

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

Form 10-Q

(Mark One)

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

For the quarterly period ended March 29, 2019

or

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

For the transition period from _____ to _____

Commission file number 000-50646

Ultra Clean Holdings, Inc.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

26462 Corporate Avenue, Hayward, California
(Address of principal executive offices)

61-1430858
(I.R.S. Employer
Identification No.)

94545
(Zip Code)

(510) 576-4400
Registrant's telephone number, including area code

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

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

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

Number of shares outstanding of the issuer's common stock as of April 26, 2019: 39,334,377

ULTRA CLEAN HOLDINGS, INC.

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PART I. FINANCIAL INFORMATION

ITEM 1. Financial Statements

ULTRA CLEAN HOLDINGS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited; in thousands, except share and per share amounts)

	March 29, 2019	December 28, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 154,774	\$ 144,145
Accounts receivable, net of allowance of \$85 and \$123, respectively	110,971	106,956
Inventories	180,299	186,116
Prepaid expenses and other	28,056	25,708
Total current assets	474,100	462,925
Property and equipment, net	141,082	143,459
Goodwill	150,226	150,226
Purchased intangibles, net	188,653	193,507
Deferred tax assets, net	10,201	10,167
Operating lease right-of-use assets	32,892	—
Other non-current assets	6,091	5,193
Total assets	\$ 1,003,245	\$ 965,477
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Bank borrowings	\$ 9,686	\$ 9,671
Accounts payable	99,204	99,011
Accrued compensation and related benefits	18,912	15,846
Operating lease liabilities	10,554	—
Other current liabilities	18,337	14,770
Total current liabilities	156,693	139,298
Bank borrowings, net of current portion	329,810	331,549
Deferred tax liability	15,834	15,834
Operating lease liabilities	25,132	—
Other non-current liabilities	22,247	27,808
Total liabilities	549,716	514,489
Commitments and contingencies (See Note 11)		
Stockholders' equity:		
Preferred stock — \$0.001 par value, 10,000,000 authorized; none outstanding	—	—
Common stock — \$0.001 par value, 90,000,000 authorized; 39,288,237 and 39,065,935 shares issued and outstanding, in 2019 and 2018, respectively	40	40
Additional paid-in capital	292,487	290,424
Common shares held in treasury, at cost, 601,944 shares in 2019 and 2018	(3,337)	(3,337)
Retained earnings	150,323	149,718
Accumulated other comprehensive loss	(1,423)	(547)
Ultra Clean Holdings, Inc. stockholders' equity	438,090	436,298
Noncontrolling interest	15,439	14,690
Total stockholders' equity	453,529	450,988
Total liabilities and stockholders' equity	\$ 1,003,245	\$ 965,477

(See accompanying Notes to Condensed Consolidated Financial Statements)

ULTRA CLEAN HOLDINGS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited; in thousands, except per share data)

	Three Months Ended	
	March 29, 2019	March 30, 2018
Revenues	\$ 260,141	\$ 314,842
Cost of goods sold	215,344	266,038
Gross profit	44,797	48,804
Operating expenses:		
Research and development	3,431	3,029
Sales and marketing	5,395	3,805
General and administrative	27,791	15,062
Total operating expenses	36,617	21,896
Income from operations	8,180	26,908
Interest and other income (expense), net	(5,319)	326
Income before provision for income taxes	2,861	27,234
Income tax provision	1,507	2,493
Net income	1,354	24,741
Net income attributable to noncontrolling interest	749	—
Net income attributable to Ultra Clean Holdings, Inc.	\$ 605	\$ 24,741
Net income per share attributable to Ultra Clean Holdings, Inc. common stockholders:		
Basic	\$ 0.02	\$ 0.67
Diluted	\$ 0.02	\$ 0.66
Shares used in computing net income per share:		
Basic	39,122	36,723
Diluted	39,448	37,491

(See accompanying Notes to Condensed Consolidated Financial Statements)

ULTRA CLEAN HOLDINGS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited; in thousands)

	Three Months Ended	
	March 29, 2019	March 30, 2018
Net income	\$ 1,354	\$ 24,741
Other comprehensive income (loss):		
Change in cumulative translation adjustment	(867)	336
Cash flow hedges:		
Change in fair value of derivatives	15	9
Adjustment for net gain (loss) realized and included in net income	(24)	(886)
Total change in unrealized loss on derivative instruments	(9)	(877)
Other comprehensive loss, net of tax	(876)	(541)
Comprehensive income	478	24,200
Less: Comprehensive income attributable to noncontrolling interest	749	—
Comprehensive income (loss) attributable to Ultra Clean Holdings, Inc.	<u>\$ (271)</u>	<u>\$ 24,200</u>

(See accompanying Notes to Condensed Consolidated Financial Statements)

ULTRA CLEAN HOLDINGS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited; in thousands, except share)

	Common Stock		Additional	Retained	Accumulated	Noncontrolling	Total
	Shares	Amount	Paid-in	Earnings	Other Comprehensive Loss	Interests	Stockholders' Equity
	(in thousands, except share amounts)						
Balance December 28, 2018	39,065,935	\$ 40	\$ 287,087	\$ 149,718	\$ (547)	\$ 14,690	\$ 450,988
Issuance under employee stock plans	296,142	—	—	—	—	—	—
Amortization of stock-based compensation	—	—	2,913	—	—	—	2,913
Employees' taxes paid upon vesting of restricted stock units	(73,840)	—	(850)	—	—	—	(850)
Net income	—	—	—	605	—	749	1,354
Other comprehensive loss	—	—	—	—	(876)	—	(876)
Balance March 29, 2019	<u>39,288,237</u>	<u>\$ 40</u>	<u>\$ 289,150</u>	<u>\$ 150,323</u>	<u>\$ (1,423)</u>	<u>\$ 15,439</u>	<u>\$ 453,529</u>

	Common Stock		Additional	Retained	Accumulated	Noncontrolling	Total
	Shares	Amount	Paid-in	Earnings	Other Comprehensive Income	Interests	Stockholders' Equity
	(in thousands, except share amounts)						
Balance December 29, 2017	33,664,940	\$ 34	\$ 185,302	\$ 113,122	\$ 1,847	\$ —	\$ 300,305
Issuance under employee stock plans	387,071	—	—	—	—	—	—
Amortization of stock-based compensation	—	—	2,566	—	—	—	2,566
Employees' taxes paid upon vesting of restricted stock units	(92,410)	—	(1,862)	—	—	—	(1,862)
Issuance of common stock in public offering	4,761,905	5	94,322	—	—	—	94,327
Net income	—	—	—	24,741	—	—	24,741
Other comprehensive loss	—	—	—	—	(541)	—	(541)
Balance March 30, 2018	<u>38,721,506</u>	<u>\$ 39</u>	<u>\$ 280,328</u>	<u>\$ 137,863</u>	<u>\$ 1,306</u>	<u>\$ —</u>	<u>\$ 419,536</u>

ULTRA CLEAN HOLDINGS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited; in thousands)

	Three Months Ended	
	March 29, 2019	March 30, 2018
Cash flows from operating activities:		
Net income including noncontrolling interests	\$ 1,354	\$ 24,741
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	6,855	1,316
Amortization of finite-lived intangibles	4,854	1,098
Amortization of debt issuance costs	448	38
Stock-based compensation	2,913	2,563
Change in the fair value of financial instruments	(1,392)	(856)
Loss on the disposal of assets and business	167	52
Changes in assets and liabilities:		
Accounts receivable	(4,182)	6,839
Inventories	5,579	(24,660)
Prepaid expenses and other	(2,430)	(1,089)
Deferred income taxes	(37)	(46)
Other non-current assets	(943)	(255)
Accounts payable	(626)	(4,214)
Accrued compensation and related benefits	3,087	187
Income taxes payable	1,266	(2,358)
Other liabilities	1,185	1,723
Net cash provided by operating activities	18,098	5,079
Cash flows from investing activities:		
Purchases of property and equipment	(4,844)	(5,911)
Proceeds from sale of equipment	646	—
Net cash used for investing activities	(4,198)	(5,911)
Cash flows from financing activities:		
Proceeds from bank borrowings	6,587	10,222
Proceeds from issuance of common stock	—	94,330
Payments on bank borrowings and finance leases	(8,863)	(7,873)
Employees' taxes paid upon vesting of restricted stock units	(850)	(1,862)
Net cash provided by (used for) financing activities	(3,126)	94,817
Effect of exchange rate changes on cash and cash equivalents	(145)	74
Net increase in cash and cash equivalents	\$ 10,629	\$ 94,059
Cash and cash equivalents at beginning of period	144,145	68,306
Cash and cash equivalents at end of period	\$ 154,774	\$ 162,365
Supplemental cash flow information:		
Income taxes paid	\$ 4,063	\$ 4,761
Income tax refunds	\$ 37	\$ 5
Interest paid	\$ 5,600	\$ 435
Non-cash activities:		
Operating lease right-of-use assets	\$ 35,633	—
Operating lease liabilities	\$ 38,493	—
Property and equipment purchased included in accounts payable and other liabilities	\$ 7,118	\$ 2,686

(See accompanying Notes to Condensed Consolidated Financial Statements)

ULTRA CLEAN HOLDINGS, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Organization and Significant Accounting Policies

Organization — Ultra Clean Holdings, Inc. (the “Company” or “UCT”) was founded in November 2002 for the purpose of acquiring Ultra Clean Technology Systems and Service, Inc. Ultra Clean Technology Systems and Service, Inc. was founded in 1991 by Mitsubishi Corporation and was operated as a subsidiary of Mitsubishi until November 2002, when it was acquired by UCT. UCT became a publicly traded company in March 2004. Ultra Clean Technology (Shanghai) Co., Ltd (“UCTS”) and Ultra Clean Micro-Electronics Equipment (Shanghai) Co., Ltd. (“UCME”) were established in 2005 and 2007, respectively, to facilitate the Company’s operations in China. In December 2015, UCTS merged into UCME. Ultra Clean Asia Pacific, Pte, Ltd. (Singapore) was established in fiscal year 2008 to facilitate the Company’s operations in Singapore. In July 2012, UCT acquired American Integration Technologies LLC (“AIT”) to add to the Company’s existing customer base in the semiconductor and medical spaces and to provide additional manufacturing capabilities. In February 2015, UCT acquired Marchi Thermal Systems, Inc. (“Marchi”), a designer and manufacturer of specialty heaters, thermocouples and temperature controllers. Marchi delivers flexible heating elements and thermal solutions to our customers. The Company believes heaters are increasingly critical in equipment design for the most advanced semiconductor nodes. In July 2015, UCT acquired MICONEX s.r.o. (“Miconex”), a privately-held provider of advanced precision fabrication of plastics, primarily for the semiconductor industry that was expected to expand the Company’s capabilities with existing customers. In May 2018, Marchi and Miconex changed their names to UCT Thermal Solutions, Inc. (“Thermal”) and to UCT Fluid Delivery Solutions s.r.o (“FDS”), respectively.

In August 2018, the Company acquired Quantum Global Technologies, LLC (“QGT”), a provider of ultra-high purity outsourced parts cleaning, process tool part recoating, surface treatment and analytical services to the semiconductor and related industries, for a total purchase price of approximately \$340.8 million. See Note 4 to the Company’s Condensed Consolidated Financial Statements for further information about the acquisition of QGT.

Basis of Presentation — The unaudited condensed consolidated financial statements included in this quarterly report on Form 10-Q include the accounts of the Company and its wholly-owned subsidiaries and have been prepared in accordance with U.S. generally accepted accounting principles (“GAAP”). This financial information reflects all adjustments which are, in the opinion of the Company, normal, recurring and necessary for the fair financial statement presentation for the dates and periods presented. Certain information and footnote disclosures normally included in our annual financial statements, prepared in accordance with GAAP, have been condensed or omitted. The Company’s December 28, 2018 balance sheet data were derived from its audited financial statements as of that date.

Principles of Consolidation — The Company’s condensed consolidated financial statements include the accounts of the Company and its subsidiaries with the ownership interests of minority shareholders presented as noncontrolling interests. All intercompany accounts and transactions have been eliminated in consolidation. The Company uses a 52-53 week fiscal year ending on the Friday nearest December 31. All references to quarters refer to fiscal quarters and all references to years refer to fiscal years.

Segments — The Financial Accounting Standards Board’s (FASB) guidance regarding disclosure about segments in an enterprise and related information establishes standards for the reporting by public business enterprises of information about reportable segments, products and services, geographic areas, and major customers. The method for determining what information to report is based on the manner in which management organizes the reportable segments within the Company for making operational decisions and assessments of financial performance. The Company’s chief operating decision-maker is considered to be the Chief Executive Officer. In March 2019, the Company effected a change in the reporting of its segment financial results to better reflect the reorganization within the Company due to the acquisition of QGT. The Company now operates and reports two segments. See Note 12 to the Company’s Condensed Consolidated Financial Statements.

Foreign Currency Translation and Remeasurement — FDS’ functional currency is not its local currency or the U.S. dollar. The Company remeasures the monetary assets and liabilities of FDS to its functional currency. Gains and losses from these remeasurements are recorded in interest and other income (expense), net. The Company then translates the assets and liabilities of FDS into the U.S. dollar. Gains and losses from these translations are recognized in foreign currency translation included in accumulated other comprehensive income (AOCI) within stockholders’ equity.

QGT’s international subsidiaries functional currency are their local currencies. We translate the financial statements of these subsidiaries to U.S. dollars using month-end rates of exchange for assets and liabilities, and average rates of exchange for revenue, costs, and expenses. Translation gains and losses are recorded in accumulated other comprehensive (loss) income as a component of stockholders’ equity.

For the Company’s foreign subsidiaries where the U.S. dollar is the functional currency, any gains and losses resulting from the translation of the assets and liabilities of these subsidiaries are recorded in interest and other income (expense), net.

Use of Accounting Estimates — The presentation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosures of contingent liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Such estimates and assumptions include reserves on inventory, valuation of deferred tax assets, impairment of goodwill, valuation of pension obligations and other long-lived assets. The Company bases its estimates and judgments on historical experience and on various other assumptions that it believes are reasonable under the circumstances. However, future events are subject to change and the best estimates and judgments routinely require adjustment. Actual amounts may differ from those estimates.

Concentration of Credit Risk — Financial instruments which subject the Company to concentrations of credit risk consist principally of cash and cash equivalents and accounts receivable. The Company sells its products primarily to semiconductor capital equipment manufacturers in the United States. The Company performs credit evaluations of its customers' financial condition and generally requires no collateral.

Fair Value of Measurements — The Company measures its cash equivalents and contingent earn-out liability at fair value on a recurring basis. In August 2018, the Company repaid its debt with East West Bank thus the related interest rate swap contract was consequently cancelled. Fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that is determined based on assumptions that market participants would use in pricing an asset or a liability. Assets and liabilities recorded at fair value are measured and classified in accordance with a three-tier fair value hierarchy based on the observability of the inputs available in the market used to measure fair value:

Level 1 — Observable inputs that reflect quoted prices (unadjusted) for identical assets or liabilities in active markets.

Level 2 — Inputs that are based upon quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-based valuation techniques for which all significant inputs are observable in the market or can be derived from observable market data. Where applicable, these models project future cash flows and discount the future amounts to a present value using market-based observable inputs including interest rate curves, foreign exchange rates, and credit ratings.

Level 3 — Unobservable inputs that are supported by little or no market activities.

The fair value hierarchy requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The following table summarizes, for assets or liabilities measured at fair value, the respective fair value and the classification by level of input within the fair value hierarchy (in thousands):

Description	March 29, 2019	Fair Value Measurement at Reporting Date Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Other assets:				
Forward contracts	\$ 141	\$ —	\$ 141	\$ —
Other liabilities:				
Contingent earn-out liability	\$ 2,442	\$ —	\$ —	\$ 2,442
Pension obligation	\$ 2,548	\$ —	\$ —	\$ 2,548
Purchase obligation	\$ 8,500	\$ —	\$ —	\$ 8,500

Description	December 28, 2018	Fair Value Measurement at Reporting Date Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Other assets:				
Forward contracts	\$ 240	\$ —	\$ 240	\$ —
Other liabilities:				
Contingent earn-out liability	\$ 3,924	\$ —	\$ —	\$ 3,924
Pension obligation	\$ 3,531	\$ —	\$ —	\$ 3,531
Purchase obligation	\$ 8,500	\$ —	\$ —	\$ 8,500

The Company's Level 3 liabilities are incurred as a result of the QGT acquisition. There were no transfers from Level 1 or Level 2. Fair value adjustments were noncash, and therefore did not impact the Company's liquidity or capital resources. Qualitative information about Level 3 fair value measurements are as follow (in thousands, except the range):

	March 29, 2019	Valuation Techniques	Unobservable Input	Range
Contingent earn-out liability	\$ 2,442	Monte carlo simulation	Revenue discount rate	15.5%
			Internal forecasts	7.5%
Pension obligation	\$ 2,548	Projected unit credit method	Discount rate	2.43% - 2.74%
			Rate on return	1.37% - 1.78%
			Salary increase rate	4.42%
Purchase obligation	\$ 8,500	Discounted cash flow	EBITDA Multiple	6.21

Following is a summary of the Level 3 activity (in thousands):

	Contingent earn-out liability	Purchase obligation	Pension obligation
As of December 28, 2018	\$ 3,924	\$ 8,500	\$ 3,531
Fair value adjustments	(1,482)	—	—
Benefits and other adjustments	—	—	(983)
As of March 29, 2019	<u>\$ 2,442</u>	<u>\$ 8,500</u>	<u>\$ 2,548</u>

Derivative Financial Instruments — The Company recognizes derivative instruments as either assets or liabilities in the accompanying Condensed Consolidated Balance Sheets at fair value. The Company records changes in the fair value of the derivatives in the accompanying Condensed Consolidated Statements of Operations as interest and other income (expense), net, or as a component of AOCI in the accompanying Condensed Consolidated Balance Sheets.

Inventories — Inventories are stated at the lower of standard cost (which approximates actual cost on a first-in, first-out basis) or net realizable value. The Company evaluates the valuation of all inventories, including raw materials, work-in-process, finished goods and spare parts on a periodic basis. Obsolete inventory or inventory in excess of management's estimated usage is written-down to its estimated market value less costs to sell, if less than its cost. Inherent in the estimates of market value are management's estimates related to economic trends, future demand for products, and technological obsolescence of the Company's products.

