INTEVAC INC

FORM 10-Q
(Quarterly Report)

Filed 10/29/19 for the Period Ending 09/28/19

Address	3560 BASSETT STREET SANTA CLARA, CA, 95054
Telephone	4089869888
CIK	0001001902
Symbol	IVAC
SIC Code	3559 - Special Industry Machinery, Not Elsewhere Classified
Industry	Industrial Machinery & Equipment
Sector	Industrials
Fiscal Year	12/31

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 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 September 28, 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 0-26946

INTEVAC, INC.
(Exact name of registrant as specified in its charter)

Delaware **(State or other jurisdiction of incorporation or organization)**	**94-3125814** **(IRS Employer Identification No.)**

3560 Bassett Street
Santa Clara, California 95054
(Address of principal executive office, including Zip Code)

Registrant's telephone number, including area code: (408) 986-9888

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock ($0.001 par value)	**IVAC**	**The Nasdaq Stock Market LLC (Nasdaq) Global Select**

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, 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 in Rule 12b-2 of the Act). ☐ Yes ☒ No

On October 29, 2019, 23,232,006 shares of the Registrant's Common Stock, $0.001 par value, were outstanding.

INTEVAC, INC.

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PART I. FINANCIAL INFORMATION

Item 1. ***Financial Statements***

INTEVAC, INC.

CONDENSED CONSOLIDATED BALANCE SHEETS

	September 28, 2019	December 29, 2018
	(Unaudited) (In thousands, except par value)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 14,997	$ 18,715
Short-term investments	15,302	16,076
Trade and other accounts receivable, net of allowances of $0 at both September 28, 2019 and at December 29, 2018	24,884	27,717
Inventories	29,851	30,597
Prepaid expenses and other current assets	1,872	2,528
Total current assets	86,906	95,633
Long-term investments	5,447	4,372
Restricted cash	1,355	1,169
Property, plant and equipment, net	11,980	11,198
Operating lease right-of-use assets	9,920	—
Intangible assets, net of accumulated amortization of $7,959 at September 28, 2019 and $7,498 at December 29, 2018	428	889
Deferred income taxes and other long-term assets	8,248	8,809
Total assets	$ 124,284	$ 122,070
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current operating lease liabilities	$ 2,394	$ —
Accounts payable	5,544	6,053
Accrued payroll and related liabilities	5,258	4,689
Other accrued liabilities	3,650	4,952
Customer advances	8,740	14,314
Total current liabilities	25,586	30,008
Noncurrent liabilities:		
Noncurrent operating lease liabilities	9,354	—
Other long-term liabilities	158	2,438
Total noncurrent liabilities	9,512	2,438
Stockholders' equity:		
Common stock, $0.001 par value	23	23
Additional paid-in capital	186,938	183,204
Treasury stock, 4,989 shares September 28, 2019 and 4,965 shares December 29, 2018	(29,158)	(29,047)
Accumulated other comprehensive income	371	378
Accumulated deficit	(68,988)	(64,934)
	89,186	89,624
Total liabilities and stockholders' equity	$ 124,284	$ 122,070

Note: Amounts as of December 29, 2018 are derived from the December 29, 2018 audited consolidated financial statements.

See accompanying notes to the condensed consolidated financial statements.

INTEVAC, INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(Unaudited) (In thousands, except per share amounts)			
Net revenues:				
Systems and components	$ 21,090	$ 17,140	$ 59,965	$ 55,947
Technology development	5,209	2,326	13,476	7,591
Total net revenues	26,299	19,466	73,441	63,538
Cost of net revenues:				
Systems and components	14,180	9,765	39,741	34,362
Technology development	3,341	2,215	9,325	7,054
Total cost of net revenues	17,521	11,980	49,066	41,416
Gross profit	8,778	7,486	24,375	22,122
Operating expenses:				
Research and development	3,596	3,737	11,013	12,889
Selling, general and administrative	5,615	4,842	16,720	15,382
Total operating expenses	9,211	8,579	27,733	28,271
Loss from operations	(433)	(1,093)	(3,358)	(6,149)
Interest income and other income (expense), net	126	186	448	464
Loss before income taxes	(307)	(907)	(2,910)	(5,685)
Provision for income taxes	173	192	1,144	717
Net loss	$ (480)	$ (1,099)	$ (4,054)	$ (6,402)
Net loss per share:				
Basic and Diluted	$ (0.02)	$ (0.05)	$ (0.18)	$ (0.29)
Weighted average common shares outstanding:				
Basic and Diluted	23,130	22,719	22,992	22,429

See accompanying notes to the condensed consolidated financial statements.

INTEVAC, INC.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(Unaudited) (In thousands)			
Net loss	$ (480)	$ (1,099)	$ (4,054)	$ (6,402)
Other comprehensive loss, before tax				
Change in unrealized net loss on available-for-sale investments	3	13	80	7
Foreign currency translation losses	(87)	(86)	(87)	(126)
Other comprehensive loss, before tax	(84)	(73)	(7)	(119)
Income tax (expense) benefit related to items in other comprehensive loss	—	—	—	—
Other comprehensive loss, net of tax	(84)	(73)	(7)	(119)
Comprehensive loss	$ (564)	$ (1,172)	$ (4,061)	$ (6,521)

See accompanying notes to the condensed consolidated financial statements.

INTEVAC, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

	Nine months ended	
	September 28, 2019	September 29, 2018
	(Unaudited) (In thousands)	
Operating activities		
Net loss	$ (4,054)	$ (6,402)
Adjustments to reconcile net loss to net cash and cash equivalents provided by (used in) operating activities:		
Depreciation and amortization	2,778	3,587
Net amortization (accretion) of investment premiums and discounts	(55)	(67)
Equity-based compensation	2,260	2,454
Straight-line rent adjustment and amortization of lease incentives	(238)	(114)
Change in the fair value of acquisition-related contingent consideration	7	8
Deferred income taxes	552	—
Loss on disposal of equipment	87	442
Changes in operating assets and liabilities	(2,470)	2,156
Total adjustments	2,921	8,466
Net cash and cash equivalents provided by (used in) operating activities	(1,133)	2,064
Investing activities		
Purchases of investments	(18,917)	(24,640)
Proceeds from sales and maturities of investments	18,751	24,922
Purchases of leasehold improvements and equipment	(3,279)	(2,219)
Net cash and cash equivalents used in investing activities	(3,445)	(1,937)
Financing activities		
Net proceeds from issuance of common stock	1,770	3,199
Common stock repurchases	(111)	—
Taxes paid related to net share settlement	(296)	(819)
Payment of acquisition-related contingent consideration	(230)	—
Net cash and cash equivalents provided by financing activities	1,133	2,380
Effect of exchange rate changes on cash	(87)	(126)
Net increase (decrease) in cash, cash equivalents and restricted cash	(3,532)	2,381
Cash, cash equivalents and restricted cash at beginning of period	19,884	20,941
Cash, cash equivalents and restricted cash at end of period	$ 16,352	$ 23,322

See accompanying notes to the condensed consolidated financial statements.

INTEVAC, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Description of Business and Basis of Presentation

Intevac, Inc. (together with its subsidiaries "Intevac," the "Company" or "we") is a provider of vacuum deposition equipment for a wide variety of thin-film applications, and a leading provider of digital night-vision technologies and products to the defense industry. The Company leverages its core capabilities in high-volume manufacturing of small substrates to provide process manufacturing equipment solutions to the hard disk drive ("HDD"), display cover panel ("DCP"), and photovoltaic ("PV") solar cell industries. Intevac also provides sensors, cameras and systems for government applications such as night vision. Intevac's customers include manufacturers of hard disk media, DCPs and solar cells as well as the U.S. government and its agencies, allies and contractors. Intevac reports two segments: Thin-film Equipment ("TFE") and Photonics.

In the opinion of management, except for the changes below, the unaudited interim condensed consolidated financial statements of Intevac included herein have been prepared on a basis consistent with the December 29, 2018 audited consolidated financial statements and include all material adjustments, consisting of normal recurring adjustments, necessary to fairly present the information set forth therein. The Company adopted Accounting Standards Codification ("ASC") 842, Leases, with a date of the initial application of December 30, 2018. As a result, the Company has changed its accounting policy for leases as detailed in Note 10. Leases. These unaudited interim condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto included in Intevac's Annual Report on Form 10-K for the fiscal year ended December 29, 2018 ("2018 Form 10-K"). Intevac's results of operations for the three and nine months ended September 28, 2019 are not necessarily indicative of future operating results.

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make judgments, estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes.

2. Recent Accounting Pronouncements

Adoption of New Accounting Standard

We adopted ASU No. 2016-02, Leases (Topic 842), as of December 30, 2018, using the modified retrospective approach. The modified retrospective approach provides a method for recording existing leases at the beginning of the period of adoption. In addition, we elected the package of practical expedients permitted under the transition guidance within the new standard, which among other things, allowed us to carry forward the historical lease classification, and we elected the hindsight practical expedient to determine the lease term for existing leases. We determined that most renewal options would not be reasonably certain in determining the expected lease term. The comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods.

Adoption of the new standard resulted in the recording of net lease assets of $11.6 million and lease liabilities of $13.7 million, as of December 30, 2018. The standard did not have an impact on our consolidated results of operations or cash flows.

The effect of the changes made to our consolidated December 30, 2018 balance sheet for the adoption of the new lease standard was as follows (in thousands):

	Balance at December 29, 2018	Adjustments Due to ASC 842	Balance at December 30, 2018
Prepaid expenses and other current assets	$ 2,528	$ (221)[1]	$ 2,307
Total current assets	$ 95,633	$ (221)[1]	$ 95,412
Operating lease right-of-use assets	$ —	$ 11,635[1,2,3]	$ 11,635
Total assets	$ 122,070	$ 11,414[1,2,3]	$ 133,484
Current operating lease liabilities	$ —	$ 2,581[5]	$ 2,581
Accounts payable	$ 6,053	$ (4)[4]	$ 6,049
Other accrued liabilities	$ 4,952	$ (13)[3]	$ 4,939
Total current liabilities	$ 30,008	$ 2,564[3,4,5]	$ 32,572
Noncurrent operating lease liabilities	$ —	$ 11,120[5]	$ 11,120
Other long-term liabilities	$ 2,438	$ (2,270)[3]	$ 168
Total non-current liabilities	$ 2,438	$ 8,850[3,4,5]	$ 11,288
Total liabilities and stockholders' equity	$ 122,070	$ 11,414,[4,5]	$ 133,484

1 Represents prepaid rent reclassified to operating lease right-of-use assets.
2 Represents capitalization of operating lease right-of-use assets and reclassification of straight-line rent accrual, and tenant incentives.
3 Represents reclassification of straight-line rent accrual to operating lease right-of-use assets.
4 Represents accrued rent reclassified to operating lease right-of-use assets.
5 Represents recognition of operating lease liabilities.

INTEVAC, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
(Unaudited)

3. Revenue

The following tables represent a disaggregation of revenue from contracts with customers for the three and nine months ended September 28, 2019 and September 29, 2018 along with the reportable segment for each category.

