UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

Form 10-Q

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

For the quarterly period ended July 2, 2018

Commission File Number: 0-31285

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

DELAWARE	**91-1033443**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

1665 Scenic Avenue Suite 250, Costa Mesa, California 92626
(Address of principal executive offices)

(714) 327-3000
(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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. Check one:

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐ (Do not check if a smaller reporting company)	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 ☒

Number of shares of common stock, $0.001 par value, of registrant outstanding at August 1, 2018: 103,674,563

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PART I. FINANCIAL INFORMATION

Item 1. ***Financial Statements (unaudited)***

TTM TECHNOLOGIES, INC.

Consolidated Condensed Balance Sheets

	As of	
	July 2, 2018	January 1, 2018
	(Unaudited) (In thousands, except par value)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 204,100	$ 409,326
Accounts receivable, net	541,587	483,903
Contract assets	300,717	—
Inventories	121,285	294,588
Prepaid expenses and other current assets	34,950	33,490
Total current assets	1,202,639	1,221,307
Property, plant and equipment, net	1,072,578	1,056,845
Goodwill	758,849	372,571
Definite-lived intangibles, net	414,600	102,950
Deposits and other non-current assets	30,266	28,209
	$ 3,478,932	$ 2,781,882
LIABILITIES AND EQUITY		
Current liabilities:		
Short-term debt, including current portion of long-term debt	$ 40,729	$ 4,578
Accounts payable	448,455	497,455
Contract liabilities	7,680	—
Accrued salaries, wages and benefits	88,273	103,638
Other accrued expenses	104,139	114,685
Total current liabilities	689,276	720,356
Long-term debt, net of discount and issuance costs	1,555,425	975,479
Other long-term liabilities	92,938	74,667
Total long-term liabilities	1,648,363	1,050,146
Commitments and contingencies (Note 14)		
Equity:		
Common stock, $0.001 par value; 300,000 shares authorized, 103,674 and 101,820 shares issued and outstanding in 2018 and 2017, respectively	104	102
Additional paid-in capital	786,702	777,025
Retained earnings	315,975	193,342
Statutory surplus reserve	37,550	37,508
Accumulated other comprehensive income	962	3,403
Total stockholders' equity	1,141,293	1,011,380
	$ 3,478,932	$ 2,781,882

See accompanying notes to consolidated condensed financial statements.

TTM TECHNOLOGIES, INC.

Consolidated Condensed Statements of Operations
For the Quarter and Two Quarters Ended July 2, 2018 and July 3, 2017

	Quarter Ended		Two Quarters ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
	(Unaudited) (In thousands, except per share data)			
Net sales	$ 716,887	$ 627,182	$ 1,380,469	$ 1,252,429
Cost of goods sold	600,747	531,315	1,175,651	1,051,543
Gross profit	116,140	95,867	204,818	200,886
Operating expenses:				
Selling and marketing	18,619	15,851	36,247	32,506
General and administrative	46,298	29,050	81,486	58,932
Amortization of definite-lived intangibles	19,489	5,910	25,350	11,822
Total operating expenses	84,406	50,811	143,083	103,260
Operating income	31,734	45,056	61,735	97,626
Other income (expense):				
Interest expense	(20,453)	(12,922)	(34,200)	(26,518)
Other, net	6,178	(5,825)	5,071	(7,535)
Total other expense, net	(14,275)	(18,747)	(29,129)	(34,053)
Income before income taxes	17,459	26,309	32,606	63,573
Income tax benefit (provision)	66,545	(5,558)	61,495	(9,697)
Net income	84,004	20,751	94,101	53,876
Less: Net income attributable to the noncontrolling interest	—	(160)	—	(326)
Net income attributable to TTM Technologies, Inc. stockholders	$ 84,004	$ 20,591	$ 94,101	$ 53,550
Earnings per share attributable to TTM Technologies, Inc. stockholders:				
Basic earnings per share	$ 0.81	$ 0.20	$ 0.91	$ 0.53
Diluted earnings per share	$ 0.65	$ 0.18	$ 0.75	$ 0.46

See accompanying notes to consolidated condensed financial statements.

TTM TECHNOLOGIES, INC.

Consolidated Condensed Statements of Comprehensive Income
For the Quarter and Two Quarters Ended July 2, 2018 and July 3, 2017

	Quarter Ended		Two Quarters ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
	(Unaudited) (In thousands)			
Net income	$ 84,004	$ 20,751	$ 94,101	$ 53,876
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustments, net	(1,701)	12,019	(1,079)	18,638
Net unrealized gains (losses) on cash flow hedges:				
Unrealized (loss) gain on effective cash flow hedges during the period, net	(1,739)	96	(1,745)	164
Loss realized in the statement of operations	342	43	383	87
Net	(1,397)	139	(1,362)	251
Other comprehensive (loss) gain, net of tax	(3,098)	12,158	(2,441)	18,889
Comprehensive income, net of tax	80,906	32,909	91,660	72,765
Less: Comprehensive income attributable to the noncontrolling interest	—	(160)	—	(326)
Comprehensive income attributable to TTM Technologies, Inc. stockholders	$ 80,906	$ 32,749	$ 91,660	$ 72,439

See accompanying notes to consolidated condensed financial statements.

TTM TECHNOLOGIES, INC.

Consolidated Condensed Statements of Cash Flows
For the Two Quarters Ended July 2, 2018 and July 3, 2017

	Two Quarters ended	
	July 2, 2018	July 3, 2017
	(Unaudited) (In thousands)	
Cash flows from operating activities:		
Net income	$ 94,101	$ 53,876
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation of property, plant and equipment	80,073	72,223
Amortization of definite-lived intangible assets	25,350	11,822
Amortization of debt discount and issuance costs	6,358	5,304
Deferred income taxes	(64,769)	95
Stock-based compensation	9,489	8,628
Other	56	3,476
Changes in operating assets and liabilities, net of acquisition:		
Accounts receivable, net	(17,056)	(20,039)
Contract assets	(16,478)	—
Inventories	5,685	(13,273)
Prepaid expenses and other current assets	356	(3,529)
Accounts payable	(33,778)	10,509
Contract liabilities	(98)	—
Accrued salaries, wages and benefits and other accrued expenses	(47,911)	(20,394)
Net cash provided by operating activities	41,378	108,698
Cash flows from investing activities:		
Acquisition, net of cash acquired	(596,396)	—
Purchase of property, plant and equipment and equipment deposits	(81,338)	(87,106)
Proceeds from sale of property, plant and equipment and assets held for sale	251	18,102
Net cash used in investing activities	(677,483)	(69,004)
Cash flows from financing activities:		
Proceeds from incremental long-term borrowings	600,000	—
Repayment of long-term debt borrowing	(3,718)	(50,000)
Repayment of assumed long-term debt in acquisition	(178,604)	—
Proceeds from borrowings of revolving loan	23,000	—
Payment of debt issuance costs	(7,653)	—
Payment of original issue discount	(1,500)	—
Proceeds from exercise of stock options	192	74
Redemption of convertible notes	—	(15)
Net cash provided by (used in) financing activities	431,717	(49,941)
Effect of foreign currency exchange rates on cash and cash equivalents	(838)	917
Net decrease in cash and cash equivalents	(205,226)	(9,330)
Cash and cash equivalents at beginning of period	409,326	256,277
Cash and cash equivalents at end of period	$ 204,100	$ 246,947
Noncash transactions:		
Property, plant and equipment recorded in accounts payable	$ 54,369	$ 69,373

See accompanying notes to consolidated condensed financial statements.

(1) Nature of Operations and Basis of Presentation

TTM Technologies, Inc. (the Company or TTM) is a leading global printed circuit board (PCB) manufacturer, focusing on quick-turn and volume production of technologically complex PCBs and electro-mechanical solutions (E-M Solutions) as well as a global designer and manufacturer of high-frequency radio frequency (RF) and microwave components and assemblies. The Company provides time-to-market and volume production of advanced technology products and offers a one-stop manufacturing solution to customers from engineering support to prototype development through final mass production. This one-stop manufacturing solution enables the Company to align technology developments with the diverse needs of the Company's customers and to enable them to reduce the time required to develop new products and bring them to market.

The Company serves a diversified customer base in various markets throughout the world, including aerospace and defense, automotive components, smartphones and touchscreen tablets, high-end computing, medical, industrial and instrumentation related products, as well as networking/communications infrastructure products. The Company's customers include both original equipment manufacturers (OEMs) and electronic manufacturing services (EMS) providers.

The accompanying consolidated condensed financial statements have been prepared by the Company, without audit, pursuant to the rules and regulations of the Securities and Exchange Commission (SEC). Certain information and disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) have been condensed or omitted pursuant to such rules and regulations. These consolidated condensed financial statements reflect all adjustments (consisting only of normal recurring adjustments) which, in the opinion of management, are necessary to present fairly the financial position, the results of operations and cash flows of the Company for the periods presented. It is suggested that these consolidated condensed financial statements be read in conjunction with the consolidated financial statements and the notes thereto included in the Company's most recent Annual Report on Form 10-K. The results of operations for the interim periods are not necessarily indicative of the results to be expected for the full year. The preparation of financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the Company's consolidated condensed financial statements and accompanying notes. Actual results could differ materially from those estimates. The Company uses a 13-week fiscal quarter accounting period with the fourth quarter ending on the Monday nearest December 31.

Recently Adopted and Issued Accounting Standards

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)*, which replaces most existing revenue recognition guidance in U.S. GAAP, including industry specific requirements, and provides companies with a single revenue recognition model for recognizing revenue of contracts with customers. The core principle of the new revenue standard is that a company should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services.

The Company assessed the new guidance and adopted the new revenue standard on January 2, 2018, which resulted in a change to the timing of revenue recognition for certain of the Company's revenue streams from "point in time" upon physical delivery to an "over time" model. Additionally, the Company elected the cumulative effect transition method with adjustment to the opening balance of retained earnings at January 2, 2018 for all open contracts as of January 1, 2018. Therefore, comparative information has not been adjusted and continues to be reported under previous U.S. GAAP guidance for the consolidated balance sheet at January 1, 2018 and the consolidated condensed statement of operations for the quarter and two quarters ended July 3, 2017.

