

NANOMETRICS INC
Form 10-Q
May 01, 2019

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 March 30, 2019

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 number: 000-13470

NANOMETRICS INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of incorporation or organization) 94-2276314
(I.R.S. Employer Identification Number)

1550 Buckeye Drive

Milpitas, California
(Address of principal executive offices) 95035
(Zip Code)

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Registrant's telephone number, including area code: (408) 545-6000

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

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically 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, a 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.

Large accelerated filer Accelerated filer
Non-accelerated filer Smaller reporting company
Emerging growth company

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

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$0.001 par value per share	NANO	The Nasdaq Stock Market LLC (Nasdaq Global Select Market)

As of April 26, 2019, there were 24,534,582 shares of common stock, \$0.001 par value, issued and outstanding.

NANOMETRICS INCORPORATED

INDEX TO QUARTERLY REPORT ON FORM 10-Q

FOR THE QUARTER ENDED MARCH 30, 2019

PART I. FINANCIAL INFORMATION

Item 1.	<u>Financial Statements</u>	3
	<u>Condensed Consolidated Balance Sheets at March 30, 2019 and December 29, 2018 (Unaudited)</u>	3
	<u>Condensed Consolidated Statements of Operations for the Three Months Ended March 30, 2019 and March 31, 2018 (Unaudited)</u>	4
	<u>Condensed Consolidated Statements of Comprehensive Income for the Three Months Ended March 30, 2019 and March 31, 2018 (Unaudited)</u>	5
	<u>Condensed Consolidated Statement of Stockholders' Equity for the Three Months Ended March 30, 2019 and March 31, 2018 (Unaudited)</u>	6
	<u>Condensed Consolidated Statements of Cash Flows for the Three Months Ended March 30, 2019 and March 31, 2018 (Unaudited)</u>	7
	<u>Notes to Condensed Consolidated Financial Statements (Unaudited)</u>	8
Item 2.	<u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	23
Item 3.	<u>Quantitative and Qualitative Disclosures about Market Risk</u>	30
Item 4.	<u>Controls and Procedures</u>	31

PART II. OTHER INFORMATION

Item 1.	<u>Legal Proceedings</u>	32
Item 1A.	<u>Risk Factors</u>	32
Item 6.	<u>Exhibits</u>	33
	<u>Signatures</u>	34

PART I — FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS
NANOMETRICS INCORPORATED

CONDENSED CONSOLIDATED BALANCE SHEETS

(In thousands except share and per share amounts)

(Unaudited)

	March 30, 2019	December 29, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	\$95,212	\$ 110,951
Marketable securities	52,851	40,841
Accounts receivable, net of allowances of \$179 and \$170, respectively	45,252	50,854
Inventories	63,470	61,915
Inventories-delivered systems	349	180
Prepaid expenses and other	7,235	6,140
Total current assets	264,369	270,881
Property, plant and equipment, net	50,532	47,900
Operating lease - right of use assets, net	11,567	—
Goodwill	26,372	26,372
Intangible assets, net	26,572	27,326
Deferred income tax assets	2,473	2,569
Other assets	440	582
Total assets	\$382,325	\$ 375,630
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$18,901	\$ 16,540
Accrued payroll and related expenses	9,490	21,658
Deferred revenue	10,641	8,990
Operating lease liabilities	2,893	—
Other current liabilities	6,859	9,421
Income taxes payable	1,623	3,164
Total current liabilities	50,407	59,773
Deferred revenue	1,505	1,753
Income taxes payable	1,027	871
Deferred tax liabilities	166	162
Operating lease liabilities	8,614	—
Other long-term liabilities	220	219

Total liabilities	61,939	62,778
Commitments and contingencies (Note 11)		
Stockholders' equity:		
Preferred stock, \$0.001 par value; 3,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock, \$0.001 par value, 47,000,000 shares authorized: 24,534,582 and 24,372,193, respectively, issued and outstanding	25	24
Additional paid-in capital	251,841	247,983
Retained earnings	70,375	67,402
Accumulated other comprehensive loss	(1,855)	(2,557)
Total stockholders' equity	320,386	312,852
Total liabilities and stockholders' equity	\$382,325	\$ 375,630

See Notes to Condensed Consolidated Financial Statements

NANOMETRICS INCORPORATED

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands except per share amounts)

(Unaudited)

	Three Months Ended	
	March 30, 2019	March 31, 2018
Net revenues:		
Products	\$53,855	\$71,019
Service	13,245	11,294
Total net revenues	67,100	82,313
Costs of net revenues:		
Cost of products	25,898	28,593
Cost of service	6,948	6,154
Amortization of intangible assets	466	35
Total costs of net revenues	33,312	34,782
Gross profit	33,788	47,531
Operating expenses:		
Research and development	12,987	10,202
Selling	9,282	9,024
General and administrative	7,905	7,741
Amortization of intangible assets	289	-
Total operating expenses	30,463	26,967
Income from operations	3,325	20,564
Other income (expense):		
Interest expense, net	(91)	(93)
Other income, net	270	352
Total other income, net	179	259
Income before income taxes	3,504	20,823
Provision for income taxes	531	4,442
Net income	\$2,973	\$16,381
Net income per share:		
Basic	\$0.12	\$0.68
Diluted	\$0.12	\$0.67
Weighted average shares used in per share calculation:		
Basic	24,474	24,063
Diluted	24,783	24,483

See Notes to Condensed Consolidated Financial Statements

NANOMETRICS INCORPORATED

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In thousands)

(Unaudited)

	Three Months Ended	
	March 30, 2019	March 31, 2018
Net income	\$2,973	\$16,381
Other comprehensive income:		
Change in foreign currency translation adjustment	647	1,987
Net change in unrealized gains (losses) on available-for-sale investments	55	(89)
Other comprehensive income	702	1,898
Comprehensive income	\$3,675	\$18,279

See Notes to Condensed Consolidated Financial Statements

NANOMETRICS INCORPORATED

CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(In thousands)

(Unaudited)

	Accumulated					
	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Retained Earnings	Other Comprehensive Loss	Total Stockholders' Equity
Balance as of December 29, 2018	24,372,193	\$ 24	\$ 247,983	\$ 67,402	\$ (2,557)	\$ 312,852
Net income	—	—	—	2,973	—	2,973
Foreign currency translation adjustments	—	—	—	—	647	647
Unrealized gain on investments, net of tax	—	—	—	—	55	55
Issuance of common stock under stock-based compensation plans, net of taxes paid	162,389	1	744	—	—	745
Stock-based compensation expense	—	—	3,114	—	—	3,114
Balance as of March 30, 2019	24,534,582	\$ 25	\$ 251,841	\$ 70,375	\$ (1,855)	\$ 320,386

	Accumulated					
	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Retained Earnings	Other Comprehensive Loss	Total Stockholders' Equity
Balance as of December 30, 2017	24,628,722	\$ 26	\$ 255,368	\$ 9,113	\$ (2,124)	\$ 262,383
Net income	—	—	—	16,381	—	16,381
Adjustment due to adoption of ASU 2014-09 Revenue from Contracts with Customers, net of tax	—	—	—	725	—	725
Restructuring of foreign subsidiaries	—	—	3	(83)	—	(80)
Foreign currency translation adjustments	—	—	—	—	1,987	1,987
Unrealized loss on investments, net of tax	—	—	—	—	(89)	(89)
Issuance of common stock under stock-based compensation plans, net of taxes paid	158,028	—	69	—	—	69
Stock-based compensation expense	—	—	2,338	—	—	2,338
Repurchases and retirement of common stock under share repurchase plans	(896,187)	(2)	(22,985)	—	—	(22,987)
Balance as of March 31, 2018	23,890,563	\$ 24	\$ 234,793	\$ 26,136	\$ (226)	\$ 260,727

See Notes to Condensed Consolidated Financial Statements

NANOMETRICS INCORPORATED

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands)

(Unaudited)

	Three Months Ended	
	March	March
	30, 2019	31, 2018
Cash flows from operating activities:		
Net income	\$2,973	\$16,381
Reconciliation of net income to net cash provided by operating activities:		
Depreciation and amortization	2,406	1,724
Stock-based compensation	3,114	2,338
Disposal of fixed assets	2	45
Inventory write-down	1,747	95
Deferred income taxes	4	2,062
Changes in assets and liabilities:		
Accounts receivable	6,604	8,035
Inventories	(2,864)	315
Inventories-delivered systems	(169)	41
Prepaid expenses and other	(1,189)	(454)
Operating lease - right of use assets	148	—
Accounts payable, accrued and other liabilities	(13,656)	(1,474)
Deferred revenue	1,403	2,172
Operating lease liabilities	(90)	—
Income taxes payable	(1,289)	1,434
Net cash provided by (used in) operating activities	(856)	32,714
Cash flows from investing activities:		
Payments to acquire certain assets	—	(1,000)
Sales of marketable securities	739	17,435
Maturities of marketable securities	11,450	6,500
Purchases of marketable securities	(24,021)	—
Purchases of property, plant and equipment	(4,132)	(1,319)
Net cash provided by (used in) investing activities	(15,964)	21,616
Cash flows from financing activities:		
Proceeds from sale of shares under employee stock option		
plans and purchase plan	1,548	545
Taxes paid on net issuance of stock awards	(803)	(476)
Repurchases of common stock under share repurchase plans	—	(22,987)
Net cash provided by (used in) financing activities	745	(22,918)
Effect of exchange rate changes on cash and cash equivalents	336	(399)

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Net increase (decrease) in cash and cash equivalents	(15,739)	31,013
Cash and cash equivalents, beginning of period	110,951	34,899
Cash and cash equivalents, end of period	\$95,212	\$65,912
Supplemental disclosure of non-cash investing activities:		
Transfers between inventory and property, plant and equipment, net	\$406	\$91
Unpaid property, plant and equipment	516	265

See Notes to Condensed Consolidated Financial Statements

7

NANOMETRICS INCORPORATED

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

Note 1. Nature of Business, Basis of Presentation and Significant Accounting Policies

Description of Business – Nanometrics Incorporated (“Nanometrics” or the “Company”) and its wholly-owned subsidiaries provide advanced, high-performance process control metrology and inspection systems used primarily in the fabrication of semiconductors and other solid-state devices as well as industrial and scientific applications. Nanometrics' metrology systems precisely measure a wide range of film types deposited on substrates during manufacturing to control manufacturing processes and increase production yields in the fabrication of integrated circuits. The Company's optical critical dimension (“OCD”) technology is a patented critical dimension measurement technology that is used to precisely determine the dimensions on the semiconductor wafer that directly control the resulting performance of the integrated circuit devices. The thin film metrology systems use a broad spectrum of wavelengths, high-sensitivity optics, proprietary software, and patented technology to measure the thickness and uniformity of films deposited on silicon and other substrates as well as their chemical composition. The overlay metrology systems are used to measure the overlay accuracy of successive layers of semiconductor patterns on wafers in the photolithography process. Nanometrics' inspection systems are used to find defects on patterned and unpatterned wafers at nearly every stage of the semiconductor production flow. The corporate headquarters of Nanometrics is in Milpitas, California.