Major Products and Service Lines

TFE	Three Months Ended September 28, 2019				Three Months Ended September 29, 2018			
	(In thousands)							
	HDD	DCP	PV	Total	HDD	DCP	PV	Total
Systems, upgrades and spare parts	$ 7,737	$—	$ 8,225	$15,962	$ 9,476	$—	$ 51	$ 9,527
Field service	1,109	—	45	1,154	2,581	—	—	2,581
Total TFE net revenues	$ 8,846	$—	$ 8,270	$17,116	$12,057	$—	$ 51	$12,108

	Nine Months Ended September 28, 2019				Nine Months Ended September 29, 2018			
	(In thousands)							
	HDD	DCP	PV	Total	HDD	DCP	PV	Total
Systems, upgrades and spare parts	$31,210	$—	$14,616	$45,826	$39,090	$ 1	$ 54	$39,145
Field service	3,452	2	45	3,499	6,561	—	39	6,600
Total TFE net revenues	$34,662	$ 2	$14,661	$49,325	$45,651	$ 1	$ 93	$45,745

Photonics	Three Months Ended September 28, 2019	Three Months Ended September 29, 2018	Nine Months Ended September 28, 2019	Nine Months Ended September 29, 2018
	(In thousands)			
Products:				
Military products	$ 3,320	$ 4,202	$ 8,115	$ 8,601
Commercial products	81	84	581	138
Repair and other services	573	746	1,944	1,463
Total Photonics product net revenues	3,974	5,032	10,640	10,202
Technology development:				
Firm Fixed Price (“FFP”)	3,218	494	7,995	1,726
Cost Plus Fixed Fee (“CPFF”)	1,991	1,819	5,479	5,829
Time and materials	—	13	2	36
Total technology development net revenues	5,209	2,326	13,476	7,591
Total Photonics net revenues	$ 9,183	$ 7,358	$ 24,116	$ 17,793

Primary Geographical Markets

	Three Months Ended September 28, 2019			Three Months Ended September 29, 2018		
	(In thousands)					
	TFE	Photonics	Total	TFE	Photonics	Total
United States	$ 478	$ 9,050	$ 9,528	$ 287	$ 6,868	$ 7,155
Asia	16,638	—	16,638	11,821	—	11,821
Europe	—	133	133	—	457	457
Rest of World	—	—	—	—	33	33
Total net revenues	$17,116	$ 9,183	$26,299	$12,108	$ 7,358	$19,466

INTEVAC, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
(Unaudited)

	Nine Months Ended September 28, 2019			Nine Months Ended September 29, 2018		
	(In thousands)					
	TFE	Photonics	Total	TFE	Photonics	Total
United States	$ 995	$ 23,578	$24,573	$ 3,549	$ 16,628	$20,177
Asia	48,330	—	48,330	42,196	31	42,227
Europe	—	538	538	—	937	937
Rest of World	—	—	—	—	197	197
Total net revenues	$49,325	$ 24,116	$73,441	$45,745	$ 17,793	$63,538

Timing of Revenue Recognition

	Three Months Ended September 28, 2019			Three Months Ended September 29, 2018		
	(In thousands)					
	TFE	Photonics	Total	TFE	Photonics	Total
Products transferred at a point in time	$17,116	$ 573	$17,689	$12,108	$ 746	$12,854
Products and services transferred over time	—	8,610	8,610	—	6,612	6,612
	$17,116	$ 9,183	$26,299	$12,108	$ 7,358	$19,466

	Nine Months Ended September 28, 2019			Nine Months Ended September 29, 2018		
	(In thousands)					
	TFE	Photonics	Total	TFE	Photonics	Total
Products transferred at a point in time	$49,325	$ 1,944	$51,269	$45,745	$ 1,463	$47,208
Products and services transferred over time	—	22,172	22,172	—	16,330	16,330
	$49,325	$ 24,116	$73,441	$45,745	$ 17,793	$63,538

The following table reflects the changes in our contract assets, which we classify as accounts receivable, unbilled or retainage, and our contract liabilities, which we classify as deferred revenue and customer advances, for the nine months ended September 28, 2019:

	September 28, 2019	December 29, 2018	Nine Months Change
		(In thousands)	
TFE:			
Contract assets:			
Accounts receivable, unbilled	$ 919	$ 514	$ 405
Contract liabilities:			
Deferred revenue	$ 778	$ 633	$ 145
Customer advances	8,740	14,314	(5,574)
	$ 9,518	$ 14,947	$ (5,429)
Photonics:			
Contract assets:			
Accounts receivable, unbilled	$ 2,525	$ 1,493	$ 1,032
Retainage	95	157	(62)
	$ 2,620	$ 1,650	$ 970
Contract liabilities:			
Deferred revenue	$ 221	$ 1,101	$ (880)

INTEVAC, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
(Unaudited)

Accounts receivable, unbilled in our TFE segment represents a contract asset for revenue that has been recognized in advance of billing the customer. For our system and certain upgrade sales, our TFE customers generally pay in three installments, with a portion of the system price billed upon receipt of an order, a portion of the price billed upon shipment, and the balance of the price due upon completion of installation and acceptance of the system at the customer's factory. Accounts receivable, unbilled in our TFE segment generally represents the balance of the system price that is due upon completion of installation and acceptance, less the amount that has been deferred as revenue for the performance of the installation tasks. During the nine months ended September 28, 2019, contract assets in our TFE segment increased by $405,000 primarily due to: (i) the accrual of the final billing for one HDD system delivered and accepted in the nine months ending September 28, 2019; (ii) the accrual of revenue for one HDD system delivered in the nine months ending September 28, 2019 that was pending acceptance as of September 28, 2019; (iii) and the accrual of revenue for three ENERG*i* systems delivered in the nine months ending September 28, 2019 that were pending acceptance as of September 28, 2019; offset in part due to the final billing on two HDD systems that were pending acceptance as of December 29, 2018.

Customer advances in our TFE segment generally represent a contract liability for amounts billed to the customer prior to transferring goods. The Company has elected to use the practical expedient of disregarding the effect of the time value of money in a significant financing component when its payment terms are less than one year. These contract advances are liquidated when revenue is recognized. Deferred revenue in our TFE segment generally represents a contract liability for amounts billed to a customer for completed systems at the customer site that are undergoing installation and acceptance testing where transfer of control has not yet occurred, as Intevac does not yet have a demonstrated history of meeting the acceptance criteria upon the customer's receipt of product. During the nine months ended September 28, 2019, we recognized revenue in our TFE segment of $12.0 million and $500,000 that was included in customer advances and deferred revenue, respectively, at the beginning of the period.

Accounts receivable, unbilled in our Photonics segment represents a contract asset for revenue that has been recognized in advance of billing the customer, which is common for contracts in the defense industry. In our Photonics segment, amounts are billed as work progresses in accordance with agreed-upon contractual terms, either at periodic intervals (e.g., monthly) or upon achievement of contractual milestones. Generally, billing occurs subsequent to revenue recognition, resulting in contract assets. Our contracts with the U.S. government may also contain retainage provisions. Retainage represents a contract asset for the portion of the contract price earned by us for work performed, but held for payment by the U.S. government as a form of security until satisfactory completion of the contract. The retainage is billable upon completion of the contract performance and approval of final indirect expense rates by the government. During the nine months ended September 28, 2019, contract assets in our Photonics segment increased by $970,000 primarily due to the accrual of revenue for incurred costs under FFP and CPFF contracts.

Deferred revenue in our Photonics segment includes $221,000 deferred for the impact of the allocation and the timing of the recognition of revenue for a military product agreement with a tiered pricing structure. During the nine months ended September 28, 2019, we recognized revenue in our Photonics segment of $880,000 that was included in deferred revenue at the beginning of the period.

On September 28, 2019 we had $115.4 million of remaining performance obligations, which we also refer to as total backlog. Backlog at September 28, 2019 consisted of $39.3 million of TFE backlog and $76.1 million of Photonics backlog. We expect to recognize approximately 29% of our remaining performance obligations as revenue in 2019, 42% in 2020, 15% in 2021, 10% in 2022 and 4% in 2023.

4. Inventories

Inventories are stated at the lower of average cost or market and consist of the following:

	September 28, 2019	December 29, 2018
	(In thousands)	
Raw materials	$ 15,700	$ 16,354
Work-in-progress	11,843	9,134
Finished goods	2,308	5,109
	$ 29,851	$ 30,597

Finished goods inventory at September 28, 2019 included one system under evaluation at a customer's factory. Finished goods inventory at December 29, 2018 included three completed systems at Intevac's factory that were subsequently shipped to the customer in January 2019.

INTEVAC, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
(Unaudited)

5. Equity-Based Compensation

At September 28, 2019, Intevac had equity-based awards outstanding under the 2012 Equity Incentive Plan and the 2004 Equity Incentive Plan (together, the "Plans") and the 2003 Employee Stock Purchase Plan (the "ESPP"). Intevac's stockholders approved all of these plans. The Plans permit the grant of incentive or non-statutory stock options, performance stock options ("PSOs"), restricted stock, stock appreciation rights, restricted stock units ("RSUs") and performance shares.

The ESPP provides that eligible employees may purchase Intevac's common stock through payroll deductions at a price equal to 85% of the lower of the fair market value at the entry date of the applicable offering period or at the end of each applicable purchase interval. Offering periods are generally two years in length, and consist of a series of six-month purchase intervals. Eligible employees may join the ESPP at the beginning of any six-month purchase interval. Under the terms of the ESPP, employees can choose to have up to 15% of their base earnings withheld to purchase Intevac common stock.

Equity-based Compensation Expense

The effect of recording equity-based compensation for the three and nine months ended September 28, 2019 and September 29, 2018 was as follows:

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(In thousands)			
Equity-based compensation by type of award:				
Stock options	$ 213	$ 213	$ 610	$ 563
RSUs	375	309	1,018	945
ESPP awards	163	330	632	946
Total equity-based compensation	$ 751	$ 852	$ 2,260	$ 2,454

Stock Options and ESPP

The fair value of stock options and ESPP awards is estimated at the grant date using the Black-Scholes option valuation model. The determination of fair value of stock options and ESPP awards on the date of grant using an option-pricing model is affected by Intevac's stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, our expected stock price volatility over the term of the awards and actual employee stock option exercise behavior. Intevac accounts for forfeitures as they occur, rather than estimating expected forfeitures. Option activity as of September 28, 2019 and changes during the nine months ended September 28, 2019 were as follows:

	Shares	Weighted-Average Exercise Price
Options outstanding at December 29, 2018	2,070,749	$ 6.76
Options granted	354,000	$ 5.43
Options cancelled and forfeited	(130,892)	$ 7.52
Options exercised	(72,122)	$ 4.22
Options outstanding at September 28, 2019	2,221,735	$ 6.58
Options exercisable at September 28, 2019	1,414,115	$ 6.67

Intevac issued 369,967 shares under the ESPP during the nine months ended September 28, 2019.

Intevac estimated the weighted-average fair value of stock options and employee stock purchase rights using the following weighted-average assumptions:

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
Stock Options:				
Weighted-average fair value of grants per share	$ 1.84	$ 1.81	$ 2.05	$ 1.98
Expected volatility	43.87%	44.10%	43.22%	43.83%
Risk-free interest rate	1.57%	2.87%	1.86%	2.58%
Expected term of options (in years)	4.32	3.90	4.56	4.41
Dividend yield	None	None	None	None

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
Stock Purchase Rights:				
Weighted-average fair value of grants per share	$ 1.45	$ 1.87	$ 1.73	$ 2.24
Expected volatility	38.27%	50.64%	45.81%	47.64%
Risk-free interest rate	1.85%	2.58%	2.28%	2.01%
Expected term of purchase rights (in years)	0.75	1.58	0.91	1.33
Dividend yield	None	None	None	None

The computation of the expected volatility assumptions used in the Black-Scholes calculations for new stock option grants and employee stock purchase rights is based on the historical volatility of Intevac's stock price, measured over a period equal to the expected term of the stock option grant or purchase right. The risk-free interest rate is based on the yield available on U.S. Treasury Strips with an equivalent remaining term. The expected term of employee stock options represents the weighted-average period that the stock options are expected to remain outstanding and was determined based on historical experience of similar awards, giving consideration to the contractual terms of the equity-based awards and vesting schedules. The expected term of purchase rights represents the period of time remaining in the current offering period. The dividend yield assumption is based on Intevac's history of not paying dividends and the assumption of not paying dividends in the future.

PSOs vest upon the achievement of certain market conditions (our stock performance) during a set performance period (typically 4 years) subject to the grantee's continued service with Intevac through the date the applicable market condition is achieved. The fair value is based on the values calculated under the Monte Carlo simulation model on the grant date. Compensation cost is not adjusted in future periods for subsequent changes in the expected outcome of market related conditions. The compensation expense is recognized over the derived service period. We granted 37,500 of such stock options to the chief executive officer in the nine months ended September 28, 2019. These PSOs have a derived service period of 1.1 years. Intevac estimated the weighted-average fair value of PSO's using the following weighted-average assumptions:

	Nine Months Ended September 28, 2019
Weighted-average fair value of grants per share	$ 1.75
Expected volatility	43.43%
Risk free interest rate	1.96%
Expected term (in years)	4.60
Dividend yield	None

RSUs

RSU activity as of September 28, 2019 and changes during the nine months ended September 28, 2019 were as follows:

	Shares	Weighted-Average Grant Date Fair Value
Non-vested RSUs at December 29, 2018	462,409	$ 6.92
Granted	256,703	$ 5.62
Vested	(136,366)	$ 7.88
Cancelled and forfeited	(21,482)	$ 6.23
Non-vested RSUs at September 28, 2019	561,264	$ 6.12

Time-based RSUs are converted into shares of Intevac common stock upon vesting on a one-for-one basis. Time-based RSUs typically are scheduled to vest over three or four years. Vesting of time-based RSUs is subject to the grantee's continued service with Intevac. The compensation expense related to these awards is determined using the fair market value of Intevac common stock on the date of the grant, and the compensation expense is recognized over the vesting period.

6. Purchased Intangible Assets

Details of finite-lived intangible assets by segment as of September 28, 2019 are as follows.

	September 28, 2019		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
		(In thousands)	
TFE	$ 7,172	$ (6,791)	$ 381
Photonics	1,215	(1,168)	47
	$ 8,387	$ (7,959)	$ 428

Total amortization expense of finite-lived intangibles for the three and nine months ended September 28, 2019 was $154,000 and $461,000, respectively.

As of September 28, 2019, future amortization expense is expected to be as follows.