The cumulative effect of the changes made to the Company's January 2, 2018 consolidated condensed balance sheet for the adoption of the new revenue standard was as follows:

	Balance at January 1, 2018	New Revenue Standard Adjustment	Balance at January 2, 2018
		(In thousands)	
Balance Sheet			
Assets			
Accounts receivable, net	$ 483,903	$ 8,171	$ 492,074
Contract assets	—	260,654	260,654
Inventories	294,588	(223,576)	71,012
Liabilities			
Other accrued expenses	114,685	13,384	128,069
Other long-term liabilities	74,667	3,291	77,958
Equity			
Retained earnings	193,342	28,574	221,916

As part of adoption of the new revenue standard, the Company recorded an estimated sales returns and allowance as well as a noncurrent deferred tax liability in the amount of $5,213 and $3,291, respectively, as of January 2, 2018. Additionally, the Company reclassified its sales returns and allowance balance of $8,171 as of January 1, 2018, from trade accounts receivable to other accrued liabilities. Sales returns and allowances are recorded as a reduction of revenue and a component of accrued liabilities on the condensed consolidated balance sheet.

Additionally, the disclosure below summarizes the impact of the adoption of the new revenue standard on the Company's consolidated condensed balance sheet as of July 2, 2018, statement of operations for the quarter and two quarters ended July 2, 2018 and statement of cash flows for the two quarters ended July 2, 2018 for which the *As Reported* reflects the new revenue standard and *Balances without New Revenue Standard Adjustment* reflects the Company's replaced revenue recognition policy of "point in time" and upon physical delivery, for certain revenue streams, as appropriate.

	July 2, 2018		
	As reported	Effect of Change Increase (Decrease)	Balances without New Revenue Standard Adjustment
		(In thousands)	
Balance Sheet			
Assets			
Accounts receivable, net	$ 541,587	$ 8,171	$ 533,416
Contract assets	300,717	293,114	7,603
Inventories	121,285	(245,895)	367,180
Liabilities			
Other accrued expenses	104,139	14,033	90,106
Other long-term liabilities	92,938	3,163	89,775
Equity			
Retained earnings	315,975	38,194	277,781

	Quarter ended July 2, 2018			Two Quarters ended July 2, 2018		
	As reported	Effect of Change Increase (Decrease)	Balances without New Revenue Standard Adjustment	As reported	Effect of Change Increase	Balances without New Revenue Standard Adjustment
		(In thousands)			(In thousands)	
Net sales	$ 716,887	$ 17,730	$ 699,157	$ 1,380,469	$ 31,811	$ 1,348,658
Cost of goods sold	600,747	(10,338)	611,085	1,175,651	22,319	1,153,332
Gross profit	116,140	7,392	108,748	204,818	9,492	195,326
Net income	84,004	7,392	76,612	94,101	9,620	84,481

Included in the Effect of Change Increase (Decrease) columns for the quarter and two quarters ended July 2, 2018 are $14,408, $11,375 and $3,033 of net sales, cost of goods sold and gross profit, respectively, related to the opening balance sheet of Anaren Inc. which was acquired on April 18, 2018 (See Note 3), and not to the activity during the quarter.

	Two Quarters ended July 2, 2018		
	As reported	Effect of Change Increase (Decrease)	Balances without New Revenue Standard Adjustment
		(In thousands)	
Cash flows from operating activities:			
Net income	$ 94,101	$ 9,620	$ 84,481
Adjustments to reconcile net income to net cash used in operating activities:			
Deferred income taxes	(64,769)	(128)	(64,641)
Changes in operating assets and liabilities:			
Accounts receivable, net	(17,056)	—	(17,056)
Contract assets	(16,478)	(32,460)	15,982
Inventories	5,685	22,319	(16,634)
Accrued salaries, wages and benefits and other accrued expenses	(47,911)	649	(48,560)

In August 2017, the FASB issued ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*. This ASU amends and simplifies existing guidance in order to allow companies to more accurately present the economic effects of risk management activities in the financial statements. ASU 2017-12 also amends the guidance surrounding the recognition of the value of hedged instruments to include the entire change in value, rather than just the effective portion, in other comprehensive income and recognized in earnings at the same time that the hedged item affects earnings for cash flow and net investment hedges. This ASU is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted. The adoption of this standard is not expected to have a material impact on the consolidated financial statements or related disclosures.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. The objective of this update is to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. This ASU is effective for fiscal years beginning after December 15, 2018, including interim periods within those annual periods and is to be applied utilizing a modified retrospective approach. The Company is currently planning on electing the package of practical expedients to not reassess prior conclusions related to contracts containing leases, lease classification and initial direct costs, and is evaluating other practical expedients available under the guidance. Additionally, the Company continues to evaluate the new guidance to determine the impact it may have on its consolidated financial statements and related disclosures, the primary effect of adopting this update will be to record assets and liabilities for existing operating leases.

(2) Summary of Significant Accounting Policies

Revenue Recognition

The Company derives revenues primarily from the sale of PCBs, custom electronic assemblies using customer-supplied engineering and design plans. With the acquisition of Anaren Inc. (See Note 3), the Company now also derives revenue from the design, development, and manufacture of components, assemblies, and subsystems which receive, process, and transmit microwave and RF signals which service the aerospace and defense electronics, and wireless communications markets.

The Company has three revenue streams which generally coincide with the Company's reportable segments. These reportable segments are: PCB, E-M Solutions and Anaren. See Note 17 Segment Information.

For the PCBs and custom electronic assemblies, orders for products generally correspond to the production schedules of the Company's customers and are supported with firm purchase orders. The Company's customers have continuous transfer of control of the work in progress and finished goods throughout the PCB manufacturing process, as PCBs are built to customer specifications and do not have an alternative use. The customer typically controls the work in progress and finished goods as evidenced either by contractual termination clauses or by the Company's rights to payment for work performed to date, plus a reasonable profit. As a result, the Company records revenue in accordance with the "over time" revenue standard as discussed in Note 1 Nature of Operations and Basis of Presentation —*Recently Adopted and Issued Accounting Standards,* beginning in the first quarter of 2018, the Company now recognizes revenue progressively over time based on the extent of progress towards completion of the performance obligation.

The selection of the method to measure progress toward completion requires judgment and is based on the type of PCB or customized electronic assemblies being manufactured. The Company uses the cost-to-cost method as it best depicts the transfer of control to the customer which takes place as we incur costs. Under the cost-to-cost measure of progress, the extent of progress toward completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Revenues are recorded proportionally as costs are incurred.

Additionally, the Company has certain long-term contracts related to its manufacture of components, assemblies, and subsystems which service the aerospace and defense electronics market. These long-term contracts, many of which provide for periodic payments, are recognized over time under the percentage-of completion method. Estimated manufacturing cost-at-completion for these contracts are reviewed on a periodic basis, and adjustments are made periodically to the estimated cost-at-completion, based on actual costs incurred, progress made, and estimates of costs required to complete the contractual requirements. When the estimated manufacturing cost-at-completion exceeds the contract value, the contract is written down to its net realizable value and the loss resulting from the cost overruns are immediately recognized.

Finally, the Company manufactures components, assemblies, and subsystems which service its wireless communications customers. The Company recognizes revenue at a point in time as the customer does not simultaneously receive or consume the benefits provided by the Company's performance and the asset being manufactured has alternative uses to the Company.

The Company provides customers a limited right of return for defective PCBs, assemblies, components and subsystems. The Company accrues an estimate for sales returns and allowances progressively over time based on the extent of progress towards completion of the performance obligation using the Company's judgment based on historical results and anticipated returns. To the extent actual experience varies from its historical experience, revisions to the sales returns and allowances accrual may be required. Sales returns and allowances are recorded as a reduction of revenue and included as a component of accrued liabilities on the condensed consolidated balance sheet.

(3) Acquisition of Anaren Inc.

On April 18, 2018, the Company completed its acquisition of all issued and outstanding common stock of Anaren Holding Corp. for a total consideration of $787,911 subject to customary working capital and certain other adjustments. Other than the equity interests of Anaren, Inc. (Anaren), Anaren Holding Corp. had no material assets or liabilities and has no material independent operations. Anaren is a leading provider of mission-critical RF solutions, microelectronics, and microwave components and assemblies for the wireless infrastructure and aerospace and defense electronics markets.

For the quarter and two quarters ended July 2, 2018, bank fees and legal, accounting, and other professional service costs associated with the acquisition of $6,852 and $10,825, respectively, have been expensed and recorded as general and administrative expense in the consolidated condensed financial statements. There were no bank fees or legal, accounting, or other professional service costs associated with the acquisition for the quarter and two quarters ended July 3, 2017.

The following summarizes the components of the purchase price:

		(In thousands)
Cash consideration	$	596,396
Cash purchased		12,911
		609,307
Debt assumed		178,604
Total consideration	$	787,911

Preliminary Purchase Price Allocation

The purchase price was allocated to tangible and intangible assets acquired, and liabilities assumed based on preliminary estimates of fair value at the date of the acquisition, April 18, 2018. The excess of the purchase price over the fair value of net assets acquired was allocated to goodwill. The fair value assigned to identifiable intangible assets acquired was based on estimates and assumptions made by management at the time of the acquisition.

The fair values assigned are based on reasonable methods applicable to the nature of the assets acquired and liabilities assumed. The following summarizes the preliminary estimated fair values of net assets acquired:

	(In thousands)
Cash	$ 12,911
Trade and notes receivables	32,457
Contract assets	23,585
Inventories	55,958
Other current assets	1,673
Property, plant and equipment	47,329
Identifiable intangible assets	337,000
Goodwill	386,278
Trade accounts payable	(14,629)
Contract liabilities	(7,778)
Other current liabilities	(3,757)
Long-term debt	(178,604)
Non-current deferred tax liabilities	(75,123)
Other liabilities	(7,993)
Total	$ 609,307

Due to the fact that the acquisition occurred in the current interim period, the Company's fair value estimates for the purchase price allocation are preliminary and may change during the allowable measurement period, which is up to the point the Company obtains and analyzes the information that existed as of the date of the acquisition necessary to determine the fair values of the assets acquired and liabilities assumed, but in no case to exceed more than one year from the date of acquisition. As of July 2, 2018, the Company had not finalized the determination of fair values allocated to various assets and liabilities, including, but not limited to, property, plant and equipment, identifiable intangible assets, other assets, deferred taxes, goodwill, tax uncertainties, income taxes payable and liabilities assumed. Any changes in the fair values of the assets acquired and liabilities assumed during the measurement period may result in material adjustments to goodwill.

