Hagan David
Form 4
February 13, 2013

FORM 4

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

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. *See* Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL
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(Print or Type Responses)

1. Name and Address of Reporting Person *
Hagan David

(Last) (First) (Middle)

C/O BOINGO WIRELESS, INC., 10960 WILSHIRE BLVD., SUITE 800

(Street)

LOS ANGELES, CA 90024

(City) (State) (Zip)

2. Issuer Name **and** Ticker or Trading Symbol
BOINGO WIRELESS INC [WIFI]

3. Date of Earliest Transaction (Month/Day/Year)
02/12/2013

4. If Amendment, Date Original Filed(Month/Day/Year)

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

__X__ Director _____ 10% Owner
__X__ Officer (give title below) _____ Other (specify below)
Chief Executive Officer

6. Individual or Joint/Group Filing(Check Applicable Line)
_X_ Form filed by One Reporting Person
___ Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1.Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	02/12/2013		M		15,000	A	$ 0.75	15,000	D	
Common Stock	02/12/2013		S		15,000	D	$ 7.89	0	D	

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

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SEC 1474 (9-02)

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned
(*e.g.*, puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Underlying Securities (Instr. 3 and 4)	
				Code	V	(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares
Employee Stock Option (Right to Buy)	$ 0.75	02/12/2013		M			15,000	(1)	11/18/2013	Common Stock	15,000

Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
Hagan David C/O BOINGO WIRELESS, INC. 10960 WILSHIRE BLVD., SUITE 800 LOS ANGELES, CA 90024	X		Chief Executive Officer	

Signatures

/s/ Noah Belsky as Attorney-in-fact for David Hagan	02/13/2012
**Signature of Reporting Person	Date

Explanation of Responses:

* If the form is filed by more than one reporting person, *see* Instruction 4(b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

(1) Subject to continuous service, this option is exercisable with respect to 1/4th of the shares subject to this option on 11/18/2004; and exercisable with respect to an additional 1/36th of the remaining shares subject to this option each month thereafter; as of the transaction date this option is fully vested and exercisable.

Remarks:
The sale reported on this Form 4 was effected pursuant to a Rule 10b5-1 trading plan adopted by the Reporting Person on 9/13

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure.
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	March 31, 2018 Fair Value Measurements	December 30, 2017 Fair Value Measurements

	Using Input Types Level 1	Level 2	Level 3	Total	Using Input Types Level 1	Level 2	Level 3	Total
Assets:								
Cash equivalents:								
Money market funds	$9,680	$—	$ —	$9,680	$256	$—	$ —	$256
Marketable securities:								
U.S. Government agency debt securities	—	1,496	—	1,496	—	1,495	—	1,495
Certificates of deposits	—	6,995	—	6,995	—	14,497	—	14,497
Commercial paper	—	5,474	—	5,474	—	7,949	—	7,949
Corporate debt securities	—	36,842	—	36,842	—	47,968	—	47,968
Asset-backed Securities	—	7,168	—	7,168	—	10,221	—	10,221
Total marketable securities	$—	$57,975	$ —	$57,975	$—	$82,130	$ —	$82,130
Total[(1)]	$9,680	$57,975	$ —	$67,655	$256	$82,130	$ —	$82,386

(1) Excludes $56.2 million and $34.6 million held in operating accounts as of March 31, 2018 and December 30, 2017, respectively. See "Note 4. Cash and Investments" of the Notes to 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 has the ability to 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 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 of forward foreign currency contracts included in the three months ended March 31, 2018 and April 1, 2017 was a loss of $1.0 million and a gain of $0.4 million, respectively. These are included in other income (expense), net, in the consolidated statements of operations.

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

	As of March 31, 2018 Notional Amount	Fair Value Asset	Liability	As of December 30, 2017 Notional Amount	Fair Value Asset	Liability
Undesignated Hedges:						

Forward Foreign Currency Contracts						
Purchase	$29.4	$—	$ 0.1	$27.5	$—	$ 0.1
Sell	$19.8	$—	$ —	$16.8	$0.1	$ —

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Note 4. Cash and Investments