(In thousands)	
2019	$154
2020	274
	$428

7. Acquisition-Related Contingent Consideration

In connection with the acquisition of Solar Implant Technologies, Inc. ("SIT"), Intevac also agreed to pay to the selling shareholders in cash a revenue earnout on Intevac's net revenue from commercial sales of certain products over a specified period up to an aggregate of $9.0 million. The earnout period terminated on June 30, 2019. The following table represents a reconciliation of the change in the fair value measurement of the contingent consideration liability for the three and nine months ended September 28, 2019 and September 29, 2018:

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(In thousands)			
Opening balance	$ —	$ 370	$ 223	$ 362
Changes in fair value	—	—	7	8
Cash payments made	—	—	(230)	—
Closing balance	$ —	$ 370	$ —	$ 370

The contingent consideration liability of $223,000 at December 29, 2018 is included in other accrued liabilities on the condensed consolidated balance sheets.

8. Warranty

For HDD manufacturing, DCP manufacturing and solar cell manufacturing systems, the warranty typically ranges between 12 and 24 months from customer acceptance. During this warranty period any defective non-consumable parts are replaced and installed at no charge to the customer. Intevac uses estimated repair or replacement costs along with its historical warranty experience to determine its warranty obligation. The provision for the estimated future costs of warranty is based upon historical cost and product performance experience. Intevac exercises judgment in determining the underlying estimates.

On the condensed consolidated balance sheets, the short-term portion of the warranty provision is included in other accrued liabilities, while the long-term portion is included in other long-term liabilities. The expense associated with product warranties issued or adjusted is included in cost of net revenues on the condensed consolidated statements of operations.

The following table displays the activity in the warranty provision account for the three and nine months ended September 28, 2019 and September 29, 2018:

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(In thousands)			
Opening balance	$ 948	$ 911	$ 997	$ 994
Expenditures incurred under warranties	(167)	(51)	(592)	(469)
Accruals for product warranties issued during the reporting period	427	68	829	347
Adjustments to previously existing warranty accruals	(72)	(139)	(98)	(83)
Closing balance	$ 1,136	$ 789	$ 1,136	$ 789

The following table displays the balance sheet classification of the warranty provision account at September 28, 2019 and at December 29, 2018:

	September 28, 2019	December 29, 2018
	(In thousands)	
Other accrued liabilities	$ 988	$ 839
Other long-term liabilities	148	158
Total warranty provision	$ 1,136	$ 997

9. Guarantees

Officer and Director Indemnifications

As permitted or required under Delaware law and to the maximum extent allowable under that law, Intevac has certain obligations to indemnify its current and former officers and directors for certain events or occurrences while the officer or director is, or was, serving at Intevac's request in such capacity. These indemnification obligations are valid as long as the director or officer acted in good faith and in a manner the person reasonably believed to be in, or not opposed to, the best interests of the Company and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful. The maximum potential amount of future payments Intevac could be required to make under these indemnification obligations is unlimited; however, Intevac has a director and officer insurance policy that mitigates Intevac's exposure and enables Intevac to recover a portion of any future amounts paid. As a result of Intevac's insurance policy coverage, Intevac believes the estimated fair value of these indemnification obligations is not material.

Other Indemnifications

As is customary in Intevac's industry, many of Intevac's contracts provide remedies to certain third parties such as defense, settlement, or payment of judgments for intellectual property claims related to the use of its products. Such indemnification obligations may not be subject to maximum loss clauses. Historically, payments made related to these indemnifications have been immaterial.

Letters of Credit

As of September 28, 2019, we had letters of credit and bank guarantees outstanding totaling $1.4 million, including a standby letter of credit outstanding under the Santa Clara, California facility lease and various other guarantees with our bank. These letters of credit and bank guarantees are collateralized by $1.4 million of restricted cash.

10. Leases

Intevac leases certain manufacturing facilities, warehouses, office space, and equipment under non-cancelable operating leases that expire at various times up to March 2024 and has options to renew most leases, with rentals to be negotiated. Certain of Intevac's leases contain provisions for rental adjustments. Operating lease rentals are expensed on a straight-line basis over the life of the lease beginning on the date we take possession of the property. At lease inception, we determine the lease term by assuming the exercise of those renewal options that are reasonably assured. The exercise of lease renewal options is at our sole discretion. The lease term is used to determine whether a lease is financing or operating and is used to calculate straight-line rent expense. Additionally, the depreciable life of leasehold improvements is limited by the expected lease term. Leases with an initial term of 12 months or less are not recorded on the balance sheet; we recognize lease expense for these leases on a straight-line basis over the lease term.

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The following table reflects our lease assets and our lease liabilities at September 28, 2019 and December 30, 2018.

	September 28, 2019	December 30, 2018
	(In thousands)	
Assets:		
Operating lease right-of-use assets	$ 9,920	$ 11,635
Liabilities:		
Current operating lease liabilities	$ 2,394	$ 2,581
Noncurrent operating lease liabilities	9,354	11,120
	$ 11,748	$ 13,701

Lease Costs:

The components of lease costs were as follows:

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(In thousands)			
Operating lease cost	$ 780	$ 755	$ 2,344	$ 2,270
Short-term lease cost	20	20	57	62
Total lease cost	$ 800	$ 775	$ 2,401	$ 2,332

As of September 28, 2019, the maturity of operating lease liabilities was as follows:

(In thousands)	
2019	$ 830
2020	2,991
2021	2,989
2022	3,074
2023	3,161
2024	528
Total lease payments	13,573
Less: Interest	(1,825)
Present value of lease liabilities	$11,748

Lease Term and Discount Rate:

	September 28, 2019
Weighted-average remaining lease term (in years)	4.35
Weighted-average discount rate	6.52%

Other information:

Supplemental cash flow information related to leases was as follows (in thousands):

	Nine Months Ended September 28, 2019
Operating cash outflows from operating leases	$ 2,622
Right-of-use assets obtained in exchange for new operating lease liabilities	$ —

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NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
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11. Cash, Cash Equivalents and Investments

Cash and cash equivalents, short-term investments and long-term investments consist of:

	September 28, 2019			
	Amortized Cost	Unrealized Holding Gains	Unrealized Holding Losses	Fair Value
	(In thousands)			
Cash and cash equivalents:				
Cash	$ 10,371	$ —	$ —	$ 10,371
Money market funds	3,028	—	—	3,028
Certificates of deposit	600	—	—	600
Commercial paper	499	—	—	499
U.S. treasury and agency securities	499	—	—	499
Total cash and cash equivalents	$ 14,997	$ —	$ —	$ 14,997
Short-term investments:				
Certificates of deposit	$ 3,000	$ 3	$ —	$ 3,003
Commercial paper	1,392	2	—	1,394
Corporate bonds and medium-term notes	5,971	27	—	5,998
U.S. treasury and agency securities	4,905	2	—	4,907
Total short-term investments	$ 15,268	$ 34	$ —	$ 15,302
Long-term investments:				
Certificates of deposit	$ 499	$ 1	$ —	$ 500
Corporate bonds and medium-term notes	2,436	18	—	2,454
U.S. treasury and agency securities	2,493	1	1	2,493
Total long-term investments	$ 5,428	$ 20	$ 1	$ 5,447
Total cash, cash equivalents, and investments	$ 35,693	$ 54	$ 1	$ 35,746

	December 29, 2018			
	Amortized Cost	Unrealized Holding Gains	Unrealized Holding Losses	Fair Value
	(in thousands)			
Cash and cash equivalents:				
Cash	$ 13,334	$ —	$ —	$ 13,334
Money market funds	3,335	—	—	3,335
U.S. treasury and agency securities	2,046	—	—	2,046
Total cash and cash equivalents	$ 18,715	$ —	$ —	$ 18,715
Short-term investments:				
Certificates of deposit	$ 5,299	$ 1	$ 1	$ 5,299
Commercial paper	2,242	—	1	2,241
Corporate bonds and medium-term notes	4,759	—	13	4,746
Municipal bonds	500	—	2	498
U.S. treasury and agency securities	3,297	—	5	3,292
Total short-term investments	$ 16,097	$ 1	$ 22	$ 16,076
Long-term investments:				
Certificates of deposit	$ 500	$ —	$ —	$ 500
Corporate bonds and medium-term notes	2,879	4	4	2,879
U.S. treasury and agency securities	999	—	6	993
Total long-term investments	$ 4,378	$ 4	$ 10	$ 4,372
Total cash, cash equivalents, and investments	$ 39,190	$ 5	$ 32	$ 39,163

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The contractual maturities of available-for-sale securities at September 28, 2019 are presented in the following table.

	September 28, 2019	
	Amortized Cost	Fair Value
	(In thousands)	
Due in one year or less	$ 19,894	$ 19,928
Due after one through two years	5,428	5,447
	$ 25,322	$ 25,375

The following table provides the fair market value of Intevac's investments with unrealized losses that are not deemed to be other-than temporarily impaired as of September 28, 2019.

	September 28, 2019			
	In Loss Position for Less than 12 Months		In Loss Position for Greater than 12 Months	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
	(In thousands)			
U.S. treasury and agency securities	$1,994	$ 1	$ —	$ —

All prices for the fixed maturity securities including U.S. Treasury and agency securities, certificates of deposit, commercial paper, corporate bonds and municipal bonds are received from independent pricing services utilized by Intevac's outside investment manager. This investment manager performs a review of the pricing methodologies and inputs utilized by the independent pricing services for each asset type priced by the vendor. In addition, on at least an annual basis, the investment manager conducts due diligence visits and interviews with each pricing vendor to verify the inputs utilized for each asset class. The due diligence visits include a review of the procedures performed by each vendor to ensure that pricing evaluations are representative of the price that would be received for a security in an orderly sale. Any pricing where the input is based solely on a broker price is deemed to be a Level 3 price. Intevac uses the pricing data obtained from its outside investment manager as the primary input to make its assessments and determinations as to the ultimate valuation of the above-mentioned securities and has not made, during the periods presented, any material adjustments to such inputs.

The following table represents the fair value hierarchy of Intevac's available-for-sale securities measured at fair value on a recurring basis as of September 28, 2019.

	Fair Value Measurements at September 28, 2019		
	Total	Level 1	Level 2
	(In thousands)		
Recurring fair value measurements:			
Available-for-sale securities			
Money market funds	$ 3,028	$ 3,028	$ —
U.S. treasury and agency securities	7,899	7,899	—
Certificates of deposit	4,103	—	4,103
Commercial paper	1,893	—	1,893
Corporate bonds and medium-term notes	8,452	—	8,452
Total recurring fair value measurements	$25,375	$10,927	$14,448

12. Derivative Instruments

The Company uses foreign currency forward contracts to mitigate variability in gains and losses generated from the re-measurement of certain monetary assets and liabilities denominated in foreign currencies and to offset certain operational exposures from the impact of changes in foreign currency exchange rates. These derivatives are carried at fair value with changes recorded in interest income and 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. Cash flows from such derivatives are classified as operating activities. The derivatives have original maturities of approximately 30 days.

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The following table summarizes the Company's outstanding derivative instruments on a gross basis as recorded in its condensed consolidated balance sheets as of September 28, 2019 and December 29, 2018:

Derivative Instrument	Notional Amounts September 28 2019	Notional Amounts December 29, 2018	Derivative Liabilities September 28, 2019 Balance Sheet Line	Derivative Liabilities September 28, 2019 Fair Value	Derivative Liabilities December 29, 2018 Balance Sheet Line	Derivative Liabilities December 29, 2018 Fair Value
			(in thousands)			
Undesignated Hedges:						
Forward Foreign Currency Contracts	$ 1,018	$ 1,764	(a)	$ 5	(a)	$ 8
Total Hedges	$ 1,018	$ 1,764		$ 5		$ 8

(a) Other accrued liabilities

13. Equity

Condensed Consolidated Statement of Changes in Equity

The changes in stockholders' equity by component for the three and nine months ended September 28, 2019 and September 29, 2018, are as follows (in thousands):

	Three months ended September 28, 2019				
	Common Stock and Additional Paid-in Capital	Treasury Stock	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
Balance at June 29, 2019	$ 185,489	$ (29,089)	$ 455	$ (68,508)	$ 88,347
Common stock issued under employee plans	749	—	—	—	749
Shares withheld for net share settlement of RSUs	(28)	—	—	—	(28)
Equity-based compensation expense	751	—	—	—	751
Net loss	—	—	—	(480)	(480)
Other comprehensive loss	—	—	(84)	—	(84)
Common stock repurchases	—	(69)	—	—	(69)
Balance at September 28, 2019	$ 186,961	$ (29,158)	$ 371	$ (68,988)	$ 89,186

	Nine months ended September 28, 2019				
	Common Stock and Additional Paid-in Capital	Treasury Stock	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
Balance at December 29, 2018	$ 183,227	$ (29,047)	$ 378	$ (64,934)	$ 89,624
Common stock issued under employee plans	1,770	—	—	—	1,770
Shares withheld for net share settlement of RSUs	(296)	—	—	—	(296)
Equity-based compensation expense	2,260	—	—	—	2,260
Net loss	—	—	—	(4,054)	(4,054)
Other comprehensive loss	—	—	(7)	—	(7)
Common stock repurchases	—	(111)	—	—	(111)
Balance at September 28, 2019	$ 186,961	$ (29,158)	$ 371	$ (68,988)	$ 89,186

INTEVAC, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
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	Three months ended September 29, 2018				
	Common Stock and Additional Paid-in Capital	Treasury Stock	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
Balance at June 30, 2018	$ 180,449	$ (28,489)	$ 444	$ (73,818)	$ 78,586
Common stock issued under employee plans	1,081	—	—	—	1,081
Shares withheld for net share settlement of RSUs	(5)	—	—	—	(5)
Equity-based compensation expense	852	—	—	—	852
Net loss	—	—	—	(1,099)	(1,099)
Other comprehensive loss	—	—	(73)	—	(73)
Balance at September 29, 2018	$ 182,377	$ (28,489)	$ 371	$ (74,917)	$ 79,342

	Nine months ended September 29, 2018				
	Common Stock and Additional Paid-in Capital	Treasury Stock	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
Balance at December 30, 2017	$ 177,543	$ (28,489)	$ 490	$ (66,881)	$ 82,663
Cumulative effect of accounting change	—	—	—	(1,634)	(1,634)
Common stock issued under employee plans	3,199	—	—	—	3,199
Shares withheld for net share settlement of RSUs	(819)	—	—	—	(819)
Equity-based compensation expense	2,454	—	—	—	2,454
Net loss	—	—	—	(6,402)	(6,402)
Other comprehensive loss	—	—	(119)	—	(119)
Balance at September 29, 2018	$ 182,377	$ (28,489)	$ 371	$ (74,917)	$ 79,342

Accumulated Other Comprehensive Income

The changes in accumulated other comprehensive income by component for the three and nine months ended September 28, 2019 and September 29, 2018, are as follows.