Inventories

The Company acquired $55,958 of inventories as a result of the acquisition. Finished goods were preliminarily valued at estimated selling prices less costs of disposal and a reasonable profit allowance for the selling effort. Work-in-process inventory was valued at estimated selling prices less costs to complete, costs of disposal and a reasonable profit allowance for the completion and selling effort. Raw materials were preliminarily valued at estimated replacement cost.

Property, Plant and Equipment

The fair value of property, plant and equipment was preliminarily determined by utilizing three approaches: the cost, sales comparison, and income capitalization approaches, each including management assumptions. Each approach assumes valuation of the property at the property's highest and best use.

Identifiable Intangible Assets

Acquired identifiable intangible assets include customer relationships, developed technology and backlog. The fair value of the identifiable intangible assets was preliminarily determined using various income approach methods including excess earnings to determine the present value of expected future cash flows for each identifiable intangible asset based on discount rates which incorporate a risk premium to take into account the risks inherent in those expected cash flows. The expected cash flows were estimated using available historical data adjusted based on the Company's historical experience and the expectations of market participants. The preliminary estimated fair value assigned to each class of intangible assets and the related weighted average amortization periods are as follows:

	Estimated fair value	Weighted-average amortization period
	(In thousands)	
Customer relationships	$ 268,000	12.2 years
Developed technology	39,500	9.4 years
Backlog	29,500	0.9 years
	$ 337,000	

Goodwill

Goodwill represents the excess of the purchase price over the fair value of assets acquired and liabilities assumed. Prior to the Company's acquisition of Anaren, the Company had two reportable segments: PCB and E-M Solutions. Due to the acquisition, the Company has reassessed its reportable segments and determined that it has three reportable segments: PCB, E-M Solutions and Anaren. However, beginning in the third quarter of 2018, the Company will no longer report Anaren as a reportable segment as the Company will integrate it into the PCB reportable segment. The excess purchase price over the fair value of assets acquired and liabilities assumed has been completely allocated to the Anaren reportable segment.

The Company believes that the acquisition of Anaren will produce the following significant benefits:

- Provide the Company with differentiated RF expertise in aerospace and defense and embedded technology that the Company believes is critical to wireless infrastructure markets.
- Augment the Company's strong aerospace and defense position and provide new opportunities for growth in the automotive and optical networking market.
- Deepen the Company's engagement and interaction with leading customers in the aerospace and defense and wireless communication infrastructure markets.
- Strengthen the Company's management and engineering teams with the addition of talented members having extensive experience in RF design;

The Company believes that these primary factors support the amount of goodwill recognized as a result of the purchase price paid for Anaren, in relation to other acquired tangible and intangible assets. The goodwill acquired in the acquisition is not deductible for income tax purposes.

Results of Operations

Included in the consolidated condensed statements of operations for the quarter and two quarters ended July 2, 2018 are net sales of $62,011, excluding intercompany sales, and pre-tax net income of $13,307 from the Anaren operations.

Pro forma Financial Information

The unaudited pro forma financial information below gives effect to this acquisition as if it had occurred at the beginning of fiscal 2017, or January 3, 2017. The pro forma financial information presented includes the effects of adjustments related to the amortization of acquired identifiable intangible assets and acquired inventory, depreciation of acquired fixed assets, and other non-recurring transactions costs directly associated with the acquisitions such as legal, accounting and banking fees.

The pro forma financial information as presented below is for informational purposes only and is not necessarily indicative of the actual results that would have been achieved had the acquisition occurred at the beginning of the earliest period presented, or the results that may be achieved in future periods.

	Quarter Ended		Two Quarters Ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
	(In thousands)		(In thousands)	
Net sales	$ 722,294	$ 693,508	$ 1,449,143	$ 1,369,519
Net income attributable to TTM Technologies, Inc. stockholders	91,347	22,390	107,692	49,139
Basic earnings per share	$ 0.88	$ 0.22	$ 1.05	$ 0.48
Dilutive earnings per share	$ 0.70	$ 0.19	$ 0.86	$ 0.42

(4) Contract Asset and Liabilities

A contract asset is recognized when the Company has recognized revenue, but not issued an invoice for payment. Contract assets are classified as current assets and transferred to receivables when the entitlement to payment becomes unconditional. The Company's contract assets are generally converted to trade account receivables within 90 days, at which time the Company is entitled to payment of the fixed price upon delivery of the finished product subject to customer payment terms. Contract assets were $300,717 as of July 2, 2018 and represent unbilled amounts for work performed to date, plus a reasonable profit. There were no contract assets as of January 1, 2018.

A contract liability is recognized when the Company has received payment in advance for the future transfer of goods or services. The Company's contract liabilities are generally converted to revenue within 90 days. Contract liabilities were $7,680 as of July 2, 2018 and represent customer advances for work yet to be performed, plus a reasonable profit. There were no contract liabilities as of January 1, 2018.

(5) Inventories

Inventories as of July 2, 2018 and January 1, 2018 consisted of the following:

	As of	
	July 2, 2018	January 1, 2018
	(in thousands)	
Inventories:		
Raw materials	$ 105,603	$ 75,835
Work-in-process	12,407	120,031
Finished goods	3,275	98,722
	$ 121,285	$ 294,588

(6) Goodwill

As of July 2, 2018 and January 1, 2018, goodwill was as follows:

	PCB	Anaren	Total
		(In thousands)	
Balance as of January 1, 2018			
Goodwill	$ 543,971	$ —	$ 543,971
Accumulated impairment losses	(171,400)	—	(171,400)
	372,571	—	372,571
Goodwill recognized during the two quarters ended July 2, 2018	—	386,278	386,278
Balance as of July 2, 2018			
Goodwill	543,971	386,278	930,249
Accumulated impairment losses	(171,400)	—	(171,400)
	$ 372,571	$ 386,278	$ 758,849

The assignment of goodwill related to the acquisition is preliminary and will be completed in conjunction with the final purchase price allocation.

(7) Definite-lived Intangibles

As of July 2, 2018 and January 1, 2018, the components of definite-lived intangibles were as follows:

	Gross Amount	Accumulated Amortization	Foreign Currency Translation Adjustment	Net Carrying Amount	Weighted Average Amortization Period
		(In thousands)			(years)
July 2, 2018					
Customer relationships	$ 203,634	$ (112,306)	$ —	$ 91,328	8.1
Technology	3,000	(3,000)	—	—	3
Acquired intangibles from acquisition					
Customer relationships	268,000	(4,605)	—	263,395	12.2
Developed technology	39,500	(986)	—	38,514	9.4
Backlog	29,500	(8,137)	—	21,363	0.9
	$ 543,634	$ (129,034)	$ —	$ 414,600	
January 1, 2018:					
Customer relationships	$ 203,563	$ (101,089)	$ 72	$ 102,546	8.1
Technology	3,000	(2,596)	—	404	3
	$ 206,563	$ (103,685)	$ 72	$ 102,950	

The January 1, 2018 definite-lived intangible balances include foreign currency translation adjustments related to foreign subsidiaries with functional currencies other than the U.S. Dollar.

Definite-lived intangibles are generally amortized using the straight line method of amortization over the estimated useful life, with the exception of certain customer relationship intangibles, which are amortized using an accelerated method of amortization based on estimated cash flows. Amortization expense was $19,489 and $5,910 for the quarters ended July 2, 2018 and July 3, 2017, respectively, and $25,350 and $11,822 for the two quarters ended July 2, 2018 and July 3, 2017, respectively.

Estimated aggregate amortization for definite-lived intangible assets for the next five years and thereafter is as follows:

	(In thousands)
Remaining 2018	$ 38,084
2019	53,293
2020	45,430
2021	42,118
2022	39,013
Thereafter	196,662
	$ 414,600

(8) Long-term Debt and Letters of Credit

The following table summarizes the long-term debt of the Company as of July 2, 2018 and January 1, 2018:

	Interest Rate as of July 2, 2018	Principal Outstanding as of July 2, 2018	Interest Rate as of January 1, 2018	Principal Outstanding as of January 1, 2018
		(In thousands)		
Term Loan due September 2024	4.60%	$ 945,879	4.06%	$ 349,125
Senior Notes due October 2025	5.63%	375,000	5.63%	375,000
Convertible Senior Notes due December 2020	1.75%	249,985	1.75%	249,985
U.S. ABL Revolving Loan due May 2020	3.60%	40,000	3.06%	17,000
Asia ABL Revolving Loan due May 2020	3.50%	30,000	2.96%	30,000
Capital Lease	6.43%	1,556	6.43%	1,919
		1,642,420		1,023,029
Less: Long-term debt unamortized discount		(27,359)		(30,513)
Long-term debt unamortized debt issuance costs		(18,907)		(12,459)
		1,596,154		980,057
Less: current maturities		(40,729)		(4,578)
Long-term debt, less current maturities		$ 1,555,425		$ 975,479

Term Loan Facility

On April 18, 2018, the Company closed its $600,000 commitment of incremental loans concurrent with the completion of its acquisition of Anaren. These incremental loans increased the Company's existing balance of its Term Loan Facility due 2024 from $348,250 to $948,250. This Term Loan Facility had an outstanding balance of $945,879 as of July 2, 2018, of which $40,000 is included in short-term debt and $905,879 is included in long-term debt. The Term Loan Facility was issued at a weighted average discount of 99.7% and bears interest, at the Company's option, at a floating rate of LIBOR, plus an applicable interest margin of 2.50%, or an alternate base rate, (defined as the greater of the JP Morgan prime, the New York Fed bank rate plus 0.5% or LIBOR plus 1.0%), subject to a 1.0% floor plus an applicable margin of 1.5%. At July 2, 2018 the interest rate on the outstanding borrowings under the Term Loan Facility was 4.60%. There is no provision, other than an event of default, for the interest margin to increase. The Term Loan Facility will mature on September 28, 2024. The Term Loan Facility is secured by a significant amount of the domestic assets of the Company and a pledge of 65% of voting stock of the Company's first tier foreign subsidiaries and is structurally senior to the Company's Senior Notes and Convertible Senior Notes. See Senior Notes and Convertible Senior Notes below.