Inventory write downs inherently involve judgments as to assumptions about expected future demand and the impact of market conditions on those assumptions. Although the Company believes that the assumptions it used in estimating inventory write downs are reasonable, significant changes in any one of the assumptions in the future could produce a significantly different result. There can be no assurances that future events and changing market conditions will not result in significant increases in inventory write downs.

Property and Equipment, net — Property and equipment are stated at cost, or, in the case of equipment under capital leases, the present value of future minimum lease payments at inception of the related lease. Depreciation and amortization are computed

using the straight-line method and declining balance methods over the lesser of the estimated useful lives of the assets or the terms of the leases. Useful lives range from three to forty years.

Internal use software — Direct costs incurred to develop software for internal use are capitalized and amortized over an estimated useful life of three to five years. Costs related to the design or maintenance of internal use software are expensed as incurred. Capitalized internal use software is included in computer equipment and software.

Construction in progress — Construction in progress is related to the construction or development of property and equipment that has not yet been placed in service for their intended use and is, therefore, not depreciated. Construction in progress currently includes capitalized costs related to the Company's Enterprise Resource Planning ("ERP") implementation project.

Income Taxes — The Company utilizes the asset and liability method of accounting for income taxes, under which deferred taxes are determined based on the temporary differences between the financial statement and tax basis of assets and liabilities using tax rates expected to be in effect during the years in which the basis differences reverse. Deferred income taxes arise from temporary differences between the tax basis of assets and liabilities and their reported amounts in the financial statements, which will result in taxable or deductible amounts in the future. In evaluating our ability to realize our deferred tax assets within the jurisdiction from which they arise, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax-planning strategies, and results of recent operations. In projecting future taxable income, we begin with historical results and incorporate assumptions about the amount of future state, federal, and foreign pretax operating income adjusted for items that do not have tax consequences. The assumptions about future taxable income require significant judgment and are consistent with the plans and estimates we are using to manage the underlying businesses. In evaluating the objective evidence that historical results provide, we consider recent cumulative income (loss). A valuation allowance is recorded when it is more likely than not that some of the deferred tax assets will not be realized.

The Company continued to maintain a full valuation allowance on its federal and state deferred tax amounts as of March 29, 2019. Income tax positions must meet a more likely than not recognition threshold to be recognized. Income tax positions that previously failed to meet the more likely than not threshold are recognized in the first subsequent financial reporting period in which that threshold is met. Previously recognized tax positions that no longer meet the more likely than not threshold are derecognized in the first subsequent financial reporting period in which that threshold is no longer met. The Company recognizes potential accrued interest and penalties related to unrecognized tax benefits within the Condensed Consolidated Statements of Operations as income tax expense. The calculation of tax liabilities involves significant judgment in estimating the impact of uncertainties in the application of complex tax laws. Resolution of these uncertainties in a manner inconsistent with the Company's expectations could have a material impact on its results of operations and financial position. Management believes that it has adequately provided for any adjustments that may result from these examinations; however, the outcome of tax audits cannot be predicted with certainty.

Revenue Recognition — See Note 2 to the Company's Condensed Consolidated Financial Statements.

Research and Development Costs — Research and development costs are expensed as incurred.

Net Income per Share — Basic net income per share is computed by dividing net income by the weighted average number of shares outstanding for the period. Diluted net income per share is calculated by dividing net income by the weighted average number of common shares outstanding and common equivalent shares from dilutive stock options and restricted stock using the treasury stock method, except when such shares are anti-dilutive. See Note 10 to the Company's Condensed Consolidated Financial Statements.

Business Combinations — The Company recognizes assets acquired (including goodwill and identifiable intangible assets) and liabilities assumed, and noncontrolling interests, if any, at fair value on the acquisition date. Subsequent changes to the fair value of such assets acquired and liabilities assumed are recognized in earnings, after the expiration of the measurement period, a period not to exceed 12 months from the acquisition date. Acquisition-related expenses and acquisition-related restructuring costs are recognized in earnings in the period in which they are incurred. Results of operations and cash flows of acquired companies are included in the Company's operating results from the date of acquisition.

Noncontrolling interests — Noncontrolling interests are recognized to reflect the portion of the equity of the majority-owned subsidiaries which is not attributable, directly or indirectly, to the controlling stockholder. Through the acquisition of QGT in August 2018, the Company's consolidated entities include partially-owned entities through which the Company is obligated to own 86.0% of its consolidated subsidiary, Cinos Co., Ltd ("Cinos"), a Korean company that provides outsourced cleaning and recycling of precision parts for the semiconductor industry through its operating facilities in South Korea and, through a 60.0% interest in a company, Cinos Xian Clean Technology, Ltd. ("Cinos Xian"), in China. The interest held by others in Cinos and in Cinos Xian are presented as

noncontrolling interests in the accompanying condensed consolidated financial statements. The noncontrolling interest will continue to be attributed its share of gains and losses even if that attribution results in a deficit noncontrolling interest balance.

Defined Benefit Plan — QGT has a statutorily-required, noncontributory defined benefit plan covering substantially all of the employees of one of its foreign entities upon termination of their employee services. The benefits are based on expected years of service and average compensation. QGT records annual amounts relating to the defined benefit plan based on calculations that incorporate various actuarial and other assumptions, including discount rates, mortality rates, assumed rates of return, compensation increases, employee demographics, and turnover rates. QGT reviews its assumptions on an annual basis and makes modifications to those assumptions based on current asset returns, rates, and trends. The effect of modifications to those assumptions is recorded in accumulated other comprehensive income and amortized to net periodic costs over the future service period using the corridor method. The Company believes that the assumptions utilized in recording its obligations under the plan are reasonable based on its experience and market conditions. The net period costs are recognized as employees render the services necessary to earn the post termination benefits.

Deferred Debt Issuance Costs — Debt issuance costs incurred in connection with obtaining debt financing are deferred and presented as a direct deduction from Bank Borrowings in the accompanying condensed consolidated balance sheets. Costs incurred in connection with revolving credit facilities and letter of credit facilities are deferred and presented as an offset to bank borrowings in the accompanying condensed consolidated balance sheets. Deferred costs are amortized on an effective interest method basis over the contractual term.

Leases — See Note 9 to the Company's Condensed Consolidated Financial Statements.

Stock-Based Compensation Expense

The Company maintains stock-based compensation plans which allow for the issuance of equity-based awards to executives, directors and certain employees. These equity-based awards include stock options, restricted stock awards ("RSAs") and restricted stock units ("RSUs") which can be either time-based or performance-based. The Company has not granted stock options to its employees since fiscal year 2010. The Company also maintains an employee stock purchase plan that provides for the issuance of shares to all eligible employees of the Company at a discounted price.

Stock-based compensation expense includes compensation costs related to estimated fair values of stock options and awards granted. The estimated fair value of the Company's equity-based awards, net of expected forfeitures, is amortized on a straight-line basis over the awards' vesting period, typically three years for RSUs and one year for RSAs, and is adjusted for subsequent changes in estimated forfeitures related to all equity-based awards and performance as it relates to performance-based RSUs. The Company applies the fair value recognition provisions based on the FASB's guidance regarding stock-based compensation.

Employee Stock Purchase Plan

The Company also maintains an employee stock purchase plan ("ESPP") that provides for the issuance of shares to all eligible employees of the Company at a discounted price. Under the ESPP, substantially all employees may purchase the Company's common stock through payroll deductions at a price equal to 95 percent of the fair market value of the Company's stock at the end of each applicable purchase period.

Restricted Stock Units and Restricted Stock Awards

The Company grants RSUs to employees and RSAs to non-employee directors as part of the Company's long term equity compensation plan.

Restricted Stock Units — RSUs are granted to employees with a per share or unit purchase price of zero dollars and either have time based or performance based vesting. RSUs typically vest over three years, subject to the employee's continued service with the Company. For purposes of determining compensation expense related to these RSUs, the fair value is determined based on the closing market price of the Company's common stock on the date of award. The expected cost of the grant is reflected over the service period, and is reduced for estimated forfeitures.

There were 49,292 RSUs granted during the quarter ended March 29, 2019, with a weighted average fair value of \$8.98. During the quarter ended March 30, 2018, the Company granted 174,900 RSUs, with a weighted average fair value of \$19.57 per share, and granted 87,050 PSUs with a weighted average fair value of \$19.25 per share.

During the three months ended March 29, 2019, 73,840 vested shares were withheld to satisfy withholding tax obligations, resulting in the net issuance of 218,030 shares. As of March 29, 2019, approximately \$13.3 million of stock-based compensation cost,

net of estimated forfeitures, related to RSUs and PSUs remains to be amortized over a weighted average period of 1.9 years. As of March 29, 2019, a total of 1,475,755 RSUs and PSUs remain outstanding with an aggregate intrinsic value of \$ 15.3 million and a weighted average remaining contractual term of 1.2 years.

Restricted Stock Awards — As of March 29, 2019, a total of 38,010 RSAs were outstanding. The total unamortized expense of the Company's unvested restricted stock awards as of March 29, 2019 was \$0.1 million.

The following table summarizes the Company's RSU, PSU and RSA activity for the three months ended March 29, 2019:

	Shares	Aggregate Fair Value (in thousands)
Unvested restricted stock units and restricted stock awards at December 28, 2018	1,777,379	\$ 14,592
Granted	49,292	
Vested	(293,370)	
Forfeited	(19,536)	
Unvested restricted stock units and restricted stock awards at March 29, 2019	1,513,765	\$ 15,667
Vested and expected to vest restricted stock units and restricted stock awards at March 29, 2019	1,306,743	\$ 13,525

The following table shows the Company's stock-based compensation expense included in the Condensed Consolidated Statements of Operations (in thousands):

	Three Months Ended	
	March 29, 2019	March 30, 2018
Cost of sales (1)	\$ 638	\$ 506
Research and development	42	61
Sales and marketing	345	202
General and administrative	1,888	1,794
	2,913	2,563
Income tax benefit	(1,535)	(236)
Stock-based compensation expense, net of tax	\$ 1,378	\$ 2,327

(1) Stock-based compensation expense capitalized in inventory for the three months ended March 29, 2019 and March 30, 2018 was not significant.

Recently Adopted Accounting Pronouncements

Beginning fiscal 2019, the Company adopted Accounting Standards Update ("ASU") No. 2016-02, "Leases (Topic 842)" and as part of that process the Company made the following elections:

- The Company did not elect to use hindsight for transition when considering judgments and estimates such as assessments of lessee options to extend or terminate a lease or purchase the underlying asset.
- For all asset classes, the Company elected to not recognize a right-of-use asset and lease liability for leases with a term of 12 months or less.
- For all asset classes, the Company elected to not separate non-lease components from lease components to which they relate and have accounted for the combined lease and non-lease components as a single lease component.
- In March 2018, the FASB approved an optional transition method that allows companies to use the effective date as the date of initial application on transition. The Company elected this transition method, and as a result, will not adjust its comparative period financial information or make the newly required lease disclosures for periods before the effective date.

The Company determines if an arrangement is a lease at inception. Operating leases are included in the consolidated condensed balance sheet as right-of-use assets from operating leases, current operating lease liabilities and long-term operating lease liabilities. Finance leases are included in property, plant and equipment, current other liabilities and other non-current liabilities in the consolidated condensed balance sheet. Most of the Company's lease agreements contain renewal options; however, the Company did not recognize right-of-use assets or lease liabilities for renewal periods unless it is determined that we are reasonably certain of renewing the lease at inception or when a triggering event occurs. Some of the Company's lease agreements contain rent escalation clauses, rent holidays, capital improvement funding or other lease concessions. The Company recognizes minimum rental expense on a straight-line basis based on the fixed components of a lease arrangement. The Company amortizes this expense over the term of the lease beginning with the date of initial possession, which is the date the Company enters the leased space and begins to make improvements in preparation for its intended use. Variable lease components represent amounts that are not fixed in nature and are not tied to an index or rate, and are recognized as incurred.

In determining right-of-use assets and lease liabilities, the Company applied a discount rate to the minimum lease payments within each lease agreement. ASC 842 requires companies to use the rate of interest that a lessee would have to pay to borrow on a collateralized basis over a similar term, an amount equal to the lease payments in a similar economic environment. When the Company cannot readily determine the discount rate implicit in the lease agreement, the Company utilizes its incremental borrowing rate. For additional information on the required disclosures related to the impact of adopting this standard, see Note 9 to the consolidated condensed financial statements.

Adoption of the new standard resulted in the recording of operating lease right of use assets and lease liabilities of \$35.7 million and \$38.5 million, respectively, with the difference due to deferred rent that was reclassified to the right-of-use asset value.

All other newly issued and effective accounting standards during 2019 were not relevant or significant to the Company.

Recent Accounting Pronouncements Not Yet Adopted

In January 2017, the FASB issued ASU 2017-04, *Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, which requires companies to perform goodwill impairment tests by comparing the fair value of a reporting unit with its carrying amount. The amendment will be effective for the Company beginning in its first quarter of fiscal year 2020. The amendment is required to be adopted prospectively. Early adoption is permitted. The Company is evaluating the impact of adopting this amendment to its consolidated financial statements.

2. Revenue Recognition

Revenue is recognized when control of the promised goods or services is transferred to the Company's customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services. The Company assesses collectability based on the credit worthiness of the customer and past transaction history. The Company performs on-going credit evaluations of customers and generally does not require collateral from customers.

The Company sells its products primarily to customers in the semiconductor capital equipment industry. The Company's revenues are highly concentrated, and we are therefore highly dependent upon a small number of customers. Typical payment terms with our customers range from thirty to sixty days.

The Company's most significant customers (having accounted for 10% or more of sales) and their related sales as a percentage of total sales were as follows:

	Three Months Ended	
	March 29, 2019	March 30, 2018
Lam Research Corporation	39.6 %	66.2 %
Applied Materials, Inc.	20.9	21.4
Total	60.5 %	87.6 %

Three customers' accounts receivable balances, Lam Research Corporation, Applied Materials, Inc. and ASM International, Inc., were individually greater than 10% of accounts receivable as of March 29, 2019 and December 28, 2018, in the aggregate approximately 71.1% and 62.9% of accounts receivable, respectively.

The Company provides warranty on its products for a period of up to two years and provides for warranty costs at the time of sale based on historical activity. Determination of the warranty reserve requires the Company to make estimates of product return rates

and expected costs to repair or replace the products under warranty. If actual return rates and/or repair and replacement costs differ significantly from these estimates, adjustments to recognize a additional cost of sales may be required in future periods. The warranty reserve is included in other current liabilities on the Condensed Consolidated Balance Sheets and are not considered significant.

The Company's products are manufactured at our facilities in the U.S.A., China, Singapore and the Czech Republic. The Company provides services from operations in the U.S.A., Singapore, United Kingdom, Israel, Taiwan, South Korea, and China. See Note 12 for geographical revenue details. Sales to customers are initiated through a purchase order and are governed by our standard terms and conditions, written agreements, or both. Revenue is recognized when performance obligations under the terms of an agreement with a customer are satisfied; generally, this occurs with the transfer of control of the products or when the Company provides the services. Transfer of control occurs at a specific point-in-time. Based on the enforceable rights included in our agreements or prevailing terms and conditions, products produced by the Company without an alternative use are not protected by an enforceable right of payment that includes a reasonable profit throughout the duration of the agreement. Sales with terms f.o.b. shipping point are recognized at the time of shipment. For sales transactions with terms f.o.b. destination, revenue is recorded when the product is delivered to the customer's site. Consignment sales are recognized in revenue at the earlier of the period that the goods are consumed or after a period of time subsequent to receipt by the customer as specified by terms of the agreement, provided control of the promised goods or services has transferred.

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods or providing services. Sales, value-add, and other taxes we collect concurrent with revenue-producing activities are excluded from revenue. Certain of our customers may receive cash-based incentives, such as rebates or credits, which are accounted for as variable consideration. We estimate these amounts based on the expected amount to be provided to customers and reduce revenues recognized. As of March 29, 2019, an accrual for unpaid customer rebates of \$0.5 million is included in accrued expenses on the Company's Condensed Consolidated Balance Sheet.

The following table presents the Company's revenues disaggregated by revenue segments (in thousands):

	Three Months Ended	
	March 29, 2019	March 30, 2018
Semiconductor Products and Solutions	\$ 200,245	\$ 314,842
Semiconductor Services Business	59,896	—
Total	<u>\$ 260,141</u>	<u>\$ 314,842</u>

The Company's principal markets include America, Asia and Europe. The Company's foreign operations are conducted primarily through its subsidiaries in China, Singapore, Israel, Taiwan, South Korea, United Kingdom and the Czech Republic. Sales by geographic area represent sales to unaffiliated customers and are based upon the location to which the products were shipped or performed. The following table sets forth revenue by geographic area (in thousands):

	Three Months Ended	
	March 29, 2019	March 30, 2018
United States	\$ 137,254	\$ 184,775
China	8,008	2,166
Singapore	68,272	102,633
Austria	14,275	13,535
Korea	18,386	8,351
Other	13,946	3,382
	<u>\$ 260,141</u>	<u>\$ 314,842</u>

3. Balance Sheet Information

Inventories consisted of the following (in thousands):

	March 29, 2019	December 28, 2018
Raw materials	\$ 113,030	\$ 121,383
Work in process	50,334	50,959
Finished goods	16,935	13,774
Total	<u>\$ 180,299</u>	<u>\$ 186,116</u>

Property, equipment and leasehold improvements, net, consisted of the following (in thousands):

	March 29, 2019	December 28, 2018
Land	\$ 4,524	\$ 4,727
Building	35,082	32,243
Computer equipment and software	31,274	31,342
Furniture and fixtures	5,758	5,764
Machinery and equipment	58,173	57,602
Leasehold improvements	38,678	38,625
Vehicles	642	645
Accumulated depreciation	(47,308)	(42,501)
	<u>126,823</u>	<u>128,447</u>
Construction in progress	14,259	15,012
Total	<u>\$ 141,082</u>	<u>\$ 143,459</u>

4. Acquisition

QGT

On August 27, 2018, the Company acquired all of the outstanding preferred and common units of QGT, a provider of ultra-high purity parts cleaning, process tool part recoating, surface treatment and analytical services to the semiconductor and related industries, for total purchase consideration of \$340.8 million, including an estimated \$4.2 million in contingent consideration related to \$15.0 million of potential cash earn-out payments if the Company achieves certain specified revenue levels through December 27, 2019. For the three months ended, March 29, 2019, the Company incurred approximately \$ 2.3 million of costs related to the acquisition, which were expensed as incurred and recorded as general and administrative operating expense. The Company completed this acquisition primarily in order to diversify the Company's customer base, to create a wafer-starts-based recurring revenue stream, and to expand the Company's addressable market. The Company borrowed \$350.0 million to finance the acquisition and to refinance its existing indebtedness. See further discussion of the new borrowing arrangements in Note 7 to the Notes to Condensed Consolidated Financial Statements.