Basis of Presentation – The accompanying condensed consolidated financial statements (“financial statements”) have been prepared on a consistent basis with the audited consolidated financial statements as of December 29, 2018 and include all normal recurring adjustments necessary to fairly state the information set forth therein. All significant intercompany accounts and transactions have been eliminated in consolidation.

The financial statements have been prepared in accordance with the regulations of the United States Securities and Exchange Commission (“SEC”) for interim periods in accordance with S-X Article 10, and, therefore, omit certain information and footnote disclosure necessary to present the statements in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”). The operating results for interim periods are not necessarily indicative of the operating results that may be expected for the entire year. These financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto for the fiscal year ended December 29, 2018, which were included in the Company's Annual Report on Form 10-K filed with the SEC on February 25, 2019.

Fiscal Period – The Company uses a 52/53 week fiscal year ending on the last Saturday of the calendar year. All references to the quarter refer to Nanometrics' fiscal quarter. The fiscal quarters reported herein are 13 week periods.

Use of Estimates – The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reported period. Actual results could differ materially from those estimates. Estimates are used for, but not limited to, revenue recognition, the provision for doubtful accounts, the provision for excess, obsolete, or slow-moving

inventories, valuation of intangible and long-lived assets, warranty accruals, income taxes, valuation of stock-based compensation, and contingencies.

Changes to Significant Accounting Policies

Except for the change below, the Company has consistently applied its accounting policies to all periods presented in these financial statements.

Leases - The Company adopted the new accounting standard Topic 842, Leases and all related amendments, as of December 30, 2018, the first day of its 2019 fiscal year, by electing to use the additional optional transition method permitted under the Topic of applying the new leases standard at the adoption date for all then-active leases and prospectively to leasing arrangements entered after the adoption date. The Company's reporting for the comparative period presented in the financial statements continues to follow prior U.S. GAAP.

The main impact of Topic 842 was to increase the transparency and comparability of the Company's financial statements by requiring the recognition of right of use assets ("ROU assets") and lease liabilities on the Company's balance sheet for leases classified as operating leases under which the Company is lessee. Under the Topic, disclosures are required to meet the objective of enabling users of the Company's financial statements to assess the amount, timing, and uncertainty of cash flows arising from such leases.

The Company elected all available practical expedients, adopted an accounting policy to not recognize lease liabilities or ROU assets for short-term leases, and implemented internal controls and system functionality to enable the preparation of financial information upon adoption of Topic 842.

The Company has identified all its leases as operating leases, which primarily comprised leases for office space, data centers, colocation agreements, ISP services, logistics arrangements, equipment rental, and others. The Company's lease accounting policy can be summarized into 4 categories, namely (1) identifying the lease, (2) classifying the lease, (3) measuring the lease, and (4) accounting for the lease.

Identifying the lease – The Company evaluates each service contract upon inception to determine whether it is, or contains, a lease. Such determination is made by applying judgment in evaluating each service contract within the context of the 5-step decision making process under Topic 842. The key concepts of the 5-step decision making process that the Company must evaluate can be summarized as: (1) is there an identified physical asset, (2) does the Company have the right to substantially all the economic benefits from the asset throughout the contract period, (3) does the Company control how and for what purpose the asset is used, (4) does the Company operate the asset, and (5) did the Company design the asset in a way that predetermines how it will be used.

For the service contract to be identified as a lease there must be an underlying physical asset (step 1) that the Company can obtain substantially all the economic benefits from (step 2) by exercising control over (step 3) throughout the lease term. The Company has been able to identify which of its contracts are leases through its evaluations of steps 1, 2, and 3.

Classifying the lease – Once the Company identifies a lease, it then applies judgment in evaluating the contract to determine how the lease should be classified. If any of the following criteria have been met the lease is classified as a financing lease, otherwise it is classified as an operating lease.

1. The lease transfers ownership of the underlying identified asset to the Company by the end of the lease term.
2. The lease grants the Company an option to purchase the underlying identified asset that it is reasonably certain to exercise.
3. Generally, the lease term is for the major part of the remaining economic useful life of the underlying identified asset.
4. The present value of the sum of the lease payments and any residual value guaranteed by the Company that is not already reflected in the lease payments equals or exceeds substantially all the fair value of the underlying identified asset.
5. The underlying asset is of such a specialized nature that it wouldn't have an alternative use to the lessor at the end of the lease term.

The Company has not entered into any contracts that transfer ownership of the underlying identified asset to the Company by the end of the lease term and there are only a small number of individually insignificant leases that contain a purchase option, none of which the Company intends to exercise. The Company has evaluated its contracts under these criteria and has determined that all such contracts are operating leases.

The Company does not reassess the lease classification after the commencement date unless (a) the contract is modified, and the modification is not accounted for as a separate contract, (b) there is a change in the lease term, or (c) there is a change in the assessment of whether the Company is reasonably certain to exercise an option to purchase the underlying asset.

Measuring the lease – Topic 842 requires the Company to record a ROU Asset and a lease liability at the lease commencement date for all leases. The Company does this by measuring and recording a lease liability equal to the present value of all remaining lease payments. The Company applies judgment in estimating the remaining lease term.

For its offices, data centers, colocation agreements, ISP services and logistics it assesses the current life of the lease, defined renewal periods in the contract (if any), the strategic plan for maintaining (or replacing) the asset, among other factors in determining the future lease term when measuring the lease. While implementing Topic 842, the Company noted that none of its leases contained residual value guarantees, variable lease payments or any restrictions or covenants imposed by the lessors, outside of standard restrictions on subletting office space.

Under Topic 842, if the interest rate implicit in the lease is or can be known, the Company is required to use such rate. The rate implicit in the lease is not known for any of the Company's leases, so the Company bases its interest rate on its incremental borrowing rate, using significant judgment to adjust its incremental borrowing rate to align with the term of the lease and the incremental borrowing rates in the countries in which the Company operates.

Once the Company has calculated the initial lease liability, it uses such measurement as the starting point for determining the ROU asset value. Any lease payments made to the lessor at or before the lease commencement date (for which the underlying service period has not expired) are added to the value of the initial lease liability along with any initial direct costs (such as broker's commissions) incurred by the Company to arrive at the initial ROU asset value.

The Company initially measures the lease as of the lease commencement date, and except as noted below, it does not remeasure the lease. The Company applies significant judgment in considering all relevant factors that create an economic benefit (e.g.; contract-based, asset-based, entity-based, and market-based, among others) as of the commencement date in determining the initial lease term and future lease payments. For example, the Company exercises judgment in determining whether renewal periods will be exercised during the initial measurement process. If the Company believes it will exercise the renewal option, and the lease payments associated with the renewal periods are known or calculable, such renewal lease payments would be included in the initial measurement of the lease liability. Otherwise, even if the Company believes that it will exercise the renewal period, if the renewal payments are unknown or not calculable, they would not be included until they became known or calculable at which time the Company would remeasure the remaining lease payments similar to a lease modification.

At the implementation date, the Company measured its initial lease liability as \$11.5 million for all leases in effect at such date. The Company determined it had made \$0.1 million of lease payments to lessors at or before the implementation date for which the underlying service period had not expired; consequently, the Company initially recognized \$11.6 million as a right to use asset at the implementation date. During the three-month period ended March 30, 2019, the Company recognized \$0.7 million of lease liabilities and right of use assets related to contracts entered into during the period.

Generally, the Company does not reassess lease terms or purchase options, nor does it remeasure lease payments unless certain circumstances occur. The Company reassesses the lease term or its option to purchase the underlying asset only if and at the point in time that (a) there is a significant event of change in circumstances within the Company's control that directly impacts the lease, (b) an event occurs that is written into the lease that obliges the Company to exercise an option, (c) the Company elects to exercise an option that it did not previously determine it was going to exercise, or (d) the Company decides to not exercise an option that it previously had determined it was going to exercise. The Company remeasures the lease payments if and at the point in time that (a) the lease is modified and the modification is not accounted for as a separate contract, (b) a contingency is resolved that causes variable lease payments to meet the definition of fixed lease payments, (c) the lease term changes, (d) the Company changes its assessment as to whether it will exercise an option to purchase the leased asset, or (e) there is a change in amounts probable of being owed under a residual guarantee value clause.

Accounting for the lease – Topic 842 requires the Company to recognize a ROU asset and a lease liability, initially measured as set forth above, for each of its operating leases in its statement of financial position. At adoption of Topic 842, any difference in the initial measurement of the ROU asset and the lease liability was charged to opening retained earnings as a cumulative effect adjustment; however, no such adjustment was recorded by the Company as the initial measurement resulted in no such difference. Topic 842 also requires the Company to recognize a single lease cost, calculated so that the cost of the lease is allocated over the lease term on a straight-line basis in the statement of operations. The Company uses the effective interest rate method to accrete interest on the lease liability.