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

	March 31, 2018			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Market Value
Cash	$56,232	$ —	$ —	$56,232
Cash equivalents:				
Money market funds	9,680	—	—	9,680
Marketable securities:				
U.S. Government agency securities	1,500	—	(4)	1,496
Certificate of deposits	6,999	—	(4)	6,995
Commercial paper	5,481	—	(7)	5,474
Corporate debt securities	37,017	—	(175)	36,842
Asset-backed securities	7,204	—	(36)	7,168
Total cash, cash equivalents, and marketable securities	$124,113	$ —	$ (226)	$123,887

	December 30, 2017			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Market Value
Cash	$34,643	$ —	$ —	$34,643
Cash equivalents:				
Money market funds	256	—	—	256
Marketable securities:				
U.S. Government agency securities	1,500	—	(5)	1,495
Certificates of deposits	14,498	—	(1)	14,497
Commercial paper	7,952	—	(3)	7,949
Corporate debt securities	48,073	—	(105)	47,968
Asset-backed securities	10,240	—	(19)	10,221
Total cash, cash equivalents, and marketable securities	$117,162	$ —	$ (133)	$117,029

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 31, 2018 and December 30, 2017, 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 statement of operations. For the three months ended March 31, 2018 and April 1, 2017, 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 31, 2018 and April 1, 2017 were not material and no marketable securities had other than temporary impairment.

All marketable securities as of March 31, 2018 and December 30, 2017, had maturity dates of less than two years.

Note 5. 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 consolidated balance sheets as the criteria for sale treatment had been met. The Company pays administrative fees as well as interest ranging from 0.62% to 1.68% 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 $21.9 million and $5.2 million of receivables during the three months ended March 31, 2018 and April 1, 2017, respectively. There were no amounts due from such third party financial institutions at March 31, 2018 and December 30, 2017.

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Note 6. Financial Statement Components

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

	At March 31, 2018	December 30, 2017
Inventories:		
Raw materials and sub-assemblies	$29,781	$ 32,187
Work in process	15,781	13,498
Finished goods	7,548	7,175
Inventories	53,110	52,860
Inventories-delivered systems	1,493	1,534
Total inventories	$54,603	$ 54,394
Property, plant and equipment, net:[1]		
Land	$15,573	$ 15,573
Building and improvements	21,212	20,880
Machinery and equipment	39,629	36,380
Furniture and fixtures	2,470	2,420
Software	9,584	9,558
Capital in progress	1,502	4,418
Total property, plant and equipment, gross	89,970	89,229
Accumulated depreciation and amortization	(46,175)	(44,419)
Total property, plant and equipment, net	$43,795	$ 44,810
[1] Total depreciation and amortization expense was $1.7 million and $1.8 million for the three months ended March 31, 2018 and April 1, 2017, respectively.		
Other Current Liabilities:		
Accrued warranty	$4,643	$ 4,863
Accrued taxes	721	813
Accrued professional services	470	534
Other	1,286	1,039
Total other current liabilities	$7,120	$ 7,249

Components of Accumulated Other Comprehensive Income (Loss)

	Foreign Currency	Defined Benefit	Unrealized (Loss)	Accumulated Other

	Translations	Pension Plans	on Investment	Comprehensive Income
Balance as of December 30, 2017	$ (1,647)	$ (387)	$ (90)	$ (2,124)
Current period change	1,987	—	(89)	1,898
Balance as of March 31, 2018	$ 340	$ (387)	$ (179)	$ (226)

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

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Note 7. Goodwill and Intangible Assets

The following table summarizes the activity in the Company’s goodwill during the three months ended March 31, 2018:

	(in thousands)
Balance as of December 30, 2017	$ 10,232
Foreign currency movements	379
Balance as of March 31, 2018	$ 10,611

Finite-lived intangible assets are recorded at cost, less accumulated amortization. Finite-lived intangible assets as of March 31, 2018 and December 30, 2017 consisted of the following (in thousands):

	March 31, 2018		
	Adjusted cost	Accumulated amortization	Net carrying amount
Developed technology	$11,636	$ (8,465)	$ 3,171
Customer relationships	8,521	(8,521)	—
Brand names	1,927	(1,927)	—
Patented technology	2,252	(2,252)	—
Trademark	80	(80)	—
Total	$24,416	$ (21,245)	$ 3,171

	December 30, 2017		
	Adjusted cost	Accumulated amortization	Net carrying amount
Developed technology	$18,887	$ (16,681)	$ 2,206
Customer relationships	9,438	(9,438)	—
Brand names	1,927	(1,927)	—
Patented technology	2,252	(2,252)	—
Trademark	80	(80)	—
Total	$32,584	$ (30,378)	$ 2,206

The amortization of finite-lived intangibles is computed using the straight-line method. Estimated lives of finite-lived intangibles range from two to ten years. The total amortization expense for both the three months ended March 31, 2018 and April 1, 2017 was $0.1 million.