The Company is required to make scheduled payments of the outstanding Term Loan Facility on a quarterly basis beginning January 1, 2018. Subsequent to July 2, 2018, the Company made an optional debt principal prepayment of $40,000. As a result of the prepayment, the Company is no longer required to make any quarterly scheduled payments until October 2022. However, based on certain parameters defined in the Term Loan Facility, including a First Lien Leverage Ratio, the Company may be required to make an additional principal payment on an annual basis beginning after fiscal year 2018. Any remaining outstanding balance under the Term Loan Facility is due at the maturity date of September 28, 2024.

Borrowings under the Term Loan Facility are subject to certain affirmative and negative covenants, including limitations on indebtedness, corporate transactions, investments and dispositions, and share payments.

Senior Notes

The $375,000 of Senior Notes, which is included in long-term debt, bear interest at a rate of 5.63% per annum. Interest is payable semiannually in arrears on April 1 and October 1 of each year beginning April 1, 2018. The Senior Notes will mature on October 1, 2025.

Borrowings under the Senior Notes are subject to certain affirmative and negative covenants, including limitations on indebtedness, corporate transactions, investments, dispositions, and share payments.

Convertible Senior Notes due 2020

The Company maintains 1.75% convertible senior notes in the amount of $249,985 due December 15, 2020. The convertible senior notes bear interest at a rate of 1.75% per annum. Interest is payable semiannually in arrears on June 15 and December 15 of each year. The convertible senior notes are senior unsecured obligations and rank equally to the Company's future unsecured senior indebtedness and are senior in right of payment to any of the Company's future subordinated indebtedness.

As of July 2, 2018 and January 1, 2018, the following summarizes the equity components of the convertible senior notes included in additional paid-in capital:

	As of July 2, 2018 and January 1, 2018		
	Embedded conversion option — Convertible Senior Notes	Embedded conversion option — Convertible Senior Notes Issuance Costs	Total
	(in thousands)		
Convertible Senior Notes due 2020	$ 60,216	$ (1,916)	$ 58,300

The components of interest expense resulting from the convertible senior notes for the quarter and two quarters ended July 2, 2018 and July 3, 2017 are as follows:

	Quarter Ended		Two Quarters Ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
	(In thousands)		(In thousands)	
Contractual coupon interest	$ 1,093	$ 1,093	$ 2,187	$ 2,187
Amortization of debt discount	$ 2,267	$ 2,125	$ 4,497	$ 4,216
Amortization of debt issuance costs	$ 227	$ 214	$ 451	$ 423

Asset-Based Lending Agreements

The Company maintains a $200,000 U.S. Asset-Based Lending Credit Agreement (U.S. ABL), and a $150,000 Asia Asset-Based Lending Credit Agreement (Asia ABL) (collectively the ABL Revolving Loans).

The U.S. ABL consists of three tranches comprised of a revolving credit facility for up to $200,000, a letter of credit facility for up to $50,000, and swingline loans for up to $30,000, provided that at no time may amounts outstanding under the tranches exceed in aggregate $200,000 or the applicable borrowing base, which is a percentage of the principal amount of Eligible Accounts, as defined in the U.S. ABL agreement. Borrowings under the U.S. ABL bear interest at either a floating rate of LIBOR plus a margin of 150 basis points or JP Morgan Chase Bank's prime rate plus a margin of 50 basis points, at the Company's option. At July 2, 2018, the interest rate on the outstanding borrowings under the U.S. ABL was 3.60%. The applicable margin can vary based on the remaining availability of the facility, from 125 to 175 basis points for LIBOR-based loans and from 25 to 75 basis points for JP Morgan Chase Bank's prime rate-based loans. Other than availability and an event of default, there are no other provisions for the interest margin to increase. The U.S. ABL will mature on May 31, 2020. Loans made under the U.S. ABL are secured first by all of the Company's domestic cash, receivables and certain inventories as well as by a second position against a significant amount of the domestic assets of the Company and a pledge of 65% of the voting stock of the Company's first tier foreign subsidiaries and are structurally senior to the Company's Senior Notes and Convertible Senior Notes. See Senior Notes and Convertible Senior Notes above. At July 2, 2018, $40,000 of the U.S. ABL was outstanding and classified as long-term debt, which is consistent with its maturity date.

The Asia ABL consists of two tranches comprised of a revolving credit facility for up to $150,000 and a letter of credit facility for up to $100,000, provided that at no time may amounts outstanding under both tranches exceed in aggregate $150,000 or the applicable borrowing base, which is a percentage of the principal amount of Eligible Accounts, as defined in the Asia ABL agreement. Borrowings under the Asia ABL bear interest at a floating rate of LIBOR plus 140 basis points. At July 2, 2018, the interest rate on the outstanding borrowings under the Asia ABL was 3.50%. There is no provision, other than an event of default, for the interest margin to increase. The Asia ABL will mature on May 22, 2020. Loans made under the Asia ABL are secured by a portion of the Company's Asia Pacific cash and receivables and are structurally senior to the Company's domestic obligations, including the Senior Notes and Convertible Senior Notes. See Senior Notes and Convertible Senior Notes above. At July 2, 2018, $30,000 of the Asia ABL was outstanding and classified as long-term debt, which is consistent with its maturity date.

The Company has up to $50,000 and $100,000 Letters of Credit Facilities under the U.S. ABL and the Asia ABL, respectively. As of July 2, 2018, letters of credit in the amount of $6,137 were outstanding under the U.S. ABL and $13,469 were outstanding under the Asia ABL with various expiration dates through June 2019. Available borrowing capacity under the U.S. ABL and the Asia ABL was $153,863 and $106,531, respectively, which considers letters of credit outstanding at July 2, 2018.

The Company is required to pay a commitment fee of 0.25% to 0.375% per annum on any unused portion of the U.S. ABL or Asia ABL. The Company incurred total commitment fees related to unused borrowing availability of $247 and $180 for the quarters ended July 2, 2018 and July 3, 2017, respectively, and $488 and $367 for the two quarters ended July 2, 2018 and July 3, 2017, respectively. Under the occurrence of certain events, the ABL Revolving Loans are subject to various financial and operational covenants, including maintaining minimum fixed charge coverage ratios.

Other Credit Facility

Additionally, the Company is party to a revolving loan credit facility (Chinese Revolver) with a lender in China. Under this arrangement, the lender has made available to the Company approximately $31,700 in unsecured borrowing with all terms of the borrowing to be negotiated at the time the Chinese Revolver is drawn upon. There are no commitment fees on the unused portion of the Chinese Revolver, and this arrangement expires in January 2019. As of July 2, 2018, the Chinese Revolver had not been drawn upon.

Debt Issuance and Debt Discount

As of July 2, 2018 and January 1, 2018, remaining unamortized debt discount and debt issuance costs for the Term Loan Facility, Senior Notes and Convertible Senior Notes are as follows:

	As of July 2, 2018			As of January 1, 2018		
	Debt Issuance Costs	Debt Discount	Effective Interest Rate	Debt Issuance Costs	Debt Discount	Effective Interest Rate
			(in thousands)			
Term Loan due September 2024	$ 10,037	$ 3,037	4.66%	$ 2,788	$ 1,691	3.96%
Senior Notes due October 2025	6,432	—	5.92%	6,782	—	5.92%
Convertible Senior Notes	2,438	24,322	6.48%	2,889	28,822	6.48%
	$ 18,907	$ 27,359		$ 12,459	$ 30,513	

The above debt discount and debt issuance costs are recorded as a reduction of the debt and are amortized into interest expense using an effective interest rate over the duration of the debt.

Remaining unamortized debt issuance costs for the ABL Revolving Loans of $1,921 and $2,421 as of July 2, 2018 and January 1, 2018, respectively, are included in other non-current assets and are amortized to interest expense over the duration of the ABL Revolving Loans using the straight line method of amortization.

At July 2, 2018, the remaining weighted average amortization period for all unamortized debt discount and debt issuance costs was 4.1 years.

(9) Income Taxes

The Company's effective tax rate is impacted by tax rates in China and Hong Kong, the U.S. federal income tax rate, apportioned state income tax rates, generation of other credits and deductions available to the Company as well as changes in valuation allowances and certain non-deductible items.

During the quarter and two quarters ended July 2, 2018, the Company's effective tax rate was impacted by a net discrete benefit of $67,309 and $66,429, respectively. This is related to accrued interest expense on existing uncertain tax positions, tax incentives, release of uncertain tax positions due to the expiration of the statute of limitations in foreign jurisdictions, release of a portion of the Company's valuation allowance against its U.S. federal and state net deferred tax assets, and an additional expense related to the non U.S. income tax effect of a change in assertion with respect to the Company's indefinite reinvestment policy outside of the U.S. Additionally, no tax benefit was recorded on the losses incurred in certain foreign jurisdictions as a result of corresponding increases in the valuation allowances in these jurisdictions.

During the quarter ended July 2, 2018, the Company recorded a discrete tax benefit of $74,599 (included in the net amount reported in the previous paragraph) related to the release of a portion of the Company's valuation allowance against its U.S. federal and state net deferred tax assets as a result of the net deferred tax liability established with the acquisition of Anaren. The Company expects its earnings attributable to foreign subsidiaries will be indefinitely reinvested outside of the U.S. but to facilitate more efficient cash management outside of the U.S., the Company has revised its assertion such that a majority of foreign earnings can be repatriated up to the top tier foreign holding company and as such, has provided for an additional accrual of deferred tax liabilities as a discrete tax expense of $9,963 (also included in the net amount reported in the previous paragraph) for the quarter ended July 2, 2018. The Company continues to maintain its indefinite reinvestment of earnings attributable to foreign subsidiaries with respect to the U.S. and, therefore, no deferred tax liabilities for U.S. income taxes on undistributed earnings are recorded.