The components of lease expense for the three months ended March 30, 2019 were as follows (in thousands):

	Amount
Operating lease expense	\$ 847

Other information related to leases as of and for the three months ended March 30, 2019 was as follows (in thousands, except as indicated):

Supplemental Cash Flows Information	Amount
Cash paid for amounts included in the measurement of lease liabilities:	

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Operating cash flows used by operating leases	\$ 789
Right of use assets recognized in exchange for operating lease liabilities	698
Imputed interest - operating leases	120
Weighted average remaining lease term - operating leases (months)	62
Weighted average discount rate - operating leases (per annum)	4.86 %

The following table presents a maturity analysis of the Company's leases (all of which are operating leases), showing the undiscounted annual cash flows for each of the periods presented with a reconciliation to the operating lease liabilities recognized in the Statement of Financial Position as of March 30, 2019 (in thousands):

Fiscal year	Amount
2019 (remaining nine months)	\$2,895
2020	3,113
2021	2,105
2022	1,545
2023	1,249
Thereafter	2,706
Total future minimum lease payments	13,613
Less: future interest	(2,106)
Total	\$11,507

Reported as of March 30, 2019	
Operating lease liability - short term	\$2,893
Operating lease liability - long term	8,614
Total	\$11,507

Future minimum lease payments as of December 29, 2018 for the leases then in effect, as reported under previous guidance, was as follows (in thousands):

Fiscal year	Amount
2019	\$ 3,002
2020	1,891
2021	1,051
2022	970
2023	750
Thereafter	696
Total	\$ 8,360

Note 2. New Accounting Pronouncements

Recently Adopted Accounting Standards

In June 2018, the Financial Accounting Standards Board (“FASB”) issued an accounting standard update which simplifies the accounting for nonemployee share-based payment transactions. The accounting for share-based payments to nonemployees and employees will be substantially aligned because of this update. The standard is effective for public companies for fiscal years beginning after December 15, 2018, including interim periods within that fiscal year. Early adoption is permitted, but no earlier than an entity’s adoption date of Topic 606. The adoption of this guidance did not have a significant impact on the Company’s consolidated results of operations or consolidated statement of cash flows.

In February 2018, the FASB issued an accounting standard update that allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act (“TCJA”). This accounting standard update eliminates the stranded tax effects from the TCJA and improves the

usefulness of information reported to users of the Company's financial statements. This standard is effective for public companies for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The adoption of this guidance did not have a significant impact on the Company's financial statements as an election was not made to reclassify such income tax effects from accumulated other comprehensive income to retained earnings.

Recently Issued Accounting Standards

In August 2018, the FASB issued an accounting standard update to provide additional guidance on the accounting for costs of implementation activities performed in a cloud computing arrangement. The amendments in this update align the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software and hosting arrangements that include an internal-use software license. The accounting for the service element of a hosting arrangement that is a service contract is not affected by the amendments in this update. The amendments in this update are effective for public business entities for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. Early adoption is permitted. The amendments in this update should be applied retrospectively or prospectively to all implementation costs incurred after the date of adoption. The Company is currently evaluating the effect of this update on its consolidated financial condition and results of operations.

In August 2018, the FASB issued an accounting standard update which improves the effectiveness of fair value measurement disclosures in the notes to the financial statements. The update is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. Certain amendments within the update should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. Early adoption is permitted. Entities are permitted to early adopt any removed or modified disclosures upon issuance of this Update and delay adoption of the additional disclosures until their effective date. The adoption of this guidance is not expected to have a significant impact on the Company's consolidated results of operations or consolidated statement of cash flows.

In January 2017, the FASB issued an accounting standard update which simplifies the subsequent measurement of goodwill and removes step 2 from the goodwill impairment test. Instead, an entity should record an impairment charge based on excess of a reporting unit's carrying amount over its fair value. The standard is effective for public companies for fiscal years beginning after December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The adoption of this guidance is not expected to have a significant impact on the Company's consolidated financial condition and results of operations.

In June 2016, the FASB issued an accounting standard which requires measurement and timely recognition of expected credit losses for financial assets. The update is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. Early adoption is permitted as of the fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The standard is to be applied through a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective. The Company is currently evaluating the effect of this update on its consolidated financial condition and results of operations.

Note 3. Acquisition

On November 15, 2018, the Company completed the acquisition of 4D Technology Corporation ("4D"), an Arizona-based supplier of high-performance interferometric measurement inspection systems, for \$42.6 million.

4D's Dynamic Interferometry® solutions are used in a variety of industries to provide accurate shape and surface measurement data, which provides feedback to customers of optical quality, machine finish, and surface defectivity, to improve manufacturing yield and performance. The addition of 4D's technology added new technology to the Company's portfolio, expanded its served markets with new applications in the scientific research, aerospace, industrial and optics manufacturing markets.

The following table presents the preliminary purchase price allocation as of November 15, 2018. Since the acquisition date, no measurement period adjustments have yet been recorded; accordingly, such adjustments as of March 30, 2019 have been omitted from the table (in thousands):

12

	Preliminary Allocation
	November 15, 2018
Cash and cash equivalents	\$ 1,414
Accounts receivable, net	4,156
Inventories	4,563
Prepaid and other current assets	104
Property and equipment	145
Accounts payable	(702)
Accrued liabilities	(760)
Deferred revenue	(197)
Deferred tax liabilities	(5,408)
Total assets acquired/liabilities assumed	3,315
Developed technology	15,500
In-process research and development	1,400
Customer relationships	4,600
Order backlog	500
Trade name	1,500
Total identified intangible assets	23,500
Total identifiable net assets	26,815
Goodwill	15,762
Total purchase consideration	\$ 42,577

Note 4. Revenue

The Company disaggregates its revenue from contracts with customers by geographic location. See Note 15 for further information.

Contract assets and liabilities

Contract assets and liabilities consisted of the following (in thousands):

	March 30, 2019	December 29, 2018
Contract assets	\$3,707	\$ 2,189
Contract liabilities	12,146	10,743
Net contract liabilities	\$8,439	\$ 8,554

During the three months ended March 30, 2019 the Company recognized \$1.5 million of revenue related to amounts that had been reported as contract liabilities at December 29, 2018. Net contract liabilities at March 30, 2019 were relatively unchanged from December 29, 2018. The Company classifies its contract liabilities as deferred revenue on its condensed consolidated balance sheet.

Most of the Company's remaining performance obligations on contracts with customers are expected to be recognized as revenue within the next six to twelve months.

Note 5. Fair Value Measurements and Disclosures

The Company determines the fair values of its financial instruments based on the fair value hierarchy established in FASB Accounting Standards Codification ("ASC") 820, Fair Value Measurement, which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The classification of a financial asset or liability within the hierarchy is based upon the lowest level input that is significant to the fair value measurement. The fair value hierarchy prioritizes the inputs into the following three levels that may be used to measure fair value:

Level 1 — Quoted prices in active markets for identical assets or liabilities.

Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument.

Level 3 — Unobservable inputs that are supported by little or no market activity and are significant to the fair value of the assets or liabilities. Such unobservable inputs include an estimated discount rate used in the Company's discounted present value analysis of

future cash flows, which reflects the Company's estimate of debt with similar terms in the current credit markets. As there is currently minimal activity in such markets, the actual rate could be materially different.

Fair value is defined as the price that would be received upon the sale of an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The standard assumes that the transaction to sell the asset or transfer the liability occurs in the principal or most advantageous market for the asset or liability and establishes that the fair value of an asset or liability shall be determined based on the assumptions that market participants would use in pricing the asset or liability.

The following tables present the Company's assets and liabilities measured at estimated fair value on a recurring basis, excluding accrued interest components, categorized in accordance with the fair value hierarchy (in thousands), as of the following dates:

	March 30, 2019				December 29, 2018			
	Fair Value Measurements				Fair Value Measurements			
	Using Input Types				Using Input Types			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets:								
Cash equivalents:								
Money market funds	\$10,526	\$—	\$—	\$10,526	\$113	\$—	\$—	\$113
Commercial paper	—	3,989	—	3,989	—	1,993	—	1,993
Certificates of deposit	—	1,000	—	1,000	—	—	—	—
Total cash equivalents	\$10,526	\$4,989	\$—	\$15,515	\$113	\$1,993	\$—	\$2,106
Marketable securities:								
Certificates of deposits	\$—	\$11,257	\$—	\$11,257	\$—	\$9,497	\$—	\$9,497
Commercial paper	—	16,905	—	16,905	—	7,932	—	7,932
Corporate debt securities	—	16,256	—	16,256	—	15,730	—	15,730
Asset-backed Securities	—	8,433	—	8,433	—	7,682	—	7,682
Total marketable securities	\$—	\$52,851	\$—	\$52,851	\$—	\$40,841	\$—	\$40,841
Total⁽¹⁾	\$10,526	\$57,840	\$—	\$68,366	\$113	\$42,834	\$—	\$42,947

⁽¹⁾Excludes \$79.7 million and \$108.8 million held in operating accounts as of March 30, 2019 and December 29, 2018, respectively. See "Note 6. Cash and Investments" of the Notes to Condensed Consolidated Financial Statements for more information.

The fair values of the marketable securities that are classified as Level 1 in the table above were derived from quoted market prices for identical assets or liabilities in active markets that the Company can access. The fair value of marketable securities that are classified as Level 2 in the table above were derived from non-binding market consensus prices that were corroborated by observable market data, quoted market prices for similar instruments, or pricing models, such as discounted cash flow techniques with all significant inputs derived from or corroborated by observable market data. There were no transfers of instruments between Level 1, Level 2 and Level 3 during the financial periods presented.

Derivatives

The Company uses foreign currency exchange forward contracts to mitigate variability in gains and losses generated from the re-measurement of certain monetary assets and liabilities denominated in foreign currencies. These derivatives are carried at fair value with changes recorded in other income (expense), net in the condensed consolidated statements of operations. Changes in the fair value of these derivatives are largely offset by re-measurement of the underlying assets and liabilities. The derivatives have maturities of approximately 30 days.

The settlement result of forward foreign currency contracts included in the three months ended March 30, 2019 was a loss of \$0.2 million, and for the three months ended March 31, 2018 was a loss of \$1.0 million.