	Three Months Ended			Nine Months Ended		
	September 28, 2019					
	Foreign currency	Unrealized holding gains on available-for-sale investments	Total	Foreign currency	Unrealized holding gains on available-for-sale investments	Total
	(In thousands)					
Beginning balance	$ 405	$ 50	$455	$ 405	$ (27)	$378
Other comprehensive income (loss) before reclassification	(87)	3	(84)	(87)	80	(7)
Amounts reclassified from other comprehensive income (loss)	—	—	—	—	—	—
Net current-period other comprehensive loss	(87)	3	(84)	(87)	80	(7)
Ending balance	$ 318	$ 53	$371	$ 318	$ 53	$371

INTEVAC, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
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	Three Months Ended			Nine Months Ended		
	September 29, 2018					
	Foreign currency	Unrealized holding losses on available-for-sale investments	Total	Foreign currency	Unrealized holding losses on available-for-sale investments	Total
	(In thousands)					
Beginning balance	$ 495	$ (51)	$444	$ 535	$ (45)	$ 490
Other comprehensive income (loss) before reclassification	(86)	13	(73)	(126)	7	(119)
Amounts reclassified from other comprehensive income (loss)	—	—	—	—	—	—
Net current-period other comprehensive loss	(86)	13	(73)	(126)	7	(119)
Ending balance	$ 409	$ (38)	$371	$ 409	$ (38)	$ 371

Stock Repurchase Program

On November 21, 2013, Intevac's Board of Directors approved a stock repurchase program authorizing up to $30.0 million in repurchases. On August 15, 2018, Intevac's Board of Directors approved a $10.0 million increase to the original stock repurchase program for an aggregate authorized amount of $40.0 million. At September 28, 2019, $10.8 million remains available for future stock repurchases under the repurchase program.

The following table summarizes Intevac's stock repurchases:

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(In thousands, except per share amounts)			
Shares of common stock repurchased	15	—	24	—
Cost of stock repurchased	$ 69	$ —	$ 111	$ —
Average price paid per share	$ 4.65	$ —	$ 4.67	$ —

Intevac records treasury stock purchases under the cost method using the first-in, first-out (FIFO) method. Upon reissuance of treasury stock, amounts in excess of the acquisition cost are credited to additional paid-in capital. If Intevac reissues treasury stock at an amount below its acquisition cost and additional paid-in capital associated with prior treasury stock transactions is insufficient to cover the difference between the acquisition cost and the reissue price, this difference is recorded against retained earnings.

14. Net Loss Per Share

The following table sets forth the computation of basic and diluted net loss per share for the three and nine months ended September 28, 2019 and September 29, 2018:

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(In thousands, except per share amounts)			
Net loss	$ (480)	$ (1,099)	$ (4,054)	$ (6,402)
Weighted-average shares – basic	23,130	22,719	22,992	22,429
Effect of dilutive potential common shares	—	—	—	—
Weighted-average shares – diluted	23,130	22,719	22,992	22,429
Net loss per share – basic	$ (0.02)	$ (0.05)	$ (0.18)	$ (0.29)
Net loss per share – diluted	$ (0.02)	$ (0.05)	$ (0.18)	$ (0.29)

As the Company is in a net loss position, all of the Company's equity instruments are considered antidilutive.

15. Segment Reporting

Intevac's two reportable segments are TFE and Photonics. Intevac's chief operating decision-maker has been identified as the President and CEO, who reviews operating results to make decisions about allocating resources and assessing performance for the entire Company. Segment information is presented based upon Intevac's management organization structure as of September 28, 2019 and the distinctive nature of each segment. Future changes to this internal financial structure may result in changes to the reportable segments disclosed.

Each reportable segment is separately managed and has separate financial results that are reviewed by Intevac's chief operating decision-maker. Each reportable segment contains closely related products that are unique to the particular segment. Segment operating profit is determined based upon internal performance measures used by the chief operating decision-maker.

Intevac derives the segment results from its internal management reporting system. The accounting policies Intevac uses to derive reportable segment results are substantially the same as those used for external reporting purposes. Management measures the performance of each reportable segment based upon several metrics, including orders, net revenues and operating income. Management uses these results to evaluate the performance of, and to assign resources to, each of the reportable segments. Intevac manages certain operating expenses separately at the corporate level. Intevac allocates certain of these corporate expenses to the segments in an amount equal to 3% of net revenues. Segment operating income excludes interest income/expense and other financial charges and income taxes according to how a particular reportable segment's management is measured. Management does not consider impairment charges, gains and losses on divestitures and sales of intellectual property, and unallocated costs in measuring the performance of the reportable segments.

The TFE segment designs, develops and markets vacuum process equipment solutions for high-volume manufacturing of small substrates with precise thin-film properties, such as for the hard drive, solar cell and DCP industries, as well as other adjacent thin-film markets.

The Photonics segment develops compact, cost-effective, high-sensitivity digital-optical products for the capture and display of low-light images. Intevac provides sensors, cameras and systems for government applications such as night vision.

Information for each reportable segment for the three and nine months ended September 28, 2019 and September 29, 2018 is as follows:

Net Revenues

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(In thousands)			
TFE	$ 17,116	$ 12,108	$ 49,325	$ 45,745
Photonics	9,183	7,358	24,116	17,793
Total segment net revenues	$ 26,299	$ 19,466	$ 73,441	$ 63,538

Operating Income (Loss)

	Three Months Ended		Nine Months Ended	
	September 28, 2019	September 29, 2018	September 28, 2019	September 29, 2018
	(In thousands)			
TFE	$ (1,542)	$ (907)	$ (3,434)	$ (2,197)
Photonics	2,268	688	3,114	(966)
Total segment operating income (loss)	726	(219)	(320)	(3,163)
Unallocated costs	(1,159)	(874)	(3,038)	(2,986)
Loss from operations	(433)	(1,093)	(3,358)	(6,149)
Interest income and other income (expense), net	126	186	448	464
Loss before income taxes	$ (307)	$ (907)	$ (2,910)	$ (5,685)

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Total assets for each reportable segment as of September 28, 2019 and December 29, 2018 are as follows:

Assets

	September 28, 2019	December 29, 2018
	(In thousands)	
TFE	$ 52,541	$ 53,867
Photonics	22,158	16,721
Total segment assets	74,699	70,588
Cash, cash equivalents and investments	35,746	39,163
Restricted cash	1,355	1,169
Deferred income taxes	7,361	7,913
Other current assets	1,071	1,341
Common property, plant and equipment	1,178	1,017
Common operating lease right-of-use assets	2,005	—
Other assets	869	879
Consolidated total assets	$ 124,284	$ 122,070

16. Income Taxes

Intevac recorded income tax provisions of $173,000 and $1.1 million for the three and nine months ended September 28, 2019, respectively and $192,000 and $717,000 for the three and nine months ended September 29, 2018, respectively. The income tax provisions for the three and nine months are based upon estimates of annual income (loss), annual permanent differences and statutory tax rates in the various jurisdictions in which Intevac operates. For the three and nine month periods ended September 28, 2019 Intevac recorded income tax provisions on earnings of its international subsidiaries of $42,000 and $605,000, respectively and recorded $130,000 and $534,000, respectively for withholding taxes on royalties paid to the United States from Intevac's Singapore subsidiary as discrete items. For the three and nine month periods ended September 29, 2018 Intevac recorded $158,000 and $615,000, respectively for withholding taxes on royalties paid to the United States from Intevac's Singapore subsidiary as discrete items. For all periods presented Intevac utilized net operating loss carry-forwards to offset the impact of the global intangible low-taxed income ("GILTI"). Intevac's tax rate differs from the applicable statutory rates due primarily to establishment of a valuation allowance, the utilization of deferred and current credits and the effect of permanent differences and adjustments of prior permanent differences. Intevac's future effective income tax rate depends on various factors, including the level of Intevac's projected earnings, the geographic composition of worldwide earnings, tax regulations governing each region, net operating loss carry-forwards, availability of tax credits and the effectiveness of Intevac's tax planning strategies. Management carefully monitors these factors and timely adjusts the effective income tax rate.

The Inland Revenue Authority of Singapore ("IRAS") is currently conducting a review of the 2009 and 2010 fiscal year tax returns of the Company's wholly-owned subsidiary, Intevac Asia Pte. Ltd. IRAS has challenged the Company's tax position with respect to certain aspects of the Company's transfer pricing. Under Singapore tax law, the Company must pay all contested taxes and the related interest to have the right to defend its position. The contested tax deposits of $713,000 at September 28, 2019 and $723,000 at December 29, 2018 are included in other long-term assets on the condensed consolidated balance sheets. The Company's management and its advisors continue to believe that the Company is "more likely than not" to successfully defend that the tax treatment was proper and in accordance with Singapore tax regulations. Presently, there are no other active income tax examinations in the jurisdictions where Intevac operates.

17. Restructuring Charges

During the first quarter of fiscal 2018, Intevac substantially completed implementation of the 2018 cost reduction plan (the "Plan"), which was intended to reduce expenses and reduce its workforce by 6 percent. The cost of implementing the Plan was reported under cost of net revenues and operating expenses in the condensed consolidated statements of operations. Substantially all cash outlays in connection with the Plan occurred in the first quarter of fiscal 2018. Implementation of the Plan is expected to reduce salary, wages and other employee-related expenses by approximately $1.8 million on an annual basis.

INTEVAC, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
(Unaudited)

The changes in restructuring reserves associated with the Plan for the nine months ended September 29, 2018 are as follows.

	Nine Months Ended September 29, 2018
	Severance and other employee-related costs
	(In thousands)
Beginning balance	$ —
Provision for restructuring reserves	95
Cash payments made	(95)
Ending balance	$ —

18. Related Party Transaction

A Board member of the Company also serves as the Chief Executive Officer of a supplier. The Company made inventory purchases in the amount of $16,000 and $191,000, respectively, for the three and nine months ended September 28, 2019 and $6,000 and $129,000, respectively, for the three and nine months ended September 29, 2018 from this supplier.

19. Contingencies

From time to time, Intevac may have certain contingent liabilities that arise in the ordinary course of its business activities. Intevac accounts for contingent liabilities when it is probable that future expenditures will be made and such expenditures can be reasonably estimated.

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, which involve risks and uncertainties. Words such as "believes," "expects," "anticipates" and the like indicate forward-looking statements. These forward-looking statements include comments related to Intevac's shipments, projected revenue recognition, product costs, gross margin, operating expenses, interest income, income taxes, cash balances and financial results in 2019 and beyond; projected customer requirements for Intevac's new and existing products, and when, and if, Intevac's customers will place orders for these products; Intevac's ability to proliferate its Photonics technology into major military programs and to develop and introduce commercial imaging products; the timing of delivery and/or acceptance of the systems and products that comprise Intevac's backlog for revenue; and the Company's ability to achieve cost savings. Intevac's actual results may differ materially from the results discussed in the forward-looking statements for a variety of reasons, including those set forth under "Risk Factors" and in other documents we file from time to time with the Securities and Exchange Commission, including our Annual Report on Form 10-K filed on February 13, 2019, and our periodic reports on Form 10-Q and current reports on Form 8-K.