Effects of the Tax Cuts and Jobs Act

On December 22, 2017, the Tax Cuts and Jobs Act (Tax Act) was enacted. Accounting Standard Codification (ASC) 740, *Accounting for Income Taxes*, requires companies to recognize the effect of tax law changes in the period of enactment regardless of the effective date of those tax law changes. Certain provisions of the Tax Act were effective September 27, 2017, and others were effective or identified as of December 31, 2017 or January 1, 2018.

Given the timing of enactment of the Tax Act and the significance of the legislation, the SEC staff issued Staff Accounting Bulletin No. 118 (SAB 118), which allows registrants to record provisional amounts during a one year "measurement period" similar to that used when accounting for business combinations. However, the measurement period should not extend beyond one year from the Tax Act enactment date and is deemed to have ended when the registrant has obtained, prepared and analyzed the information necessary to finalize its accounting.

To the extent that a company's accounting for certain income tax effects of the Tax Act is incomplete but is able to determine a reasonable estimate, it must record a provisional estimate in the financial statements. If a company cannot determine a provisional estimate to be included in the financial statements, it should continue to apply ASC 740 on the basis of the provisions of the tax laws that were in effect immediately before the enactment of the Tax Act. More specifically, SAB 118 summarizes a three-step process to be applied at each reporting period to account for and disclose the tax effects of the Tax Act. The steps are (1) to record the effects of the change in tax law for which accounting is complete; (2) to record provisional amounts (or adjustments to provisional amounts) for the effects of the tax law where accounting is not complete, but for which a reasonable estimate has been determined; and (3) where a reasonable estimate cannot yet be made, to continue to apply ASC 740 based on the tax law in effect prior to enactment of the Tax Act.

Amounts recorded where accounting is complete for the year ended January 1, 2018 primarily relate to the reduction in the U.S. corporate income tax rate to 21 percent. The Company revalued its ending gross deferred tax items, previously recorded at 35 percent, using the enacted 21 percent corporate tax rate. This change caused a reduction to the Company's U.S. federal deferred tax assets fully offset by a reduction of its valuation allowance.

Effects of tax law changes where a reasonable estimate of the accounting effects cannot yet been made include the one-time mandatory repatriation transition tax on the net accumulated earnings and profits of the Company's foreign subsidiaries earned post 1986. For the year ended January 1, 2018, the Company had performed a preliminary earnings and profits analysis with consideration given to foreign loss carryforwards acquired as a result of the Company's acquisitions and determined on a provisional basis that there should be no income tax effect in the current or any future period. For the quarter and two quarters ended July 2, 2018, the Company has continued to gather documentation to support its position and maintains that there should be no income tax effect.

The Company has determined that the following provisions that are effective January 1, 2018 and relevant to the Company will not impact the quarter and two quarters ended July 2, 2018 tax expense, primarily as a result of the full valuation allowance in the U.S.: limitations on certain entertainment expenses, the inclusion of commissions and performance based compensation in determining the excessive compensation limitation, limitation on the current deductibility of net interest expense in excess of 30 percent of adjusted taxable income, and a minimum tax on certain foreign earnings in excess of 10 percent of the foreign subsidiaries tangible assets (i.e., global intangible low-taxed income or GILTI). The Company has decided to make a policy election to treat the GILTI tax as a period expense and as such, no U.S. deferred taxes will be calculated on foreign earnings that are expected to generate GILTI income when they reverse in future years.

For the quarter and two quarters ended July 2, 2018, other than as noted above, the Company has not made any changes to its previously provisional estimate of the impact U.S. Tax Reform and the Company continues to analyze and model the impact and will record said impact as it becomes more certain. This includes the mandatory repatriation tax and the indefinite criterion assertion on foreign earnings (with respect to repatriation to the U.S.).

(10) Financial Instruments

Derivatives

Interest Rate Swaps

The Company's business is exposed to interest rate risk resulting from fluctuations in interest rates on certain LIBOR-based variable rate debt. Increases in interest rates would increase interest expenses relating to the outstanding variable rate borrowings and increase the cost of debt. Fluctuations in interest rates can also lead to significant fluctuations in the fair value of the debt obligations.

On May 15, 2018, the Company entered into a four-year pay-fixed, receive floating (1-month LIBOR), interest rate swap arrangement with a notional amount of $400,000 for the period beginning June 1, 2018 and ending on June 1, 2022. Under the terms of the interest rate swap, the Company would pay a fixed rate of 2.84% against the first interest payments of a portion of its LIBOR-based debt and would receive floating 1-month LIBOR during the swap period. During the quarter ended July 2, 2018, the Company designated this interest rate swap as a cash flow hedge.

At inception, the fair value of the interest rate swap was zero. As of July 2, 2018, the fair value of the interest rate swap was recorded as a liability in the amount of $1,416 and included as a component of other accrued liabilities. The change in the fair value of the interest rate swap is recorded as a component of accumulated other comprehensive income, net of tax, in the Company's consolidated condensed balance sheet. No ineffectiveness was recognized for the quarter ended July 2, 2018. During the quarter ended July 2, 2018, the interest rate swap increased interest expense by $303.

Foreign Exchange Contracts

The Company enters into foreign currency forward contracts to mitigate the impact of changes in foreign currency exchange rates and to reduce the volatility of purchases and other obligations generated in currencies other than the functional currencies. The Company's foreign subsidiaries may at times purchase forward exchange contracts to manage their foreign currency risks in relation to certain purchases of machinery denominated in foreign currencies other than the Company's functional currency. The notional amount of the foreign exchange contracts at July 2, 2018 and January 1, 2018 was approximately $6,482 and $10,927, respectively. The Company has designated certain of these foreign exchange contracts as cash flow hedges.

The fair values of derivative instruments in the consolidated condensed balance sheets are as follows:

	Balance Sheet Location	Asset/(Liability) Fair Value July 2, 2018	Asset/(Liability) Fair Value January 1, 2018
		(In thousands)	
Cash flow derivative instruments designated as hedges:			
Interest rate swap	Other accrued expenses	$ 1,416	
Foreign exchange contracts	Other accrued expenses	18	$ 6
Cash flow derivative instruments not designated as hedges:			
Foreign exchange contracts	Prepaid expenses and other current assets		107
Foreign exchange contracts	Other accrued expenses	131	132
Foreign exchange contracts	Other long-term liabilities		13

The following table provides information about the amounts recorded in accumulated other comprehensive income related to derivatives designated as cash flow hedges, as well as the amounts recorded in each caption in the consolidated condensed statements of operations when derivative amounts are reclassified out of accumulated other comprehensive income:

		Quarter ended July 2, 2018			Quarter ended July 3, 2017		
		Effective Portion		Ineffective Portion	Effective Portion		Ineffective Portion
	Financial Statement Caption	Gain/(Loss) Recognized in Other Comprehensive Income	Gain/(Loss) Reclassified into Income	Gain/(Loss) Reclassified into Income	Gain/(Loss) Recognized in Other Comprehensive Income	Gain/(Loss) Reclassified into Income	Gain/(Loss) Reclassified into Income
		(In thousands)					
Cash flow hedge:							
Interest rate swap	Interest expense	$ (1,719)	$ (303)	$ —	$ —	$ —	$ —
Foreign currency forward	Depreciation expense	(20)	(39)	—	96	(43)	—

		Two Quarters ended July 2, 2018			Two Quarters ended July 3, 2017		
		Effective Portion		Ineffective Portion	Effective Portion		Ineffective Portion
	Financial Statement Caption	Gain/(Loss) Recognized in Other Comprehensive Income	Gain/(Loss) Reclassified into Income	Gain/(Loss) Reclassified into Income	Gain/(Loss) Recognized in Other Comprehensive Income	Gain/(Loss) Reclassified into Income	Gain/(Loss) Reclassified into Income
		(In thousands)					
Cash flow hedge:							
Interest rate swap	Interest expense	$ (1,719)	$ (303)	$ —	$ —	$ —	$ —
Foreign currency forward	Depreciation expense	(26)	(80)	—	164	(87)	—

The following table provides a summary of the activity associated with the designated cash flow hedges reflected in accumulated other comprehensive income for the two quarters ended July 2, 2018 and July 3, 2017:

	Two Quarters Ended	
	July 2, 2018	July 3, 2017
	(In thousands)	
Beginning balance, net of tax	$ (742)	$ (1,180)
Changes in fair value gain (loss), net of tax	(1,745)	164
Reclassification to earnings	383	87
Ending balance, net of tax	$ (2,104)	$ (929)

The Company expects that approximately $1,571 of the accumulated other comprehensive income (loss) will be reclassified into the statement of operations, net of tax, in the next 12 months.

The net gain (loss) recognized in other, net in the consolidated condensed statements of operations on derivative instruments not designated as hedges is as follows:

	Quarter Ended		Two Quarters Ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
	(In thousands)			
Derivative instruments not designated as hedges:				
Foreign exchange contracts	$ (324)	$ (176)	$ 103	$ (29)

(11) Accumulated Other Comprehensive Income

The following provides a summary of the components of accumulated other comprehensive income as of July 2, 2018 and January 1, 2018:

	Foreign Currency Translation	Gains (Losses) on Cash Flow Hedges	Total
	(In thousands)		
Ending balance at January 1, 2018	$ 4,145	$ (742)	$ 3,403
Other comprehensive income (loss) before reclassifications	(1,079)	(1,745)	(2,824)
Amounts reclassified from accumulated other comprehensive income	—	383	383
Other comprehensive income (loss)	(1,079)	(1,362)	(2,441)
Ending balance at July 2, 2018	$ 3,066	$ (2,104)	$ 962

(12) Significant Customers and Concentration of Credit Risk

In the normal course of business, the Company extends credit to its customers. Most customers to which the Company extends credit are located outside the United States. The Company performs ongoing credit evaluations of customers, does not require collateral, and considers the credit risk profile of the entity from which the receivable is due in further evaluating collection risk.

