferrals shall be distributed in a lump sum or in installments, and if in installments, the number of such installments.

7. *Amendments and Termination.*

The Board of Directors may amend or terminate the Plan at any time, which may include, without limitation, action to prohibit any future deferral under the Plan; provided that no such action shall decrease the value of the Participant's account with respect to Deferral Elections made prior to such termination or amendment and such amendment or termination shall be consistent with Section 409A.

8. *Definitions.*

As used in the Plan, the following terms shall have the following meanings:

A. "Beneficiary" means the person designated or determined under Section 10(C).

B. “Board of Directors” means the Board of Directors of the Company.

C. “Committee” means the Compensation Committee, or any successor to such Compensation Committee, or any other Committee of the Board of Directors authorized by the Board of Directors to administer the Plan.

D. “Common Stock” means the common stock, $0.125 par value per share, of the Company.

E. “Compensation” means any meetings fees, retainer or other amounts (except for reimbursed expenses), whether in cash or, effective January 1, 2007, in Shares, payable to the Non-Employee Director for services as such Non-Employee Director.

F. “Deferral Election Form” means the document or other communication by which the HR Director has Non-Employee Directors elect to defer receipt of Compensation under the Plan.

G. “Deferred Stock Units”, which are expressed as a number in the DSU account of a Participant refer to the number of shares of Common Stock that a Participant will become entitled to receive upon distribution of his or her Plan Year Deferrals in accordance with Section 6.

H. “Employee” means a common law employee of Teradyne, Inc. or any of its subsidiaries.

I. “Fair Market Value” of the Common Stock means, prior to June 1, 2006, the opening price for the date it is being determined, as officially quoted by the New York Stock Exchange. Effective June 1, 2006, Fair Market Value shall have the meaning set forth in the 2006 Compensation Plan.

J. “Grandfathered Accounts” mean those accounts for Participants which were established with respect to deferrals prior to December 31, 2004 which had not been distributed on such date.

K. “Non-Employee Director” means any person who is (i) a member of the Board of Directors but who is not an Employee of the Company, and (ii) is eligible to receive awards under the 2006 Compensation Plan (or, prior to its approval by the Company’s shareholders, was eligible to receive awards under the Company’s 1997 Employee Stock Option Plan).

L. “Participant” means a Non-Employee Director who is eligible to defer receipt of Compensation under Section 1 and who has delivered a completed Deferral Election Form in accordance with Section 2.

M. “Plan Year” means the calendar year. The first plan year of the Plan, as amended and restated, begins January 1, 2005.

N. “Plan Year Deferral” means cash or Shares deferred for any Plan Year in accordance with a Non-Employee Director’s Deferral Election Form.

O. “Section 409A” means Section 409A of the Internal Revenue Code of 1986, as amended, and guidance issued thereunder from time to time.

P. “Shares” means either Restricted Stock or Restricted Stock Units granted under the 2006 Compensation Plan of the Company.

9. *Dilutions and Other Adjustments*.

In the event of any change in the outstanding shares of the Common Stock by reason of any stock dividend or split, recapitalization, merger, consolidation, spin-off, reorganization, combination or exchange of shares or other similar corporate change, then the Board of Directors or the Committee shall determine, in their sole discretion, that such change equitably requires an adjustment in the number or kind of shares then held in a Participant’s DSU account, then such adjustments shall be made and such determination shall be conclusive and binding for all purposes.

10. *Miscellaneous Provisions.*

A. The Plan shall be administered by the Committee, which shall have the exclusive right and full discretion to interpret the Plan and make all determinations necessary or advisable for its administration, including, without limitation, the authority to remedy ambiguities inconsistencies or omissions. All determinations by the Committee shall be final and binding on all persons.