There were no impairment charges related to intangible assets recorded during the three months ended March 31, 2018 and April 1, 2017.

The estimated future amortization expense of finite intangible assets as of March 31, 2018 is as follows (in thousands):

Fiscal Years	Amounts
2018 (remaining nine months)	248
2019	352
2020	429
2021	429
2022	429
Thereafter	1,284
Total future amortization expense	$ 3,171

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Note 8. 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 provides an accrual for 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 31, 2018	April 1, 2017
Balance as of beginning of period	$4,863	$3,838
Accruals for warranties issued during period	1,445	1,369
Settlements during the period	(1,665)	(963)
Balance as of end of period	$4,643	$4,244

Note 9. 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 31, 2018 and December 30, 2017.

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 Northern District of California and to dismiss all claims in the Complaint for lack of personal jurisdiction and for failure to state a claim. On September 27, 2017, OSI filed a motion to remand. On January 31, 2018, the District Court of New Hampshire denied OSI’s motion to remand. The Court held a hearing on Nanometrics' motions to transfer or dismiss on September 24, 2018, and at the conclusion of the hearing the Court stated that it intended to transfer the case to the Northern District of California.

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 10. 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 31, 2018 and April 1, 2017 is as follows (in thousands):

	Three Month Ended March 31, 2018	April 1, 2017
Weighted average common shares outstanding used in basic net income per share calculation	24,063	25,133
Potential dilutive common stock equivalents, using treasury stock method	420	700
Weighted average shares used in diluted net income per share calculation	24,483	25,833

Note 11. Stockholders’ Equity and Stock-Based Compensation

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

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 31, 2018	April 1, 2017
Employee Stock Purchase Plan:		
Expected life	0.5 years	0.5 years
Volatility	27.2%	35.2%
Risk free interest rate	1.61%	0.65%
Dividends	—	—

No stock options were awarded during the three months ended March 31, 2018 and April 1, 2017.

A summary of activity of stock options during the three months ended March 31, 2018 is as follows:

	Number of Shares Outstanding (Options)	Weighted Average Exercise Price
Options		
Outstanding at December 30, 2017	216,326	$ 16.82
Exercised	(43,614)	16.13
Cancelled	—	—
Outstanding at March 31, 2018	172,712	16.99
Exercisable at March 31, 2018	172,712	$ 16.99

The aggregate intrinsic value in the above table represents the total pretax intrinsic value, based on the Company's closing stock price of $26.90 as of March 29, 2018, the last trading day of the quarter, which would have been received by the option holders had all option holders exercised their options as of that date. The total intrinsic value of options exercised during the three months ended March 31, 2018 and April 1, 2017 was $0.5 million and $0.9 million, respectively.

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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 is as follows:

Summary of activity for RSUs	Number of RSUs	Weighted Average Fair Value
Outstanding RSUs as of December 30, 2017	790,299	$ 22.46
Granted	109,007	26.58
Released	(84,942)	18.88
Cancelled	(42,668)	22.15
Outstanding RSUs as of March 31, 2018	771,696	$ 23.45

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 is as follows:

Summary of activity for PSUs	Number of PSUs	Weighted Average Fair Value
Outstanding PSUs as of December 30, 2017	129,950	$ 15.60
Granted	24,640	21.10
Released	(47,929)	12.10
Cancelled	(15,621)	26.21
Outstanding PSUs as of March 31, 2018	91,040	$ 18.47

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:

	2018 Award	2017 Award
Grant Date Fair Value Per Share	$20.73-$21.97	$14.57-$26.75
Weighted-average assumptions/inputs:		
Expected Dividend	—	—
Range of risk-free interest rates	2.39%-2.41%	1.40%-1.84%
Range of expected volatilities for peer group	22%-66%	22%-66%

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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 31, 2018	April 1, 2017
Cost of products	$99	$197
Cost of service	155	145
Research and development	476	398
Selling	533	540
General and administrative	1,075	884
Total stock-based compensation expense related to employee stock options and employee stock purchases	$2,338	$2,164