The fair value of the earn-out at the acquisition date was determined using the Monte Carlo Simulation, which incorporated risk adjusted revenue projections. These inputs are not observable in the market and thus represent a Level 3 measurement as discussed in Note 1 of the Company's Condensed Consolidated Financial Statements.

The Company has preliminarily allocated the purchase price of QGT to the tangible assets, liabilities and identifiable intangible assets acquired, based on their estimated fair values. The excess of purchase price over the aggregate fair value was recorded as goodwill. Goodwill associated with the acquisition is primarily attributable to the future technology, market presence and knowledgeable and experienced workforce. Although goodwill is not amortized for financial accounting purposes, it is amortized in its entirety for tax purposes over fifteen years. The fair value assigned to identifiable intangible assets acquired was determined using the income approach taking into account the Company's consideration of a number of inputs, including an independent third-party analysis that was based upon estimates and assumptions provided by the Company. These estimates and assumptions were determined through established and generally accepted valuation techniques. The estimated fair value of the tangible and intangible assets acquired was allocated at QGT's acquisition date.

The Merger Agreement contains customary representations and warranties between the Company and QGT, who agreed to indemnify each other for certain breaches of representations, warranties, covenants and other specified matters. Approximately \$2.3 million of the purchase price was placed in escrow as security for post-closing working capital adjustments. In addition, approximately \$3.4 million of the purchase price was placed in escrow as security for the QGT's indemnification obligations during the escrow period. The Company also obtained representation and warranty insurance as an additional source of recourse for certain losses in excess of the amount of funds in the indemnity escrow account.

The allocation of the purchase price is preliminary pending the completion of various analyses and the finalization of estimates. The primary areas of the preliminary purchase price allocation that are not yet finalized relate to the fair values of certain tangible assets and liabilities, primarily property and equipment, intangible assets, and residual goodwill. During the measurement period, which can be no more than one year from the date of acquisition, we expect to continue to obtain information to assist us in determining the final fair value of the net assets acquired at the acquisition date during the measurement period. Assets acquired and liabilities assumed are recorded based on valuations derived from estimated fair value assessments and assumptions used by the Company. Thus, the provisional measurements of fair value discussed above are subject to change. The Company expects to finalize the valuation as soon as practicable, but not later than one year from the acquisition date. While the Company believes that its estimates and assumptions underlying the valuations are reasonable, different estimates and assumptions could result in different valuations assigned to the individual assets acquired and liabilities assumed, and the resulting amount of goodwill. The following table summarizes the preliminary fair values of assets acquired and liabilities assumed at the date of acquisition (in thousands):

Fair Market Values (in thousands)		
Cash and cash equivalents	\$	18,991
Accounts receivable		24,239
Inventories		475
Prepaid expenses and other		12,258
Property and equipment		101,057
Goodwill		64,978
Purchased intangible assets		171,500
Total assets acquired		393,498
Accounts payable		(8,996)
Accrued compensation and related benefits		(7,910)
Other current liabilities		(7,361)
Deferred tax liability		(899)
Other liabilities		(13,162)
Total liabilities assumed		(38,328)
Noncontrolling interest		(14,337)
Fair value of net assets acquired	\$	340,833

	Useful Life	Purchased Intangible Assets
	(In years)	(In thousands)
Customer relationships	10	\$ 74,800
Trade name	4	14,900
Recipes	20	73,200
Standard operating procedures	20	8,600
Total purchased intangible assets		\$ 171,500

Goodwill is not amortized but is reviewed for impairment at least annually and whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable.

For the three months ended March 29, 2019, results of operations included charges of \$3.8 million attributable to amortization of purchased intangible assets and \$2.3 million of acquisition related costs which are included in general and administrative expenses in the Company's condensed consolidated results of operations.

The following unaudited pro forma consolidated results of operations assume the acquisition was completed as of the beginning of the year of the reporting periods presented. For the three months ended March 30, 2018, net sales of approximately \$58.6 million attributable to QGT were included in the pro forma consolidated results of operations. The unaudited pro forma consolidated results of operations for the three months ended March 30, 2018 (in thousands, except per share amounts) is as follows:

	Three Months Ended March 30, 2018
Revenues	\$ 373,460
Net income	\$ 23,797
Basic earnings per share	\$ 0.65
Diluted earnings per share	\$ 0.63

The unaudited pro forma results above include adjustments related to the purchase price allocation and financing of the acquisition, primarily to increase amortization for the identifiable intangible assets, to increase interest expense for the additional debt incurred to complete the acquisition, to reflect the related income tax effect. The unaudited pro forma condensed combined financial information has been prepared by management for illustrative purposes only and are not necessarily indicative of the condensed consolidated financial position or results of income in future periods or the results that would have been realized had UCT and QGT been a combined company during the specified periods. The unaudited pro forma condensed combined financial information does not reflect any operating efficiencies and/or cost savings that the Company may achieve with respect to the combined companies, or any liabilities that may result from integration activities.

5. Goodwill and Purchased Intangible Assets

The Company's methodology for allocating the purchase price relating to purchase acquisitions is determined through established and generally accepted valuation techniques. Goodwill is measured as the excess of the cost of the acquisition over the sum of the amounts assigned to tangible and identifiable intangible assets acquired less liabilities assumed. Goodwill and purchased intangible assets with indefinite useful lives are not amortized, but are reviewed for impairment at least annually and whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. The Company regularly monitors current business conditions and other factors including, but not limited to, adverse industry or economic trends and lower projections of profitability that may impact future operating results.

The provisions of the accounting standard for goodwill allow companies to first assess qualitative factors to determine whether it is necessary to perform a two-step quantitative goodwill impairment test. As part of the qualitative assessment, the Company monitors economic, legal, regulatory and other factors, industry trends, market capitalization, recent and forecasted financial performance of each of its reporting units.

If a quantitative goodwill impairment test is determined to be necessary, the Company estimates each of the reporting unit fair values using a combination of the discounted cash flow approach and a market approach. The discounted cash flows used to estimate fair value are based on assumptions regarding each reporting units' estimated projected future cash flows and the estimated weighted-average cost of capital that a market participant would use in evaluating the reporting unit in a purchase transaction. The estimated weighted-average cost of capital is based on the risk-free interest rate and other factors such as equity risk premiums and the ratio of total debt to equity capital. In performing these impairment tests, the Company takes steps to ensure that appropriate and reasonable cash flow projections and assumptions are used. The Company reconciles the estimated enterprise value to its market capitalization and determines the reasonableness of the cost of capital used by comparing to market data. The Company also performs sensitivity analyses on the key assumptions used, such as the weighted-average cost of capital and terminal growth rates. The market approach is based on objective evidence of market values.

Goodwill and other intangible assets were as follows (in thousands):

	March 29, 2019			December 28, 2018		
	Goodwill	Intangible Assets	Total	Goodwill	Intangible Assets	Total
Carrying amount	\$ 150,226	\$ 188,653	\$ 338,879	\$ 150,226	\$ 193,507	\$ 343,733

Purchased Intangible Assets

Intangible assets are generally recorded in connection with a business acquisition. The Company evaluates the useful lives of its intangible assets each reporting period to determine whether events and circumstances require revising the remaining period of amortization. In addition, the Company reviews indefinite lived intangible assets for impairment when events or changes in circumstances indicate their carrying value may not be recoverable and tests definite lives intangible assets at least annually for impairment. Management considers such indicators as significant differences in product demand from the estimates, changes in the competitive and economic environment, technological advances, and changes in cost structure. Purchased intangible assets were as follows (in thousands):

	As of March 29, 2019			As of December 28, 2018			
	Gross Carrying Amount	Accumulated Amortization	Carrying Value	Gross Carrying Amount	Accumulated Amortization	Carrying Value	Useful Life
AIT							
Customer relationships	\$ 19,000	\$ (18,713)	\$ 287	\$ 19,000	\$ (18,617)	\$ 383	7
Tradename	1,900	(1,900)	—	1,900	(1,900)	—	6
Intellectual property/know-how	1,600	(1,543)	57	1,600	(1,486)	114	7
Thermal							
Customer relationships	9,900	(4,125)	5,775	9,900	(3,877)	6,023	10
Tradename	1,170	(1,170)	—	1,170	(1,170)	—	6
Intellectual property/know-how	12,300	(5,746)	6,554	12,300	(5,402)	6,898	8-12
FDS							
Customer relationships	8,800	(4,302)	4,498	8,800	(4,009)	4,791	7.5
QGT							
Customer relationships	74,800	(4,363)	70,437	74,800	(2,500)	72,300	10
Tradename	14,900	(2,256)	12,644	14,900	(1,326)	13,574	4
Recipes	73,200	(2,135)	71,065	73,200	(1,220)	71,980	20
Standard operating procedures	8,600	(251)	8,349	8,600	(143)	8,457	20
UCT							
Tradename	8,987	—	8,987	8,987	—	8,987	*
Total	\$ 235,157	\$ (46,504)	\$ 188,653	\$ 235,157	\$ (41,650)	\$ 193,507	

* The Company concluded that the UCT tradename intangible asset life is indefinite and is therefore not amortized but is reviewed for impairment at least annually and whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable.

The Company amortizes its intangible assets for AIT, Thermal, FDS and QGT on a straight-line basis over the estimated economic life of the assets. Amortization expense was approximately \$4.9 million and \$1.1 million for the three months ended March 29, 2019 and March 30, 2018, respectively. Amortization expense related to QGT's recipes and standard operating procedures is charged to cost of goods sold and the remainder is to general and administrative expense. As of March 29, 2019, future estimated amortization expense is expected to be as follows (in thousands):

	Amortization Expense
2019 (remaining in year)	\$ 14,468
2020	18,649
2021	18,409
2022	18,135
2023	13,063
Thereafter	96,942
Total	<u>\$ 179,666</u>

6. Noncontrolling interest

QGT owns 51.0% of the outstanding shares of Cinos Co., Ltd., a South Korean company that provides outsourced cleaning and recycling of precision parts for the semiconductor industry through its operating facilities in South Korea and, through a 60.0% interest in a company (Cinos Xian Clean Technology, Ltd.), in China. QGT is obligated to purchase shares held by two other shareholders of Cinos Co., Ltd. representing a combined 35.0% interest. QGT accounted for this unconditional obligation as an assumed liability and derecognized any noncontrolling interest related to the 35%, which brings its controlling interest up to 86%.

The carrying value of the remaining 14.0% interest held by others in Cinos Co., Ltd. and the 40.0% interest in the China company are presented as noncontrolling interests in the accompanying consolidated financial statements. The fair values of the noncontrolling interests were estimated based on the values of Cinos Co., Ltd. and Cinos Xian Clean Technology, Ltd. on a 100.0% basis. The values were calculated based on the pro-rata portion of total forecasted QGT earnings before interest expense, taxes, depreciation and amortization ("EBITDA") contributed by each entity. Management indicated that each entity's pro-rata portion of EBITDA was reasonably reflective of each entity's invested capital value at the acquisition date.

The Company is obligated to purchase stock owned by a Cinos Co., Ltd. shareholder at a fixed price per share, while the purchase price per share for the other shareholder is the greater of the then fair value of the stock and the fixed price per share (floor). The Company has a firm obligation to purchase the shares and a call option, while the two shareholders have a put option. Accordingly, the fair value of the obligation of \$8.5 million has been recorded as a non-current liability in the accompanying consolidated balance sheets and represents a Level 3 measurement as discussed in Note 1 of the Company's Condensed Consolidated Financial Statements. The agreement with Cinos Co., Ltd. allows for the purchase obligation to become due at various times through December 2022.

7. Borrowing Arrangements

In August 2018, the Company entered into a credit agreement with Barclays Bank that provided a Term Loan, a Revolving Credit Facility, and a Letter of Credit Facility (the "Credit Facilities"). The Company and certain of its subsidiaries have agreed to secure all of their obligations under the Credit Facilities by granting a first priority lien in substantially all of their respective personal property assets (subject to certain exceptions and limitations). In August 2018, the Company borrowed \$350.0 million under the Term Loan and used the proceeds, together with cash on hand, to finance the acquisition of QGT (see Note 4) and to refinance its previous credit facilities.

In August 2018, the Company paid \$41.6 million of principal, accrued interest, and fees in settlement of the then-outstanding term loan, revolving credit facility, interest rate swap under the Credit Agreement, and recognized \$0.1 million in expense upon extinguishment as Interest and other income (expense), net.

The Term Loan has a maturity date of August 27, 2025, with monthly interest payments in arrears, quarterly principal payments of 0.625% of the original outstanding principal balance payable beginning January 2019, with the remaining principal paid upon maturity. The Term Loan accrues interest at a rate equal to a base LIBOR rate determined by reference to the London interbank offered rate for dollars, plus 4.5% (subject to certain adjustments quarterly based upon the Company's consolidated leverage ratio). The Company may prepay the Term Loan in whole or in part without penalty after six months from issuance, before which the Company must pay a prepayment fee equal to 1.0% of the aggregate principal amount prepaid. As of March 29, 2019, the Company had an outstanding amount under the Term Loan of \$347.8 million, gross of unamortized debt issuance costs of \$11.1 million.

The Revolving Credit Facility has an initial available commitment of \$65.0 million and a maturity date of August 27, 2023. The Company pays a quarterly commitment fee in arrears equal to 0.25% of the average daily available commitment outstanding. As of March 29, 2019, the Company had no amount outstanding under the Revolving Credit Facility. The New Credit Agreement requires the Company to maintain certain financial covenants including a consolidated fixed charge coverage ratio (as defined in the New Credit Agreement) as of the last day of any fiscal quarter of at least 1.25 to 1.00, and a consolidated leverage ratio (as defined in the New Credit Agreement) as of the last day of any fiscal quarter of no greater than 3.75 to 1.00. The Company was in compliance with all covenants for the quarter ended March 29, 2019.

The Letter of Credit Facility has an initial available commitment of \$50.0 million and a maturity date of August 27, 2023. The Company pays quarterly in arrears a fee equal to 2.5% (subject to certain adjustments as per the Term Loans) of the dollar equivalent of all outstanding letters of credit, and a fronting fee equal to 0.125% of the undrawn and unexpired amount of each letter of credit. As of March 29, 2019, the Company had \$1.5 million of outstanding letters of credit and a remaining available commitments of \$48.5 million on the Letter of Credit Facility and \$63.5 million on the Revolving Credit Facility.

On April 15, 2019, the Company borrowed \$15.0 million from its Revolving Credit Facility to fund the acquisition of DMS. See Note 13 to the Notes to Condensed Consolidated Financial Statements.

As of March 29, 2019, FDS had an outstanding amount under a revolving credit facility of 2.5 million euros (approximately \$2.8 million) with an interest rate of 1.3% plus a variable rate based on the Euro Interbank Offered Rate.

As of March 29, 2019, the Company's total bank debt was \$339.5 million, net of unamortized debt issuance costs of \$11.1 million. As of March 29, 2019, the Company had \$63.5 million and 5.8 million euros (approximately \$6.5 million) available to borrow on its revolving credit facilities in the U.S. and Czech Republic, respectively.

The fair value of the Company's long term debt was based on Level 2 inputs, and fair value was determined using quoted prices for similar liabilities in inactive markets. The Company's carrying value approximates fair value for the Company's long term debt.

8. Income Tax

Effective January 1, 2018, the TCJA created a new requirement to include in U.S. income global intangible low-taxed income (GILTI) earned by controlled foreign corporations ("CFC"). The effect of GILTI, and the associated foreign tax credit, is to effectively create a minimum floor of taxation on CFC profits that must be included currently in the gross income of the CFCs' U.S. shareholder. Under U.S. GAAP, we are allowed to make an accounting policy choice of either (1) treating taxes due on future U.S. inclusions related to GILTI as a current-period expense when incurred (the "period cost method") or (2) factoring such amounts into a company's measurement of its deferred taxes (the "deferred method"). The Company uses the period cost method in recording the tax effects of GILTI in its financial statements.

The Company's income tax provision and effective tax rate for the three months ended March 29, 2019 and March 30, 2018 were \$1.5 million and 52.7% compared to \$2.5 million and 9.2%, respectively. The change in respective rates reflects, primarily, changes in the geographic mix of worldwide earnings and financial results in jurisdictions which are taxed at different rates, the impact of losses in jurisdictions with full federal and state valuation allowances, and tax benefits associated with share-based compensation.

Company management continuously evaluates the need for a valuation allowance and, as of March 29, 2019, concluded that a full valuation allowance on its federal and state deferred tax assets was still appropriate.

The Company provides for U.S. income taxes on its undistributed earnings of foreign subsidiaries as required by the TCJA. However, the Company does not provide for any withholding taxes on its undistributed earnings of its subsidiaries that it intends to invest indefinitely outside the U.S. In prior years, the Company determined that a portion of the current year earnings of one of its China subsidiaries may be remitted in the future to one of its foreign subsidiaries outside of mainland China and, accordingly, the Company provided for the related withholding taxes in its condensed consolidated financial statements. The Company does not currently plan to remit any current year earnings from its China subsidiaries to any other foreign subsidiary in 2019. If the Company changes its intent to reinvest its undistributed foreign earnings indefinitely or if a greater amount of undistributed earnings are needed than the previous anticipated remaining unremitted foreign earnings, the Company could be required to accrue or pay foreign taxes on some or all of these undistributed earnings. As of March 29, 2019, the Company had undistributed earnings of foreign subsidiaries that are indefinitely invested outside of the U.S. of approximately \$235.1 million. It is not practicable to determine the tax liability that might be incurred if these earnings were to be distributed.