The following table presents the notional amounts and fair values of the Company's outstanding derivative instruments in U.S. Dollar equivalent as of the following dates (in millions):

	March 30, 2019		December 29, 2018	
	Fair Value		Fair Value	
	Notional		Notional	
	Amount	Asset/Liability	Amount	Asset/Liability
Undesignated Hedges:				
Forward Foreign Currency Contracts				
Purchase	\$27.4	\$—\$ 0.1	\$25.9	\$—\$ —
Sell	\$—	\$—\$ —	\$21.8	\$—\$ 0.2

Note 6. Cash and Investments

The following tables present cash, cash equivalents, and available-for-sale investments as of the following dates (in thousands):

	March 30, 2019			Estimated Fair Market Value
	Amortized Cost	Unrealized Gains	Unrealized Losses	
Cash	\$79,697	\$ —	\$ —	\$79,697
Cash equivalents:				
Money market funds	10,526	—	—	10,526
Commercial paper	3,989	—	—	3,989
Certificates of deposit	1,000	—	—	1,000
Marketable securities:				
Certificates of deposit	11,251	6	—	11,257
Commercial paper	16,896	9	—	16,905
Corporate debt securities	16,269	—	(13)	16,256
Asset-backed securities	8,433	—	—	8,433
Total cash, cash equivalents, and marketable securities	\$148,061	\$ 15	\$ (13)	\$148,063

	December 29, 2018			Estimated Fair Market Value
	Amortized Cost	Unrealized	Unrealized	
			Gross	

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		Gains	Losses	Value
Cash	\$108,845	\$ —	\$ —	\$108,845
Cash equivalents:				
Money market funds	113	—	—	113
Commercial paper	1,993	—	—	1,993
Marketable securities:				
Certificates of deposits	9,500	—	(3)	9,497
Commercial paper	7,933	—	(1)	7,932
Corporate debt securities	15,788	—	(58)	15,730
Asset-backed securities	7,706	—	(24)	7,682
Total cash, cash equivalents, and marketable securities	\$151,878	\$ —	\$ (86)	\$151,792

Available-for-sale marketable securities, readily convertible to cash, with maturity dates of 90 days or less are classified as cash equivalents, while those with maturity dates greater than 90 days are classified as marketable securities within short-term assets. All marketable securities as of March 30, 2019 and December 29, 2018, were available-for-sale and reported at fair value based on the estimated or quoted market prices as of the balance sheet date.

Realized gains and losses on sale of securities are recorded in other income (expense), net, in the Company's condensed consolidated statement of operations. For the three months ended March 30, 2019 and March 31, 2018, net realized gains and losses were not material.

Unrealized gains or losses, net of tax effect, are recorded in accumulated other comprehensive income (loss) within stockholders' equity. Both the gross unrealized gains and gross unrealized losses for the three months ended March 30, 2019 and March 31, 2018 were not material, and no marketable securities had other than temporary impairment.

All marketable securities as of March 30, 2019 and December 29, 2018 had maturity dates of less than 36 months.

Note 7. Accounts Receivable

The Company maintains arrangements under which eligible accounts receivable in Japan are sold without recourse to unrelated third-party financial institutions. These receivables were not included in the condensed consolidated balance sheets as the criteria for sale treatment had been met. The Company pays administrative fees as well as interest, which ranged 0.63% to 1.68% during the three months ended March 30, 2019, based on the anticipated length of time between the date the sale is consummated, and the expected collection date of the receivables sold.

The Company sold \$12.1 million and \$21.9 million of receivables during the three months ended March 30, 2019 and March 31, 2018, respectively. There were no amounts due from such third-party financial institutions at March 30, 2019 and December 29, 2018.

Note 8. Financial Statement Components

The following tables provide details of selected financial statement components as of the following dates (in thousands):

	At March 30, 2019	December 29, 2018
Inventories:		
Raw materials and sub-assemblies	\$34,922	\$ 31,434
Work in process	20,171	22,383
Finished goods	8,377	8,098
Inventories	63,470	61,915
Inventories-delivered systems	349	180
Total inventories	\$63,819	\$ 62,095
Property, plant and equipment, net:(1)		
Land	\$15,570	\$ 15,571
Building and improvements	21,423	21,354

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Machinery and equipment	36,309	39,898
Furniture and fixtures	2,578	2,551
Software	10,309	10,116
Capital in progress	9,009	6,027
Total property, plant and equipment, gross	95,198	95,517
Accumulated depreciation and amortization	(44,666)	(47,617)
Total property, plant and equipment, net	\$50,532	\$ 47,900

(1) Depreciation and amortization expense of property, plant and equipment was \$1.7 million and \$1.7 million for the three months ended March 30, 2019 and March 31, 2018, respectively.

Other Current Liabilities:		
Accrued warranty	\$3,848	\$ 4,379
Accrued taxes	851	1,738
Customer deposits	321	293
Accrued professional services	469	448
Third party commissions	168	1,382
Other	1,202	1,181
Total other current liabilities	\$6,859	\$ 9,421

Components of Accumulated Other Comprehensive Income (Loss)

	Foreign Currency Translations	Defined Benefit Pension Plans	Unrealized Income (Loss) on Investment	Accumulated Other Comprehensive Income (Loss)
Balance as of December 29, 2018	\$ (2,129)	\$ (646)	\$ 218	\$ (2,557)
Current period change	647	—	55	702
Balance as of March 30, 2019	\$ (1,482)	\$ (646)	\$ 273	\$ (1,855)

The items above, except for unrealized income (loss) on investment, did not impact the Company's income tax provision. The amounts reclassified from each component of accumulated other comprehensive income (loss) into income statement line items were insignificant.

Note 9. Goodwill and Intangible Assets

Goodwill is recorded at cost and tested for potential impairment at least annually. Goodwill was \$26.4 million as of March 30, 2019 and December 29, 2018.

Intangible assets are recorded at cost, less accumulated amortization. Certain of the Company's intangible assets are denominated in foreign currencies. The aggregate \$50,000 increase in the adjusted cost basis of the Company's intangible assets as of March 30, 2019, as compared with December 29, 2018, was due to foreign currency movements. Such foreign currency movements also increased the March 30, 2019 balance of accumulated amortization of the intangibles assets by \$50,000 as compared with December 29, 2018. Intangible assets as of March 30, 2019 and December 29, 2018 consisted of the following (in thousands):

	March 30, 2019		Net carrying amount
	Adjusted cost	Accumulated amortization	
Developed technology	\$35,997	\$ (17,040)	\$ 18,957
Customer relationships	6,538	(1,790)	4,748
In-process research and development	1,400	—	1,400
Trade name	1,500	(33)	1,467
Total	\$45,435	\$ (18,863)	\$ 26,572

December 29, 2018

	Adjusted	Accumulated	Net
	cost	amortization	carrying
			amount
Developed technology	\$35,954	\$ (16,532)	\$ 19,422
Customer relationships	6,531	(1,519)	5,012
In-process research and development	1,400	—	1,400
Trade name	1,500	(8)	1,492
Total	\$45,385	\$ (18,059)	\$ 27,326

The amortization of finite-lived intangibles is computed using the straight-line method. Estimated remaining lives of finite-lived intangibles range from less than one year to fifteen years. The total amortization expense for the three months ended March 30, 2019 and March 31, 2018 was \$755,000 and \$35,000, respectively.

There were no impairment charges related to intangible assets recorded during the three months ended March 30, 2019 and March 31, 2018.

The estimated future amortization expense of finite intangible assets as of March 30, 2019 is as follows (in thousands):

Fiscal Years	Amounts
2019 (remaining nine months)	\$ 2,099
2020	2,905
2021	2,905
2022	2,905
2023	2,905
Thereafter	11,453
Total future amortization expense	\$ 25,172

In-process research and development of \$1.4 million has been omitted from the above table as its estimated useful life is indeterminant at March 30, 2019. It will be tested for potential impairment, along with Goodwill, until its estimated useful life becomes finite.

Note 10. Warranties

The Company generally sells its products with a 12 months repair or replacement warranty from the date of acceptance or shipment date. The Company accrues estimated future warranty costs based upon the historical relationship of warranty costs to the cost of products sold. The estimated future warranty obligations related to product sales are recorded in the period in which the related revenue is recognized. The estimated future warranty obligations are affected by the warranty periods, sales volumes, product failure rates, material usage, and labor and replacement costs incurred in correcting a product failure. If actual product failure rates, material usage, labor or replacement costs were to differ from the Company's estimates, revisions to the estimated warranty obligations would be required. For new product introductions where limited or no historical information exists, the Company may use warranty information from other previous product introductions to guide it in estimating its warranty accrual.

Components of the warranty accrual, which were included in the accompanying condensed consolidated balance sheets with other current liabilities, were as follows (in thousands):

	Three Months	
	Ended	
	March	March
	30,	31,
	2019	2018
Balance as of beginning of period	\$4,379	\$4,863
Accruals for warranties issued during period	960	1,445
Settlements during the period	(1,491)	(1,665)
Balance as of end of period	\$3,848	\$4,643

Note 11. Commitments and Contingencies

Intellectual Property Indemnification Obligations – The Company will, from time to time, in the normal course of business, agree to indemnify certain customers, vendors or others against third party claims that the Company’s products, when used for their intended purpose(s), or the Company’s intellectual property, infringe the intellectual property rights of such third parties or other claims made against parties with whom it enters into contractual relationships. It is not possible to determine the maximum potential amount of liability under these indemnification obligations due to the limited history of prior indemnification claims and the unique facts and circumstances that are likely to be involved in each particular claim. Historically, the Company has not made payments under these obligations and believes that the estimated fair value of these agreements is immaterial. Accordingly, no liabilities have been recorded for these obligations in the accompanying condensed consolidated balance sheets as of March 30, 2019 and December 29, 2018.

Legal Proceedings - From time to time, the Company is subject to various legal proceedings or claims arising in the ordinary course of business.

On August 2, 2017, the Company was named as defendant in a complaint filed in New Hampshire Superior Court (“Complaint”). The Complaint, brought by Optical Solutions, Inc. (“OSI”), alleges claims arising from a purported exclusive purchase contract between OSI and the Company pertaining to certain product. On September 18, 2017, the Company removed the action to the United States District Court for the District of New Hampshire. On September 25, 2017, the Company moved to transfer the Complaint to the District Court for the Northern District of California. On December 20, 2017, the Company filed its complaint against OSI in the California Superior Court for the County of Santa Clara alleging claims arising from OSI’s breach of certain purchase orders. The Company’s complaint was later removed by OSI to the Northern District of California. On May 29, 2018, the

District Court of New Hampshire issued an order granting the Company’s motion to transfer OSI’s Complaint to the Northern District of California and denying the Company’s motion to dismiss the Complaint without prejudice. On June 14, 2018, OSI’s Complaint was consolidated with the Company’s complaint against OSI. On August 9, 2018, OSI filed an Amended Complaint. On September 19, 2018, the Company filed a motion to dismiss OSI’s Amended Complaint for failure to state a claim. The Company’s motion to dismiss was heard on February 28, 2019. On March 5, 2019 the Court granted the Company’s motion to dismiss with leave to amend. OSI filed a Second Amended Complaint on March 29, 2019. The Company’s response to the Second Amended Complaint is due on or before May 24, 2019. Trial has been set for May 16, 2022.