The Company's customers include both OEMs and EMS companies. The Company's OEM customers often direct a significant portion of their purchases through EMS companies. While the Company's customers include both OEM and EMS providers, the Company measures customer concentration based on OEM companies, as they are the ultimate end customers.

For the two quarters ended July 2, 2018, one customer accounted for approximately 12% of the Company's net sales. There were no customers that accounted for 10% or more of net sales for the quarter ended July 2, 2018. For both the quarter and two quarters ended July 3, 2017, one customer accounted for approximately 16% of the Company's net sales. There were no other customers that accounted for 10% or more of net sales for the quarter and two quarters ended July 2, 2018 and July 3, 2017.

(13) Fair Value Measures

The Company measures at fair value its financial and non-financial assets by using a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, essentially an exit price, based on the highest and best use of the asset or liability.

The carrying amount and estimated fair value of the Company's financial instruments at July 2, 2018 and January 1, 2018 were as follows:

	July 2, 2018		January 1, 2018	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
	(In thousands)			
Derivative assets, current	$ —	$ —	$ 107	$ 107
Derivative liabilities, current	1,565	1,565	258	258
Term Loan due September 2024	932,805	943,515	344,646	346,943
Senior Notes due October 2025	368,568	366,829	368,218	384,769
Convertible Senior Notes	223,225	474,547	218,274	429,199
ABL Revolving Loans	70,000	70,000	47,000	47,000
Capital lease	1,556	1,556	1,919	1,919

The fair value of the derivative instruments was determined using pricing models developed based on the LIBOR swap rate, foreign currency exchange rates, and other observable market data, including quoted market prices, as appropriate using Level 2 inputs. The values were adjusted to reflect nonperformance risk of both the counterparty and the Company, as necessary.

The fair value of the long-term debt was estimated based on quoted market prices or discounting the debt over its life using current market rates for similar debt as of July 2, 2018 and January 1, 2018, which are considered Level 1 and Level 2 inputs.

The fair value of the convertible senior notes was estimated based on quoted market prices of the securities on an active exchange, which are considered Level 1 and Level 2 inputs.

As of July 2, 2018 and January 1, 2018, the Company's other financial instruments also included cash and cash equivalents, accounts receivable, and accounts payable. Due to short-term maturities, the carrying amount of these instruments approximates fair value. The Company's cash and cash equivalents at July 2, 2018 consisted of $64,628 held in the U.S., with the remaining $139,472 held by foreign subsidiaries.

The majority of the Company's non-financial assets and liabilities, which include goodwill, intangible assets, inventories, and property, plant and equipment, are not required to be carried at fair value on a recurring basis. However, if certain triggering events occur (or are tested at least annually in the case of goodwill) such that a non-financial instrument is required to be evaluated for impairment, based upon a comparison of the non-financial instrument's fair value to its carrying value, an impairment is recorded to reduce the carrying value to the fair value, if the carrying value exceeds the fair value. See Note 3 for discussion of the fair value measurement of assets acquired and liabilities assumed in the Anaren acquisition.

(14) Commitments and Contingencies

Legal Matters

The Company is subject to various legal matters, which it considers normal for its business activities. While the Company currently believes that the amount of any reasonably possible loss for known matters would not be material to the Company's financial condition, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate potential loss could have a material adverse effect on the Company's financial condition or results of operations in a particular period. The Company has accrued amounts for its loss contingencies which are probable and estimable as of July 2, 2018 and January 1, 2018. However, these amounts are not material to the consolidated condensed financial statements of the Company.

Environmental Matters

The process to manufacture PCBs requires adherence to city, county, state, federal regulations as well as foreign environmental regulations regarding the storage, use, handling and disposal of chemicals, solid wastes and other hazardous materials, as well as compliance with air quality standards and chemical use reporting. The Company believes that its facilities in the United States and Canada comply in all material respects with applicable environmental laws and regulations. In China, governmental authorities have adopted new rules and regulations governing environmental issues. An update to the Chinese environmental waste water law was issued in late 2012, allowing for an interim period in which plants subject to such law may install equipment that meets the new regulatory regime. Some of the Company's plants in China are not yet in full compliance with the updated environmental regulations. The Company has established and enacted an investment plan related to the efforts to come into full compliance with the new regulations. The 2018 capital expenditure costs expected for these plans are included in the Company's capital expenditure projections.

(15) Earnings Per Share

The following is a reconciliation of the numerator and denominator used to calculate basic earnings per share and diluted earnings per share for the quarter and two quarters ended July 2, 2018 and July 3, 2017:

	Quarter Ended		Two Quarters Ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
	(In thousands, except per share amounts)			
Basic earnings:				
Basic earnings	$ 84,004	$ 20,591	$ 94,101	$ 53,550
Diluted earnings:				
Net income attributable to TTM Technologies, Inc. stockholders	$ 84,004	$ 20,591	$ 94,101	$ 53,550
Interest expense from convertible senior notes, net of tax	3,587	3,432	7,135	6,826
Diluted earnings	$ 87,591	$ 24,023	$ 101,236	$ 60,376
Basic weighted average shares	103,553	101,756	103,030	101,344
Dilutive effect of performance-based restricted stock units, restricted stock units and stock options	1,376	1,604	1,603	1,735
Dilutive effect of outstanding warrants	3,854	3,924	3,517	3,054
Dilutive effect of assumed conversion of convertible senior notes outstanding	25,938	25,940	25,938	25,940
Diluted shares	134,721	133,224	134,088	132,073
Earnings per share attributable to TTM Technologies, Inc. stockholders:				
Basic	$ 0.81	0.20	$ 0.91	$ 0.53
Diluted	$ 0.65	0.18	$ 0.75	$ 0.46

Performance-based restricted stock units (PRUs), restricted stock units (RSUs) and stock options to purchase 45 and 15 shares of common stock for the quarter ended July 2, 2018 and July 3, 2017, respectively, and 488 and 97 for the two quarters ended July 2, 2018 and July 3, 2017, respectively, were not considered in calculating diluted earnings per share because the options' exercise prices or the total expected proceeds under the treasury stock method for PRUs, RSUs or stock options was greater than the average market price of common shares during the applicable quarter and two quarters and, therefore, the effect would be anti-dilutive.

(16) Stock-Based Compensation

Stock-based compensation expense is recognized in the accompanying consolidated condensed statements of operations as follows:

	Quarter Ended		Two Quarters Ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
	(In thousands)		(In thousands)	
Cost of goods sold	$ 829	$ 639	$ 1,358	$ 1,033
Selling and marketing	545	386	919	639
General and administrative	4,493	3,975	7,212	6,956
Stock-based compensation expense recognized	$ 5,867	$ 5,000	$ 9,489	$ 8,628

Performance-based Restricted Stock Units

The Company maintains a long-term incentive program for executives that provides for the issuance of PRUs, representing hypothetical shares of the Company’s common stock that may be issued. Under the PRU program, a target number of PRUs is awarded at the beginning of each three-year performance period. The number of shares of common stock released at the end of the performance period will range from zero to 2.4 times the target number depending on performance during the period. The performance metrics of the PRU program are based on (a) annual financial targets, which are based on revenue and EBITDA (earnings before interest, tax, depreciation, and amortization expense), each equally weighted, and (b) an overall modifier based on the Company’s total stockholder return (TSR) relative to a group of peer companies selected by the Company’s compensation committee, over the three-year performance period.

The Company records stock-based compensation expense for PRU awards granted based on management’s periodic assessment of the annual financial performance goals to be achieved. For the two quarters ended July 2, 2018, management determined that vesting of the PRU awards was probable. PRUs activity for the two quarters ended July 2, 2018 was as follows:

	Shares	Weighted Average Fair Value
	(In thousands)	
Outstanding target shares at January 1, 2018	409	$ 16.39
Granted	334	19.59
Change in units due to annual performance achievement	(22)	19.59
Outstanding target shares at July 2, 2018	721	$ 17.77

Restricted Stock Units

The Company granted 195 and 61 RSUs during the quarters ended July 2, 2018 and July 3, 2017, respectively, and 1,023 and 1,007 RSUs during the two quarters ended July 2, 2018 and July 3, 2017, respectively. The RSUs granted have a weighted-average fair value per unit of $16.06 and $16.52 for the quarters ended July 2, 2018 and July 3, 2017, respectively, and $15.44 and $15.82 for the two quarters ended July 2, 2018 and July 3, 2017, respectively. The fair value for RSUs granted is based on the closing share price of the Company’s common stock on the date of grant.

Stock Options

During the quarter and two quarters ended July 2, 2018, The Company granted 20 stock option awards to a newly appointed member of the board which were estimated to have a fair value per share of $8.92. The fair value calculation is based on stock options granted during the period using the Black-Scholes option-pricing model on the date of grant. For the quarter and two quarters ended July 2, 2018, the fair value was determined using 3.0% as the risk-free interest rate, 43.0% as the expected volatility, 8.5 years as the expected term and no dividend yield. The Company did not grant stock option awards during the quarter and two quarters ended July 3, 2017.

Summary of Unrecognized Compensation Costs

The following is a summary of total unrecognized compensation costs as of July 2, 2018:

	Unrecognized Stock-Based Compensation Cost (In thousands)	Remaining Weighted Average Recognition Period (In years)
RSU awards	$ 24,888	1.5
PRU awards	6,859	1.2
Stock options	250	2.2
	$ 31,997	

(17) Segment Information

The reportable segments reported below are the Company's segments for which separate financial information is available and upon which operating results are evaluated by the chief operating decision maker to assess performance and to allocate resources. The Company has three reportable segments: PCB, E-M Solutions and Anaren. However, beginning in the third quarter of 2018, the Company will no longer report Anaren as a reportable segment as the Company will integrate it into the PCB reportable segment. The PCB reportable segment is comprised of multiple operating segments. Factors considered to determine whether operating segments can be aggregated into reportable segments included similarity regarding economic characteristics, products, production processes, type or classes of customers, distribution methods, and regulatory environments.