Note 12. 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 Company’s tax provision takes into account the changes in the tax laws under Tax Cuts and Jobs Act (“The Act”), signed into law on December 22, 2017, including the reduction of the federal corporate tax rate from 35% to 21%. Other components of the Act are accounted for based on the Company’s interpretation of the most current guidance available and are subject to revisions as the Company completes its analysis of the Act, collects and prepares necessary data, and interprets any additional guidance issued by the U.S. Treasury Department, Internal Revenue Service (“IRS”), FASB, and other standard-setting and regulatory bodies. The Company’s accounting for the tax effects of the Act will be completed during the measurement period, which should not extend beyond one year from the enactment date.

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

	Three Months Ended

	March 31, 2018	April 1, 2017
Provision for income taxes	$4,442	$114

The Company recorded a tax provision of $4.4 million and $0.1 million for the three months ended March 31, 2018 and April 1, 2017, respectively. The increase in the tax provision for 2018 from 2017 was primarily related to the Company's increased profitability for the three months ending March 31, 2018 as well as a one-time benefit for an entity classification change and a higher tax benefit associated with the settlement of equity options/awards.

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., 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 2010 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 31, 2018 and April 1, 2017. During the next twelve months, the Company anticipates increases in its unrecognized tax benefits of approximately $0.4 million.

Note 13. 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 31, 2018	April 1, 2017
Total net revenues [(1)]:		
South Korea	$37,818	$18,619
Japan	13,379	3,353
United States	6,738	13,573
China	8,042	6,687
Taiwan	1,060	11,833
Singapore	12,155	1,491
Other	3,121	3,758
Total net revenues	$82,313	$59,314

	March 31, 2018	December 30, 2017
Long-lived tangible assets:		
United States	$42,473	$ 43,427
International	1,322	1,383
Total long-lived tangible assets	$43,795	$ 44,810

With respect to customer concentration, Samsung Electronics Co. Ltd, SK Hynix, Micron Technology, Inc. and Toshiba Corporation each accounted for more than 10% of total sales for the three months ended March 31, 2018. Samsung Electronics Co. Ltd, SK Hynix, Taiwan Semiconductor Manufacturing Company Limited and Intel Corporation each accounted for more than 10% of total sales for the three months ended April 1, 2017.

With respect to accounts receivable concentration, Samsung Electronics Co. Ltd, SK Hynix, Micron Technology, Inc. and Toshiba Corporation each accounted for more than 10% of total accounts receivable at March 31, 2018 and Samsung Electronics Co. Ltd, Micron Technology, Inc, and Toshiba Corporation each accounted for more than 10% of total accounts receivable at December 30, 2017.

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Explanation of Responses:

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,” “m “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, and in Part I, Item 1A, Risk Factors, in our Annual Report on Form 10-K for the fiscal year ended December 30, 2017, filed with the Securities and Exchange Commission (“SEC”) on February 26, 2018 (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; 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 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 30, 2017, which were included in our Annual Report, (ii) the section captioned “Risk Factors” in our Annual Report, and (iii) our other filings with the SEC.

Overview

Together with our subsidiaries, we are an innovator in the field of metrology systems, 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.

Our revenues are derived primarily from product and software sales but are also derived from customer service, upgrades and software for the installed base of our products. For the three months ended March 31, 2018, we derived 86% of our total net revenues from product, upgrade and software sales, and 14% 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 manufacturing industry. In addition, we believe that our product development and engineering expertise, as well as 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® III, Atlas II+, and Atlas XP+ represent our line of high-performance metrology systems providing optical critical dimension (“OCD”®), thin film metrology and wafer stress for transistor and interconnect metrology applications. The thin film and OCD technology is supported by our suite of solutions including our NanoDiffract® software SpectraProbe™ software and NanoGen™ scalable computing engine that enables visualization, modeling, and analysis of complex structures. The UniFire™ system measures multiple parameters at any given process step in the advanced packaging process flow for critical dimension, overlay, and topography applications and has recently added inspection capabilities for both front-end of line patterned wafer and advanced packaging related applications.

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®+ and IMPULSE represent our latest metrology platform 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. Our Trajectory® system provides in-line measurement of layers in thin film thickness and composition in semiconductor applications and is qualified in production with major device makers.