Overview

Intevac is a provider of vacuum deposition equipment for a wide variety of thin-film applications, and a leading provider of digital night-vision technologies and products to the defense industry. The Company leverages its core capabilities in high-volume manufacturing of small substrates to provide process manufacturing equipment solutions to the hard disk drive ("HDD"), display cover panel ("DCP"), and photovoltaic ("PV") solar cell industries. Intevac also provides sensors, cameras and systems for government applications such as night vision. Intevac's customers include manufacturers of hard disk media, DCPs and solar cells as well as the U.S. government and its agencies, allies and contractors. Intevac reports two segments: Thin-film Equipment ("TFE") and Photonics.

Product development and manufacturing activities occur in North America and Asia. Intevac has field offices in Asia to support its TFE customers. Intevac's products are highly technical and are sold primarily through Intevac's direct sales force. Intevac also sells its products through distributors in Japan and China.

Intevac's results are driven by a number of factors including success in its equipment growth initiatives in the DCP and solar markets and by worldwide demand for HDDs. Demand for HDDs depends on the growth in digital data creation and storage, the rate of areal density improvements, the end-user demand for PCs, enterprise data storage, nearline "cloud" applications, video players and video game consoles that include such drives. Intevac continues to execute its strategy of equipment diversification into new markets by introducing new products, such as for a thin-film physical vapor deposition ("PVD") application for protective coating for DCP manufacturing and a thin-film PVD application for PV solar cell manufacturing. Intevac believes that expansion into these markets will result in incremental equipment revenues for Intevac and decrease Intevac's dependence on the HDD industry. Intevac's equipment business is subject to cyclical industry conditions, as demand for manufacturing equipment and services can change depending on supply and demand for HDDs, cell phones, and PV cells as well as other factors such as global economic conditions and technological advances in fabrication processes.

The following table presents certain significant measurements for the three and nine months ended September 28, 2019 and September 29, 2018:

	Three months ended			Nine months ended		
	September 28, 2019	September 29, 2018	Change over prior period	September 28, 2019	September 29, 2018	Change over prior period
	(In thousands, except percentages and per share amounts)					
Net revenues	$ 26,299	$ 19,466	$ 6,833	$ 73,441	$ 63,538	$ 9,903
Gross profit	$ 8,778	$ 7,486	$ 1,292	$ 24,375	$ 22,122	$ 2,253
Gross margin percent	33.4%	38.5%	(5.1) points	33.2%	34.8%	(1.6) points
Loss from operations	$ (433)	$ (1,093)	$ 660	$ (3,358)	$ (6,149)	$ 2,791
Net loss	$ (480)	$ (1,099)	$ 619	$ (4,054)	$ (6,402)	$ 2,348
Net loss per diluted share	$ (0.02)	$ (0.05)	$ 0.03	$ (0.18)	$ (0.29)	$ 0.11

Net revenues for the third quarter of fiscal 2019 increased compared to the same period in the prior year primarily due to higher equipment sales to PV manufacturers and higher Photonics contract research and development ("R&D"), offset in part by lower equipment sales to HDD manufacturers and lower sales of Photonics products. TFE recognized revenue on five ENERG*i* solar ion implant systems in the third quarter of fiscal 2019. TFE did not recognize revenue on any systems in the third quarter of fiscal 2018. The Company reported a smaller net loss for the third quarter of fiscal 2019 compared to the third quarter of 2018 due to higher revenues, higher gross profit, and decreased spending on research and development offset in part by higher selling, general and administrative expenses.

Net revenues for the first nine months of fiscal 2019 increased compared to the same period in the prior year primarily due to higher equipment sales to PV manufacturers, higher Photonics contract R&D and higher Photonics product sales, offset in part by lower equipment sales to HDD manufacturers. TFE recognized revenue in the first nine months of fiscal 2019 on two 200 Lean HDD systems and nine ENERG*i* solar ion implant systems. TFE recognized revenue in the first nine months of fiscal 2018 on three 200 Lean HDD systems. The Company reported a smaller net loss for the first nine months of fiscal 2019 compared to the first nine months of fiscal 2018 due to higher revenues, higher gross profit and decreased spending on research and development, offset in part by higher selling, general and administrative expenses.

Intevac expects that HDD equipment sales in 2019 will be similar to slightly down from the levels in 2018 as a HDD manufacturer takes delivery of only four 200 Lean HDD systems. In 2019, Intevac expects higher sales of new TFE products as we have recognized revenue on nine ENERG*i* solar ion implant systems. In 2019, we expect increased product shipments in Photonics as shipments for the Apache camera resumed in the second half of 2019 and we continue to deliver production shipments of the night-vision camera modules for the F35 Joint Strike Fighter program. In 2019, we expect increased contract R&D revenue as development work begins on the multi-year $31.6 million contract award for the development and production of digital night-vision cameras to support the U.S. Army's Integrated Visual Augmentation System ("IVAS") program. For fiscal 2019, Intevac expects that Photonics operating income will be higher than fiscal 2018 as Photonics results will reflect higher revenue levels.

Intevac's trademarks include the following: "200 Lean®," "AccuLuber®," "EBAPS®," "ENERG*i*®," "LIVAR®," "INTEVAC LSMA®," "INTEVAC MATRIX®," "MicroVista®," "NightVista®," "oDLC®," "INTEVAC VERTEX®" and VERTEX SPECTRA™.

Results of Operations

Net revenues

	Three months ended			Nine months ended		
	September 28, 2019	September 29, 2018	Change over prior period	September 28, 2019	September 29, 2018	Change over prior period
	(In thousands)					
TFE	$ 17,116	$ 12,108	$ 5,008	$ 49,325	$ 45,745	$ 3,580
Photonics:						
Contract R&D	5,209	2,326	2,883	13,476	7,591	5,885
Products	3,974	5,032	(1,058)	10,640	10,202	438
	9,183	7,358	1,825	24,116	17,793	6,323
Total net revenues	$ 26,299	$ 19,466	$ 6,833	$ 73,441	$ 63,538	$ 9,903

TFE revenue for the three and nine months ended September 28, 2019 increased compared to the same periods in the prior year as a result of higher sales of systems, technology upgrades and service, offset in part by lower sales of spare parts. TFE revenue for the three months ended September 28, 2019 included five ENERG*i* solar ion implant systems. TFE revenue for the three months ended September 29, 2018 did not include any systems. TFE recognized revenue in the first nine months of fiscal 2019 on two 200 Lean HDD systems and nine ENERG*i* solar ion implant systems. TFE recognized revenue in the first nine months of fiscal 2018 on three 200 Lean HDD systems.

Photonics revenue for the three month period ended September 28, 2019 increased compared to the same period in the prior year as a result of higher contract R&D work, offset in part by lower product sales revenues. Photonics revenue for the nine month period ended September 28, 2019 increased compared to the same period in the prior year as a result of higher contract R&D work and higher product sales revenues.

Backlog

	September 28, 2019	December 29, 2018	September 29, 2018
		(In thousands)	
TFE	$ 39,310	$ 64,803	$ 63,628
Photonics	76,123	43,711	8,606
Total backlog	$ 115,433	$ 108,514	$ 72,234

TFE backlog at September 28, 2019 included four 200 Lean HDD systems. TFE backlog at December 29, 2018 included six 200 Lean HDD systems and nine ENERG*i* solar ion implant systems. TFE backlog at September 29, 2018 includes three 200 Lean HDD systems and twelve ENERG*i* solar ion implant systems.

Revenue by geographic region

	Three Months Ended September 28, 2019			Three Months Ended September 29, 2018		
	(In thousands)					
	TFE	Photonics	Total	TFE	Photonics	Total
United States	$ 478	$ 9,050	$ 9,528	$ 287	$ 6,868	$ 7,155
Asia	16,638	—	16,638	11,821	—	11,821
Europe	—	133	133	—	457	457
Rest of World	—	—	—	—	33	33
Total net revenues	$17,116	$ 9,183	$26,299	$12,108	$ 7,358	$19,466

	Nine Months Ended September 29, 2018			Nine Months Ended September 29, 2018		
	(In thousands)					
	TFE	Photonics	Total	TFE	Photonics	Total
United States	$ 995	$ 23,578	$24,573	$ 3,549	$ 16,628	$20,177
Asia	48,330	—	48,330	42,196	31	42,227
Europe	—	538	538	—	937	937
Rest of World	—	—	—	—	197	197
Total net revenues	$49,325	$ 24,116	$73,441	$45,745	$ 17,793	$63,538

International sales include products shipped to overseas operations of U.S. companies. The increase in sales to the U.S. region in 2019 versus 2018 reflected higher Photonics product sales and higher Photonics contract R&D work. Sales to the Asia region in 2019 included two 200 Lean HDD systems and nine ENERG*i* solar ion implant systems versus three 200 Lean HDD systems in 2018. Sales to the Europe region and Rest of World in 2019 and 2018 were not significant.

Gross profit

	Three months ended			Nine months ended		
	September 28, 2019	September 29, 2018	Change over prior period	September 28, 2019	September 29, 2018	Change over prior period
	(In thousands, except percentages)					
TFE gross profit	$ 4,825	$ 4,871	$ (46)	$ 15,958	$ 18,113	$ (2,155)
% of TFE net revenues	28.2%	40.2%		32.4%	39.6%	
Photonics gross profit	$ 3,953	$ 2,615	$ 1,338	$ 8,417	$ 4,009	$ 4,408
% of Photonics net revenues	43.1%	35.5%		34.9%	22.5%	
Total gross profit	$ 8,778	$ 7,486	$ 1,292	$ 24,375	$ 22,122	$ 2,253
% of net revenues	33.4%	38.5%		33.2%	34.8%	

Cost of net revenues consists primarily of purchased materials and costs attributable to contract research and development, and also includes fabrication, assembly, test and installation labor and overhead, customer-specific engineering costs, warranty costs, royalties, provisions for inventory reserves and scrap.

TFE gross margin was 28.2% in the three months ended September 28, 2019 compared to 40.2% in the three months ended September 29, 2018 and was 32.4% in the nine months ended September 28, 2019 compared to 39.6% in the nine months ended September 29, 2018. The decrease in gross margin for the three and nine months ended September 28, 2019 was due primarily to the sale of lower margin ENERG*i* solar ion implant systems. Gross margins in the TFE business will vary depending on a number of factors, including product mix, product cost, system configuration and pricing, factory utilization, and provisions for excess and obsolete inventory.

Photonics gross margin was 43.1% in the three months ended September 28, 2019 compared to 35.5% in the three months ended September 29, 2018 and was 34.9% in the nine months ended September 28, 2019 compared to 22.5% in the nine months ended September 29, 2018. The improvement in gross margin for the three months ended September 28, 2019 was due to higher revenue levels and improved margins on both products and contract R&D work. The improvement in gross margin for the nine months ended September 28, 2019 was due to higher revenue levels and improved margins on contract R&D work, offset in part by lower product margins. Gross margins in the Photonics business will vary depending on a number of factors, including sensor yield, product mix, product cost, pricing, factory utilization, provisions for warranty and inventory reserves.

Research and development

	Three months ended			Nine months ended		
	September 28, 2019	September 29, 2018	Change over prior period	September 28, 2019	September 29, 2018	Change over prior period
	(In thousands)					
Research and development expense	$ 3,596	$ 3,737	$ (141)	$ 11,013	$ 12,889	$ (1,876)

Research and development spending in TFE decreased during the three and nine months ended September 28, 2019 compared to the same period in the prior year due to lower spending on semiconductor Fan-out development. TFE spending consisted primarily of HDD, DCP, semiconductor Fan-out and PV development. TFE spending during the nine months ended September 29, 2018 included charges of $666,000 related to the fixed asset disposal of certain lab equipment. Research and development spending decreased in Photonics during the three months ended September 28, 2019 as compared to the same period in the prior year, primarily related to a lower volume of development efforts. Research and development spending increased in Photonics during the nine months ended September 28, 2019 as compared to the same period in the prior year, primarily related to the development of the next generation of our low light level CMOS camera. Research and development expenses do not include costs of $3.3 million and $9.3 million for the three and nine months ended September 28, 2019 respectively, or $2.2 million and $7.1 million for the three and nine months ended September 29, 2018 respectively, which are related to customer-funded Photonics contract R&D programs and therefore included in cost of net revenues.

Selling, general and administrative

	Three months ended			Nine months ended		
	September 28, 2019	September 29, 2018	Change over prior period	September 28, 2019	September 29, 2018	Change over prior period
	(In thousands)					
Selling, general and administrative expense	$ 5,615	$ 4,842	$ 773	$ 16,720	$ 15,382	$ 1,338

Selling, general and administrative expense consists primarily of selling, marketing, customer support, financial and management costs. Selling, general and administrative expenses for the three and nine months ended September 28, 2019 increased compared to the same periods in the prior year primarily due to higher variable compensation costs, increased spending to support a customer evaluation of a next generation product and the lapse of the 2018 cost containment initiatives which included temporary salary reductions for executive management. Selling, general and administrative expense for the first nine months of fiscal 2018 included a $202,000 charge for the write-off of certain engineering software and a $148,000 charge for a lump sum separation payment.