The Company, including the chief operating decision maker, evaluates segment performance based on reportable segment income, which is operating income before amortization of intangibles. Interest expense and interest income are not presented by segment since they are not included in the measure of segment profitability reviewed by the chief operating decision maker. All inter-segment transactions have been eliminated.

The inter-segment sales for the quarter and two quarters ended July 2, 2018 and July 3, 2017, are sales primarily from the PCB to the E-M Solutions reportable segment.

	Quarter Ended		Two Quarters Ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
	(In thousands)		(In thousands)	
Net Sales:				
PCB	$ 596,461	$ 576,566	$ 1,215,790	$ 1,163,261
Anaren (1)	62,011	—	62,011	—
E-M Solutions	61,842	52,898	108,993	94,567
Total sales	720,314	629,464	1,386,794	1,257,828
Inter-segment sales	(3,427)	(2,282)	(6,325)	(5,399)
Total net sales	$ 716,887	$ 627,182	$ 1,380,469	$ 1,252,429
Operating Segment Income (Loss):				
PCB	$ 68,028	$ 69,435	$ 131,492	$ 151,691
Anaren (1)	12,936	—	12,936	—
E-M Solutions	2,496	2,689	2,536	1,047
Corporate	(32,237)	(21,158)	(59,879)	(43,290)
Total operating segment income	51,223	50,966	87,085	109,448
Amortization of definite-lived intangibles	(19,489)	(5,910)	(25,350)	(11,822)
Total operating income	31,734	45,056	61,735	97,626
Total other expense	(14,275)	(18,747)	(29,129)	(34,053)
Income before income taxes	$ 17,459	$ 26,309	$ 32,606	$ 63,573

(1) The quarter and two quarters ended July 3, 2017 does not include Anaren, as the acquisition occurred on April 18, 2018.

The Corporate category includes operating expenses that are not included in the segment operating performance measures. Corporate consists primarily of corporate governance functions such as finance, accounting, corporate sales, information technology, facilities, corporate operations and human resources personnel. Bank fees and legal, accounting, and other professional service costs associated with the acquisition of Anaren in the amount of $6,852 and $10,825 for the quarter and two quarters ended July 2, 2018, respectively, are included in Corporate. See Note 3 Acquisition of Anaren Inc.

(18) Related Party Transactions

In the normal course of business, the Company’s foreign subsidiaries purchase laminate and prepreg from related parties in which a member of the Board of Directors of the Company holds an equity interest. The Company’s foreign subsidiaries purchased laminate and prepreg from these related parties in the amount of $12,550 and $12,121 for the quarters ended July 2, 2018 and July 3, 2017, respectively, and $38,257 and $25,611 for the two quarters ended July 2, 2018 and July 3, 2017, respectively.

As of July 2, 2018 and January 1, 2018, the Company’s consolidated condensed balance sheets included $15,256 and $14,452, respectively, in accounts payable due to related parties primarily for purchases of laminate and prepreg and such balances are included as a component of accounts payable on the consolidated condensed balance sheets.

Item 2. ***Management's Discussion and Analysis of Financial Condition and Results of Operations***

The following discussion of our financial condition and results of operations should be read in conjunction with our consolidated condensed financial statements and the related notes and the other financial information included in this Quarterly Report on Form 10-Q. This discussion and analysis contains forward-looking statements that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of specified factors, including those set forth in Item 1A "Risk Factors" of Part II below and elsewhere in this Quarterly Report on Form 10-Q. This discussion and analysis should also be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" set forth in our Annual Report on Form 10-K for the fiscal year ended January 1, 2018, filed with the SEC.

COMPANY OVERVIEW

We are a leading global printed circuit board (PCB) manufacturer, focusing on quick-turn and volume production of technologically complex PCBs and electro-mechanical solutions (E-M Solutions), as well as a global designer and manufacturer of high-frequency radio frequency (RF) and microwave components and assemblies. We focus on providing time-to-market and volume production of advanced technology products and offer a one-stop manufacturing solution to our customers from engineering support to prototype development through final mass production. This one-stop manufacturing solution allows us to align technology development with the diverse needs of our customers and to enable them to reduce the time required to develop new products and bring them to market. We serve a diversified customer base consisting of approximately 2,200 customers in various markets throughout the world, including aerospace and defense, automotive components, smartphones and touchscreen tablets, high-end computing, and medical, industrial and instrumentation related products as well as networking/communications infrastructure products. Our customers include both original equipment manufacturers (OEMs) and electronic manufacturing services (EMS) providers.

RECENT DEVELOPMENTS

On April 18, 2018, we completed our acquisition to purchase all of the issued and outstanding common stock of Anaren Holding Corp. for total consideration of $787.9 million subject to customary working capital and certain other adjustments. Other than the equity interests of Anaren, Inc. (Anaren), Anaren Holding Corp. has no material assets or liabilities and has no material independent operations. Anaren is a leading provider of mission-critical RF solutions, microelectronics, and microwave components and assemblies for the wireless infrastructure and aerospace and defense electronics markets.

Additionally, we closed our $600.0 million commitment for incremental loans concurrent with the completion of our acquisition of Anaren. We used the proceeds of the incremental loans, along with cash on hand to fund the purchase price of the acquisition and to pay related fees and expenses.

FINANCIAL OVERVIEW

While our customers include both OEMs and EMS providers, we measure customers based on OEM companies, as they are the ultimate end customers. Sales to our 10 largest customers accounted for 43% of our net sales for both the quarter and two quarters ended July 2, 2018. Sales to our 10 largest customers accounted for 45% of our net sales for both the quarter and two quarters ended July 3, 2017. We sell to OEMs both directly and indirectly through EMS providers.

The following table shows the percentage of our net sales attributable to each of the principal end markets we served for the periods indicated:

	Quarter Ended		Two Quarters Ended	
End Markets(1)(2)	**July 2, 2018**	**July 3, 2017**	**July 2, 2018**	**July 3, 2017**
Aerospace and Defense	24 %	17 %	21 %	16 %
Automotive	19	20	20	20
Cellular Phone(2)	8	13	12	13
Computing/Storage/Peripherals(2)	15	14	14	15
Medical/Industrial/Instrumentation	14	15	14	15
Networking/Communications	17	20	17	20
Other(3)	3	1	2	1
Total	100 %	100 %	100 %	100 %

(1) Sales to EMS companies are classified by the end markets of their OEM customers.

(2) Smartphones are included in the Cellular Phone end market, tablets are included in the Computing/Storage/Peripherals end market and other consumer devices include wearables, portable video devices and personal headphones are included in the Other end market.

(3) Revenue recognized progressively over time based on the extent of progress towards completion of the performance obligation, which has not yet been shipped, is included in the Other end market along with consumer devices such as wearables, portable video devices and personal headphones.

We derive revenues primarily from the sale of PCBs, custom electronic assemblies using customer-supplied engineering and design plans, and from design, development, and manufacture of components, assemblies, and subsystems which receive, process, and transmit microwave and RF signals. Most orders for products generally correspond to the production schedules of our customers and are supported with firm purchase orders. Most of our customers have continuous transfer of control of the work in progress and finished goods throughout the PCB manufacturing process, as PCBs are built to customer specifications and do not have an alternative use. The customer typically controls the work in progress and finished goods as evidenced either by contractual termination clauses or by our right to payment for work performed to date, plus a reasonable profit. As a result, and in light of our adoption of the new "over time" revenue standard as further discussed below in the "CRITICAL ACCOUNTING POLICIES AND ESTIMATES," beginning in the first quarter of 2018, we recognized revenue progressively over time based on the extent of progress towards completion of the performance obligation rather than upon shipment as we had in the past.

The selection of the method to measure progress toward completion requires judgment and is based on the type of PCB or customized electronic assemblies being manufactured. We use the cost-to-cost method as it best depicts the transfer of control to the customer which takes place as we incur costs. Under the cost-to-cost measure of progress, the extent of progress toward completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Revenues are recorded proportionally as costs are incurred.

Additionally, we have certain long-term contracts related to its manufacture of components, assemblies, and subsystems. These long-term contracts, many of which provide for periodic payments, are recognized over time under the percentage-of completion method. Estimated manufacturing cost-at-completion for these contracts are reviewed on a periodic basis, and adjustments are made periodically to the estimated cost-at-completion, based on actual costs incurred, progress made, and estimates of costs required to complete the contractual requirements. When the estimated manufacturing cost-at-completion exceeds the contract value, the contract is written down to its net realizable value and the loss resulting from the cost overruns are immediately recognized.

Finally, we manufacture components, assemblies, and subsystems for which we recognize revenue at a point in time as the customer does not simultaneously receive or consume the benefits provided by our performance and the asset being manufactured has alternative uses to us.

Net sales consist of gross sales less an allowance for returns, which typically have been less than 2% of gross sales. We provide our customers a limited right of return for defective PCBs, assemblies, components and subsystems. We record an estimate for sales returns and allowances at the time of sale based on historical results.

Cost of goods sold consists of materials, labor, outside services, and overhead expenses incurred in the manufacture and testing of our products. Shipping and handling fees and related freight costs and supplies associated with shipping products are also included as a component of cost of goods sold. Many factors affect our gross margin, including capacity utilization, product mix, production volume, and yield. While we have entered into supply assurance agreements with some of our key suppliers to maintain the continuity of supply of some of the key materials we use, we generally do not participate in any significant long-term contracts with suppliers, and we believe there are a number of potential suppliers for the raw materials we use.

Selling and marketing expenses consist primarily of salaries, labor related benefits, and commissions paid to our internal sales force, independent sales representatives, and our sales support staff, as well as costs associated with marketing materials and trade shows.

General and administrative costs primarily include the salaries for executive, finance, accounting, information technology, facilities, research and development, and human resources personnel, as well as expenses for accounting and legal assistance, incentive compensation expense, and gains or losses on the sale or disposal of property, plant and equipment.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our consolidated condensed financial statements included in this report have been prepared in accordance with U.S. GAAP. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, net sales and expenses, and related disclosure of contingent assets and liabilities.

See Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations*, in our Annual Report on Form 10-K for the fiscal year ended January 1, 2018 for further discussion of critical accounting policies and estimates. There were no material changes to our critical accounting policies and estimates since January 1, 2018, except for the adoption of Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers* (new revenue standard) on January 2, 2018.