B. The Plan shall be an unfunded plan and a Participant’s rights and interest under the Plan may not be anticipated, mortgaged, assigned or otherwise encumbered, transferred, or conveyed in advance of actual receipt and any attempt so to do shall be null and void. No part of the amounts payable shall, prior to actual payment be subject to seizure, attachment, garnishment or sequestration for the payment of any debts or judgments of any kind. Any amounts deferred under the Plan shall remain the assets of the Company until paid in accordance with the provisions of the Plan, and in the event of the Company’s insolvency, will be subject to the claims of the Company’s general creditors. In the event of the Company’s insolvency, a Participant shall be a general creditor of the Company with respect to his or her claim for benefits hereunder.

C. Each Participant shall have the right to designate, from time to time, a beneficiary, primary as well as contingent, to receive benefits payable in accordance with the terms of the Plan. If the HR director has not received a completed beneficiary designation form during the Participant’s life then the Participant’s beneficiary under the Plan shall be his or her spouse, if any, and if none, his or her estate. The delivery of a completed beneficiary designation form to the HR Director shall replace any prior form.

D. The Company may establish one or more trusts pursuant to one or more trust agreements between the Company and a trustee named in such agreement, and as amended from time to time, on such terms as the Company shall determine (the “Trust”). The Company may transfer assets to said Trust, as it determines in its sole discretion, for purposes of providing for the payment of its liabilities under the Plan. The provisions of the Plan shall govern the rights of a Participant to receive distributions pursuant to the Plan. The provisions of the Trust shall govern the rights of the Company, the Participants and any creditors of the Company to the assets of the Trust. To the extent any distributions are made from said Trust to any Participant for purposes of satisfying any obligation the Company may have under the Plan that distribution shall reduce the Company's obligation hereunder.

E. The Plan is intended to comply with Section 409A with respect to those accounts which are subject to its terms and to such extent shall be administered in accordance with its terms and that intention; provided that the Company shall have no obligation to any Participant or his or her beneficiary if there is any failure to comply with Section 409A or with respect to any liability incurred by such Participant or any other person as a result of such failure.

F. The Plan is established and shall be construed in accordance with the laws of the Commonwealth of Massachusetts.

G. The provisions of the Plan shall bind and inure to the benefit of the Company and its successors and assigns, or any Participant and his or her beneficiaries.

H. Distributions hereunder shall be subject to any applicable tax withholding and the Company shall have the discretion to withhold cash for such purpose to the extent available to satisfy any withholding obligation with respect to any cash or Common Stock distributed under the Plan.

I. If any distribution is to be made to any person who is a minor or is declared incompetent or to a person the Board of Directors determines in good faith to be incapable of handling the disposition of such person's property (which the Board of Directors shall have no obligation to determine), the Board of Directors may direct payment to the guardian, legal representative or person having the care and custody of such person and such payment shall discharge the Company's obligations hereunder to the extent of such payment.

Approved by the Teradyne, Inc. Board of Directors May 24, 2006.

Amended by the Teradyne, Inc. Board of Directors on November 4, 2008.

Amended by the Teradyne, Inc. Board of Directors on August 18, 2021.

Exhibit 31.1

CERTIFICATIONS

I, Mark E. Jagiela, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: November 5, 2021

By: **/S/ MARK E. JAGIELA**

Mark E. Jagiela
Chief Executive Officer

Exhibit 31.2

CERTIFICATIONS

I, Sanjay Mehta, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: November 5, 2021

By: **/S/ SANJAY MEHTA**

Sanjay Mehta
Chief Financial Officer

Exhibit 32.1

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

In connection with the Quarterly Report of Teradyne, Inc. (the “Company”) on Form 10-Q for the period ended October 3, 2021 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Mark E. Jagiela, Chief Executive Officer of the Company, certify pursuant to 18 U.S.C (S) 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

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

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

/S/ MARK E. JAGIELA

Mark E. Jagiela
Chief Executive Officer
November 5, 2021

Exhibit 32.2

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

In connection with the Quarterly Report of Teradyne, Inc. (the “Company”) on Form 10-Q for the period ended October 3, 2021 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Sanjay Mehta, Chief Financial Officer of the Company, certify pursuant to 18 U.S.C (S) 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

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

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

/S/ SANJAY MEHTA

Sanjay Mehta
Chief Financial Officer
November 5, 2021