Cost reduction plans

During the first quarter of fiscal 2018, Intevac substantially completed implementation of the 2018 cost reduction plan (the "Plan"), which was intended to reduce expenses and reduce its workforce by 6 percent. The total cost of implementing the Plan was $95,000 of which $61,000 was reported under cost of net revenues and $34,000 was reported under operating expenses. Substantially all cash outlays in connection with the Plan were completed in the first quarter of fiscal 2018. Implementation of the Plan is expected to reduce salary, wages and other employee-related expenses by approximately $1.8 million on an annual basis.

Interest income and other income (expense), net

	Three months ended			Nine months ended		
	September 28, 2019	September 29, 2018	Change over prior period	September 28, 2019	September 29, 2018	Change over prior period
	(In thousands)					
Interest income and other income (expense), net	$ 126	$ 186	$ (60)	$ 448	$ 464	$ (16)

Interest income and other income (expense), net is comprised of interest income, foreign currency gains and losses, and other income and expense such as gains and losses on sales of fixed assets and earnout income from divestitures.

Provision for income taxes

	Three months ended			Nine months ended		
	September 28, 2019	September 29, 2018	Change over prior period	September 28, 2019	September 29, 2018	Change over prior period
	(In thousands)					
Provision for income taxes	$ 173	$ 192	$ (19)	$ 1,144	$ 717	$ 427

Intevac recorded income tax provisions of $173,000 and $1.1 million for the three and nine months ended September 28, 2019, respectively, and $192,000 and $717,000 for the three and nine months ended September 29, 2018, respectively. The income tax provisions for the three and nine months are based upon estimates of annual income (loss), annual permanent differences and statutory tax rates in the various jurisdictions in which Intevac operates. For the three and nine month periods ended September 28, 2019 Intevac recorded income tax provisions on earnings of its international subsidiaries of $42,000 and $605,000, respectively, and recorded $130,000 and $534,000, respectively, for withholding taxes on royalties paid to the United States from Intevac's Singapore subsidiary as discrete items. For the three and nine month periods ended September 29, 2018 Intevac recorded $158,000 and $615,000, respectively, for withholding taxes on royalties paid to the United States from Intevac's Singapore subsidiary as discrete items. For all periods presented Intevac utilized net operating loss carry-forwards to offset the impact of the GILTI. Intevac's tax rate differs from the applicable statutory rates due primarily to establishment of a valuation allowance, the utilization of deferred and current credits and the effect of permanent differences and adjustments of prior permanent differences. Intevac's future effective income tax rate depends on various factors, including the level of Intevac's projected earnings, the geographic composition of worldwide earnings, tax regulations governing each region, net operating loss carry-forwards, availability of tax credits and the effectiveness of Intevac's tax planning strategies. Management carefully monitors these factors and timely adjusts the effective income tax rate.

Liquidity and Capital Resources

At September 28, 2019, Intevac had $37.1 million in cash, cash equivalents, restricted cash and investments compared to $40.3 million at December 29, 2018. During the first nine months of 2019, cash, cash equivalents, restricted cash and investments decreased by $3.2 million due primarily to cash used by operating activities, purchases of fixed assets, tax payments for net share settlements and stock repurchases, offset in part by cash received from the sale of Intevac common stock to Intevac's employees through Intevac's employee benefit plans.

Cash, cash equivalents, restricted cash and investments consist of the following:

	September 28, 2019	December 29, 2018
	(In thousands)	
Cash and cash equivalents	$ 14,997	$ 18,715
Restricted cash	1,355	1,169
Short-term investments	15,302	16,076
Long-term investments	5,447	4,372
Total cash, cash equivalents, restricted cash and investments	$ 37,101	$ 40,332

Operating activities used cash of $1.1 million during the first nine months of 2019 and generated cash of $2.1 million during the first nine months of 2018. The decrease in cash from operations during the first nine months of 2019 was primarily a result of increased investments in working capital during the first nine months of 2019, offset in part by the recognition of a smaller net loss.

Accounts receivable totaled $24.9 million at September 28, 2019 compared to $27.7 million at December 29, 2018. At September 28, 2019 and December 29, 2018 customer advances for products that had not been shipped to customers and included in accounts receivable were $403,000 and $3.7 million, respectively. Net inventories totaled $29.9 million at September 28, 2019 compared to $30.6 million at December 29, 2018. Net inventories at September 28, 2019 included one VERTEX SPECTRA system for DCP under evaluation in a customer's factory and one MATRIX PVD system for advance semiconductor packaging in work in process that was partially built. Net inventories at December 29, 2018 included three ENERG*i* implant systems in finished goods and one ENERG*i* implant system in work in process that were virtually complete and that were shipped to the customer in January 2019. Accounts payable decreased to $5.5 million at September 28, 2019 from $6.1 million at December 29, 2018 due to the timing of payments. Accrued payroll and related liabilities increased to $5.3 million at September 28, 2019 compared to $4.7 million at December 29, 2018. Other accrued liabilities decreased to $3.7 million at September 28, 2019 compared to $5.0 million at December 29, 2018. Customer advances decreased from $14.3 million at December 29, 2018 to $8.7 million at September 28, 2019, primarily due to the recognition of revenue offset in part by the recognition of new orders.

Investing activities used cash of $3.4 million during the first nine months of 2019. Purchases of investments net of proceeds from sales of investments totaled $166,000. Capital expenditures for the nine months ended September 28, 2019 were $3.3 million.

Financing activities provided cash of $1.1 million in the first nine months of 2019. The sale of Intevac common stock to Intevac's employees through Intevac's employee benefit plans generated cash of $1.8 million. Tax payments related to the net share settlement of restricted stock units were $296,000. Cash used to repurchase shares of common stock under the Company's stock repurchase program totaled $111,000 for the nine months ended September 28, 2019.

In connection with the acquisition of SIT, Intevac agreed to pay to the selling shareholders in cash a revenue earnout on Intevac's net revenue from commercial sales of certain solar implant products over a specified period up to an aggregate of $9.0 million. The earnout period terminated on June 30, 2019. Payments made associated with the revenue earnout obligation were $230,000 in the first nine months of 2019.

Intevac's investment portfolio consists principally of investment grade money market mutual funds, U.S. Treasury and agency securities, certificates of deposit, commercial paper, municipal bonds and corporate bonds. Intevac regularly monitors the credit risk in its investment portfolio and takes measures, which may include the sale of certain securities, to manage such risks in accordance with its investment policies.

As of September 28, 2019, approximately $8.0 million of cash and cash equivalents and $2.9 million of short-term investments were domiciled in foreign tax jurisdictions. Intevac expects a significant portion of these funds to remain off shore in the short term. If the Company chose to repatriate these funds to the United States, it would be required to accrue and pay additional taxes on any portion of the repatriation subject to foreign withholding taxes.

Intevac believes that its existing cash, cash equivalents and investments will be sufficient to meet its cash requirements for the foreseeable future. Intevac intends to undertake approximately $1.5 million to a $2.5 million in capital expenditures during the remainder of 2019.

Off-Balance Sheet Arrangements

Off-balance sheet firm commitments relating to outstanding letters of credit amounted to approximately $1.4 million as of September 28, 2019. These letters of credit and bank guarantees are collateralized by $1.4 million of restricted cash. We do not maintain any other off-balance sheet arrangements, transactions, obligations, or other relationships that would be expected to have a material current or future effect on the consolidated financial statements.

Critical Accounting Policies and Estimates

The preparation of financial statements and related disclosures in conformity with accounting principles generally accepted in the United States of America ("US GAAP") requires management to make judgments, assumptions and estimates that affect the amounts reported. Intevac's significant accounting policies are described in Note 1 to the consolidated financial statements included in Item 8 of Intevac's Annual Report on Form 10-K filed on February 13, 2019. Certain of these significant accounting policies are considered to be critical accounting policies, as defined below.

A critical accounting policy is defined as one that is both material to the presentation of Intevac's financial statements and requires management to make difficult, subjective or complex judgments that could have a material effect on Intevac's financial conditions and results of operations. Specifically, critical accounting estimates have the following attributes: 1) Intevac is required to make assumptions about matters that are highly uncertain at the time of the estimate; and 2) different estimates Intevac could reasonably have used, or changes in the estimate that are reasonably likely to occur, would have a material effect on Intevac's financial condition or results of operations.

Estimates and assumptions about future events and their effects cannot be determined with certainty. Intevac bases its estimates on historical experience and on various other assumptions believed to be applicable and reasonable under the circumstances. These estimates may change as new events occur, as additional information is obtained and as Intevac's operating environment changes. These changes have historically been minor and have been included in the consolidated financial statements as soon as they become known. In addition, management is periodically faced with uncertainties, the outcomes of which are not within its control and will not be known for prolonged periods of time. Many of these uncertainties are discussed in the section below entitled "Risk Factors." Based on a critical assessment of Intevac's accounting policies and the underlying judgments and uncertainties affecting the application of those policies, management believes that Intevac's consolidated financial statements are fairly stated in accordance with US GAAP, and provide a meaningful presentation of Intevac's financial condition and results of operation.

Beginning December 30, 2018, we implemented ASC 842, Leases. For a description of our critical accounting policies and estimates affecting accounting for leases, see Note 10. "Leases" to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q. For a description of other critical accounting policies that affect our more significant judgments and estimates used in the preparation of our condensed consolidated financial statements, refer to our Annual Report on Form 10-K for the year ended December 29, 2018 filed with the SEC on February 13, 2019. With the exception of the changes to our lease accounting policies referenced above, there have been no material changes to our critical accounting policies during the nine months ended September 28, 2019.

Item 3. ***Quantitative and Qualitative Disclosures About Market Risk***

Not applicable to smaller reporting companies.

Item 4. ***Controls and Procedures***

Evaluation of disclosure controls and procedures

Intevac maintains a set of disclosure controls and procedures that are designed to ensure that information relating to Intevac required to be disclosed in periodic filings under the Securities Exchange Act of 1934, or Exchange Act, is recorded, processed, summarized and reported in a timely manner under the Exchange Act. In connection with the filing of this Form 10-Q for the quarter ended September 28, 2019, as required under Rule 13a-15(e) of the Exchange Act, an evaluation was carried out under the supervision and with the participation of management, including the Chief Executive Officer (the "CEO") and Chief Financial Officer (the "CFO"), of the effectiveness of Intevac's disclosure controls and procedures as of the end of the period covered by this quarterly report. Based on this evaluation, Intevac's CEO and CFO concluded that our disclosure controls and procedures were effective as of September 28, 2019.

Attached as exhibits to this Quarterly Report are certifications of the CEO and the CFO, which are required in accordance with Rule 13a-14 of the Exchange Act. This Controls and Procedures section includes the information concerning the controls evaluation referred to in the certifications, and it should be read in conjunction with the certifications for a more complete understanding of the topics presented.

Definition of disclosure controls

Disclosure controls are controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act, such as this Quarterly Report, is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms. Disclosure controls are also designed to ensure that such information is accumulated and communicated to our management, including the CEO and CFO, as appropriate to allow timely decisions regarding required disclosure. Our disclosure controls include components of our internal control over financial reporting, which consists of control processes designed to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles in the U.S. To the extent that components of our internal control over financial reporting are included within our disclosure controls, they are included in the scope of our quarterly controls evaluation.

Limitations on the effectiveness of controls

Intevac's management, including the CEO and CFO, does not expect that Intevac's disclosure controls or Intevac's internal control over financial reporting will prevent all errors 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. Further, 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. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within Intevac 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 design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Changes in internal controls over financial reporting

Beginning December 30, 2018, we implemented ASC 842, Leases. We implemented changes to our processes related to lease recognition and the control activities within them. These included the development of new policies, ongoing lease review requirements, and gathering of information provided for disclosures.

PART II. OTHER INFORMATION

Item 1. *Legal Proceedings*

From time to time, Intevac is involved in claims and legal proceedings that arise in the ordinary course of business. Intevac expects that the number and significance of these matters will increase as Intevac's business expands. Any claims or proceedings against us, whether meritorious or not, could be time consuming, result in costly litigation, require significant amounts of management time, result in the diversion of significant operational resources, or require us to enter into royalty or licensing agreements which, if required, may not be available on terms favorable to us or at all. Intevac is not presently a party to any lawsuit or proceeding that, in Intevac's opinion, is likely to seriously harm Intevac's business.

Item 1A. *Risk Factors*

The following factors could materially affect Intevac's business, financial condition or results of operations and should be carefully considered in evaluating the Company and its business, in addition to other information presented elsewhere in this report.