Software

NanoDiffract® is a modeling, visualization and analysis software that takes signals from the automated and integrated 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. SpectraProbe expands the types of structures that can be used for metrology and control including in-die and on-device areas. Both analysis packages are supported by the automated and integrated systems, can be deployed in run-time environments and support off-line processing as part of a factory control solution when deployed on NanoCentral and NanoGen servers.

NanoGen is an enterprise scale computing hardware system that is deployed to run the computing intensive analysis software. NanoGen leverages commercial server chips and networking architecture and is optimized to support the workload of NanoDiffract analysis. NanoCentral is a fab based networking and server system providing connectivity and compute support to SpectraProbe and connected measurement systems including Atlas and Impulse products.

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.

The RPMBlue™ is our photoluminescence mapping system designed specifically for the HB-LED market, and is complemented by the RPMBlue-FS, enabling a breadth of research and development configurability. We sell Fourier-Transform Infrared (“FTIR”) automated and manual systems in the QS2200/3300 and QS1200 respectively for substitute quality and epitaxial thickness metrology. The NanoSpec® line, including the NanoSpec II, supports thin film measurement across all applications in both low volume production and research applications.

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;

- Continued development of new measurement and inspection technologies for advanced fabrication processes and packaging.

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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. These 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 31, 2018. 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 Revenue Recognition Standard (Adoption of ASU 2014-09) - We adopted the new accounting standard ASC 606 and related amendments in the first quarter of fiscal 2018 using the modified retrospective transition method. As such, we recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of retained earnings. 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 product lines (in thousands, except percentages):

	Three Months Ended March 31, 2018	April 1, 2017	Change	
Product	71,019	48,175	22,844	47.4%
Service	11,294	11,139	155	1.4 %
Total net revenues	$82,313	$59,314	$22,999	38.8%

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 three months ended March 31, 2018, total net revenues increased by $23.0 million relative to the comparable period in fiscal 2017. The increase was driven primarily by the $22.8 million increase in product sales while service revenue remains relatively flat compared to the same prior year period.

A significant portion of the world's semiconductor manufacturing capacity is located in Asia, and a substantial portion of our revenues continue to be generated in that region. 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 31, 2018	April 1, 2017
Products	59.7%	47.0 %
Service	45.5%	52.1 %

The calculation of product gross margin includes both cost of products and amortization of intangibles. The gross margin on product revenue increased to 59.7% in the three months ended March 31, 2018 from 47.0% in the three months ended April 1, 2017. The increase of 12.7 percentage points in the first quarter of 2018 was due to a favorable product and customer mix, improved installation cycles and lower warranty costs. The gross margin on our services business decreased to 45.5% in the three months ended March 31, 2018 from 52.1% in the three months ended April 1, 2017. The decrease is due to lower service labor utilization.

Operating expenses

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

	Three Months Ended March 31, 2018	April 1, 2017	Change	
Research and development	$10,202	$8,694	$1,508	17.3%
Selling	9,024	7,938	1,086	13.7%
General and administrative	7,741	6,307	1,434	22.7%
Total operating expenses	$26,967	$22,939	$4,028	17.6%

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 31, 2018, research and development costs increased by $1.5 million or 17.3%, compared to the same period in 2017. The increase was driven by additional headcount and higher variable compensation costs.

Selling

Selling expenses for the three months ended March 31, 2018 increased by $1.1 million or 13.7% compared to the same period in fiscal 2017. The increase is driven by additional headcount, higher variable compensation costs and higher travel related expenses.

General and administrative

General and administrative expenses increased by $1.4 million or 22.7% in the three months ended March 31, 2018 compared to the three months ended April 1, 2017. The increase was primarily due to executive transition and search costs, higher variable compensation costs and higher professional services fees.

Other income (expense), net.

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

	Three Months Ended March 31, 2018	April 1, 2017	Change	
Interest Income	$3	$1	$ 2	200.0 %
Interest Expense	(96)	(40)	(56)	140.0 %
Interest income (expense), net	(93)	(39)	(54)	138.5 %
Net gains on investments	269	266	3	1.1 %
Other gains (losses), net	83	(269)	352	-130.9%
Other income (loss), net	352	(3)	355	NM
Total other income (expense), net	$259	$(42)	$ 301	-716.7%

*NM = not meaningful

Other income (expense), net increased by $0.3 million in the three months ended March 31, 2018 relative to the comparable 2017 period. The change was principally due to favorable foreign exchange net gains and losses.