The Company's gross liability for unrecognized tax benefits as of March 29, 2019 and March 30, 2018 was \$1.0 million and \$0.3 million, respectively. Although it is possible, some of the unrecognized tax benefits could be settled within the next twelve months. The Company cannot reasonably estimate the outcome at this time.

9. Leases

The Company leases offices, facilities and equipment in locations throughout the U.S., Asia and Europe. Leases with an initial term of 12 months or less are not recorded on the balance sheet.

Right-of-use ("ROU") assets represent right to use an underlying asset for the lease term and lease liabilities represent obligation to make lease payments arising from the lease. ROU assets and liabilities are based on the estimated present value of lease payments over the lease term and are recognized at the lease commencement date.

The Company's leases do not provide an implicit rate, thus the Company uses an estimated incremental borrowing rate in determining the present value of lease payments. The Company used an estimated incremental borrowing rate of 7.0%, which is derived from information available at the lease commencement date.

The components of lease expense were as follows (in thousands , except lease term and discount rate):

	For the Three Months Ended March 29, 2019
Finance lease cost:	
Amortization of right-of-use assets	33
Interest on lease liabilities	60
Operating lease cost	3,420
Short-term lease cost	245
Sublease income	(41)
Total lease cost	\$ 3,717
Other information	
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from finance leases	\$ 60
Operating cash flows from operating leases	\$ 3,438
Financing cash flows from finance leases	\$ 156

	As of March 29, 2019
Finance leases:	
Property and equipment	\$ 3,636
Accumulated amortization	47
Property and equipment, net	\$ 3,589
Finance lease liabilities, current	\$ 482
Finance lease liabilities, non-current	2,838
Total finance lease liabilities	\$ 3,320
Weighted-average remaining lease term – finance leases	5.2 years
Weighted-average remaining lease term – operating leases	2.9 years
Weighted-average discount rate – finance leases	7%
Weighted-average discount rate – operating leases	7%

Future annual minimum lease payments and capital lease commitments as of March 29, 2019 were as follows (in thousands):

	Operating Leases	Finance Leases
2019 (remaining in year)	\$ 9,807	\$ 467
2020	11,122	623
2021	8,691	623
2022	6,688	616
2023	2,498	569
Thereafter	2,338	840
Total minimum lease payments	41,144	3,738
Less: imputed interest	5,458	418
Lease liability	\$ 35,686	\$ 3,320

10. Net Income Per Share

Basic net income per share excludes dilution and is computed by dividing net income by the weighted average number of common shares outstanding for the period. Diluted net income per share reflects the potential dilution that would occur if outstanding securities or other contracts to issue common stock were exercised or converted into common stock.

The following is a reconciliation of the numerators and denominators used in computing basic and diluted net income (loss) per share (in thousands, except per share data):

	Three Months Ended	
	March 29, 2019	March 30, 2018
Numerator:		
Net income attributable to Ultra Clean Holdings, Inc.	\$ 605	\$ 24,741
Denominator:		
Shares used in computation — basic:		
Weighted average common shares outstanding	39,122	36,723
Shares used in computation — diluted:		
Shares used in computing basic net income per share	39,122	36,723
Dilutive effect of common shares outstanding subject to repurchase	323	761
Dilutive effect of options outstanding	3	7
Weighted average shares used in computing diluted net income per share	39,448	37,491
Net income per share attributable to Ultra Clean Holdings, Inc. — basic	\$ 0.02	\$ 0.67
Net income per share attributable to Ultra Clean Holdings, Inc. — diluted	\$ 0.02	\$ 0.66

11. Commitments and Contingencies

The Company had commitments to purchase inventory totaling approximately \$79.8 million at March 29, 2019.

From time to time, the Company is subject to various legal proceedings and claims, either asserted or unasserted, that arise in the ordinary course of business. Although the outcome of the various legal proceedings and claims cannot be predicted with certainty, the Company has not had a history of outcomes to date that have been material to the statement of operations and does not believe that any of these proceedings or other claims will have a material adverse effect on its consolidated financial condition or results of operations.

12. Reportable Segments

In the first quarter of 2019, the Company elected to reorganize its organizational and reporting structure to capture efficiencies and operating leverage from our recent acquisitions. The Company now operates and reports results for two operating segments: Semiconductor Products and Solutions (“SPS”) and Semiconductor Services Business (“SSB”). These segments are organized primarily by the nature of the products and service they provide. The Company’s Chief Executive Officer (chief operating decision maker) views and evaluates operations based on the results of each of the reportable segments. The following table describes each segment:

Segment	Product or Services	Markets Served	Geographic Areas
SPS	Assembly Weldments Machining Fabrication	Semiconductor	United States Asia Europe
SSB	Cleaning Analytics	Semiconductor	United States Asia Europe

The Company uses segment profit or loss as the primary measure of profitability to evaluate operating performance and to allocate capital resources. Segment profit or loss is defined as a segment’s income or loss from continuing operations before other income and income taxes included in the accompanying consolidated condensed statements of operations.

Any intercompany sales and associated profit (and any other intercompany items) are eliminated from segment results. There were no significant intercompany eliminations for the periods presented.

Segment Data

	Three Months Ended	
	March 29, 2019	March 30, 2018
Revenues:		
SPS	\$ 200,245	\$ 314,842
SSB	59,896	—
Total segment revenues	<u>\$ 260,141</u>	<u>\$ 314,842</u>
Gross profit:		
SPS	\$ 25,681	\$ 48,804
SSB	19,116	—
Total segment gross profit	<u>\$ 44,797</u>	<u>\$ 48,804</u>
Operating profit:		
SPS	\$ 4,324	\$ 26,908
SSB	3,856	—
Total segment operating profit	<u>\$ 8,180</u>	<u>\$ 26,908</u>
	March 29, 2019	December 28, 2018
Assets		
SPS	\$ 591,142	\$ 571,427
SSB	412,103	394,050
Total segment assets	<u>\$ 1,003,245</u>	<u>\$ 965,477</u>

At March 29, 2019, approximately \$75.7 million and \$7.0 million of the Company's net long-lived assets were located in Asia and Europe, respectively, and the remaining balances were located in the United States. At March 30, 2018, approximately \$10.6 million and \$1.6 million of the Company's net long-lived assets were located in Asia and the Czech Republic, respectively, and the remaining balances were located in the United States.

13. Subsequent Events

On April 15, 2019, the Company purchased substantially all of the assets of Dynamic Manufacturing Solutions, LLC ("DMS"), a semiconductor weldment and solutions provider. Under the terms of the asset purchase agreement, the Company paid \$30.0 million in cash for DMS, subject to certain post-closing adjustments as provided in the acquisition agreement. Approximately \$2.3 million of the purchase price was placed in escrow to satisfy any potential indemnification claims. The Company may pay up to \$12.5 million in additional cash earn-out payments to the former owners of DMS if the combined weldment business achieves certain gross profit and gross margin targets for the twelve months ending June 26, 2020. To finance this acquisition, the Company drew \$15.0 million from its available Revolving Credit Facility.

ITEM 2. Management's Discussion And Analysis of Financial Condition And Results Of Operations

You should read the following discussion of our financial condition and results of operations in conjunction with the condensed consolidated financial statements and the notes thereto included elsewhere in this Quarterly Report on Form 10-Q and in our Annual Report on Form 10-K filed with the SEC on March 22, 2019. This Quarterly Report on Form 10-Q contains "forward-looking statements" that involve substantial risks and uncertainties. The statements contained in this Quarterly Report on Form 10-Q that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, including, but not limited to, statements regarding our expectations, beliefs, intentions, strategies, future operations, future financial position, future revenue, projected expenses, gross margins and plans and objectives of management. In some cases, you can identify forward-looking statements by terms such as "anticipate," "believe," "estimate," "expect," "intend," "may," "might," "plan," "project," "will," "would," "should," "could," "can," "predict," "potential," "continue," "objective," or the negative of these terms, and similar expressions intended to identify forward-looking statements. However, not all forward-looking statements contain these identifying words. These forward-looking statements reflect our current views about future events and involve known risks, uncertainties and other factors that may cause our actual results, performance or achievement to be materially different from those expressed or implied by the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified below, and those discussed in the section titled "Risk Factors" included in this Quarterly Report on Form 10-Q and in our Annual Report on Form 10-K filed with the SEC on March 22, 2019. Furthermore, such forward-looking statements speak only as of the date of this report. Except as required by law, we undertake no obligation to update any forward-looking statements to reflect events or circumstances after the date of such statements.

Overview

We are a global leader in the design, engineering, and manufacture of production tools, modules and subsystems for the semiconductor capital equipment industry and industry segments with similar requirements including display, consumer and medical. We focus on providing specialized engineering and manufacturing solutions for these applications. We enable our customers to realize lower manufacturing costs and reduced design-to-delivery cycle times while maintaining high quality standards.

With our acquisition of Quantum Global Technologies, LLC ("QGT"), on August 27, 2018, a leader in parts cleaning, coating and semiconductor Fab-related analytical services, we expanded our capabilities to provide ultra-high purity parts cleaning, process tool part recoating, surface treatment, and analytical services to the semiconductor and related industries.

We ship a majority of our products and serviced parts to U.S. registered customers with locations both in and outside the U.S. In addition to U.S. manufacturing and service operations, we manufacture products and provide parts cleaning and other related services in our Asian and European facilities to support local and U.S. based customers. We conduct our operating activities primarily through our subsidiaries, Ultra Clean Technology Systems and Service, Inc., AIT, Ultra Clean Micro-Electronics Equipment (Shanghai) Co., Ltd., Ultra Clean Asia Pacific, Pte, Ltd., UCT Thermal Solutions, Inc., UCT Fluid Delivery Solutions s.r.o. and QGT.

On April 15, 2019, we acquired substantially all of the assets of Dynamic Manufacturing Solutions, LLC ("DMS"), a semiconductor weldment and solutions provider. Under the terms of the asset purchase Agreement, we paid \$30.0 million in cash for DMS, subject to certain post-closing adjustments as provided in the acquisition Agreement. We may pay up to \$12.5 million in additional cash earn-out payments to the former owners of DMS if the combined weldment business achieves certain gross profit and gross margin targets for the twelve months ending June 26, 2020.

Financial Highlights

Over the long-term, we believe the semiconductor market we serve will continue to grow based on demand from a broad range of drivers, including emerging applications such as autonomous vehicles, the Internet of Things, high performance computing, artificial intelligence, and technology to support the data sharing economy. We also believe that semiconductor equipment OEMs are increasingly relying on partners like UCT to fulfill their expanding capacity requirements. Midway through 2018, we began to see a reduction in orders from some of our OEM customers, as certain manufacturers announced they were deferring capital investment. We have continued to see the reduction in orders through the first quarter of 2019 and we expect the impact of these reductions to continue at least through the third quarter of 2019.

In the first quarter of 2019, we elected to reorganize our organizational and reporting structure to capture efficiencies and operating leverage from our recent acquisition of QGT. We now report results for two segments: Semiconductor Products and Solutions ("SPS") and Semiconductor Services Business ("SSB").

Results of Operations

For the periods indicated, the following table sets forth certain costs and expenses and other income items as a percentage of sales. The table and subsequent discussion should be read in conjunction with our Condensed Consolidated Financial Statements and Notes thereto included elsewhere in our quarterly report.

	Three Months Ended	
	March 29, 2019	March 30, 2018
Revenues	100.0 %	100.0 %
Cost of goods sold	82.8 %	84.5 %
Gross profit	17.2 %	15.5 %
Operating expenses:		
Research and development	1.3 %	1.0 %
Sales and marketing	2.1 %	1.2 %
General and administrative	10.7 %	4.8 %
Total operating expenses	14.1 %	7.0 %
Income from operations	3.1 %	8.5 %
Interest and other income (expense), net	(2.0) %	0.1 %
Income before provision for income taxes	1.1 %	8.6 %
Income tax provision	0.6 %	0.7 %
Net income	0.5 %	7.9 %
Net income attributable to noncontrolling interest	(0.3) %	-
Net income attributable to UCT	0.2 %	7.9 %

Sales

Sales for the three months ended March 29, 2019 were \$260.1 million, a decrease of \$54.7 million, or 17.4%, from \$314.8 million in the comparable quarter of 2018. The decrease in overall sales in the first quarter of 2019 compared to the first quarter of 2018 is primarily due to a decrease in SPS semiconductor customer demand offset in part by an increase due to the inclusion of SSB revenue. SPS revenue declined from \$314.8 million to \$200.2 million and SSB revenue increased from none to \$59.9 million. On a geographic basis, sales in the U.S. decreased \$4.6 million to \$129.3 million, or 49.7% of sales, for the three months ended March 29, 2019 compared to \$133.9 million, or 42.5% of sales, for the comparable period of 2018. Foreign sales decreased \$50.1 million to \$130.8 million, or 50.3% of sales, for the three months ended March 29, 2019 compared to \$180.9 million, or 57.5% of sales, for the comparable period of 2018. We expect sales to decrease in the second quarter of fiscal 2019 due to a continued decline in overall customer demand.

Gross Profit

Cost of goods sold consists primarily of purchased materials, labor and overhead, including depreciation related to certain capital assets associated with the design and manufacture of products sold and services performed.

Gross profit for the three months ended March 29, 2019 decreased \$4.0 million to \$44.8 million, or 17.2% of sales, from \$48.8 million, or 15.5% of sales, for the three months ended March 30, 2018. The change reflects a decrease in SPS gross profit dollars primarily due to the decrease in SPS sales as well as to the inclusion of intangible amortization expense related to the acquisition of QGT, offset in part by the inclusion of SSB sales and related gross profit. The change in gross margin reflects the inclusion of the higher margin business of SSB offset in part by a change in product mix of the SPS business as well as to the inclusion of intangible amortization expense related to the acquisition of QGT.

Research and Development Expense

Research and development expense consists primarily of activities related to new component testing and evaluation, test equipment and fixture development, product design, and other product development and service activities.

Research and development expense for the three months ended March 29, 2019 increased \$0.4 million, or 13.3%, to \$3.4 million, or 1.3% of sales, compared to \$3.0 million, or 1.0% of sales in the comparable period in 2018. The increase in research and development expense was mainly due to the inclusion of SSB's research and development activities in the first quarter of 2019.

Sales and Marketing Expense

Sales and marketing expense consists primarily of salaries and commissions paid to our sales and service employees, salaries paid to our engineers who work with the sales and service employees to help determine the components and configuration requirements for new products and other costs related to the sales of our products and services.

Sales and marketing expense for the three months ended March 29, 2019 increased \$1.6 million, or 41.8%, to \$5.4 million, or 2.1% of sales, compared to \$3.8 million, or 1.2% of sales, in the comparable period of 2018. The increase in sales and marketing expense was mainly due to the inclusion of SSB's sales and marketing expense activities in the first quarter of 2019.

General and Administrative Expense

Our general and administrative expense has historically consisted primarily of salaries and overhead associated with our administrative staff, professional fees and amortization of our intangible assets.

General and administrative expense increased \$12.7 million, or 84.5%, for the three months ended March 29, 2019, to \$27.8 million, or 10.7% of sales, compared with \$15.1 million, or 4.8% of sales, in the comparable period of 2018. The increase was primarily due to higher amortization of finite-lived intangibles related to the acquisition of QGT, inclusion of SSB's general and administrative expense activities in the first quarter of 2019, an increase in acquisition related costs associated with the acquisitions of QGT and DMS, an increase in outside service costs (primarily related to internal and external audit work performed for SSB) and an increase in the non-capitalizable implementation costs of our new enterprise reporting system.

Interest and Other Income (Expense), net

Interest and other income (expense), net, for the three months ended March 29, 2019 was \$(5.3) million compared to \$0.3 million in the comparable period of 2018. The increase in net expense for the three months ended March 29, 2019 compared to the same periods in the prior year was primarily due to an increase in interest expense as a result of a higher principal balance and interest rate on our new debt related to our acquisition of QGT.

Income Tax Provision

The Company's income tax provision and effective tax rate for the three months ended March 29, 2019 and March 30, 2018 were \$1.5 million and 52.7% compared to \$2.5 million and 9.2%, respectively. The change in respective rates reflects, primarily, changes in the geographic mix of worldwide earnings and financial results in jurisdictions which are taxed at different rates, the impact of losses in jurisdictions with full federal and state valuation allowances and tax benefits associated with share-based compensation.

Company management continuously evaluates the need for a valuation allowance on its deferred tax assets and, as of March 29, 2019, concluded that a full valuation allowance on its federal and state was still appropriate.

Results by Segment

The results for each reportable segment are discussed below.

Semiconductor Products and Solutions ("SPS")

Our SPS business primarily designs, engineers and manufactures production tools, modules and subsystems for the semiconductor and display capital equipment markets. SPS products include Chemical delivery modules, frame assemblies, gas delivery systems, fluid delivery systems, precision robotics, process modules as well as other high level assemblies.

Revenue decreased \$114.6 million due to lower customer demand in the first quarter of 2019 compared to the first quarter of 2018. Gross profit and gross margin decreased in the first quarter of fiscal 2019 compared to the same period in 2018 due primarily to lower sales volume, decreased labor efficiency and lower factory utilization. Operating income and margin were lower due primarily to the lower gross profit and margin, offset in part by lower total operating expenses of approximately \$0.5 million in the first quarter of 2019 compared to the same period in 2018.

Certain significant measures for the periods indicated were as follows:

	Three Months Ended	
	March 29, 2019	March 30, 2018
Segment revenue	\$ 200,245	\$ 314,842
Segment revenue as a percent of total Company revenue	77.0%	100.0%
Segment gross profit	\$ 25,681	\$ 48,804
Segment gross profit as a percent of total SPS revenue	12.8%	15.5%
Segment operating income	\$ 4,324	\$ 26,908
Segment operating income as a percent of total SPS revenue	2.2%	8.5%

Semiconductor Services Business (“SSB”)

Our SSB business provides ultra-high purity outsourced parts cleaning, process tool part recoating, surface treatment and analytical services to the semiconductor and related industries. SSB was formed as a result of our acquisition of QGT. As QGT was acquired in the third quarter of 2018 there is no corresponding financial information to compare to for the same period in the prior year. Certain significant measures for the period indicated were as follows:

	Three Months Ended	
	March 29, 2019	
Segment revenue	\$ 59,896	
Segment revenue as a percent of total Company revenue	23.0%	
Segment gross profit	\$ 19,116	
Segment gross profit as a percent of total SSB revenue	31.9%	
Segment operating income	\$ 3,856	
Segment operating income as a percent of total SSB revenue	6.4%	

Liquidity and Capital Resources

We have required capital to fund our working capital needs, satisfy our debt obligations, maintain our equipment, purchase new capital equipment and make strategic acquisitions from time to time. As of March 29, 2019, we had cash of \$154.8 million compared to \$144.1 million as of December 28, 2018. Our cash and cash equivalents, cash generated from operations and amounts available under our revolving line of credit described below were our principal source of liquidity as of March 29, 2019.