The Company records a provision for a loss when it believes that it is both probable that a loss has been incurred and the amount can be reasonably estimated. Based on current information, the Company believes it does not have any probable and reasonably estimable losses related to any current legal proceedings and claims. Although it is difficult to predict the outcome of legal proceedings, the Company believes that any liability that may ultimately arise from the resolution of these ordinary course matters will not have a material adverse effect on the business, financial condition and results of operations.

Note 12. Net Income Per Share

The Company presents both basic and diluted net income per share on the face of its condensed consolidated statements of operations. Basic net income per share excludes the effect of potentially dilutive shares and is computed by dividing net income by the weighted-average number of shares of common stock outstanding for the period. Diluted net income per share is computed using the weighted-average number of shares of common stock outstanding for the period plus the effect of all dilutive securities representing potential shares of common stock outstanding during the period.

A reconciliation of the share denominator of the basic and diluted net income per share computations for three months ended March 30, 2019 and March 31, 2018 is as follows (in thousands):

	Three Month Ended	
	March 30, 2019	March 31, 2018
Weighted average common shares outstanding used in basic net income per share calculation	24,474	24,063
Potential dilutive common stock equivalents, using treasury stock method	309	420
Weighted average shares used in diluted net income per share calculation	24,783	24,483

Note 13. Stockholders’ Equity and Stock-Based Compensation

Options and Employee Stock Purchase Plan (“ESPP”) Awards

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The fair value of each option and ESPP award is estimated on the grant date using the Black-Scholes valuation model and the assumptions noted in the following table. The expected lives of options granted were calculated using the simplified method allowed by the Staff Accounting Bulletin No. 107, Share-Based Payment. The risk-free rates were based on the U.S Treasury rates in effect during the corresponding period of grant. The expected volatility was based on the historical volatility of the Company's stock price. The dividend yield reflects that the Company has not paid any cash dividends since inception and does not intend to pay any cash dividends in the foreseeable future.

	Three Months Ended March 30, 2019	March 31, 2018
Employee Stock Purchase Plan:	0.5	0.5
Expected life	years	years
Volatility	41.3%	27.2%
Risk free interest rate	2.51%	1.61%
Dividends	—	—

No stock options were awarded during the three months ended March 30, 2019 and March 31, 2018.

A summary of activity of stock options during the three months ended March 30, 2019 is as follows:

	Number of Shares Outstanding (Options)	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in Thousands)
Options				
Outstanding at December 29, 2018	83,394	\$ 15.80	1.19	\$ 988
Exercised	—	—		
Cancelled	—	—		
Outstanding at March 30, 2019	83,394	\$ 15.80	0.94	\$ 1,258
Exercisable at March 30, 2019	83,394	\$ 15.80	0.94	\$ 1,258

The aggregate intrinsic value in the above table represents the total pretax intrinsic value, based on the Company's closing stock price of \$30.88 and \$27.65 as of March 29, 2019 and December 28, 2018, respectively, the last trading day of each period, which would have been received by the option holders had all option holders exercised their options as of such date.

Restricted Stock Units ("RSUs")

Time-based RSUs are valued using the market value of the Company's common stock on the date of grant, assuming no expectation of dividends paid.

A summary of activity for RSUs during the three months ended March 30, 2019 is as follows:

	Number of RSUs	Weighted Average Fair Value
Summary of activity for RSUs		
Outstanding RSUs as of December 29, 2018	769,003	\$ 31.39
Granted	99,644	28.95
Released	(107,063)	23.06
Cancelled	(22,876)	30.83
Outstanding RSUs as of March 30, 2019	738,708	\$ 32.28

Market-Based Performance Stock Units ("PSUs")

In addition to granting RSUs that vest on the passage of time only, the Company granted PSUs to certain executives. The PSUs vest in three tranches over one, two and three years based on the relative performance of the Company's stock during those periods, compared to a peer group over the same period. If target stock price performance is achieved, 66.7% of the shares of the Company's stock subject to the PSUs will vest and up to a maximum of 100% of the shares subject to the PSUs will vest if the maximum stock price performance is achieved for each tranche.

A summary of activity for PSUs for the three months ended March 30, 2019 is as follows:

		Weighted
	Number	Average Fair
Summary of activity for PSUs	of PSUs	Value
Outstanding PSUs as of December 29, 2018	112,163	\$ 22.37
Granted	43,429	19.09
Released	(16,066)	25.09
Cancelled	(1,138)	26.75
Outstanding PSUs as of March 30, 2019	138,388	\$ 20.99

The preceding table reflects the maximum awards that can be achieved upon full vesting.

Valuation of PSUs

On the date of grant, the Company estimated the fair value of PSUs using a Monte Carlo simulation model. The assumptions for the valuation of PSUs are summarized as follows:

	2019 Award	2018 Award
Grant Date Fair Value Per Share	\$13.12-\$23.75	\$20.73-\$25.18
Weighted-average assumptions/inputs:		
Expected Dividend	—	—
Range of risk-free interest rates	2.45%	2.39%-2.63%
Range of expected volatilities for peer group	22%-63%	22%-66%

Stock-based Compensation Expense

Stock-based compensation expense for all share-based payment awards made to the Company's employees and directors pursuant to the employee stock option and employee stock purchase plans by function were as follows (in thousands):

	Three Months Ended	
	March 30, 2019	March 31, 2018
Cost of products	\$260	\$99
Cost of service	185	155
Research and development	772	476
Selling	805	533
General and administrative	1,092	1,075
Total stock-based compensation expense related to employee stock options and employee stock purchases	\$3,114	\$2,338

Note 14. Income Taxes

The Company accounts for income taxes under the provisions of ASC 740, Accounting for Income Taxes. The Company adjusts its effective tax rate each quarter to be consistent with the estimated annual effective tax rate. The Company also records the tax effect of unusual or infrequently occurring discrete items, including changes in judgment about valuation allowances and effects of changes in tax laws or tax rates, in the interim period in which they occur. The Company's effective tax rate reflects the impact of a portion of its earnings being taxed in foreign jurisdictions as well as a valuation allowance maintained on certain deferred tax assets.

The 2017 Tax Act created a new requirement that global intangible low-taxed income (“GILTI”) earned by controlled foreign corporations (“CFCs”) must be included currently in the gross income of the CFCs’ U.S. shareholder. Under U.S. GAAP, the Company was allowed to make an accounting policy choice of either (1) treating taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the “period cost method”) or (2) factoring such amounts into a company’s measurement of its deferred taxes (the “deferred method”). The Company’s selection of an accounting policy in 2018 with respect to the GILTI tax rules was to treat GILTI tax as a current period expense under the period cost method.

The provision for income taxes consists of the following (in thousands):

	Three Months Ended	
	March 30, 2019	March 31, 2018
Provision for income taxes	\$531	\$4,442

The Company recorded a tax provision of \$0.5 million and \$4.4 million for the three months ended March 30, 2019 and March 31, 2018, respectively. The decrease in the tax provision for 2019 from 2018 was primarily related to the Company’s decreased profitability for the three months ending March 30, 2019 as well as less U.S. tax required on foreign earnings under the Tax Cuts and Jobs Act (“TCJA”).

The Company continues to maintain a valuation allowance against its California and Switzerland deferred tax assets as a result of uncertainties regarding the realization of the assets due to cumulative losses and uncertainty of future taxable income. The Company will continue to assess the realizability of the deferred tax assets in each of the applicable jurisdictions and maintain the valuation allowances until sufficient positive evidence exists to support a reversal. In the event the Company determines that the

deferred tax assets are realizable, an adjustment to the valuation allowance will be reflected in the tax provision for the period such determination is made.

The Company is subject to taxation in the U.S. and various states including California, and foreign jurisdictions including Korea, Japan, Taiwan, China, Singapore, Germany, U.K., Ireland, France, and Israel. Due to tax attribute carry-forwards, the Company is subject to examination for tax years 2003 forward for U.S. tax purposes. The Company is also subject to examination in various states for tax years 2002 forward. The Company is subject to examination for tax years 2011 forward for various foreign jurisdictions.

The Company accrues interest and penalties related to unrecognized tax benefits in its provision for income taxes. The total amount of penalties and interest were not material as of March 30, 2019 and December 29, 2018. During the next twelve months, the Company anticipates increases in its unrecognized tax benefits of approximately \$0.6 million.

Note 15. Segment, Geographic, Product and Significant Customer Information

The Company has one operating segment, which is the sale, design, manufacture, marketing and support of optical critical dimension and thin film systems. The following tables summarize total net revenues and long-lived assets (excluding intangible assets) attributed to significant countries (in thousands):

	Three Months Ended	
	March 30, 2019	March 31, 2018
Total net revenues:		
United States	\$ 16,874	\$ 6,738
China	14,361	8,042
South Korea	13,968	37,818
Taiwan	11,288	1,060
Japan	4,318	13,379
Singapore	1,551	12,155
Other	4,740	3,121
Total net revenues	\$ 67,100	\$ 82,313

	March 30, 2019	December 29, 2018
Long-lived tangible assets:		
United States	\$ 48,986	\$ 46,325
International	1,546	1,575
Total long-lived tangible assets	\$ 50,532	\$ 47,900

With respect to customer concentration, SK hynix, Intel and Taiwan Semiconductor each accounted for more than 10% of total sales for the three months ended March 30, 2019, and Samsung Electronics Co. Ltd., SK hynix, Micron Technology, Inc., and Toshiba Memory Corporation each accounted for more than 10% of total sales for the three months ended March 31, 2018.