Provision for income taxes

We recorded a tax provision of $4.4 million and $0.1 million for the three months ended March 31, 2018 and April 1, 2017, respectively. The increase in the tax provision for 2018 from 2017 was primarily related to our increased profitability for the three months ended March 31, 2018 as well as a one-time benefit for an entity classification change and a higher tax benefit associated with the settlement of equity options/awards.

Our provision for income taxes for the three months ended March 31, 2018 of $4.4 reflects an effective tax rate of 21.3%. The tax rate for the three months ended March 31, 2018 differs from the Federal statutory rate of 21.0% primarily due to foreign income being subject to tax at higher rates, state income taxes, non-deductible equity compensation, offset by Foreign and R&D Tax credits and tax benefits associated with the settlement of equity options/awards.

As of March 31, 2018, 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 asset 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., 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 2010 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 31, 2018 and April 1, 2017. During the next twelve months, we anticipate increases in our unrecognized tax benefits of approximately $0.4 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 31, 2018 and December 30, 2017 and for the three months ended March 31, 2018 and April 1, 2017 (in millions):

	As of March 31, 2018	December 30, 2017
Cash, cash equivalents and marketable securities	$123.9	$ 117.0
Working capital	$196.6	$ 196.0

	March 31, 2018	April 1, 2017
Cash provided by operating activities	$32.7	$3.1
Cash used in investing activities	$21.6	$(1.8)
Cash provided by (used in) financing activities	$(22.9)	$(0.5)

Cash, cash equivalents and marketable securities totaled $123.9 million at March 31, 2018, which reflects an increase of $6.9 million from December 30, 2017. Of our total cash, cash equivalents and marketable securities at March 31, 2018, approximately $17.1 million were held by foreign subsidiaries, a portion of which would have to be repatriated to the United States. We are currently evaluating whether 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 the next twelve months.

Working capital was $196.6 million at March 31, 2018, which is relatively flat when compared to $196.0 million at December 30, 2017.

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 are 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. 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. Cash used in 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 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.

Cash provided by operating activities during the three months ended April 1, 2017 was $3.1 million, consisting primarily of net income of $5.4 million, adjusted for non-cash items of $4.0 million, partially offset by $6.3 million of net cash outflows related to changes in operating assets and liabilities. Cash used in investing activities of $1.8 million during the three months ended April 1, 2017 consisted primarily of $36.5 million purchases of marketable securities and acquisition of property, plant and equipment of $0.1 million, net of sales and maturities of marketable securities of $34.8 million. Cash used in financing activities of $0.5 million during the three months ended April 1, 2017 consisted primarily of $1.7 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 $1.2 million.

Repurchases of Common Stock

On November 15, 2017 our Board of Directors authorized the repurchase of up to $50.0 million of our common stock. This plan is referred to as the Stock Repurchase Plan. Stock repurchases under the Stock Repurchase Plan may be made through open market and privately negotiated transactions at times and in such amounts as management deems appropriate. The timing and actual number of shares repurchased is dependent on a variety of factors including price, corporate and regulatory requirements and other market conditions.

Shares repurchased and retired in the first quarter of fiscal year 2018 under the Stock Repurchase Plan, with the associated cost of repurchase and amount available for repurchase are as follows (in thousands, except number of shares and weighted average price per share):

	Three months ended March 31, 2018
Number of shares of common stock repurchased	896,187
Weighted average price per share	$25.65
Total cost of repurchase	$22,987
Amount available for repurchase at end of period	$—

During the three months ended March 31, 2018, the Stock Repurchase Plan 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 31, 2018, 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 30, 2017, filed with the SEC on February 26, 2018.

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 30, 2017, filed with the SEC on February 26, 2018. 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 3, 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 31, 2018 and December 30, 2017, we held $58.0 million and $82.1 million, respectively, in marketable securities. The fair value of our marketable securities could be adversely impacted due to a rise in interest rates. A hypothetical immediate and consistent increase in interest rates by 100 basis points from levels as of March 31, 2018, the fair value of our marketable securities would have declined by $0.3 million. Securities with longer maturities are subject to a greater interest rate risk than those with shorter maturities and as of March 31, 2018 and December 30, 2017, the average duration of our portfolio was less than nine months. We do not hold securities for trading purposes.