For the three months ended March 29, 2019, total cash provided by operating activities was \$18.1 million, an increase of \$13.0 million when compared to cash provided by operating activities of \$5.1 million for the comparable period of 2018. Operating cash flows generated in the three months ended March 29, 2019 reflected mainly net income adjusted for the effect of non-cash activities, including depreciation and amortization of equipment and leasehold improvements, amortization of intangible assets and debt issuance costs, stock-based compensation, change in the fair value of the financial instruments and changes in working capital components. Other drivers of the increase in cash from operating activities included decreases in inventories, accrued compensation and related benefits and income taxes payable offset by increases in accounts receivable and prepaids and other assets. Our cash flows from operations in any given period are largely driven by the timing of sales, the collection of accounts receivable and the payment of accounts payable.

Net cash used in investing activities for the three months ended March 29, 2019 was approximately \$4.2 million mainly attributable to the expansion of certain of our facilities in Asia and the U.S. Net cash used in investing activities for the three months ended March 30, 2018 was approximately \$5.9 million, attributable mostly to the costs related to the development of the Company’s new enterprise reporting system.

Net cash used by financing activities for the three months ended March 29, 2019 was \$3.1 million, primarily due to net bank and finance lease payments of \$2.3 million. Net cash provided by financing activities for the three months ended March 30, 2018 was \$94.8 million, primarily due to the \$94.3 million net cash proceeds from our public offering of our common stock in February of 2018.

We anticipate that our existing cash and cash equivalents balance and operating cash flow will be sufficient to service our indebtedness and meet our working capital requirements and technology development projects for at least the next twelve months. The adequacy of these resources to meet our liquidity needs beyond that period will depend on our growth, the size and number of any acquisitions, the state of the worldwide economy, our ability to meet our financial covenants with our credit facility, the cyclical expansion or contraction of the semiconductor capital equipment industry and the other industries we serve and capital expenditures required to meet possible increased demand for our products.

In order to expand our business or acquire additional complementary businesses or technologies, we may need to raise additional funds through equity or debt financings. If required, additional financing may not be available on terms that are favorable to us, if at all. If we raise additional funds through the issuance of equity or convertible debt securities, our stockholders' equity interest will be diluted and these securities might have rights, preferences and privileges senior to those of our current stockholders. We may also require the consent of our new lenders to raise additional funds through equity or debt financings. No assurance can be given that additional financing will be available or that, if available, such financing can be obtained on terms favorable to our stockholders and us.

In prior years, we determined that a portion of the current year and future year earnings of one of our China subsidiaries may be remitted in the future to one of our foreign subsidiaries outside of mainland China and, accordingly, we provided for the related withholding taxes in our consolidated financial statements. As of March 29, 2019, we had undistributed earnings of foreign subsidiaries that are indefinitely invested outside of the U.S. of approximately \$235.1 million. As of March 29, 2019, we have cash of approximately \$123.4 million in our foreign subsidiaries.

Borrowing Arrangements

In August 2018, we entered into a credit agreement with Barclays Bank that provided a Term Loan, a Revolving Credit Facility, and a Letter of Credit Facility (the "Credit Facilities"). We and some of our subsidiaries have agreed to secure all of their obligations under the Credit Facilities by granting a first priority lien in substantially all of their respective personal property assets (subject to certain exceptions and limitations). In August 2018, we borrowed \$350.0 million under the Term Loan and used the proceeds, together with cash on hand, to finance the acquisition of QGT (see Note 4) and to refinance our previous credit facilities.

In August 2018, we paid \$41.6 million of principal, accrued interest, and fees in settlement of the then-outstanding term loan, revolving credit facility, interest rate swap under the Credit Agreement, and recognized \$0.1 million in expense upon extinguishment as Interest and other income (expense), net.

The Term Loan has a maturity date of August 27, 2025, with monthly interest payments in arrears, quarterly principal payments of 0.625% of the original outstanding principal balance payable beginning January 2019, with the remaining principal paid upon maturity. The Term Loan accrues interest daily at a rate equal to a base LIBOR rate determined by reference to the London interbank offered rate for dollars, plus 4.5% (subject to certain adjustments quarterly based upon the Company's consolidated leverage ratio). We may prepay the Term Loan in whole or in part without penalty after six months from issuance, before which we must pay a prepayment fee equal to 1.0% of the aggregate principal amount prepaid. As of March 29, 2019, we had an outstanding amount under the Term Loan of \$347.8 million, gross of unamortized debt issuance costs of \$11.1 million.

The Revolving Credit Facility has an initial available commitment of \$65.0 million and a maturity date of August 27, 2023. We pay a quarterly commitment fee in arrears equal to 0.25% of the average daily available commitment outstanding. As of March 29, 2019, we had no amount outstanding under the Revolving Credit Facility. The New Credit Agreement requires that we maintain certain financial covenants including a consolidated fixed charge coverage ratio (as defined in the New Credit Agreement) as of the last day of any fiscal quarter of at least 1.25 to 1.00, and a consolidated leverage ratio (as defined in the New Credit Agreement) as of the last day of any fiscal quarter of no greater than 3.75 to 1.00. We were in compliance with all covenants for the quarter ended March 29, 2019.

The Letter of Credit Facility has an initial available commitment of \$50.0 million and a maturity date of August 27, 2023. We pay quarterly in arrears a fee equal to 2.5% (subject to certain adjustments as per the Term Loans) of the dollar equivalent of all outstanding letters of credit, and a fronting fee equal to 0.125% of the undrawn and unexpired amount of each letter of credit. As of March 29, 2019, we had \$1.5 million of outstanding letters of credit and remaining available commitments of \$48.5 million on the Letter of Credit Facility and \$63.5 million on the Revolving Credit Facility.

As of March 29, 2019, FDS had an outstanding amount under its revolving credit facility of 2.5 million euros (approximately \$2.8 million) with an interest rate of 1.3% plus a variable rate based on the Euro Interbank Offered Rate.

As of March 29, 2019, our total bank debt was \$ 339.5 million, net of unamortized debt issuance costs of \$11.1 million. As of March 29, 2019, we had \$63.5 million and 5.8 million euros (approximately \$6.5 million) available to borrow on our revolving credit facilities in the U.S. and Czech Republic, respectively.

On April 15, 2019, we borrowed \$15.0 million on our Revolving Credit Facility to fund the acquisition of DMS (see Note 13).

The fair value of our long term debt was based on Level 2 inputs, and fair value was determined using quoted prices for similar liabilities in inactive markets. The carrying value of our long term debt approximates fair value.

Capital Expenditures

Capital expenditures were \$5.8 million during the three months ended March 29, 2019 and were primarily attributable to the costs invested in our manufacturing facilities in the United States, China and Korea as well as costs associated with the ongoing design and implementation of our new enterprise resource planning system. The Company's anticipated capital expenditures for the remainder of 2019 are expected to be financed primarily from cash from operations.

Off-Balance Sheet Arrangements

During the periods presented, we did not have any relations with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Contractual Obligations

Other than operating leases for certain equipment, real estate and purchase order commitments, primarily for inventory, we have no off-balance sheet transactions, unconditional purchase obligations or similar instruments and, other than the arrangements described under "Borrowing Arrangements" above, are not a guarantor of any other entities' debt or other financial obligations. The following table summarizes our future minimum lease payments, principal payments under debt obligations and our purchase obligations for the purchase of inventory as of March 29, 2019 (in thousands):

	Total	Less than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
Operating leases (1)	\$ 41,144	\$ 9,807	\$ 26,501	\$ 3,660	\$ 1,176
Finance leases	3,738	467	1,862	1,073	336
Borrowing arrangements (2)	350,578	11,515	26,250	17,500	295,313
Stock purchase obligation (3)	8,500	8,500	—	—	—
Purchase order commitments (4)	79,754	79,754	—	—	—
Total	<u>\$ 483,714</u>	<u>\$ 110,043</u>	<u>\$ 54,613</u>	<u>\$ 22,233</u>	<u>\$ 296,825</u>

- (1) The Company leases facilities in the U.S.A. as well as internationally under non-cancellable leases that expire on various date through 2031.
- (2) Amounts reflect obligations under our Term loan totaling \$347.8 gross of \$11.1 million of unamortized debt issuance costs and \$2.8 million held by FDS, in the Czech Republic.
- (3) The Company is obligated to purchase the stock owned by one of Cinos Co., Ltd shareholder.
- (4) Represents our outstanding purchase orders primarily for inventory.

Critical Accounting Policies, Significant Judgments and Estimates

Our Condensed Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States, which require us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses and related disclosure at the date of our consolidated financial statements. On an on-going basis, we evaluate our estimates and judgments, including those related to sales, inventories, goodwill and intangible assets, stock compensation and income taxes. We base our estimates and judgments on historical experience and on various other factors that we believe to be reasonable under the circumstances, the results of which form the basis of our judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates. We consider certain accounting policies related to revenue recognition, inventory valuation, accounting for income taxes, business combinations, valuation of intangible assets and goodwill, accounting for pension obligations and equity incentives to employees to be critical policies due to the estimates and judgments involved in each.

During the first quarter of fiscal 2019, the Company adopted the provisions of ASC 842 “Leases”. Refer to topics in Note 1, Recently Adopted Accounting Pronouncements and Note 9, Leases, in the Notes to Condensed Consolidated Financial Statements.

Other than the ASC 842, “Leases” as described in the paragraph above, there have been no material changes to our critical accounting policies, significant judgments and estimates disclosed in our Annual Report on Form 10-K subsequent to December 28, 2018. For further information on our critical and other significant accounting policies and estimates, see Part II, Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” of our Annual Report on Form 10-K for the fiscal year ended December 28, 2018, as filed with the SEC.

ITEM 3. Quantitative and Qualitative Disclosures About Market Risk

There were no significant changes to our quantitative and qualitative disclosures about market risk during the first three months of fiscal 2019. Refer to Part II, Item 7A. “Quantitative and Qualitative Disclosures about Market Risk” included in our Annual Report on Form 10-K for our fiscal year ended December 28, 2018 for a more complete discussion of the market risks we encounter.

ITEM 4. Controls and Procedures

As required by Rule 13a-15(b) under the Securities Exchange Act of 1934 (the “Exchange Act”), management, including our Chief Executive Officer and Chief Financial Officer, conducted an evaluation as of the end of the period covered by this report, of the effectiveness of our disclosure controls and procedures as defined in Exchange Act Rule 13a-15(e). Based upon our evaluation, we concluded that our disclosure controls and procedures were effective as of March 29, 2019.

As required by Rule 13a-15(d), management, including our Chief Executive Officer and Chief Financial Officer, also conducted an evaluation of our internal control over financial reporting to determine whether any changes occurred during the period covered by this report that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. Based on our evaluation, other than certain controls implemented in connection with adoption of the new lease standard, we concluded that there has been no change during the fiscal quarter covered by this report that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Any system of controls, however well designed and operated, can provide only reasonable, and not absolute, assurance that the objectives of the system will be met. In addition, the design of any control system is based in part upon certain assumptions about the likelihood of future events.

PART II. OTHER INFORMATION

ITEM 1. Legal Proceedings

From time to time, we are subject to various legal proceedings and claims, either asserted or unasserted, that arise in the ordinary course of business. Although the outcome of the various legal proceedings and claims cannot be predicted with certainty, we have not had a history of outcomes to date that have been material to our statement of operations and do not believe that any of these proceedings or other claims will have a material adverse effect on our consolidated financial condition or results of operations.

ITEM 1A. Risk Factors

The cyclical and highly volatile nature of the industries we serve could harm our operating results.

Our business and operating results depend in significant part upon capital expenditures by manufacturers in the semiconductor and display industries, which in turn depend upon the current and anticipated market demand for such products. Historically, the industries we serve (in particular the semiconductor industry) have been highly cyclical, with recurring periods of over-supply of products that have had a severe negative effect on the demand for capital equipment and related services involved in manufacturing such products. We have experienced and anticipate that we will continue to experience significant fluctuations in customer orders for our products through such cycles. Although certain aspects of our business, including the cleaning, coating and analytical services delivered by QGT which also supports the semiconductor chip market are less susceptible to variations in capital expenditures by manufacturers than other aspects of our business, slowdowns in the industries we serve have had, and future slowdowns may also have, a material adverse effect on our operating results. During periods of decreasing demand for our products and services, we must be able to appropriately align our cost structure with prevailing market conditions, effectively manage our supply chain and motivate and retain employees. During periods of increased demand, we must expand manufacturing capacity and inventory to meet customer demands, effectively manage our supply chain and attract, retain and motivate a sufficient number of employees. If the industries we serve experience downturns, or if we are not able to timely and appropriately adapt to the changes in our business environment, our results of operations will be harmed. Also, the limited visibility we have from the majority of our customers of their future orders, combined with the cyclical and volatile nature of the industries we serve, make future revenues, results of operations and net cash flows difficult to estimate.

We rely on a small number of original equipment manufacturing (“OEM”) and integrated device manufacturing (“IDM”) customers for a significant portion of our revenues, and any adverse change in our relationships with these customers, including a decision by such customers not to continue to outsource critical subsystems or part cleaning, coating or analytical services to us or to give market share to one of our competitors, would adversely affect our business, results of operations and financial condition. Our customers also exert a significant amount of negotiating leverage over us, which may require us to accept lower operating margins, increased liability risks or changes in our operations in order to retain or expand our market share with them.

A relatively small number of OEM customers have historically accounted for a significant portion of our revenues, and we expect this trend to continue. As a group, two customers accounted for 60.5%, 76.6% and 84.4% of sales for the three months ended March 29, 2019, for fiscal years 2018 and 2017, respectively, and we expect that our revenues will continue to be concentrated among a small number of customers. In addition, our customer contracts generally do not require customers to place any orders. Accordingly, the success of our products business depends on OEMs continuing to outsource the manufacturing of critical subsystems to us. Because of the small number of OEMs in the markets we serve, most of which are already our customers, it would be difficult to replace lost revenue resulting from the loss of, or the reduction, cancellation or delay in purchase orders by, any one of these customers, whether due to such customer’s decision to not continue to outsource all or a portion of its critical subsystems for its capital equipment to us, such customer giving market share to our competitors or for other reasons, such as a customer’s bankruptcy or insolvency or decreased demand for such customer’s products. We have in the past lost business from customers who have taken the manufacturing of our products in-house, given market share to our competitors or declared bankruptcy. Further, since our customers generally own the designs and other intellectual property to the products we manufacture, we cannot prevent them from licensing such designs and other intellectual property to our competitors for the manufacturing of such products. If we are unable to replace revenue from customers who determine to take subsystem assembly in-house, give market share to our competitors or from whom we otherwise lose business, such events could have a material adverse impact on our financial position and results of operations.

Our Semiconductor Services Business provides part cleaning, coating and analytical expertise, to IDM and OEM customers and has expanded our customer base to include IDM customers. Our IDM business is concentrated in a relatively small number of customers, and we compete with in-house capabilities, OEM’s who perform cleaning as part of service contracts and cleaning, coating and analytical services, are competitors. The OEM customer profile of our SSB segment has significant overlap with our products business and is subject to risks of market share loss to cleaning, coating and analytical services competitors. Such risks are partially mitigated as the cleaning and analytical process are proprietary to QuantumClean and ChemTrace, respectively, and transition to new suppliers may require requalification on the part of the customer.

Consolidation among our customers, or a decision by any one or more of our customers to outsource all or most manufacturing, assembly, cleaning, coating and analytical services work to a single equipment manufacturer, may further concentrate our business in a limited number of customers and expose us to increased risks relating to dependence on an even smaller number of customers.

In addition, due to the size and revenue contribution levels from our largest customers, they are able to exert significant pricing pressure in the negotiation of our commercial agreements and individual purchase orders. Our customers often require reduced prices or other quality, manufacturing or delivery commitments as a condition to their awarding the placement of orders with us in any given period. This may, among other things, result in reduced operating margins or require capital or other expenditures in order to maintain or expand our market share. Our customers' negotiating leverage also can result in terms and conditions that may contain significant liability risk to us. For example, our customers generally require that we provide them indemnification against certain liabilities, which may include claims of losses by their. In some cases, we have self-insured against liability risk meaning that we may be directly responsible for a high magnitude of liability claims by our customers without recourse to insurance proceeds from third-party insurers. Our customers may also pressure us to make other concessions in order to preserve or expand our market share with them. Those concessions may harm our business. For example, customers may require us to move the manufacturing of our products from lower-cost geographies such as China to higher-cost geographies such as Singapore. The transfer of manufacturing could result in reduced margins and a sub-optimal cost structure. If we are unable to retain and expand our business with our customers on favorable terms, our business and operating results will be adversely affected and we may be susceptible to increased liability risk. This additional liability risk could have a material adverse effect on our business, cash flows, results of operations and financial condition.

We may not be able to respond quickly enough to changes in demand for our products.

Demand shifts in the industries we serve are rapid and difficult to predict, and we may not be able to anticipate or respond quickly enough to changes in demand. Our ability to increase revenues of our products and services in periods of increasing demand depends, in part, upon our ability to:

- mobilize our supply chain in order to maintain component and raw material supply;
- optimize the use of our design, engineering and manufacturing capacity in a timely manner;
- deliver our products and services to our customers in a timely fashion;
- expand, if necessary, our manufacturing, cleaning, coating and analytical services capacity; and
- maintain our product and service quality as we increase production.

If we are unable to respond to rapid increases in demand for our products and services on a timely basis, or to manage any corresponding expansion of our manufacturing and service capacity effectively, our customers could divert their purchases of products and services from us to our competitors, which would adversely affect our business.

Our ability to remain profitable and mitigate the impact on our business in periods of decreasing demand depends, in part, upon our ability to:

- optimize our inventory levels and reduce or cancel orders from our suppliers without compromising our relationships with such suppliers;
- reduce our fixed and variable costs through a number of initiatives, which may include reducing our manufacturing workforce;
- continue to motivate our employees; and
- maintain the prices, quality and delivery cycles of our products and services in order to retain our customers' business.