With respect to accounts receivable concentration, Taiwan Semiconductor and SK hynix each accounted for more than 10% of total accounts receivable as of March 30, 2019. SK hynix and Toshiba Memory Corporation each accounted for more than 10% of total accounts receivable as of December 29, 2018.

Note 16. Subsequent Event

Gain on Disposal of Fixed Asset – Condominium

On April 2, 2019, the Company closed escrow on the sale of the last condominium it owned in Milpitas, California, at a sales price of \$0.9 million. The Company expects to report a gain on the sale of the asset, net of certain fees and commissions, as a component of other income, during the three months ending June 29, 2019 of approximately \$0.8 million. As part of its facilities strategy, the Company had determined that it would no longer house traveling employees in owned condominiums and has divested all such assets.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This Quarterly Report on Form 10-Q contains forward-looking statements that involve risks and uncertainties. The statements contained in this document that are not purely historical are forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, including, without limitation, statements regarding future periods, financial results, revenues, margins, growth, customers, tax rates, product performance, and the impact of accounting rules on our business and the future implications of our statements regarding goals, strategy, and similar terms. We may identify these statements by the use of words such as “anticipate,” “believe,” “continue,” “could,” “expect,” “might,” “project,” “will,” and other similar expressions. All forward-looking statements included in this document are based on information available to us on the date hereof, and we assume no obligation to update any such forward-looking statements, except as may otherwise be required by law.

Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain risks, uncertainties and changes in circumstances, many of which may be difficult to predict or beyond our control, including those factors referenced in this document, including in Part II, Item 1A, Risk Factors below, and in Part I, Item 1A, Risk Factors, in our Annual Report on Form 10-K for the fiscal year ended December 29, 2018, filed with the Securities and Exchange Commission (“SEC”) on February 25, 2019 (our “Annual Report”). In particular, our results could vary significantly based on: changes in customer and industry spending; rate and extent of changes in product mix; adoption of new products; timing of orders, shipments, and acceptance of products; our ability to secure volume supply agreements; uncertainties related to our acquisition of 4D Technology Corporation; and general economic conditions. In evaluating our business, investors should carefully consider these factors in addition to any other risks and uncertainties set forth elsewhere. The occurrence of the events described in the risk factors of our Annual Report and risk factors elsewhere in this report as well as other risks and uncertainties could materially and adversely affect our business, operating results and financial condition. While management believes that the discussion and analysis in this report is adequate for a fair presentation of the information presented, we recommend that you read this discussion and analysis in conjunction with (i) our audited consolidated financial statements and notes thereto for the fiscal year ended December 29, 2018, which were included in our Annual Report, (ii) the section captioned “Risk Factors” in this Quarterly Report and our Annual Report, and (iii) our other filings with the SEC.

Overview

Together with our subsidiaries, we are an innovator in the field of optical metrology systems, optical inspection systems and advanced analytics for semiconductor manufacturing and other industries. Our systems and solutions are designed to precisely monitor optical critical dimensions, film thickness, and other parameters that are necessary to control the manufacturing process, identify defects, and detect manufacturing equipment anomalies that can affect production yields and device performance.

Principal factors that impact our revenue growth include capital expenditures by manufacturers of semiconductors to increase capacity and to enable their development of new technologies, and our ability to improve market share. The increasing complexity of the manufacturing processes for semiconductors is an important factor in the demand for our innovative metrology systems. Our strategy is to continue to innovate organically as well as to evaluate strategic acquisitions to address business challenges and opportunities.

In November of 2018 we acquired 4D Technology Corporation (“4D”), based in Tucson Arizona. The 4D business unit offers a line of interferometry systems for the measurement and inspection of high precision surfaces. 4D’s solutions are used primarily in the manufacture of advanced aerospace and industrial systems as well as for scientific research and semiconductor applications.

We derive our revenues primarily from product sales but also from customer service and system upgrades for the installed base of our products. For the three months ended March 30, 2019, we derived 80% of our total net revenues from product, upgrade and software sales, and 20% of our total net revenues from services.

Nanometrics Products

We offer a diverse line of systems to address the broad range of process control requirements of the semiconductor device and industrial manufacturing markets. In addition, we believe that our product development and engineering expertise and strategic acquisitions will enable us to develop and offer advanced process control solutions that, in the future, should address industry advancement and trends.

Automated Systems

Our automated systems primarily consist of fully automated metrology systems that are employed in semiconductor production environments. The Atlas[®] family of products represent our line of high-performance metrology systems providing optical critical dimension (“OCD”) technology, thin film metrology and wafer stress metrology for transistor and interconnect metrology

applications. The thin film and OCD technology is supported by our NanoCD suite of solutions including our NanoDiffract® software, SpectraProbe™ software and NanoGen™ scalable computing engine that enables visualization, modeling, and analysis of complex structures.

Integrated Systems

Our integrated metrology (“IM”) systems are installed directly onto wafer processing equipment to provide near real-time measurements for improved process control and maximum throughput. Our IM systems are sold directly to end user customers. The IMPULSE family of products include the latest technology for OCD, and thin film metrology, and have been successfully qualified on numerous independent Wafer Fabrication Equipment Suppliers’ platforms. Our NanoCD suite of solutions is sold in conjunction with our IMPULSE systems.

Software

NanoDiffract® is a modeling, visualization and analysis software that takes signals from the metrology systems, providing critical dimension, thickness, and optical properties from in-line measurements. The software has an intuitive three-dimensional modeling interface to provide visualization of today’s advanced and complex semiconductor devices. There are proprietary fitting algorithms in NanoDiffract that enable very accurate and very fast calculations for signal processing for high fidelity model-based measurements. SpectraProbe is a model-less fitting engine that enables fast time to solution for in-line excursion detection and control. SpectraProbe complements the high-fidelity modeling of NanoDiffract with a simple machine learning interface for rapid recipe deployment. The software is supported by NanoGen, an enterprise scale computing hardware system that is deployed to run the computing intensive analysis software. NanoGen utilizes commercial server chips and networking architecture and is optimized to support the workload of NanoDiffract and SpectraProbe analysis.

Materials Characterization

Our materials characterization products include systems that are used to monitor the physical, optical, electrical and material characteristics of discrete electronic industry, opto-electronic, HB-LED (high brightness LEDs), solar PV (solar photovoltaics), compound semiconductor, strained silicon and silicon-on-insulator (“SOI”) devices, including composition, crystal structure, layer thickness, dopant concentration, contamination and electron mobility.

We have a broad portfolio of products for materials characterization including photoluminescence mapping and Fourier-Transform Infrared (“FTIR”) spectroscope in automated and manual systems for substrate quality and epitaxial thickness metrology. The NanoSpec® line supports thin film measurement across all applications in both low volume production and research applications.

Industrial, Scientific, and Research Markets: 4D Technology

In November of 2018 we acquired 4D Technology Corporation, based in Tucson Arizona. The 4D business unit offers a line of interferometry systems for the measurement and inspection of high precision surfaces. End markets include high precision optics surfaces and components, aerospace and defense components, and unique research and scientific instrumentation that requires the unique high-speed results of the 4D systems.

We are continually working to strengthen our competitive position by developing new technologies and products in our market segment. We have expanded our product offerings to address growing applications within the semiconductor manufacturing and adjacent industries. In pursuit of our goals, we have:

• Introduced new products, applications, and upgrades in every core product line and primary market served;

◆ Diversified our product line and served markets through acquisitions; and
◆ Continued development of new measurement and inspection technologies for advanced fabrication processes and packaging.

24

Important Themes and Significant Trends

The semiconductor equipment industry is characterized by new manufacturing processes (node) coming to market every two to three years. At every new node in the semiconductor industry, our customers drive the need for metrology as a major component of device manufacturing. These trends include:

• **Proliferation of Optical Critical Dimension Metrology across Fabrication Processes.** Device dimensions must be carefully controlled during each step of processing. These patterned structures are measured at many subsequent production steps including Chemical Mechanical Polishing, Etch, and Thin Film processing, all driving broader OCD adoption. Our proprietary OCD systems can provide the critical process control of these circuit dimensions that is necessary for successful manufacturing of these state-of-the-art devices. Nanometrics OCD technology is broadly adopted across 3D-NAND, DRAM, and logic semiconductor manufacturing processes.

• **Proliferation of 3D Transistor Architectures.** Our end customers continue to improve device density and performance by scaling front-end-of-line transistor architectures. Many of these designs, including FinFET transistors, have buried features and high aspect ratio stacked features that enable improved performance and density. The advanced designs require additional process control to manage the complex shapes and materials properties, driving additional applications of our systems.

• **Proliferation of High-Density 3D-NAND.** Our end customers have migrated to multi (many) layered high aspect ratio 3D-NAND devices. Many stacks of NAND cells are formed in parallel. This 3D-NAND architecture enables cost effective density scaling, removing the burden of density from lithography to deposition and etch processes. These devices require additional process control of deposition stacks, planarization processes, and critical high aspect ratio etch processes. Nanometrics thin films and OCD technologies are adopted across the 3D-NAND process including the periphery CMOS processing, NAND cell formation, and Interconnect of the devices.

• **Adoption of New Types of Thin Film Materials.** The need for ever increasing device circuit speed coupled with lower power consumption has pushed semiconductor device manufacturers to new materials and processing methods with single atom/sub nanometer control over these processes.

• **Need for Improved Process Control to Drive Process Efficiencies.** Competitive forces influencing semiconductor device manufacturers, such as price-cutting, shorter product life cycles and time to market, place pressure on manufacturers to rapidly achieve production efficiency. Device manufacturers are using our integrated and automated systems, as well as advanced metrology algorithms and analytics, throughout the fabrication process to ensure that manufacturing processes scale rapidly, are accurate and can be repeated on a consistent basis.

Critical Accounting Policies and Estimates

The preparation of our financial statements conforms to accounting principles generally accepted in the United States of America, which requires management to make estimates and judgments in applying our accounting policies that have an important impact on our reported amounts of assets, liabilities, revenue, expenses and related disclosures at the date of our financial statements. On an ongoing basis, management evaluates its estimates including those related to bad debts, inventory valuations, warranty obligations, impairment and income taxes. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from management's estimates.