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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 Chief Financial Officer (“CFO”), 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 CFO concluded that as of March 31, 2018, 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 Chief Financial Officer, to allow timely discussions regarding required disclosures.

Changes in Internal Control over Financial Reporting

During the quarter ended March 31, 2018, 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 CFO, 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 9. 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 l, “Item 1A. Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 30, 2017, filed with the SEC on February 26, 2018.

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 30, 2017.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

Pursuant to repurchase programs approved by the Board of Directors described below, we repurchased shares of our common stock in the three months ended March 31, 2018 as follows (in thousands, except shares and per share data):

Period	Total Number of Shares	Average Price Paid	Total Number of Shares	Approximate Dollar Value of Shares

	Purchased	Per Share	Purchased as Part of Publicly Announced Plans or Programs	that May Yet to be Repurchase Under the Plans or Program (in thousands)
December 31, 2017 to January 27, 2018	486,542	$ 26.00	486,542	$ 10,338
January 28, 2018 to February 24, 2018	409,645	$ 25.24	409,645	$ —
February 25, 2018 to March 31, 2018	—	—	—	—

On November 15, 2017 our Board of Directors authorized the repurchase of up to $50.0 million of our common stock. This plan is referred to as the Stock Repurchase Plan. Stock repurchases under the Stock Repurchase Plan may be made through open market and privately negotiated transactions at times and in such amounts as management deems appropriate. The timing and actual number of shares repurchased is dependent on a variety of factors including price, corporate and regulatory requirements and other market conditions.

During the three months ended March 31, 2018, the Stock Repurchase Plan 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

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ITEM 6. EXHIBITS
The following exhibits are filed, furnished or incorporated by reference with this Quarterly Report on Form 10-Q:

Exhibit No.	Description
3.(i)	Certificate of Incorporation
3.1(1)	Certificate of Incorporation of the Registrant
3.(ii)	Bylaws
3.2 (2)	Bylaws of the Registrant
4	Instruments Defining the Rights of Security Holders, Including Indentures
4.1	Reference is made to Exhibits 3.1 and 3.2
10	Material Contracts
10.1 (3)	Separation Agreement between Registrant and S. Mark Borowicz, dated January 8, 2018.
10.1 (4)	Independent Contractor Agreement between Registrant and S. Mark Borowicz, dated January 8 2018.
31	Rule 13a-14(a)/15d-14(a) Certifications
31.1^	Certification of Pierre-Yves Lesaicherre, principal executive officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2^	Certification of Jonathan Chou, principal financial officer and principal accounting officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32	Section 1350 Certifications
32.1*	Certification of Pierre-Yves Lesaicherre, principal executive officer of the Registrant, and Jonathan Chou, principal financial officer and principal accounting officer of the Registrant pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101*	The following financial statements, formatted in XBRL: (i) Condensed Consolidated Balance Sheets at March 31, 2018, and December 30, 2017, (ii) Condensed Consolidated Statements of Operations for the three and three months ended March 31, 2018 and April 1, 2017, (iii) Condensed Consolidated Statements of Cash Flows for the three months ended March 31, 2018 and April 1, 2017, 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

(1) Incorporated by reference to Exhibit 3.1 filed with the Registrant’s Current Report on Form 8-K (File No. 000-13470) filed with the SEC on October 5, 2006.

(2) Incorporated by reference to Exhibit 3.1 filed with the Registrant’s Current Report on Form 8-K (File No. 000-13470) filed with the SEC on April 12, 2012.

(3) Incorporated by reference to Exhibit 10.21 filed with the Registrant’s Annual Report on Form 10-K (File No. 000-13470) filed with the SEC on February 26, 2018.

(4) Incorporated by reference to Exhibit 10.22 filed with the Registrant’s Annual Report on Form 10-K (File No. 000-13470) filed with the SEC on February 26, 2018.

^Filed herewith.
*Furnished herewith
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SIGNATURES

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

NANOMETRICS INCORPORATED
(Registrant)

By: /S/ JONATHAN CHOU
Jonathan Chou
Chief Financial Officer
(Duly Authorized and Principal Financial Officer)

Dated: May 2, 2018

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