The industries we serve are cyclical, volatile and unpredictable.

A significant portion of our revenue is derived from the sale of equipment used to manufacture commodity technology products such as disk drives, PV solar cells and cell phones. This subjects us to business cycles, the timing, length and volatility of which can be difficult to predict. When demand for commodity technology products exceeds production capacity, then demand for new capital equipment such as ours tends to be amplified. Conversely, when supply of commodity technology products exceeds demand, then demand for new capital equipment such as ours tends to be depressed. For example, sales of systems for magnetic disk production were depressed from late 2007 through 2009. The number of new systems delivered increased in 2010 as customers increased their production capacity in response to increased demand for data storage, but decreased in 2011 through 2015 as the hard disk drive industry did not add the same level of capacity that it did in 2010. We cannot predict with any certainty when these cycles will begin or end. Our sales of systems for magnetic disk production increased in 2016 as a customer began upgrading the technology level of its manufacturing capacity. Sales of systems and upgrades for magnetic disk production in 2017 and 2018 were higher than in 2016 as this customer's technology upgrade continued. Intevac expects that sales of systems and upgrades for magnetic disk production in 2019 will be similar to slightly down from the levels in 2018 as this customer is expected to take delivery of only four of the six systems in backlog at the beginning of 2019.

Our equipment represents only a portion of the capital expenditure that our customers incur when they upgrade or add production capacity. Accordingly, our customers generally commit to making large capital expenditures far in excess of the cost of our systems alone when they decide to purchase our systems. The magnitude of these capital expenditures requires our customers to have access to large amounts of capital. Our customers generally reduce their level of capital investment during downturns in the overall economy or during a downturn in their industries.

In recent years the photovoltaic (solar) market has undergone a downturn, which is likely to impact our sales of PV equipment. The solar industry from time to time experiences periods of structural imbalance between supply and demand, and such periods put intense pressure on our customers' pricing. The solar industry is currently in such a period. Competition in solar markets globally and across the solar value chain is intense, and could remain that way for an extended period of time. During any such period, solar module manufacturers may reduce their sales prices in response to competition, even below their manufacturing costs, in order to generate sales and may do so for a sustained period of time. As a result, our customers may be unable to sell their solar modules or systems at attractive prices or for a profit during a period of excess supply of solar modules, which would adversely affect their results of operations and their ability to make capital investments such as purchasing our products.

We must effectively manage our resources and production capacity to meet rapidly changing demand. Our business experiences rapid growth and contraction, which stresses our infrastructure, internal systems and managerial resources. During periods of increasing demand for our products, we must have sufficient manufacturing capacity and inventory to meet customer demand; attract, retain and motivate a sufficient number of qualified individuals; and effectively manage our supply chain. During periods of decreasing demand for our products, we must be able to align our cost structure with prevailing market conditions; motivate and retain key employees and effectively manage our supply chain.

Sales of our equipment are primarily dependent on our customers' upgrade and capacity expansion plans and whether our customers select our equipment.

We have no control over our customers' upgrade and capacity expansion plans, and we cannot be sure they will select, or continue to select, our equipment when they upgrade or expand their capacity. The sales cycle for our equipment systems can be a year or longer, involving individuals from many different areas of Intevac and numerous product presentations and demonstrations for our prospective customers. Our sales process also commonly includes production of samples and customization of our products. We do not typically enter into long-term contracts with our customers, and until an order is actually submitted by a customer there is no binding commitment to purchase our systems. In some cases, orders are also subject to customer acceptance or other criteria even in the case of a binding agreement.

Sales of new manufacturing systems are also dependent on obsolescence and replacement of the installed base of our customers' existing equipment with newer, more capable equipment. If upgrades are developed that extend the useful life of the installed base of systems, then we tend to sell more upgrade products and fewer new systems, which can significantly reduce total revenue.

Our 200 Lean HDD customers also experience competition from companies that produce alternative storage technologies like flash memory, which offer smaller size, lower power consumption and more rugged designs. These storage technologies are being used increasingly in enterprise applications and smaller form factors such as tablets, smart-phones, ultra-books, and notebook PCs instead of hard disk drives. Tablet computing devices and smart-phones have never contained, nor are they likely in the future to contain, a disk drive. Products using alternative technologies, such as flash memory, optical storage and other storage technologies are becoming increasingly common and could become a significant source of competition to particular applications of the products of our 200 Lean HDD customers, which could adversely affect our results of operations. If alternative technologies, such as flash memory, replace hard disk drives as a significant method of digital storage, then demand for our hard disk manufacturing products would decrease.

The Photonics business is also subject to long sales cycles because many of its products, such as our military imaging products, often must be designed into the customers' end products, which are often complex state-of-the-art products. These development cycles are typically multi-year, and our sales are contingent on our customers successfully integrating our product into their product, completing development of their product and then obtaining production orders for their product from the U.S. government or its allies.

We operate in an intensely competitive marketplace, and our competitors have greater resources than we do.

In the market for our disk sputtering systems, we experience competition primarily from Canon Anelva, which has sold a substantial number of systems worldwide. In the PV equipment market, Intevac faces competition from large established competitors including Applied Materials, Centrotherm Photovoltaics, Amtech, Jusung and Von Ardenne. In the market for our military imaging products we experience competition from companies such as Harris Corporation and L-3 Communications. Some of our competitors have substantially greater financial, technical, marketing, manufacturing and other resources than we do, especially in the DCP and PV equipment markets. Our competitors may develop enhancements to, or future generations of, competitive products that offer superior price or performance features, and new competitors may enter our markets and develop such enhanced products. Moreover, competition for our customers is intense, and our competitors have historically offered substantial pricing concessions and incentives to attract our customers or retain their existing customers.

Our growth depends on development of technically advanced new products and processes.

We have invested heavily, and continue to invest, in the development of new products, such as our 200 Lean HDD and other PVD systems, our coating systems for DCP, our solar systems for PV applications, our digital night-vision products and our near-eye display products. Our success in developing and selling new products depends upon a variety of factors, including our ability to: predict future customer requirements; make technological advances; achieve a low total cost of ownership for our products; introduce new products on schedule; manufacture products cost-effectively including transitioning production to volume manufacturing; commercialize and attain customer acceptance of our products; and achieve acceptable and reliable performance of our new products in the field. Our new product decisions and development commitments must anticipate continuously evolving industry requirements significantly in advance of sales. In addition, we are attempting to expand into new or related markets, including the PV and display cover glass markets. Our expansion into the PV and cover glass markets is dependent upon the success of our customers' development plans. To date we have not recognized material revenue from such products. Failure to correctly assess the size of the markets, to successfully develop cost effective products to address the markets or to establish effective sales and support of the new products would have a material adverse effect on future revenues and profits. In addition, if we invest in products for which the market does not develop as anticipated, we may incur significant charges related to such investments.

Rapid technological change in our served markets requires us to rapidly develop new technically advanced products. Our future success depends in part on our ability to develop and offer new products with improved capabilities and to continue to enhance our existing products. If new products have reliability or quality problems, our performance may be impacted by reduced orders, higher manufacturing costs, delays in acceptance and payment for new products and additional service and warranty expenses.

We are exposed to risks associated with a highly concentrated customer base.

Historically, a significant portion of our revenue in any particular period has been attributable to sales of our disk sputtering systems to a limited number of customers. This concentration of customers, when combined with changes in the customers' specific capacity plans and market share shifts can lead to extreme variability in our revenue and financial results from period to period.

The concentration of our customer base may enable our customers to demand pricing and other terms unfavorable to Intevac, and makes us more vulnerable to changes in demand by or issues with a given customer. Orders from a relatively limited number of manufacturers have accounted for, and will likely continue to account for, a substantial portion of our revenues. The loss of one of these large customers, or delays in purchasing by them, could have a material and adverse effect on our revenues.

Our operating results fluctuate significantly from quarter to quarter, which can lead to volatility in the price of our common stock.

Our quarterly revenues and common stock price have fluctuated significantly. We anticipate that our revenues, operating margins and common stock price will continue to fluctuate for a variety of reasons, including: (1) changes in the demand, due to seasonality, cyclicality and other factors in the markets for computer systems, storage subsystems and consumer electronics containing disks as well as cell phones and PV solar cells our customers produce with our systems; (2) delays or problems in the introduction and acceptance of our new products, or delivery of existing products; (3) timing of orders, acceptance of new systems by our customers or cancellation or delay of those orders; (4) new products, services or technological innovations by our competitors or us; (5) changes in our manufacturing costs and operating expense; (6) changes in general economic, political, stock market and industry conditions; and (7) any failure of our operating results to meet the expectations of investment research analysts or investors.

Any of these, or other factors, could lead to volatility and/or a rapid change in the trading price of our common shares. In the past, securities class action litigation has been instituted against companies following periods of volatility in the market price of their securities. Any such litigation, if instituted against Intevac, could result in substantial costs and diversion of management time and attention.

We may not be able to obtain export licenses from the U.S. government permitting delivery of our products to international customers.

Many of our products, especially Photonics products, require export licenses from U.S. government agencies under the Export Administration Act, the Trading with the Enemy Act of 1917, the Arms Export Act of 1976 or the International Traffic in Arms Regulations. These regulations limit the potential market for some of our products. We can give no assurance that we will be successful in obtaining all the licenses necessary to export our products. Heightened government scrutiny of export licenses for defense related products has resulted in lengthened review periods for our license applications. Exports to countries that are not considered by the U.S. government to be allies are likely to be prohibited, and even sales to U.S. allies may be limited. Failure to comply with export control laws, including identification and reporting of all exports and re-exports of controlled technology or exports made without correct license approval or improper license use could result in severe penalties and revocation of licenses. Failure to obtain export licenses, delays in obtaining licenses, or revocation of previously issued licenses would prevent us from selling the affected products outside the United States and could negatively impact our results of operations.

The Photonics business is dependent on U.S. government contracts, which are subject to fixed pricing, immediate termination and a number of procurement rules and regulations.

We sell our Photonics products and services directly to the U.S. government, as well as to prime contractors for various U.S. government programs. The U.S government is considering significant changes in the level of existing, follow-on or replacement programs. We cannot predict the impact of potential changes in priorities due to military transformations and/or the nature of future war-related activities. A shift of government priorities to programs in which we do not participate and/or reductions in funding for or the termination of programs in which we do participate, unless offset by other programs and opportunities, could have a material adverse effect on our financial position, results of operations, or cash flows.

Funding of multi-year government programs is subject to congressional appropriations, and there is no guarantee that the U.S. government will make further appropriations. Sales to the U.S. government and its prime contractors may also be affected by changes in procurement policies, budget considerations and political developments in the United States or abroad. For example, if the U.S. government is less focused on defense spending or there is a decrease in hostilities, demand for our products could decrease. The loss of funding for a government program would result in a loss of future revenues attributable to that program. The influence of any of these factors, which are beyond our control, could negatively impact our results of operations.

A significant portion of our U.S. government revenue is derived from fixed-price development and production contracts. Under fixed-price contracts, unexpected increases in the cost to develop or manufacture a product, whether due to inaccurate estimates in the bidding process, unanticipated increases in material costs, reduced production volumes, inefficiencies or other factors, are borne by us. We have experienced cost overruns in the past that have resulted in losses on certain contracts, and may experience additional cost overruns in the future. We are required to recognize the total estimated impact of cost overruns in the period in which they are first identified. Such cost overruns could have a material adverse effect on our results of operations.

Generally, government contracts contain provisions permitting termination, in whole or in part, without prior notice at the government's convenience upon the payment of compensation only for work done and commitments made at the time of termination. We cannot ensure that one or more of the government contracts under which we, or our customers, operate will not be terminated under these circumstances. Also, we cannot ensure that we, or our customers, would be able to procure new government contracts to offset the revenues lost as a result of any termination of existing contracts, nor can we ensure that we, or our customers, will continue to remain in good standing as federal contractors.

As a U.S. government contractor we must comply with specific government rules and regulations and are subject to routine audits and investigations by U.S. government agencies. If we fail to comply with these rules and regulations, the results could include: (1) reductions in the value of our contracts; (2) reductions in amounts previously billed and recognized as revenue; (3) contract modifications or termination; (4) the assessment of penalties and fines; and (5) suspension or debarment from government contracting or subcontracting for a period of time or permanently.

Our business could be negatively impacted by cyber and other security threats or disruptions.

As a defense contractor, we face various cyber and other security threats, including espionage and attempts to gain unauthorized access to sensitive information and networks. Although we utilize various procedures and controls to monitor and mitigate the risk of these threats, there can be no assurance that these procedures and controls will be sufficient. These threats could lead to losses of sensitive information or capabilities; financial liabilities and damage to our reputation. If we are unable to maintain compliance with security standards applicable to defense contractors, we could lose business or suffer reputational harm.