Except for the changes noted below, there were no significant changes in our critical accounting policies during the three months ended March 30, 2019. Please refer to Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," in our Annual Report for a complete discussion of our critical accounting policies.

Change in Accounting for Leases (Adoption of ASU 2016-02 Leases) - We adopted the new accounting standard ASC 842 and related amendments in the first quarter of fiscal 2019 using the alternative optional transition method. As

such, we recognized the cumulative effect of initially applying the new lease standard as an adjustment to the opening balance of retained earnings for fiscal 2019. Comparative financial statements for fiscal 2018 have been prepared under the previous accounting standard. Please refer to Note 1. Nature of Business, Basis of Presentation and Significant Accounting Policies for further discussion of this change.

Recent Accounting Pronouncements

See Note 2 of the Unaudited Condensed Consolidated Financial Statements for a description of recent accounting pronouncements, including the respective dates of adoption and effects or anticipated effects on our results of operations and financial condition.

Results of Operations

Net Revenues

Our net revenues comprised the following (in thousands, except percentages):

	Three Months Ended			
	March 30, 2019	March 31, 2018	Change	
Product	53,855	71,019	(17,164)	-24.2 %
Service	13,245	11,294	1,951	17.3 %
Total net revenues	\$67,100	\$82,313	\$(15,213)	-18.5 %

Capital spending by our customers is dependent on the timing of new semiconductor fabrication plants, capacity expansion within existing plants, and the adoption of modern technology for current and future manufacturing needs. Results may vary significantly based on changes in any of these factors. For the three months ended March 30, 2019, total net revenues decreased by \$15.2 million relative to the comparable period in fiscal 2018. The decrease comprised a \$17.2 million decrease in product revenue, mainly as a result of lower demand in the overall wafer fab equipment market, and a \$2.0 million increase in service revenue compared to the same prior year period.

A significant portion of the world's semiconductor manufacturing capacity is in Asia. We generated 68% of our revenues in Asia in the three months ended March 30, 2019 compared to 88% for the three months ended March 31, 2018, a decrease of 20%. This was mainly due to an increase in revenue from a strategic U.S. customer related to fab expansion as a result of new technology adoption. Although sales to customers within individual countries of that region will vary from time to time, we expect that a substantial portion of our revenues will continue to be generated in Asia.

Gross margin

Our gross margin breakdown was as follows:

	Three Months Ended	
	March 30, 2019	March 31, 2018
Products	51.0%	59.7%

Service	47.5%	45.5%
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The calculation of product gross margin includes both cost of products and amortization of intangibles.

The gross margin on product revenue decreased to 51.0% in the three months ended March 30, 2019 from 59.7% in the three months ended March 31, 2018. The decrease was partially due to an unfavorable product and customer mix and lower factory utilization. Additionally, the amortization of intangibles of \$0.5 million, or 0.7%, and acquisition-related adjustments of \$1.0 million, or 1.4%, negatively impacted product margin by an aggregate 2.1%. The gross margin on our services business increased to 47.5% in the three months ended March 30, 2019 from 45.5% in the three months ended March 31, 2018. The increase was due to higher labor utilization rates, increased revenue from service contracts with higher margins and lower service spending.

Operating expenses

Our operating expenses comprised the following categories (in thousands, except percentages):

	Three Months Ended			
	March 30, 2019	March 31, 2018	Change	
Research and development	\$12,987	\$10,202	\$2,785	27.3%
Selling	9,282	9,024	258	2.9%
General and administrative	7,905	7,741	164	2.1%
Amortization of intangible assets	289	—	289	na
Total operating expenses	\$30,463	\$26,967	\$3,496	13.0%

Research and development

Investments in research and development personnel and associated projects are part of our strategy to ensure our products remain competitive and meet customers' needs. For the three months ended March 30, 2019, research and development costs increased by \$2.8 million, or 27.3%, compared to the same period in 2018. The increase was driven by additional headcount and new product development initiatives, and costs of \$0.7 million resulting from the acquisition of 4D subsequent to the same period in 2018, which were partially offset by lower variable compensation costs.

Selling

Selling expenses for the three months ended March 30, 2019 increased by \$0.3 million, or 2.9% compared to the same period in 2018. The increase was driven by additional headcount, partially offset by lower variable compensation costs and lower sales commission expenses.

General and administrative

General and administrative expenses increased by \$0.2 million, or 2.1%, in the three months ended March 30, 2019 compared to the same period in 2018. The increase was primarily due to additional headcount, severance costs, and IT infrastructure costs, partially offset by lower variable compensation costs and professional services fees.

Other income (expense), net.

Our other income (expense), net, consisted of the following items (in thousands):

Three Months Ended	Change
--------------------	--------

	March		
	30,	31,	
	2019	2018	
Interest expense, net	\$(91)	\$(93)	\$ 2
Net gains on investments	310	269	41
Other losses, net	(40)	83	(123)
Other income, net	270	352	(82)
Total other income, net	\$179	\$259	\$(80)

Other income, net, decreased by \$0.1 million in the three months ended March 30, 2019 relative to the comparable period in 2018. The change was principally due to lower returns on marketable securities and foreign exchange net losses.

Provision for income taxes

We recorded a tax provision of \$0.5 million and \$4.4 million for the three months ended March 30, 2019 and March 31, 2018, respectively. The decrease in the tax provision for 2019 from 2018 was primarily related to our decreased profitability for the three months ended March 30, 2019, as well as less U.S. tax required on foreign earnings under the Tax Credit and Jobs Act (“TCJA”).

Our provision for income taxes for the three months ended March 30, 2019 of \$0.5 million reflects an effective tax rate of 15.2%. The tax rate for the three months ended March 30, 2019 differs from the Federal statutory rate of 21.0% primarily due to foreign and R&D tax credits and tax benefits associated with the settlement of equity options/awards offset by foreign income being subject to tax at higher rates, state income taxes, and non-deductible equity compensation.

The TCJA created a new requirement that global intangible low-taxed income (“GILTI”) earned by controlled foreign corporations (“CFCs”) must be included currently in the gross income of the CFCs’ U.S. shareholder. Under U.S. GAAP, we were allowed to make an accounting policy choice of either (1) treating taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the “period cost method”) or (2) factoring such amounts into a company’s measurement of its deferred taxes (the “deferred method”). Our selection of an accounting policy in 2018 with respect to the GILTI tax rules was to treat GILTI tax as a current period expense under the period cost method.

As of March 30, 2019, we continue to maintain a valuation allowance against our California and Switzerland deferred tax assets as a result of uncertainties regarding the realization of the assets due to cumulative losses and uncertainty of future taxable income. We will continue to assess the realizability of the deferred tax assets in each of the applicable jurisdictions and maintain the valuation allowances until sufficient positive evidence exists to support a reversal. In the event we determine that the deferred tax assets are realizable, an adjustment to the valuation allowance will be reflected in the tax provision for the period such determination is made.

We are subject to taxation in the U.S. and various states including California, and foreign jurisdictions including Korea, Japan, Taiwan, China, Singapore, U.K., Ireland, Germany, France, and Israel. Due to tax attribute carry-forwards, we are subject to examination for tax years 2003 forward for U.S. tax purposes. We are also subject to examination in various states for tax years 2002 forward. We are subject to examination for tax years 2011 forward for various foreign jurisdictions.

We accrue interest and penalties related to unrecognized tax benefits in our provision for income taxes. The total amount of penalties and interest were not material as of March 30, 2019 and March 31, 2018. During the next twelve months, we anticipate increases in our unrecognized tax benefits of approximately \$0.6 million.

Liquidity and Capital Resources

Our principal sources of liquidity are cash and cash equivalents, and marketable securities, and cash flow generated from our operations. Our liquidity is affected by many factors, including those that relate to our specific operations and those that relate to the uncertainties of global and regional economies and the sectors of the semiconductor industry in which we operate in. Although our cash requirements will fluctuate based on the timing and extent of these factors, we believe our existing cash, cash equivalents and marketable securities, combined with cash currently projected to be generated from our operations, will be sufficient to satisfy our working capital needs, capital asset purchases, outstanding commitments and other liquidity requirements associated with our existing operations over the next twelve months.

The following tables present selected financial information and statistics as of March 30, 2019 and December 29, 2018 and for the three months ended March 30, 2019 and March 31, 2018 (in thousands):

	As of March 30, 2019	December 29, 2018
Cash, cash equivalents and marketable securities	\$ 148,063	\$ 151,792
Working capital	\$ 213,962	\$ 211,108

As of

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	March 30, 2019	March 31, 2018
Cash provided by (used in) operating activities	\$(856)	\$32,714
Cash provided by (used in) investing activities	(15,964)	21,616
Cash provided by (used in) financing activities	745	(22,918)

Cash, cash equivalents and marketable securities totaled \$148.1 million at March 30, 2019, which reflects a decrease of \$3.7 million from December 29, 2018. Of our total cash, cash equivalents and marketable securities at March 30, 2019, approximately \$28.5 million was held by foreign subsidiaries, a portion of which would have to be repatriated to the United States. We continuously evaluate if there is a need to repatriate these funds. We believe our existing cash, cash equivalents and marketable securities will be sufficient to satisfy our working capital needs, capital asset purchases, outstanding commitments and other liquidity requirements associated with our existing operations over at least the next twelve months. Working capital was \$214.0 million at March 30, 2019, which reflects an increase of \$2.9 million when compared to \$211.1 million at December 29, 2018.

Cash used in operating activities during the three months ended March 30, 2019 was \$0.9 million, consisting primarily of net income of \$3.0 million, adjusted for non-cash items of \$7.3 million, and \$11.2 million of net cash outflows related to changes in operating assets and liabilities. We expect that cash provided by operating activities may fluctuate in future periods due to several factors, including variations in our operating results, accounts receivable collections performance, inventory and supply chain management, vendor payment initiatives, tax benefits or charges from stock-based compensation, and the timing and amount of compensation and other payments. The non-cash items of \$7.3 million related to depreciation, amortization, inventory reserves and

stock-based compensation. The net cash outflows related to the use of operating assets and liabilities was primarily due to the timing of payments of variable compensation to employees, timing of tax payments and higher inventory purchases for some new product introductions. These payments have been partially offset by collections from customers against early payment programs and improvements in payment terms from some vendors, resulting in lower days sales outstanding and higher days payables outstanding.