Our dependence on our suppliers may prevent us from delivering an acceptable product on a timely basis.

We rely on both single-source and sole-source suppliers, some of whom are relatively small, for many of the components we use in our products and services. In addition, our customers often specify components or raw materials of particular suppliers that we must incorporate into our products. Our suppliers may be under no long-term obligation to provide us with components or raw materials. As a result, the loss of or failure to perform by any of these suppliers could adversely affect our business and operating results. In addition, the manufacturing of certain components and subsystems and the cleaning, coating and analysis of tool parts are complex processes. Therefore, if a supplier were unable to provide the volume of supplies, components or raw materials we require on a timely basis and at acceptable prices and quality, we would have to identify and qualify replacements from alternative sources. However, the process of qualifying new suppliers for complex components and raw materials is lengthy and could delay our production or delivery of services, which would adversely affect our business, operating results and financial condition.

We may also experience difficulty in obtaining sufficient supplies of components and raw materials in times of growth in our business. For example, we have in the past experienced shortages in supplies of various components, such as mass flow controllers, valves and regulators, and certain prefabricated parts, such as sheet metal enclosures, used in the manufacture of our products. In addition, one of our competitors manufactures mass flow controllers that may be specified by one or more of our customers. If we are unable to obtain these particular mass flow controllers from our competitor or convince a customer to select alternative mass flow controllers, we may be unable to meet that customer's requirements, which could result in a loss of market share.

If we, or our suppliers, are unable to procure sufficient quantities of supplies, components or raw materials from suppliers, it could influence decisions by our customers to delay or cancel orders or service contracts and decisions by our vendors to fulfill our purchase orders and, consequently, have a material adverse effect on our results of operations.

We held customers' inventories on our premises and any significant damage or loss of these inventories could cause our operating results to suffer.

In connection with our cleaning business we face a number of risks associated with customer inventory held on our property, including the risk of loss or mishandling of, or other damage to, customer inventory, any of which could harm our reputation, adversely affect our business and otherwise expose us to increased liabilities or losses.

Our inability to successfully manage the implementation of a company-wide enterprise resource planning ("ERP") system could adversely affect our operating results.

We are in the process of implementing a new company-wide ERP system. This process has been and continues to be complex and time-consuming and we expect to incur additional capital outlays and expenses. This ERP system will replace many of our existing operating and financial systems, which is a major undertaking from a financial management and personnel perspective. Should the new ERP system not be implemented successfully throughout all our business units and within budget and on time, or if the system does not perform in a satisfactory manner, it could be disruptive and adversely affect our operations, including our potential ability to report accurate, timely and consistent financial results; our ability to purchase supplies, components and raw materials from and pay our suppliers; and our ability to deliver products and services to customers on a timely basis and to collect our receivables from them. Furthermore, we began to place this new ERP system into service in the third quarter of 2018 and anticipate that it will be fully in service by the end of fiscal year 2020.

In addition, we have teams leading the implementation of the ERP system at most of our locations. To the extent that these teams or key individuals are not retained through the implementation period, the success of our implementation could be compromised and the expected benefits of the ERP system may not be realized. If the new ERP system is not successfully and fully implemented, it could negatively affect our financial reporting, inventory management and our future sales, profitability and financial condition.

We are subject to order and shipment uncertainties and any significant reductions, cancellations or delays in customer orders could cause our revenue to decline and our operating results to suffer.

Our revenue is difficult to forecast because we generally do not have a material backlog of unfilled orders and because of the short time frame within which we are often required to design, produce or deliver products to our customers. Most of our revenue in any quarter depends on customer orders for our products that we receive and fulfill in the same quarter. We generally do not have long-term purchase orders or contracts that contain minimum purchase commitments from our customers. Instead, we receive non-binding forecasts of the future volume of orders from our customers. Occasionally, we order and build component inventory in advance of the receipt of actual customer orders. Customers may cancel order forecasts, change production quantities from forecasted volumes or delay production for reasons beyond our control. Furthermore, reductions, cancellations or delays in customer order forecasts, which may occur for various reasons, including reduced demand for our customer's products, customer bankruptcies or customer insolvency, usually occur without penalty to, or compensation from, the customer. Reductions, cancellations or delays in forecasted orders could cause us to hold inventory longer than anticipated, which could reduce our gross profit, restrict our ability to fund our operations and cause us to incur unanticipated reductions or delays in revenue. Moreover, many of the products we manufacture are custom built for our customers and are therefore not fungible with products we sell to other customers. If we do not obtain orders as we anticipate, we could have excess component inventory for a specific product that we would not be able to sell to another customer, likely resulting in inventory write-offs, which could have a material adverse effect on our business, financial condition and operating results. In addition, because many of our costs are fixed in the short term, we could experience deterioration in our gross profit and operating margins when our sales volumes decline.

The manufacturing of our products and the services we perform are highly complex, and if we are not able to manage our manufacturing, cleaning and procurement processes effectively, our business and operating results will suffer.

The manufacturing of our products is a highly complex process. The services we perform are also complex and dependent on procuring complex and specialty material and performing complex/precise services correctly. Both the manufacturing of our products and services we perform involve the integration of multiple components and require effective management of our supply chain while meeting our customers' design-to-delivery cycle time requirements. Through the course of the manufacturing process, our customers may modify design and system configurations in response to changes in their own customers' requirements. In order to rapidly respond to these modifications and deliver our products to our customers in a timely manner, we must effectively manage our manufacturing and procurement process. If we fail to manage this process effectively, we risk losing customers and damaging our reputation. We may also be subject to liability under our agreements with our customers if we or our suppliers fail to effectively or timely re-configure manufacturing processes or components in response to these modifications or if shipments of our products are delayed, which may lead to product defect or other claims by our customers or cancelled orders. In addition, if we acquire inventory in excess of demand or that does not meet customer specifications, we could incur excess or obsolete inventory charges. These risks are even greater during periods of macroeconomic uncertainty or down cycles in our industry, and as we continue to expand our business beyond gas delivery systems into new subsystems or services with which we have less experience. During periods of economic uncertainty or down cycles in our industry, certain of our suppliers may be forced to reduce or go out of business, which could require us to either procure products from higher-cost suppliers or, if no additional suppliers exist, reconfigure the design and manufacture of our products. This could limit our growth and have a material adverse effect on our business, financial condition and operating results.

Our results of operations, financial position and cash flows may suffer if we do not effectively manage our inventory.

Inventory is typically the largest asset on our balance sheet, representing 18.0% of our total assets as of March 29, 2019. We must manage our inventory of raw materials, work-in-process and finished goods effectively to meet changing customer requirements, while keeping inventory costs down and maintaining or improving gross margins.

Historically, the industries we serve (in particular the semiconductor capital equipment industry) have been highly cyclical, which makes accurately forecasting customers' product needs difficult. Although we seek to maintain sufficient inventory levels of materials to guard against interruptions in supply and to meet our customers' needs, we may experience shortages of certain key materials, particularly in times of high industry demand. We also face long lead times from our suppliers, which may be longer than the lead times provided to us by our customers. If we underestimate customer demand or if insufficient manufacturing capacity or raw materials are available, we may have to forego sales opportunities, lose market share and damage our customer relationships.

In the event we overestimate customer demand, we may allocate resources to manufacturing products that we may not be able to sell. As a result, we could hold excess or obsolete inventory, which would reduce our profit margins and adversely affect our financial results. Some of our products have in the past and may in the future become obsolete while in inventory due to changing customer specifications, or become excess inventory due to decreased demand for our products and an inability to sell the inventory within a foreseeable period. Furthermore, our customers may be able to cancel orders on short notice. This could result in charges that reduce our gross profit and gross margin. Furthermore, if market prices drop below the prices at which we value inventory, we would need to take a charge for a reduction in inventory values in accordance with the applicable accounting rules. Any future unexpected changes in demand or increases in costs of production that cause us to take additional charges for un-saleable, obsolete or excess inventory, or to reduce inventory values, would adversely affect our results of operations.

We hold inventory at our various manufacturing sites globally and many of these sites have more than one inventory warehouse. Successfully managing our inventory is dependent upon our information technology systems and internal controls. We rely upon such information technology systems and internal controls to accurately and timely manage, store and replenish inventory, complete and track customer orders, coordinate sales activities across all of our products and maintain and report vital data and information. A disruption in our information technology systems or a failure of our internal controls could result in delays or disruptions in receiving inventory and supplies or filling customer orders, incorrect inventory counts, over or under stocking or loss of inventory and adversely affect our business, customer relationships and results of operations. In particular, our largest customer requires that certain of our products are manufactured and shipped out of our Singapore facility. High levels of customer demand at such facility in fiscal year 2017 created substantial strain on our processes, internal controls and information technology systems. There can be no assurance that such delays, failures or disruptions will not have a material adverse effect on our cash flows, results of operations and financial condition.

Our customers require our products to undergo a lengthy and expensive qualification process. If we are unsuccessful or delayed in qualifying any of our products with a customer, our results of operations and financial condition could suffer.

We have had to qualify, and are required to maintain our status, as a supplier for each of our customers. This is often a lengthy process that involves the inspection and approval by a customer of our engineering, documentation, manufacturing and quality control

procedures before that customer will place volume orders. Our ability to lessen the adverse effect of any loss of, or reduction in sales to, an existing customer through the rapid addition of one or more new customers is limited because of these qualification requirements. Consequently, the risk that our business, operating results and financial condition would be adversely affected by the loss of, or any reduction in orders by, any of our significant customers is increased. Moreover, if we lose our existing status as a qualified supplier to any of our customers, such customer could cancel its orders from us or otherwise terminate its relationship with us, which could have a material adverse effect on our results of operations and financial condition.

Acquisitions could result in operating and integration difficulties, dilution, margin deterioration, diversion of management's attention, and other consequences that may adversely impact our business and results of operations.

We have made, and may in the future make, acquisitions of, or significant investments in, businesses that offer complementary products, services, technologies or market access. We expect that management will evaluate potential strategic transactions regularly with its advisors and our board of directors in the ordinary course of business. We may not be successful in negotiating the terms of potential acquisitions or financing potential acquisitions, and our due diligence may fail to identify all of the problems, liabilities or other challenges associated with an acquired business, product or technology, including issues related to intellectual property, product quality or product architecture, regulatory compliance practices, revenue recognition or other accounting practices or employee or customer retention issues. In addition, we may not be successful in effectively integrating the acquired business, product or technology into our existing business and operations. The areas where we face risks include:

- management of a larger, more complex and capital intensive, combined business, including integrating supply and distribution channels, computer and accounting systems, and other aspects of operations;
- exposure to new operational risks, rules, regulations, worker expectations, customs and practices to the extent acquired businesses are located in regions where UCT has not historically conducted business;
- inability to complete proposed transactions due to the failure to obtain regulatory or other approvals, litigation or other disputes, and any ensuing obligation to pay a termination fee;
- deterioration of gross margins due to the acquired company having the same customer base as us, resulting in reduced pricing leverage;
- the failure to realize expected returns from acquired businesses;
- reductions in cash balances or increases in debt obligations to finance the acquisition, which reduce the availability of cash flow for general corporate or other purposes;
- integration of the capabilities of the acquired businesses while maintaining focus on providing consistently high quality products;
- incorporation of different financial and reporting controls, processes, systems and technologies into our existing business environment;
- unforeseen liabilities, expenses, or other losses associated with the acquisitions for which we do not have recourse under their respective agreements;
- the risk of litigation or claims associated with a proposed or completed transaction;
- inadequacy or ineffectiveness of an acquired company's internal financial controls, disclosure controls and procedures, or environmental, health and safety, anti-corruption, human resource or other policies or practices;
- performance shortfalls as a result of the diversion of management's attention from the Company's operations;
- cultural challenges associated with integrating employees from the acquired business into our organization, and incentivization and retention of employees from the businesses we acquire; and
- difficulties associated with the retention and transition of new customers and partners into our existing business.

Our failure to address these risks or other problems encountered in connection with our past or future acquisitions and investments could cause us to fail to realize the anticipated benefits of such acquisitions or investments, incur unanticipated liabilities and substantial costs, and materially harm our business generally.

Our acquisitions could also result in dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities, or amortization expenses, impairment charges and restructuring charges, any of which could harm our financial condition. Also, the anticipated benefits or value of our acquisitions or investments may not materialize. Even if an acquisition or other investment is not completed, we may divert significant management time and effort and incur significant financial cost in evaluating such acquisition or

investment, which could have an adverse effect on our results of operations. Furthermore, due to prevailing conditions in the credit market and our existing leverage, the financing of any such acquisition may be difficult to obtain if at all, and the terms of any such financing may not be favorable.

Failure to realize the benefits expected from the QGT acquisition could adversely affect the value of our common stock.

Although we expect significant benefits to result from the QGT acquisition, there can be no assurance that we will actually realize them. Achieving these benefits will depend, in part, on our ability to integrate QGT's business successfully and efficiently. The challenges involved in this integration, which will be complex and time consuming, include the following: preserving customer and other important relationships of QGT; managing effectively a new business and competing in a new industry; consolidating and integrating information technology, finance, general and administrative infrastructures; coordinating sales and marketing efforts to effectively position our capabilities; coordinating and integrating operations in countries in which we have not previously operated; and integrating employees and related HR systems and benefits, maintaining employee morale and retaining key employees. The successful integration of the QGT business will require significant management attention, and may divert the attention of management from our business and operational issues.

If we do not successfully manage these issues and the other challenges inherent in integrating an acquired business, then we may not achieve the anticipated benefits of the QGT acquisition and our revenue, expenses, operating results, financial condition and stock price could be materially adversely affected.

We are exposed to risks associated with volatility in the global economy.

We rely to a significant extent on OEM customers, whose business, in turn, depends largely on consumer spending and capital expenditures by businesses. Uncertainty regarding the global economy may pose challenges to our business. Economic uncertainty may exacerbate negative trends in business and consumer spending and may cause certain of our customers to push out, cancel, or refrain from placing orders for products or services, which may reduce sales and materially affect our results of operations and financial condition. Inflationary trends could also have an impact on labor costs and component costs, reducing our margins. Difficulties in obtaining capital, uncertain market conditions, or reduced profitability may also cause some customers to scale back operations, exit businesses, merge with other manufacturers, or file for bankruptcy protection and potentially cease operations, leading to customers' reduced research and development funding and/or capital expenditures and, in turn, lower orders from our customers and/or additional slow moving or obsolete inventory or bad debt expense for us. These conditions may also similarly affect key suppliers, which could impair their ability to deliver supplies, components or raw materials and result in delays for our products or services or require us to either procure supplies, components or raw materials from higher-cost suppliers, or if no additional suppliers exist, to reconfigure the design and manufacture of our products or services, and we may be unable to fulfill customer orders.

Escalating trade tensions and the adoption or expansion of tariffs and trade restrictions could negatively impact us.

International trade tensions or trade wars, as well as other changes in social, political, regulatory and economic conditions or laws and policies, could have a material adverse effect on our business, financial condition and operating results. The U.S. Government has recently announced tariffs on steel and aluminum products and materials imported into the United States. The U.S. Government has also implemented or announced plans to impose tariffs on a wide-range of goods imported from China, where we and our customers have significant operations. Additionally, various countries and economic regions have announced plans or intentions to impose retaliatory tariffs on a wide-range of products they import from the U.S., and there is a risk that a broader trade conflict could ensue. These newly imposed or threatened U.S. tariffs and retaliatory tariffs could have the effect of increasing the cost of materials for our products, which could result in our products becoming less competitive or generating lower margins. This has the potential to impact global trade and economic conditions in many of the regions where we do business.

The United Kingdom's (UK) pending withdrawal from the European Union (EU), commonly referred to as "Brexit," has created significant uncertainty concerning the future relationship between the UK and the EU and the impact on global markets. It is unclear what financial, trade, regulatory and legal implications the withdrawal of the UK from the EU will have and how such withdrawal will affect us. Furthermore, the announcement of Brexit caused significant volatility in global stock markets and currency exchange rate fluctuations, and the pending withdrawal of the UK from the EU may also adversely affect European and global economic and market conditions, which may cause our customers to closely monitor their costs and reduce their spending budgets. Any of these effects of Brexit, among others, could have a material adverse impact on our business, financial condition and results of operations.

Other changes in U.S. or international social, political, regulatory and economic conditions or laws and policies governing tax laws, foreign trade, manufacturing, and development and investment in the countries where we or our customers operate could also adversely affect our operating results and our business.

We have significant existing indebtedness; the restrictive covenants under our credit agreement or other limitations on financing may limit our ability to expand or pursue our business strategy or make capital expenditures; if we are forced to pay some or all of our indebtedness prior to its maturity, our financial position could be severely and adversely affected.

We have total debt as of March 29, 2019 of \$339.5 million. Such debt is composed of a \$347.8 million term loan outstanding under our Credit Agreement with Barclays Bank less debt costs of \$11.1 million and \$2.8 million under FDS's revolving credit facility in the Czech Republic.

Our indebtedness could have adverse consequences including:

- risk associated with any inability to satisfy debt obligations;
- the portion of our cash flows that must be dedicated to interest and principal payments and will not be available for operations, working capital, capital expenditures, expansion, acquisitions or general corporate or other purposes; and
- impairing our ability to obtain additional financing in the future, if needed.

If we are unable to meet our debt obligations as they come due, we could be forced to restructure or refinance such obligations, seek additional equity financing or sell assets, which we may not be able to do on satisfactory terms, or at all. If we determine it is necessary to seek additional funding for any reason, we may not be able to obtain such funding or, if funding is available, may not be able to obtain it on acceptable terms.

Our Credit Agreement contains certain covenants that restrict our ability to take certain actions, including our ability to incur additional debt, including guarantees, create liens, make certain investments, engage in transactions with affiliates and engage in certain mergers and acquisitions.

Our Credit Agreement requires us to maintain certain financial covenants, including compliance with a maximum consolidated total gross leverage ratio and a minimum fixed charge coverage ratio. Our failure to comply with these covenants could result in an event of default which, if not cured or waived, could result in the acceleration of all of our indebtedness, which would materially adversely affect our financial health if we are unable to access sufficient funds to repay all of the outstanding amounts.