Cyber threats to businesses in general are evolving and include, but are not limited to, malicious software, destructive malware, attempts to gain unauthorized access to data, disruption or denial of service attacks, and other electronic security breaches that could lead to disruptions in our systems, unauthorized release of confidential, personal or otherwise protected information (ours or that of our employees, customers or partners), and corruption of data, networks or systems. In addition, we could be impacted by cyber threats or other disruptions or vulnerabilities found in products we use or in our partners' or customers' systems that are used in connection with our business. These events, if not prevented or effectively mitigated, could damage our reputation, require remedial actions and lead to loss of business, regulatory actions, potential liability and other financial losses.

Changes to our effective tax rate affect our results of operations.

As a global company, we are subject to taxation in the United States, Singapore and various other countries. Significant judgment is required to determine and estimate worldwide tax liabilities. Our future effective tax rate could be affected by: (1) changes in tax laws; (2) the allocation of earnings to countries with differing tax rates; (3) changes in worldwide projected annual earnings in current and future years: (4) accounting pronouncements; or (5) changes in the valuation of our deferred tax assets and liabilities. Although we believe our tax estimates are reasonable, there can be no assurance that any final determination will not be different from the treatment reflected in our historical income tax provisions and accruals, which could result in additional payments by Intevac.

Our success depends on international sales and the management of global operations.

In previous years, the majority of our revenues have come from regions outside the United States. Most of our international sales are to customers in Asia, which includes products shipped to overseas operations of U.S. companies. We currently have manufacturing facilities in California and Singapore and international customer support offices in Singapore, China, and Malaysia. We expect that international sales will continue to account for a significant portion of our total revenue in future years. Certain of our suppliers are also located outside the United States.

Managing our global operations presents challenges including, but not limited to, those arising from: (1) global trade issues; (2) variations in protection of intellectual property and other legal rights in different countries; (3) concerns of U.S. governmental agencies regarding possible national commercial and/or security issues posed by growing manufacturing business in Asia; (4) fluctuation of interest rates, raw material costs, labor and operating costs, and exchange rates; (5) variations in the ability to develop relationships with suppliers and other local businesses; (6) changes in the laws and regulations of the United States, including export restrictions, and other countries, as well as their interpretation and application; (7) the need to provide technical and spares support in different locations; (8) political and economic instability; (9) cultural differences; (10) varying government incentives to promote development; (11) shipping costs and delays; (12) adverse conditions in credit markets; (13) variations in tariffs, quotas, tax codes and other market barriers; and (14) barriers to movement of cash.

We must regularly assess the size, capability and location of our global infrastructure and make appropriate changes to address these issues.

Difficulties in integrating past or future acquisitions could adversely affect our business.

We have completed a number of acquisitions and dispositions during our operating history. We have spent and may continue to spend significant resources identifying and pursuing future acquisition opportunities. Acquisitions involve numerous risks including: (1) difficulties in integrating the operations, technologies and products of the acquired companies; (2) the diversion of our management's attention from other business concerns; and (3) the potential loss of key employees of the acquired companies. Failure to achieve the anticipated benefits of the prior and any future acquisitions or to successfully integrate the operations of the companies we acquire could have a material and adverse effect on our business, financial condition and results of operations. Any future acquisitions could also result in potentially dilutive issuance of equity securities, acquisition or divestiture-related write-offs or the assumption of debt and contingent liabilities. In addition, we have made and will continue to consider making strategic divestitures. With any divestiture, there are risks that future operating results could be unfavorably impacted if targeted objectives, such as cost savings, are not achieved or if other business disruptions occur as a result of the divestiture or activities related to the divestiture.

Our success is dependent on recruiting and retaining a highly talented work force.

Our employees are vital to our success, and our key management, engineering and other employees are difficult to replace. We do not maintain key person life insurance on any of our employees. The expansion of high technology companies worldwide has increased demand and competition for qualified personnel, and has made companies increasingly protective of prior employees. It may be difficult for us to locate employees who are not subject to non-competition agreements and other restrictions.

The majority of our U.S. operations are located in California where the cost of living and of recruiting employees is high. Our operating results depend, in large part, upon our ability to retain and attract qualified management, engineering, marketing, manufacturing, customer support, sales and administrative personnel. Furthermore, we compete with industries such as the hard disk drive, semiconductor, and solar industries for skilled employees. Failure to retain existing key personnel, or to attract, assimilate or retain additional highly qualified employees to meet our needs in the future, could have a material and adverse effect on our business, financial condition and results of operations.

We are dependent on certain suppliers for parts used in our products.

We are a manufacturing business. Purchased parts constitute the largest component of our product cost. Our ability to manufacture depends on the timely delivery of parts, components and subassemblies from suppliers. We obtain some of the key components and subassemblies used in our products from a single supplier or a limited group of suppliers. If any of our suppliers fail to deliver quality parts on a timely basis, we may experience delays in manufacturing, which could result in delayed product deliveries, increased costs to expedite deliveries or develop alternative suppliers, or require redesign of our products to accommodate alternative suppliers. Some of our suppliers are thinly capitalized and may be vulnerable to failure.

Our business depends on the integrity of our intellectual property rights.

The success of our business depends upon the integrity of our intellectual property rights, and we cannot ensure that: (1) any of our pending or future patent applications will be allowed or that any of the allowed applications will be issued as patents or will issue with claims of the scope we sought; (2) any of our patents will not be invalidated, deemed unenforceable, circumvented or challenged; (3) the rights granted under our patents will provide competitive advantages to us; (4) other parties will not develop similar products, duplicate our products or design around our patents; or (5) our patent rights, intellectual property laws or our agreements will adequately protect our intellectual property or competitive position.

From time to time, we have received claims that we are infringing third parties' intellectual property rights or seeking to invalidate our rights. We cannot ensure that third parties will not in the future claim that we have infringed current or future patents, trademarks or other proprietary rights relating to our products. Any claims, with or without merit, could be time-consuming, result in costly litigation, cause product shipment delays or require us to enter into royalty or licensing agreements. Such royalty or licensing agreements, if required, may not be available on terms acceptable to us.

We could be involved in litigation.

From time to time we may be involved in litigation of various types, including litigation alleging infringement of intellectual property rights and other claims and customer disputes. Litigation is expensive, subjects us to the risk of significant damages and requires significant management time and attention and could have a material and adverse effect on our business, financial condition and results of operations.

We are subject to risks of non-compliance with environmental and other governmental regulations.

We are subject to a variety of governmental regulations relating to the use, storage, discharge, handling, emission, generation, manufacture, treatment and disposal of toxic or otherwise hazardous substances, chemicals, materials or waste. If we fail to comply with current or future regulations, such failure could result in suspension of our operations, alteration of our manufacturing process, remediation costs or substantial civil penalties or criminal fines against us or our officers, directors or employees. Additionally, these regulations could require us to acquire expensive remediation or abatement equipment and incur substantial expenses to comply with them.

Business interruptions could adversely affect our operations.

Our operations are vulnerable to interruption by fire, earthquake, floods or other natural disaster, quarantines or other disruptions associated with infectious diseases, national catastrophe, terrorist activities, war, disruptions in our computing and communications infrastructure due to power loss, telecommunications failure, human error, physical or electronic security breaches and computer viruses, and other events beyond our control. We do not have a detailed disaster recovery plan. Despite our implementation of network security measures, our tools and servers may be vulnerable to computer viruses, break-ins and similar disruptions from unauthorized tampering with our computer systems and tools located at customer sites. Political instability could cause us to incur increased costs in transportation, make such transportation unreliable, increase our insurance costs or cause international currency markets to fluctuate. All these unforeseen disruptions and instabilities could have the same effects on our suppliers and their ability to timely deliver their products. In addition, we do not carry sufficient business interruption insurance to compensate us for all losses that may occur, and any losses or damages incurred by us could have a material adverse effect on our business and results of operations. For example, we self-insure earthquake risks because we believe this is the prudent financial decision based on the high cost of the limited coverage available in the earthquake insurance market. An earthquake could significantly disrupt our operations, most of which are conducted in California. It could also significantly delay our research and engineering effort on new products, most of which is also conducted in California. We take steps to minimize the damage that would be caused by business interruptions, but there is no certainty that our efforts will prove successful.

We could be negatively affected as a result of a proxy contest and the actions of activist stockholders.

A proxy contest with respect to election of our directors, or other activist stockholder activities, could adversely affect our business because: (1) responding to a proxy contest and other actions by activist stockholders can be costly and time-consuming, disruptive to our operations and divert the attention of management and our employees; (2) perceived uncertainties as to our future direction caused by activist activities may result in the loss of potential business opportunities, and may make it more difficult to attract and retain qualified personnel and business partners; and (3) if individuals are elected to our Board of Directors with a specific agenda, it may adversely affect our ability to effectively and timely implement our strategic plans.

We are required to evaluate our internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act of 2002, and any adverse results from such evaluation could result in a loss of investor confidence in our financial reports and have an adverse effect on our stock price.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, our management must perform evaluations of our internal control over financial reporting. Beginning in 2004, our Form 10-K has included a report by management of their assessment of the adequacy of such internal control. Additionally, our independent registered public accounting firm must publicly attest to the effectiveness of our internal control over financial reporting. We have completed the evaluation of our internal controls over financial reporting as required by Section 404 of the Sarbanes-Oxley Act. Although our assessment, testing, and evaluation resulted in our conclusion that as of December 29, 2018, our internal controls over financial reporting were effective, we cannot predict the outcome of our testing in future periods. Ongoing compliance with this requirement is complex, costly and time-consuming. If Intevac fails to maintain effective internal control over financial reporting; our management does not timely assess the adequacy of such internal control; or our independent registered public accounting firm does not deliver an unqualified opinion as to the effectiveness of our internal control over financial reporting, then we could be subject to restatement of previously reported financial results, regulatory sanctions and a decline in the public's perception of Intevac, which could have a material and adverse effect on our business, financial condition and results of operations.

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

On November 21, 2013, Intevac's Board of Directors approved a stock repurchase program authorizing up to $30.0 million in repurchases. On August 15, 2018, Intevac's Board of Directors approved a $10.0 million increase to the original stock repurchase program for an aggregate authorized amount of $40.0 million. At September 28, 2019, $10.8 million remains available for future stock repurchases under the repurchase program. Common stock repurchases during the three months ended September 28, 2019 are as follows:

	Total Number of Shares Purchased	Average Price Paid per Share	Aggregate Price Paid	Total Number of Shares Purchased as Part of Publicly Announced Program	Maximum Dollar Value of Shares That May Yet be Purchased Under the Program
	(in thousands, except per share data)				
June 30, 2019 to July 27, 2019	15	$ 4.65	$ 69	15	$ 10,838
July 28, 2019 to August 24, 2019	—	$ 4.70	$ —	—	$ 10,838
August 25, 2019 to September 28, 2019	—	$ —	$ —	—	$ 10,838

Item 3. ***Defaults upon Senior Securities***

None.

Item 4. ***Mine Safety Disclosures***

Not applicable.

Item 5. ***Other Information***

None.

Item 6. ***Exhibits***

The following exhibits are filed herewith:

Exhibit Number	Description
31.1	Certification of President and Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Executive Vice President, Finance and Administration, Chief Financial Officer and Treasurer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certifications Pursuant to U.S.C. 1350 Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema
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.

INTEVAC, INC.

Date: October 29, 2019

By: /s/ WENDELL BLONIGAN
Wendell Blonigan
President, Chief Executive Officer and Director
(Principal Executive Officer)

Date: October 29, 2019

By: /s/ JAMES MONIZ
James Moniz
Executive Vice President, Finance and Administration,
Chief Financial Officer and Treasurer
(Principal Financial and Accounting Officer)

Exhibit 31.1

I, Wendell Blonigan certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Intevac, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: October 29, 2019

/s/ WENDELL BLONIGAN

Wendell Blonigan
President, Chief Executive Officer and Director

Exhibit 31.2

I, James Moniz certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Intevac, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: October 29, 2019

/s/ JAMES MONIZ

James Moniz
Executive Vice President, Finance and Administration,
Chief Financial Officer and Treasurer

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Wendell Blonigan, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Quarterly Report of Intevac, Inc. on Form 10-Q for the quarterly period ended September 28, 2019 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Form 10-Q fairly presents in all material respects the financial condition and results of operations of Intevac, Inc.

Date: October 29, 2019

/s/ WENDELL BLONIGAN
Wendell Blonigan
President, Chief Executive Officer and Director

I, James Moniz, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Quarterly Report of Intevac, Inc. on Form 10-Q for the quarterly period ended September 28, 2019 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Form 10-Q fairly presents in all material respects the financial condition and results of operations of Intevac, Inc.

Date: October 29, 2019

/s/ JAMES MONIZ
James Moniz
Executive Vice President, Finance and Administration,
Chief Financial Officer and Treasurer

A signed original of this written statement required by Section 906 has been provided to Intevac, Inc. and will be retained by Intevac, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.