Cash provided by operating activities during the three months ended March 31, 2018 was \$32.7 million, consisting primarily of net income of \$16.4 million, adjusted for non-cash items of \$6.3 million, and \$10.1 million of net cash inflows related to changes in operating assets and liabilities. The changes in operating assets and liabilities were generally driven by the timing of our customer payments for accounts receivable and the timing of inventory purchases and the associated vendor payments for accounts payable.

Cash used in investing activities of \$16.0 million during the three months ended March 30, 2019 consisted primarily of \$24.0 million of purchases of marketable securities and payments for acquisition of property, plant and equipment and certain assets of \$4.1 million, partially offset by sales and maturities of marketable securities of \$12.2 million.

Cash provided by investing activities of \$21.6 million during the three months ended March 31, 2018 consisted primarily of net of sales and maturities of marketable securities of \$23.9 million, offset in part by payments for acquisition of property, plant and equipment and certain assets of \$2.3 million.

Cash provided by financing activities of \$0.7 million during the three months ended March 30, 2019 consisted primarily of proceeds from the issuance of common stock under employee stock purchase program of \$1.5 million, partially offset by \$0.8 million cash paid for taxes on net issuance of stock awards.

Cash used in financing activities of \$22.9 million during the three months ended March 31, 2018 consisted primarily of \$23.0 million of common stock repurchases and \$0.5 million cash paid for taxes on net issuance of stock awards, partially offset by proceeds from the issuance of common stock from the employee stock purchase program and the exercise of stock options of \$0.5 million.

Repurchases of Common Stock

On March 14, 2019 our Board of Directors authorized the repurchase of up to \$80.0 million of our common stock. This plan is referred to as the Stock Repurchase Plan. Under the terms of the Stock Repurchase Plan shares may be repurchased through open market or privately negotiated transactions. During the three months ended March 30, 2019 no shares were repurchased under the Stock Repurchase Plan.

During the three months ended March 31, 2018, the Stock Repurchase Plan for \$50.0 million that was authorized on November 15, 2017 was completed and we repurchased 896,187 shares at an average purchase price of \$25.65 per share for a total of \$23.0 million.

Off-Balance Sheet Arrangements

As of March 30, 2019, we had no off-balance sheet arrangements or obligations.

Contractual Obligations

There have been no material changes outside the ordinary course of our business from those reported in our Annual Report on Form 10-K for the fiscal year ended December 29, 2018, filed with the SEC on February 25, 2019.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Our exposure to market risk does not differ materially from that discussed in our Annual Report on Form 10-K for the fiscal year ended December 29, 2018, filed with the SEC on February 25, 2019. However, we cannot give any assurance as to the effect that future changes in interest rates or foreign currency rates will have on our consolidated balance sheet, results of operations or cash flows.

Foreign Currency Risk

Our exposure to foreign currency exchange rate fluctuations arises in part from intercompany balances in which costs are charged between our U.S. headquarters and our foreign subsidiaries. On our consolidated balance sheet these intercompany balances are eliminated and thus no consolidated balances are associated with these intercompany balances; however, since each foreign entity's functional currency is generally its respective local currency, there is exposure to foreign exchange risk on a consolidated basis for transactions not denominated in each foreign entity's functional currencies. Intercompany balances are denominated primarily in U.S. dollars and, to a lesser extent, other local currencies.

To manage the level of exposure to the risk of foreign currency exchange rate fluctuations, we enter into foreign currency forward exchange contracts to protect against currency exchange risks associated with existing assets and liabilities. A foreign currency forward exchange contract acts as a hedge by increasing in value when underlying assets decrease in value or underlying liabilities increase in value due to changes in foreign exchange rates. Conversely, a foreign currency forward exchange contract decreases in value when underlying assets increase in value or underlying liabilities decrease in value due to changes in foreign exchange rates. These forward contracts are not designated as accounting hedges, so the unrealized gains and losses are recognized in other income (expense), net, in advance of the actual foreign currency cash flows with the fair value of these forward contracts being recorded as accrued liabilities or other current assets.

We do not use forward contracts for trading purposes. Our forward contracts generally have maturities of 30 days or less. We enter into foreign currency forward exchange contracts based on estimated future asset and liability exposures, and the effectiveness of our hedging program depends on our ability to estimate these future asset and liability exposures. Recognized gains and losses with respect to our current hedging activities will ultimately depend on how accurately we are able to match the amount of foreign currency forward exchange contracts with actual underlying asset and liability exposures.

We actively monitor our foreign currency risks, but there is no guarantee that our foreign currency hedging activities will substantially offset the impact of fluctuations in currency exchange rates on our results of operations, cash flows and financial position. See "Note 5, Fair Value Measurement and Disclosures" in the Notes to Consolidated Financial Statements for more information regarding our derivatives and hedging activities.

Interest Rate Risk

Our exposure to market risk resulting from changes in interest rates relates primarily to our investment portfolio. As of March 30, 2019 and December 29, 2018, we held \$52.9 million and \$40.8 million, respectively, in marketable securities. The fair value of our marketable securities could be adversely impacted due to a rise in interest rates. Assuming a hypothetical immediate and consistent increase in interest rates by 100 basis points from levels as of March 30, 2019, the fair value of our marketable securities would have declined by \$0.2 million, as compared to \$0.5 million as of December 29, 2018. Securities with longer maturities are subject to a greater interest rate risk than those with shorter maturities and as of March 30, 2019 and December 29, 2018, the average duration of our portfolio was less than nine months. We do not hold securities for trading purposes.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management evaluated, with the participation of our Chief Executive Officer (“CEO”), and our Vice President, Finance (who is our Principal Financial Officer (“PFO”)), the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on the evaluation, our CEO and PFO concluded that as of March 30, 2019, our disclosure controls and procedures were effective to ensure that information we are required to disclose in reports that we file or submit under the Securities Exchange Act of 1934 were (i) recorded, processed, summarized and reported within the time periods specified in SEC rules and forms and (ii) accumulated and reported to our management, including our Chief Executive Officer and Principal Financial Officer, to allow timely discussions regarding required disclosures.

Changes in Internal Control over Financial Reporting

During the quarter ended March 30, 2019, there were no changes in our internal controls over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our CEO and PFO, has designed our disclosure controls and procedures and our internal control over financial reporting to provide reasonable assurances that the controls’ objectives will be met. However, management does not expect that disclosure controls and procedures or our internal control over financial reporting will prevent or detect all error and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system’s objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within Nanometrics have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any system’s design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of a system’s control effectiveness into future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

PART II — OTHER INFORMATION

ITEM 1 LEGAL PROCEEDINGS

The information set forth under Note 11. Commitments and Contingencies of Notes to Consolidated Financial Statements in Part I, Item 1 of this Quarterly Report on Form 10-Q is incorporated herein by reference.

ITEM 1A. RISK FACTORS

Investing in our securities involves a high degree of risk. In assessing these risks, you should carefully consider the information included in this report, including our financial statements and the related notes thereto. You should carefully review and consider all of the risk factors set forth in Part I, “Item 1A. Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 29, 2018, filed with the SEC on February 25, 2019.

The risks described in our Annual Report on Form 10-K are not the only ones we face. Additional risks and uncertainties that are not currently known to us or that we currently believe are immaterial may also impair our business operations. Our business, operating results and financial conditions could be materially harmed by any of these risks. The trading price of our common stock could decline due to any of these risks and investors may lose all or part of their investment.

There have been no material changes in our risk factors from those discussed in our Annual Report on Form 10-K for the fiscal year ended December 29, 2018.

ITEM 6. EXHIBITS

The following exhibits are filed, furnished or incorporated by reference with this Quarterly Report on Form 10-Q:

Exhibit No.	Description	File Form Number	Date of First Filing	Exhibit Number/ Appendix Reference
3.(i)	Certificate of Incorporation			
3.1	<u>Certificate of Incorporation of the Registrant</u>	8-K 000-13470	10/5/2006	3.1
3.(ii)	Bylaws			
3.2	<u>Bylaws of the Registrant</u>	8-K 000-13470	4/12/2012	3.1
4	Instruments Defining the Rights of Security Holders, Including Indentures			
4.1	Reference is made to Exhibits <u>3.1</u> and <u>3.2</u>	-	-	-
10	Material Contracts			
	Management Contracts, Compensatory Plans, Contracts or Arrangements			
	<u>General Severance Benefits and Change in Control Severance Benefits Agreement between Registrant and James Barnhart, dated March 12, 2018</u>	-	-	-
10.1				
31	Rule 13a-14(a)/15d-14(a) Certifications			
31.1	<u>Certification of Pierre-Yves Lesaichere, principal executive officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002</u>	-	-	-
31.2	<u>Certification of Greg Swyt, principal financial officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002</u>	-	-	-
32	Section 1350 Certifications			
32.1	<u>Certification of Pierre-Yves Lesaichere, principal executive officer of the Registrant, and Greg Swyt, principal financial officer of the Registrant pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. This Certification accompanies this report and shall, not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed filed for purposes of §18 of the Securities Exchange Act of 1934, as amended.</u>	-	-	-
101	The following financial statements, formatted in XBRL: (i) Condensed Consolidated Balance Sheets at March 30, 2019 and December 29, 2018, (ii) Condensed Consolidated Statements of Operations for the three months ended March 30, 2019 and March 31, 2018, (iii) Condensed Consolidated Statements of Stockholders' Equity for the three months ended March 30, 2019 and March 31, 2018, (iv) Condensed Consolidated Statements of Cash Flows for the three months ended March 30, 2019 and March 31, 2018, and (v) Notes to Unaudited Condensed Consolidated Financial Statements.			
101.INS	XBRL Instance Document			

101.SCH XBRL Taxonomy Extension Schema Document
101.CAL XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF XBRL Taxonomy Extension Definition Linkbase Document
101.LAB XBRL Taxonomy Extension Label Linkbase Document
101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

SIGNATURES

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

NANOMETRICS INCORPORATED
(Registrant)

By: /s/ GREG SWYT
Greg Swyt
Vice President, Finance
(Duly Authorized Officer, Principal Financial Officer)

Dated: May 1, 2019