As long as our indebtedness remains outstanding, the restrictive covenants and mandatory prepayment provisions could impair our ability to expand or pursue our business strategies or obtain additional funding.

We may not be able to fund our future capital requirements or strategic acquisitions from our operations, and financing from other sources may not be available on favorable terms or at all.

We made capital expenditures of approximately \$5.8 million and \$6.1 million for the three months period ended three months ended March 29, 2019 and March 30, 2018, respectively, which primarily related to our investment in our manufacturing facilities in the United States, China and Korea. The amount of our future capital requirements will depend on many factors, including:

- the cost required to ensure appropriate IT systems;
- the cost required to ensure access to adequate manufacturing capacity;
- the timing and extent of spending to support product development efforts;
- the timing of introductions of new products and enhancements to existing products;
- the timing, size and availability of strategic transactions we may enter into;
- the cost required to integrate our acquisitions into our business, including into our ERP system;
- changing manufacturing capabilities to meet new or increased customer requirements;
- market acceptance of our products; and
- an ability to generate sufficient cash flow from our operating activities.

We regularly consider opportunities for strategic acquisitions. On August 27, 2018, we completed the acquisition of QGT for approximately \$340.8 million in cash consideration, subject to certain post-closing adjustments, and we may pay up to \$15.0 million in earn-out payments if QGT achieves certain specified revenue levels through December 27, 2019. In connection with our acquisition of QGT, we borrowed a total of \$350.0 million under our term loan B facility with Barclays, which was used to finance the acquisition of QGT and, along with existing cash, repay the total outstanding amount under our prior credit facility. And on April 15, 2019, we

also acquired substantially all of the assets of DMS for approximately \$30.0 million in cash, subject to certain post-closing adjustments, and we may pay up to \$12.5 million in additional cash earn-out if the combined weldment business achieves certain gross profit and gross margin targets for the twelve months ending June 26, 2020. We drew \$15.0 million from our available Revolving Credit Facility to finance this acquisition.

In order to finance our capital expenditures or any future strategic acquisitions, we may need to raise additional funds through public or private equity or debt financing, but such financing may not be available on terms satisfactory to us, or at all. Access to capital markets has, in the past, been unavailable to companies such as ours. In addition, equity financings could be dilutive to holders of our common stock, and debt financings would likely involve additional covenants that restrict our business operations. Any potential strategic acquisition or significant capital expenditure may also require the consent of our existing lenders. If we cannot raise funds on acceptable terms if and when needed, we may not be able to develop or enhance our products, take advantage of future opportunities, including potential acquisitions, grow our business or respond to competitive pressures or unanticipated requirements, any of which could adversely affect our business, operating results and financial condition.

Our quarterly revenue and operating results fluctuate significantly from period to period, and this may cause volatility in our common stock price.

Our quarterly revenue and operating results, including our gross margin, have fluctuated significantly in the past, and we expect them to continue to fluctuate in the future for a variety of reasons which may include:

- demand for and market acceptance of our products and services as a result of the cyclical nature of the industries we serve or otherwise, often resulting in reduced sales during industry downturns and increased sales during periods of industry recovery or growth;
- overall economic conditions;
- changes in the timing and size of orders by our customers;
- loss of business from one or more significant customers due to strategic decisions by our customers to terminate their outsourcing relationship with us or give market share to our competitors, or due to decreased demand for our customers' products by end customers;
- strategic consolidation by our customers;
- cancellations and postponements of previously placed orders;
- pricing pressure from either our competitors or our customers, resulting in the reduction of our product or service prices, margins or loss of market share;
- disruptions or delays in the manufacturing of our products or in the supply of components or raw materials that are incorporated into or used to manufacture our products or provide our services, thereby causing us to delay the shipment of products;
- decreased margins for several or more quarters following the introduction of new products or services, especially as we introduce new subsystems;
- delays in ramp-up in production, low yields or other problems experienced at our manufacturing facilities in China or Singapore;
- changes in design-to-delivery cycle times;
- inability to reduce our costs quickly in step with reductions in our prices or in response to decreased demand for our products;
- changes in our mix of products sold or services;
- write-offs of excess or obsolete inventory due to a customer's bankruptcy or insolvency;
- one-time expenses or charges associated with failed acquisition negotiations or completed acquisitions;
- inability to control our operating costs consistent with target levels;
- announcements by our competitors of new products, services or technological innovations, which may, among other things, render our products less competitive; and
- geographic mix of customer orders or worldwide earnings.

As a result of the foregoing, we believe that quarter-to-quarter comparisons of our revenue and operating results may not be meaningful and that these comparisons may not be an accurate indicator of our future performance. Changes in the timing or terms of a small number of transactions could disproportionately affect our operating results in any particular quarter. Moreover, our operating results in one or more future quarters may fail to meet our guidance or the expectations of securities analysts or investors. If this occurs, we would expect to experience an immediate and significant decline in the trading price of our common stock.

We have established and, as markets will allow, intend to expand our operations in Asia and Europe, which exposes us to risks associated with operating in foreign countries.

We generated approximately 53.9% and 57.5% of our revenues in international markets for the three months ended March 29, 2019 and March 30, 2018, respectively. Depending on market conditions, we intend to further expand our operations in Asia and Europe. Through our acquisition of QGT, we expanded our operations to several regions outside of the United States, including in South Korea, Taiwan, Ireland, Scotland and Israel, and increased our operations in China and Singapore. The carrying amount of our fixed assets in Asia and Europe were \$80.1 million and \$2.6 million, respectively as of March 29, 2019.

We are exposed to political, economic, legal and other risks associated with operating in Asia and Europe, including:

- foreign currency exchange fluctuations;
- political, civil and economic instability;
- restrictive governmental actions, such as restrictions on the transfer or repatriation of funds and foreign investments and trade protection measures, including increasing protectionism, import/export restrictions, import/export duties and quotas, trade sanctions and customs duties and tariffs, all of which could increase under the current or future U.S. administration;
- uncertainty regarding social, political and trade policies in the United States and abroad;
- timing and availability of export licenses;
- disruptions to our and our customers' operations due to increased risk of outbreak of diseases, such as SARS and avian flu;
- disruptions in operations due to China's developing domestic infrastructure, including transportation and energy;
- difficulties in developing relationships with local suppliers;
- difficulties in attracting new international customers;
- difficulties in conducting due diligence with respect to business partners in certain international markets;
- difficulties in accounts receivable collections;
- difficulties in staffing and managing distant international subsidiary and branch operations;
- the burden of complying with foreign and international laws and treaties;
- legal systems potentially subject to undue influence or corruption; and
- potentially adverse tax consequences, including restrictions on the repatriation of earnings to the United States.

Negative or uncertain global conditions could prevent us from accurately forecasting demand for our products and services which could adversely affect our results of operations. In addition, due to generally lower labor and materials costs in the Asian markets in which we currently operate, a shift in the mix of orders from our customers away from such Asian markets or from low cost Asian markets, such as China, to higher cost Asian markets, such as Singapore, could adversely affect our operating margins.

Our operations in Asia and Europe are also subject us to U.S. laws governing the export of equipment. These laws are complex and require us to obtain clearances for the export to Asia and Europe of certain equipment. We may fail to comply with these laws and regulations, which could require us to cease the export of certain equipment and expose us to fines or penalties.

Over the past several years, the Chinese government has pursued economic reform policies, including the encouragement of private economic activity and greater economic decentralization. The Chinese government may not continue these policies or may significantly alter them to our detriment from time to time without notice. Changes in laws and regulations or their interpretation, the imposition of confiscatory taxation policies, new restrictions on currency conversion or limitations on sources of supply could materially and adversely affect our Chinese operations, which could result in the partial or total loss of our investment in that country and materially and adversely affect our future operating results.

A significant legal risk associated with conducting business internationally is compliance with the various and differing laws and regulations, including anti-corruption and anti-bribery laws and regulations, of the countries in which we do business, antitrust and competition laws, data privacy laws and export regulations. In addition, the laws in various countries are constantly evolving and may, in some cases, conflict with each other. Although our Code of Business Conduct and Ethics and other policies prohibit us, our employees and our agents from engaging in unethical business practices, there can be no assurance that all of our employees or agents will refrain from acting in violation of our related anti-corruption policies and procedures. Any such violation could have a material adverse effect on our business.

Business practices in Asia may entail greater risk and dependence upon the personal relationships of senior management than is common in North America, and therefore some of our agreements with other parties in South Korea and China could be difficult or impossible to enforce.

Through our acquisition of QGT, we have expanded our business activities in Asia. The business culture in parts of Asia is, in some respects, different from the business cultures in Western countries. Personal relationships among business principals of companies and business entities in Asia are very significant in their business cultures. In some cases, because so much reliance is based upon personal relationships, written contracts among businesses in Asia may be less detailed and specific than is commonly accepted for similar written agreements in Western countries. In some cases, material terms of an understanding are not contained in the written agreement but exist only as oral agreements. In addition, in contrast to the Western business environment where a written agreement specifically defines the terms, rights and obligations of the parties in a legally-binding and enforceable manner, the parties to a written agreement in Asia may view that agreement more as a starting point for an ongoing business relationship which will evolve and undergo ongoing modification over time. As a result, any contractual arrangements we enter into with a counterparty in Asia may be more difficult to enforce.

We could be adversely affected by risks associated with joint ventures, including those in the Asian markets.

From time to time, we may seek to expand our business through investments in joint ventures with complementary businesses, technologies, services or products, subject to our business plans and management's ability to identify, acquire and develop suitable investments or acquisition targets in both new and existing market categories and geographic markets. Our investments in joint ventures are subject to a number of risks, including many of those described for acquisitions above under Risk Factors—"Acquisitions could result in operating and integration difficulties, dilution, margin deterioration, diversion of management's attention, and other consequences that may adversely impact our business and results of operations." In particular, at the closing of the QGT acquisition, we indirectly became a party to QGT's joint venture with Cinos Co., Ltd. ("Cinos") and Cinos Xi'an in South Korea and China, which is our first experience with a joint venture. There can be no assurances that the joint ventures will be successful. The success of the joint ventures will require significant management and capital resources and there can be no assurances that such resources will be available. Operations at the joint ventures could expose us to increased risks inherent in such activities, such as protection of our intellectual property, economic and political stability, labor matters, language and cultural differences; contractual enforcement issues; and the need to manage product development, operations and sales activities that are located a long distance from our headquarters and have historically been centralized with local management. In addition, from time to time in the future, our joint venture partners may have economic or business interests or goals that are different from ours. Furthermore, our joint venture with Cinos will require us to make purchases of equity from time to time up to specified amounts. If each joint venture business does not progress according to our plans and anticipated timing, our investment in the joint ventures may not be successful.

The industries in which we participate are highly competitive and rapidly evolving, and if we are unable to compete effectively, our operating results will be harmed.

We face intense competition from subsystem and component manufacturers in the industries we serve. Increased competition has in the past resulted, and could in the future result, in price reductions, reduced gross margins or loss of market share, any of which would harm our operating results. We are subject to significant pricing pressure as we attempt to maintain and increase market share with our existing customers. Competitors may offer reduced prices or introduce new products for the markets currently served by our products. These products may have better performance, lower prices and achieve broader market acceptance than our products. Further, OEMs typically own the design rights to their products and may provide these designs to other subsystem manufacturers. If our competitors obtain proprietary rights to these designs such that we are unable to obtain the designs necessary to manufacture products for our OEM customers, our business, financial condition and operating results could be adversely affected. The cleaning and analytical process are proprietary to QuantumClean and ChemTrace, respectively, and are subject to less risk of from cleaning, coating and analytics competitors. OEMs are looking to increase their maintenance services and could create proprietary cleaning processes with competitors, limiting our ability to compete for future business.

Our competitors may have greater financial, technical, manufacturing and marketing resources than we do. As a result, they may be able to respond more quickly to new or emerging technologies and changes in customer requirements, devote greater resources to the development, promotion, sale and support of their products and services, and reduce prices to increase market share. Moreover, there may be merger and acquisition activity among our competitors and potential competitors that may provide our competitors and

potential competitors an advantage over us by enabling them to expand their product offerings and service capabilities to meet a broader range of customer needs. Further, if one of our customers develops or acquires the internal capability to develop and produce critical subsystems that we produce, or cleaning, coating and analytical services we provide, the loss of that customer could have a material adverse effect on our business, financial condition and operating results. The introduction of new technologies and new market entrants may also increase competitive pressures.

If our new products are not accepted by OEMs or other customers or if we are unable to obtain historical margins on our new products, our operating results would be adversely impacted.

We design, develop and market critical subsystems and proprietary cleaning, coating and analytical services to OEMs, IDMs and other customers. The introduction of new products and processes is inherently risky because it is difficult to foresee the adoption of new standards, coordinate our technical personnel and strategic relationships and win acceptance of new products by OEMs, IDMs and other customers. We may not be able to recoup design and development expenditures if our new products are not accepted by OEMs, IDMs or other customers. Newly introduced products typically carry lower gross margins than existing products for several or more quarters following their introduction. If any of our new systems or subsystems are not successful in the market, or if we are unable to obtain gross margins on new products that are similar to the gross margins we have historically achieved, our business, operating results and financial condition could be adversely affected.

Our business may be adversely affected by information technology, disruptions, including by impairing our ability to effectively deliver our products or services, which could cause us to lose customers and harm our results of operations.

The manufacture and delivery of our products, the provision of our services and our financial reporting depends on the continuing operation of our technology infrastructure and systems, particularly our data center located in California. Any damage to or failure of our systems could result in interruptions in our ability to manufacture or deliver products or services on agreed upon lead times, or at all, on a local or worldwide basis, or adversely affect our impact to accurately and timely report our financial results. Interruptions could reduce our sales and profits, and our reputation could be damaged if people believe our systems are unreliable. Our systems and operations are vulnerable to damage or interruption from earthquakes, terrorist attacks, floods, fires, power loss, hardware or software failures, telecommunications failures, cybersecurity attacks, and similar events. Some of the critical components of our system are not redundant and we currently do not have a backup data center. Accordingly, the risk associated with such events beyond our control is heightened.

Cybersecurity attacks, in particular, are evolving and include, but are not limited to, malicious software, attempts to gain unauthorized access to data, and other electronic security breaches that could lead to disruptions in systems, unauthorized release of confidential or otherwise protected information and corruption of data (our own or that of third parties). Although we have adopted certain measures to mitigate potential risks to our systems from information technology-related disruptions, given the unpredictability of the timing, nature and scope of such disruptions, we could potentially be subject to production downtimes, operational delays, other detrimental impacts on our operations or ability to provide products and services to our customers, the compromising of confidential or otherwise protected information, misappropriation, destruction or corruption of data, security breaches, other manipulation or improper use of our systems or networks, financial losses from remedial actions, loss of business or potential liability, and/or damage to our reputation, any of which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

If we experience frequent or persistent system failures, the attractiveness of our products or services to customers could be permanently harmed. Any steps we take to increase the reliability and redundancy of our systems may be expensive, reduce our operating margin and may not be successful in reducing the frequency or duration of unscheduled interruptions.

If we were required to write down all or part of our goodwill, our net income and net worth could be materially adversely affected.

We had \$150.2 million of goodwill recorded on our consolidated balance sheet as of March 29, 2019. Goodwill represents the excess of cost over the fair market value of net tangible and finite lived, identifiable intangible assets acquired in business combinations. If our market capitalization drops significantly below the amount of net equity recorded on our balance sheet, it could indicate a decline in our value and would require us to further evaluate whether our goodwill has been impaired. During the fourth quarter of each year, we perform an annual review of our goodwill to determine if it has become impaired. We also evaluate goodwill for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. If we were required to write down all or a significant part of our goodwill, our financial results and net worth could be materially adversely affected.

Our business is largely dependent on the know-how of our employees, and we generally do not have an intellectual property position that is protected by patents.

Our business is largely dependent upon our design, engineering, manufacturing, chemical processing, analytical and testing know-how. We rely on a combination of trade secrets and contractual confidentiality provisions and, to a much lesser extent, patents, copyrights and trademarks to protect our proprietary rights. Confidentiality agreements with our employees and others may not adequately prevent disclosure of trade secrets and other proprietary information. Accordingly, our intellectual property position is

more vulnerable than it would be if it were protected primarily by patents. If we fail to protect our proprietary rights successfully, our competitive position could suffer, which could harm our operating results. We may be required to spend significant resources to monitor and protect our proprietary rights, and, in the event infringement or breach of our proprietary rights occurs, our competitive position in the market may be harmed. In addition, competitors may design around our technology or develop competing technologies and know-how. Further, since our customers generally own the designs and other intellectual property to the products we manufacture, we cannot prevent them from licensing such designs and other intellectual property to our competitors for the manufacture of such products.

Third parties have claimed and may in the future claim we are infringing their intellectual property, which could subject us to litigation or licensing expenses, and we may be prevented from selling our products if any such claims prove successful.

We have in the past and may in the future receive claims that our products, processes or technologies infringe the patents or other proprietary rights of third parties. In addition, we may be unaware of intellectual property rights of others that may be applicable to our products. Any litigation regarding our patents or other intellectual property could be costly and time-consuming and divert the attention of our management and key personnel from our business operations, any of which could have a material adverse effect on our business and results of operations. The complexity of the technology involved in our products and the uncertainty of intellectual property litigation increase these risks. Claims of intellectual property infringement may also require us to enter into costly license agreements. However, we may not be able to obtain licenses on terms acceptable to us, or at all. We also may be subject to significant damages or injunctions against the development, manufacture and sale of certain of our products if any such claims prove successful. We also rely on design specifications and other intellectual property of our customers in the manufacture of products for such customers. While our customer agreements generally provide for indemnification of us by our customers if we are subjected to litigation for third-party claims of infringement of such intellectual property, such indemnification provisions may not be sufficient to fully protect us from such claims, or our customers may breach such indemnification obligations to us, which could result in costly litigation to defend against such claims or enforce our contractual rights to such indemnification.

If we do not keep pace with developments in the industries we serve and with technological innovation generally, our products may not be competitive.

Rapid technological innovation in the markets we serve requires us to anticipate and respond quickly to evolving customer requirements and could render our current product or service offerings and technology obsolete. Technological innovations are inherently complex. We must devote resources to technology development in order to keep pace with such rapidly evolving technologies. We believe that our future success will depend upon our ability to design, engineer and manufacture products and services that meet the changing needs of our customers. This requires that we successfully anticipate and respond to technological changes in design, engineering and manufacturing processes, as well as cleaning and analytical processes, in a cost-effective and timely manner. If we are unable to integrate new technical specifications into competitive product and service designs, develop the technical capabilities necessary to manufacture new products or provide new services or make necessary modifications or enhancements to existing products or services, our business prospects could be harmed.

The timely development of new or enhanced products and services is a complex and uncertain process which requires that we:

- design innovative and performance-enhancing features that differentiate our products and services from those of our competitors;
- identify emerging technological trends in the industries we serve, including new standards for our products and services;
- accurately identify and design new products and services to meet market needs;
- collaborate with OEMs to design and develop products and IDMs to design and develop services on a timely and cost-effective basis;
- ramp-up production of new products, especially new subsystems, in a timely manner and with acceptable yields at acceptable costs;
- successfully manage development production cycles; and
- respond effectively to technological changes or product or service announcements by others.

If we are unsuccessful in keeping pace with technological developments for the reasons above or other reasons, our business prospects, results of operations and financial condition could be materially and adversely affected.

We must achieve design wins to retain our existing customers and to obtain new customers.

New capital equipment typically has a lifespan of several years, and OEMs frequently specify which systems, subsystems, components and instruments are to be used in their equipment. Once a specific system, subsystem, component or instrument is incorporated into a piece of capital equipment, it will likely continue to be incorporated into that piece of equipment for at least

several months before the OEM would be in a position to switch to the product of another supplier. IDMs typically establish cleaning, coating, and analytical services as they develop and qualify new chip designs for production. Once a cleaned or coated part has been qualified, the associated refurbishment processes are likely to continue to be used. Accordingly, it is important that our products are designed into the new capital equipment of OEMs and new chip designs, which we refer to as a design win, in order to retain our competitive position with existing customers and to obtain new customers.

We incur technology development and sales expenses with no assurance that our products will ultimately be designed into an OEM's capital equipment. Further, developing new customer relationships, as well as maintaining and increasing our market share with existing customers, requires a substantial investment of our sales, engineering and management resources without any assurance from prospective customers that they will place significant orders. We believe that OEMs and IDMs often consider long-term relationships in selecting and placing orders with suppliers. Accordingly, we may have difficulty achieving design wins from OEMs and IDMs that are not currently our customers. Our operating results and potential growth could be adversely affected if we fail to achieve design wins with leading OEMs and IDMs.

Defects in our products could damage our reputation, decrease market acceptance of our products, cause the unintended release of hazardous materials, and result in potentially costly litigation, indemnification liability or unexpected warranty claims.

A number of factors, including design flaws, material and component failures, workmanship issues, contamination in the manufacturing, cleaning, coating or analytical environment, impurities in the materials or chemicals used and unknown sensitivities to process conditions, such as temperature and humidity, as well as equipment failures, may cause our products to contain undetected errors or defects. Problems with our products may:

- cause delays in product introductions and shipments for us or our customers;
- result in increased costs and diversion of development resources;
- cause us to incur increased charges due to unusable inventory;
- require design modifications;
- result in liability for the unintended release of hazardous materials or other damages to our or our customers' property;
- create claims for rework, replacement and/or damages under our contracts with customers, as well as indemnification claims from customers;
- decrease market acceptance of, or customer satisfaction with, our products, which could result in decreased sales and product returns; or
- result in lower yields for semiconductor manufacturers.

If any of our products contain defects or have reliability, quality or compatibility problems, our reputation might be damaged and customers might be reluctant to buy our products or services. We may also face a higher rate of product defects as we increase our production levels. Product defects could result in warranty and indemnification liability, the loss of existing customers or impair our ability to attract new customers. In addition, we may not find defects or failures in our products until after they are installed in a manufacturer's fabrication facility. We may have to invest significant capital and other resources to correct these problems. Our current or potential customers also might seek to recover from us any losses resulting from defects or failures in our products. Hazardous materials flow through and are controlled by our products and an unintended release of these materials could result in serious injury or death. Liability claims could require us to spend significant time and money in litigation or pay significant damages or indemnification claims.

Fluctuations in currency exchange rates may adversely affect our financial condition and results of operations.

Majority of our international revenues are denominated in U.S. dollars. Many of the costs and expenses associated with our international operations are paid in foreign currencies, including Chinese Renminbi, Singapore dollars, Japanese Yen, South Korean won and Euro and we expect our exposure to these foreign currencies to increase as we increase production in those facilities. Changes in exchange rates among other currencies in which our revenue or costs are denominated and the U.S. dollar may affect our revenue, cost of sales and operating margins.

The Company uses derivative instruments, such as foreign currency forward contracts, to hedge certain exposures to fluctuations in foreign currency exchange rates. The use of such hedging activities may not offset any, or more than a portion, of the adverse financial effects of unfavorable movements in foreign exchange rates over the limited time the hedges are in place.

The market for our stock is subject to significant fluctuation.

The size of our public market capitalization is relatively small, and the average volume of our shares that are traded is relatively low. The market price of our common stock could be subject to significant fluctuations. Among the factors that could affect our stock price are:

- quarterly variations in our operating results;
- our ability to successfully introduce new products and services and manage new product transitions;
- changes in revenue or earnings estimates or publication of research reports by analysts;
- speculation in the press or investment community;
- strategic actions by us, our customers or our competitors, such as acquisitions or restructurings;
- announcements relating to any of our key customers, significant suppliers or the semiconductor manufacturing and capital equipment industry generally;
- general market conditions;
- the effects of war and terrorist attacks; and
- domestic and international economic or political factors unrelated to our performance.

The stock markets in general, and the markets for technology stocks in particular, have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. These broad market fluctuations may adversely affect the trading price of our common stock.

The technology labor market is very competitive, and our business will suffer if we are unable to effectively hire, promote and retain key personnel.

Our future success depends in part on the continued service of our key executive officers, as well as our research, engineering, sales, manufacturing and administrative personnel, most of whom are not subject to employment or non-competition agreements. In addition, competition for qualified personnel in the technology industry is intense, and we operate in geographic locations in which labor markets are particularly competitive.

Our business is particularly dependent on expertise which only a limited number of engineers possess. The loss of any of our key employees and officers, including our Chief Executive Officer, our Chief Financial Officer, any of our Executive or Senior Vice Presidents or any of our other senior managers, or the failure to attract, promote and retain qualified employees, could adversely affect our business, operating results and financial condition.

Management transition also creates uncertainties and could harm our business. Disruption to our organization as a result of executive management transition could divert the executive management's attention away from certain key areas of our business and have a material adverse effect on our business, financial condition and results of operations.

The challenges of employee retention has also increased during the integration process with the companies we have acquired because of the necessity of combining personnel with varied business backgrounds and combining different corporate cultures and objectives, and several acquired employees, including members of the acquired companies' senior management, have left our company. The process of integrating operations and making such adjustments could cause an interruption of, or loss of momentum in, the activities of one or more of our businesses and the loss of key personnel. Employee uncertainty, lack of focus or turnover during the integration process may also disrupt our businesses.

If we fail to maintain an effective system of internal controls, we might not be able to report our financial results accurately or prevent fraud; in that case, our stockholders could lose confidence in our financial reporting, which would harm our business and could negatively impact the price of our stock.

Effective internal controls are necessary for us to provide reliable financial reports and prevent fraud. In addition, Section 404 of the Sarbanes-Oxley Act of 2002 requires us and our independent registered public accounting firm to evaluate and report on our internal control over financial reporting. The process of designing, implementing, maintaining and updating our internal controls and complying with Section 404 is expensive and time consuming, and requires significant attention from management and company resources. In addition, following the expiration of applicable grace periods, we are required to evaluate and report on the internal controls of the companies we acquire, and the attestation report we are required to obtain from our independent registered public accounting firm must include the internal control over financial reporting of the companies we acquire. Integrating acquired

companies' internal control frameworks into the Company and upgrading acquired companies' controls to comply with the Sarbanes-Oxley Act has required and will require substantial resources, and we cannot assure you that we will be able to successfully or effectively maintain adequate controls over our financial processes at our acquired companies, or for our consolidated business. In addition, even though we have concluded, and our independent registered public accounting firm has concurred, that our internal control over financial reporting provide s reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles as of December 28, 2018, because of its inherent limitations may not be effective as of future periods. Failure to maintain existing or implement new or improved controls, or difficulties encountered in their implementation, could harm our results of operations or cause us to fail to meet our reporting obligations. If we or our independent registered public accounting firm discover a material weakness, the disclosure of that fact, even if quickly remedied, could reduce the market's confidence in our financial statements and harm our stock price.

If environmental contamination were to occur in one of our production facilities, we could be subject to substantial liabilities.

We use substances regulated under various foreign, domestic, federal, state and local environmental laws and regulations in our facilities. In addition, we may not be aware of or in compliance with all environmental laws or regulations that could subject us to liability in the U.S. or internationally. Our failure or inability to comply with existing or future environmental requirements could result in significant remediation and other liabilities, the imposition of fines or the suspension or termination of the production of our services or products, and thus a material adverse impact on our business.

Our business is subject to the risks of earthquakes, fire, power outages, floods, and other catastrophic events, and to interruption by man-made disruptions, such as terrorism.

Our facilities could be subject to a catastrophic loss caused by natural disasters, including fires and earthquakes. We have facilities in areas with above average seismic activity, such as our facilities in South San Francisco, California, Hayward, California and our Taiwan facilities in Hsinchu and Tainan. If any of our facilities were to experience a catastrophic loss, it could disrupt our operations, delay production and shipments, reduce revenue and result in large expenses to repair or replace the facility. In addition, we have in the past experienced, and may in the future experience, fires and extended power outages at our facilities, such as the fire that occurred at a plant operated by our joint venture, Cinos, in Balan, Republic of Korea, which we announced on September 19, 2018. We do not carry insurance policies that cover potential losses caused by earthquakes or other natural disasters or power loss.

In addition, disruption in supply resulting from natural disasters or other casualties or catastrophic events, such as earthquakes, severe weather such as storms or floods, fires, labor disruptions, power outages, terrorist attacks or political unrest, may result in certain of our suppliers being unable to deliver sufficient quantities of components or raw materials at all or in a timely manner, disruptions in our operations or disruptions in our customers' operations. For example, in 2011, the northern region of Japan experienced a severe earthquake followed by a tsunami. These geological events caused significant damage in that region and adversely affected Japan's infrastructure and economy. Some of our suppliers are located in Japan and they experienced, and may experience in the future, shutdowns or disruptions as a result of these types of events, and their operations may be negatively impacted by these events. Many of our customers and suppliers are also located in California, and may be subject to the same risk of seismic activity as described for us above.

To the extent that natural disasters or other calamities or casualties should result in delays or cancellations of customer orders, or the delay in the manufacture or shipment of our products or services, our business, financial condition and operating results would be adversely affected.

Changes in tax rates or tax assets and liabilities could affect results of operations.

As a global company, we are subject to taxation in the United States and various other countries. Significant judgment is required to determine and estimate worldwide tax liabilities. Our future annual and quarterly tax rates could be affected by numerous factors, including changes in the: (1) applicable tax laws; (2) amount and composition of pre-tax income in countries with differing tax rates; or (3) valuation of our deferred tax assets and liabilities.

On December 22, 2017, the Tax Cuts and Jobs Act ("TCJA") was signed into law. The TCJA contains significant changes to corporate taxation, including reduction of the corporate tax rate from 35% to 21%, additional limitations on the tax deductibility of interest, substantial changes to the taxation of foreign earnings, immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modification or repeal of many business deductions and credits. The Company has made reasonable estimates of the financial impact of the TCJA on the Company. However, the estimates are provisional and a change in estimate can have an impact on our results of operations, cash flows and financial conditions, as well as the trading price of our Common Stock. UCT will continue to analyze the effects of the TCJA on its financial statements and operations. Additional impacts from the enactment of the TCJA will be recorded as they are identified during the one-year measurement period as provided for in SEC Staff Accounting Bulletin 118.

In addition, we are subject to regular examination by the Internal Revenue Service and other tax authorities, and from time to time we initiate amendments to previously filed tax returns. We regularly assess the likelihood of favorable or unfavorable outcomes resulting from these examinations and amendments to determine the adequacy of our provision for income taxes, which requires estimates and judgments. Although we believe our tax estimates are reasonable, there can be no assurance that the tax authorities will agree with such estimates. We may have to engage in litigation to achieve the results reflected in the estimates, which may be time-consuming and expensive. There can be no assurance that we will be successful or that any final determination will not be materially different from the treatment reflected in our historical income tax provisions and accruals, which could materially and adversely affect our financial condition and results of operations.

Certain regulations related to conflict minerals could adversely impact our business.

The Dodd-Frank Wall Street Reform and Consumer Protection Act contains provisions to improve transparency and accountability concerning the supply of certain minerals, known as conflict minerals, originating from the Democratic Republic of Congo (DRC) and adjoining countries. As a result, in August 2012 the SEC adopted annual disclosure and reporting requirements for those companies who use conflict minerals mined from the DRC and adjoining countries in their products. These requirements require us to perform ongoing due diligence efforts on our supply chain and require public disclosure of the nature and results of these efforts. We filed our most recent conflict minerals report on Form SD on May 30, 2018 reporting that we could not yet determine whether the conflict minerals we source were, directly or indirectly, used to finance or benefit armed groups in the Covered Countries. There have been and there will be costs associated with complying with these disclosure requirements to determine the sources of conflict minerals used in our products and other potential changes to products, processes or sources of supply as a consequence of such verification activities. Complying with these rules could adversely affect the sourcing, supply and pricing of materials used in our products and result in substantial additional costs. As there may be only a limited number of suppliers offering “conflict free” conflict minerals, we cannot be sure that we will be able to obtain necessary conflict minerals from such suppliers in sufficient quantities or at competitive prices. Also, we may face reputational challenges if we determine that certain of our products contain minerals not determined to be conflict free or if we are unable to sufficiently verify the origins for all conflict minerals used in our products through the procedures we may implement. In addition, there is uncertainty about the future of the regulations related to conflict minerals as a result of legal challenges and statements by the SEC. If we are unable to comply with these rules, we could be subject to enforcement actions by the Securities and Exchange Commission and liability under the Securities Exchange Act of 1934, as amended, which could result in material adverse consequences to our business, as well as significant fines and penalties.

If securities or industry analysts do not publish research or reports about our business, or if they issue an adverse opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock is influenced by the research and reports that industry or securities analysts publish about us or our business. If any of the analysts who cover us issue an adverse opinion regarding our stock, our stock price would likely decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

We do not currently intend to pay dividends on our common stock and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of our common stock.

We do not intend to declare and pay dividends on our capital stock for the foreseeable future. We currently intend to invest our future earnings, if any, to fund our growth. Additionally, the terms of our credit agreement also restrict our ability to pay dividends. Therefore, you are not likely to receive any dividends on your common stock for the foreseeable future.

From time to time, we may become involved in other litigation and regulatory proceedings, which could require significant attention from our management and result in significant expense to us and disruptions to our business.

In addition to any litigation related to our intellectual property rights, we may in the future be named as a defendant from time to time in other lawsuits and regulatory actions relating to our business, such as commercial contract claims, environmental compliance claims, employment claims and tax examinations, some of which may claim significant damages or cause us reputational harm. Due to the inherent uncertainties of litigation and regulatory proceedings, we cannot predict the ultimate outcome of any such proceeding. An unfavorable outcome could have a material adverse effect on our business, financial condition and results of operations or limit our ability to engage in certain of our business activities. In addition, regardless of the outcome of any litigation or regulatory proceeding, such proceedings are often expensive, time-consuming and disruptive to normal business operations and require significant attention from our management. As a result, any such lawsuits or proceedings could materially adversely affect our business, financial condition and results of operations.

ITEM 2. Unregistered Sales of Equity Securities and Use of Proceeds

None.

ITEM 3. Defaults Upon Senior Securities

None.

ITEM 4. Mine Safety Disclosures

Not Applicable.

ITEM 5. Other Information

None.

ITEM 6. Exhibits

(a) Exhibits

The following exhibits are filed with this quarterly Report on Form 10-Q for the quarter ended March 29, 2019:

Exhibit Number	Description
10.1*	Offer Letter between Ultra Clean Holdings, Inc. and Vijay Chinnasami dated December 17, 2018
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of the Chief Executive Officer and the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Calculation Linkbase Document
101.DEF	XBRL Taxonomy Definition Linkbase Document
101.LAB	XBRL Taxonomy Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* Incorporated by reference from Exhibit 99.1 to the Company's Current Report on Form 8-K filed with the SEC on March 28, 2019.

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.

Date: May 8, 2019

ULTRA CLEAN HOLDINGS, INC.
(Registrant)

By: /S/ JAMES P. SCHOLHAMER
Name: **James P. Scholhamer**
Title: **Chief Executive Officer**
(Principal Executive Officer and duly authorized signatory)

Date: May 8, 2019

By: /S/ SHERI SAVAGE
Name: **Sheri Savage**
Title: **Chief Financial Officer, Senior Vice President and Secretary**
(Principal Financial and Accounting Officer and duly authorized signatory)

CERTIFICATION

I, James P. Scholhamer, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Ultra Clean Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent 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: May 8, 2019

/s/ JAMES P. SCHOLHAMER

James P. Scholhamer
Chief Executive Officer

CERTIFICATION

I, Sheri Savage, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Ultra Clean Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent 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: May 8, 2019

/s/ SHERI SAVAGE

Sheri Savage

Chief Financial Officer and Senior Vice President of Finance

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

The certification set forth below is being submitted in connection with the Quarterly Report on Form 10-Q (the “Report”) of Ultra Clean Holdings, Inc. (the “Company”) for the purpose of complying with Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934 (the “Exchange Act”) and Section 1350 of Chapter 63 of Title 18 of the United States Code.

James P. Scholhamer, the Chief Executive Officer and Sheri Savage, the Chief Financial Officer of the Company, each certifies that, to the best of his or her knowledge:

- (1) the Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 8, 2019

/s/ JAMES P. SCHOLHAMER

James P. Scholhamer
Chief Executive Officer

Date: May 8, 2019

/s/ SHERI SAVAGE

Sheri Savage
Chief Financial Officer and Senior Vice President of Finance