The new revenue standard replaces most existing revenue recognition guidance in U.S. GAAP, including industry specific requirements, and provides companies with a single revenue recognition model for recognizing revenue of contracts with customers. The core principle of the new revenue standard is that a company should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. We assessed the new guidance and adopted the new revenue standard on January 2, 2018, which resulted in a change to the timing of revenue recognition for certain of our revenue streams from "point in time" upon physical delivery to an "over time" model.

RESULTS OF OPERATIONS

The quarter and two quarters ended July 3, 2017 do not include the results of operations from our acquisition of Anaren, as the acquisition occurred on April 18, 2018. The following table sets forth the relationship of various items to net sales in our consolidated condensed statements of operations:

	Quarter Ended		Two Quarters Ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
Net sales	100.0 %	100.0 %	100.0 %	100.0 %
Cost of goods sold	83.8	84.7	85.2	84.0
Gross profit	16.2	15.3	14.8	16.0
Operating expenses:				
Selling and marketing	2.6	2.5	2.6	2.6
General and administrative	6.5	4.7	5.9	4.7
Amortization of definite-lived intangibles	2.7	0.9	1.8	0.9
Total operating expenses	11.8	8.1	10.3	8.2
Operating income	4.4	7.2	4.5	7.8
Other income (expense):				
Interest expense	(2.9)	(2.1)	(2.5)	(2.1)
Other, net	0.9	(0.9)	0.4	(0.6)
Total other expense, net	(2.0)	(3.0)	(2.1)	(2.7)
Income before income taxes	2.4	4.2	2.4	5.1
Income tax provision	9.3	(0.9)	4.4	(0.8)
Net income	11.7	3.3	6.8	4.3
Less: Net income attributable to the non-controlling interest	—	—	—	—
Net income attributable to TTM Technologies, Inc. stockholders	11.7 %	3.3 %	6.8 %	4.3 %

We have three reportable segments: PCB, E-M Solutions and Anaren. We added the Anaren reportable segment following the acquisition of Anaren on April 18, 2018. See *Notes to Consolidated Condensed Financial Statements — Note 3 Acquisition of Anaren, Inc.* However, beginning in the third quarter of 2018, we will no longer report Anaren as a reportable segment as we will integrate them into the PCB reportable segment. The PCB reportable segment is comprised of multiple operating segments. Factors considered in determining whether operating segments can be aggregated into reportable segments included similarity regarding economic characteristics, products, production process, type or class of customers, distribution methods and regulatory environments.

The following table compares net sales by reportable segment for the quarters and two quarters ended July 2, 2018 and July 3, 2017:

	Quarter Ended		Two Quarters Ended	
	July 2, 2018	July 3, 2017	July 2, 2018	July 3, 2017
	(In thousands)		(In thousands)	
Net Sales				
PCB	$ 596,461	$ 576,566	$ 1,215,790	$ 1,163,261
Anaren (1)	62,011	—	62,011	—
E-M Solution	61,842	52,898	108,993	94,567
Total sales	720,314	629,464	1,386,794	1,257,828
Inter-segment sales	(3,427)	(2,282)	(6,325)	(5,399)
Total net sales	$ 716,887	$ 627,182	$ 1,380,469	$ 1,252,429

(1) The quarter and two quarters ended July 3, 2017 does not include Anaren, as the acquisition occurred on April 18, 2018.

Net Sales

Total net sales increased $89.7 million, or 14.3%, from $627.2 million for the second quarter of 2017 to $716.9 million for the second quarter of 2018. Net sales for the PCB reportable segment, excluding inter-segment sales, increased $18.7 million, or 3.3%, from $574.3 million for the second quarter of 2017 to $593.0 million for the second quarter of 2018. This increase was primarily due to higher sales in our Computing and Aerospace and Defense end markets, partially offset by a decline in our Cellular Phone and Networking/Communications end markets. Higher sales were the result of an average PCB selling price increase of 7.9%, which was driven mainly by product mix shift, and a 4.6% decrease in PCB shipments as compared to the second quarter of 2017. Net sales for the E-M Solutions reportable segment increased $8.9 million from $52.9 million for the second quarter of 2017 to $61.8 million for the second quarter of 2018. The increase was primarily due to higher demand in our Automotive end market. Anaren contributed $62.0 million of net sales for the second quarter of 2018.

Total net sales increased $128.1 million, or 10.2%, from $1,252.4 million for the first two quarters of 2017 to $1,380.5 million for the first two quarters of 2018. Net sales for the PCB reportable segment, excluding inter-segment sales, increased $51.6 million, or 4.5%, from $1,157.9 million for the first two quarters of 2017 to $1,209.5 million for the first two quarters of 2018. The increase was primarily from higher demand in our Aerospace and Defense and Medical/Industrial/Instrumentation end markets, partially offset by a decline in our Networking/Communications and Cellular Phone end markets. These changes resulted in a 2.8% decrease in PCB shipments as compared to the first two quarters of 2017, and an average PCB selling price increase of 6.2%, which was driven by a product mix shift. Net sales for the E-M Solutions reportable segment increased $14.4 million, or 15.2%, from $94.6 million for the first two quarters of 2017 to $109.0 million for the first two quarters of 2018. The increase was primarily due to higher demand in our Automotive end market. The Anaren acquisition, which was closed in the second quarter, contributed $62.0 million of net sales for the first two quarters of 2018.

Gross Margin

Overall gross margin increased from 15.3% for the second quarter of 2017 to 16.2% for the second quarter of 2018. Gross margin for the PCB reportable segment decreased from 16.1% for the second quarter of 2017 to 15.4% for the second quarter of 2018 primarily due to lower capacity utilization at our Cellular Phone focused facilities. Gross margin for the E-M Solutions reportable segment decreased from 10.0% for the second quarter of 2017 to 8.0% for the second quarter of 2018 primarily due to unfavorable product mix. Gross margin for the Anaren reportable segment was 35.4% for the second quarter of 2018 which included a charge of $4.9 million to cost of goods sold associated with inventory resulting from purchase accounting.

Overall gross margin decreased from 16.0% for the first two quarters of 2017 to 14.8% for the first two quarters of 2018. Gross margin for the PCB reportable segment decreased from 17.1% for the first two quarters of 2017 to 14.8% for the first two quarters of 2018, primarily due to decreased volumes at our Cellular Phone and Networking/Communications focused facilities. Gross margin for the E-M Solutions reportable segment increased from 6.8% for the first two quarters of 2017 to 6.9% for the first two quarters of 2018, primarily due to increased volumes. Gross margin for the Anaren reportable segment was 35.4% for the two quarters of 2018 which included a charge of $4.9 million to cost of goods sold associated with inventory resulting from purchase accounting.

Capacity utilization is a key driver for us, particularly in our high volume Asia facilities, as a significant portion of our operating costs are fixed in nature. Capacity utilization for the second quarter of 2017 in our Asia and North America PCB facilities was 83% and 54%, respectively, compared to 71% and 61%, respectively, in the second quarter of 2018. Capacity utilization for the first two quarters of 2017 in our Asia and North America PCB facilities was 82% and 55%, respectively, compared to 74% and 61%, respectively, in the first two quarters of 2018.

Selling and Marketing Expenses

Selling and marketing expenses increased $2.7 million, from $15.9 million for the second quarter of 2017 to $18.6 million for the second quarter of 2018. Selling and marketing expenses increased $3.7 million, from $32.5 million for the first two quarters of 2017 to $36.2 million for the first two quarters of 2018. As a percentage of net sales, selling and marketing expenses was 2.5% for the second quarter of 2017, as compared to 2.6% for the second quarter of 2018, and 2.6% for both of the first two quarters of 2017 and 2018. The increase in selling and marketing expense for the second quarter and the first two quarters primarily relates to the acquisition of Anaren on April 18, 2018.

General and Administrative Expenses

General and administrative expenses increased $17.2 million from $29.1 million, or 4.7% of net sales, for the second quarter of 2017 to $46.3 million, or 6.5% of net sales, for the second quarter of 2018. General and administrative expenses increased $22.6 million from $58.9 million, or 4.7% of net sales, for the first two quarters of 2017 to $81.5 million, or 5.9% of net sales, for the first two quarters of 2018. The increase in expense primarily relates to $6.8 million and $10.8 million of acquisition-related costs for the quarter and the first two quarters of 2018, respectively, associated with the acquisition of Anaren on April 18, 2018 and two and a half months of general and administrative expense incurred by Anaren post acquisition.

Other Income (Expense)

Other expense, net decreased $4.4 million from $18.7 million for the second quarter of 2017 to $14.3 million for the second quarter of 2018. Other expense, net decreased $5.0 million from $34.1 million for the first two quarters of 2017 to $29.1 million for the first two quarters of 2018. The decrease in other expense, net for both the quarter and two quarters was primarily the result of foreign currency gains due to the depreciation of the Chinese Renminbi (RMB) as well as certain government incentives, offset by an increase in interest expense primarily related to the $600.0 million incremental borrowing in conjunction with the Anaren acquisition. We utilize the RMB at our China facilities for employee-related expenses, foreign currency denominated purchases, and other costs of running our operations in China. Further, our translation of balance sheet accounts denominated in foreign currencies could be impacted if foreign exchange rates between those currencies (principally the RMB) and the U.S. Dollar change.

Income Taxes

The provision for income taxes decreased by $72.1 million from a tax expense of $5.6 million for the second quarter of 2017 to a tax benefit of $66.5 million for the second quarter of 2018. The provision for income taxes decreased by $71.2 million from $9.7 million of tax expense for the first two quarters of 2017 to $61.5 million of tax benefit for the first two quarters of 2018. The decreases in income tax expense in 2018 were primarily due to a release of a portion of our valuation allowance against our U.S. federal and state net deferred tax assets, decreased operating income, additional benefits from the release of uncertain tax positions, additional tax incentives, and an offset by an additional accrual of tax expense related to a change in our policy of indefinite reinvestment outside of the U.S. for our undistributed earnings attributable to our foreign subsidiaries.

Effects of the Tax Cuts and Jobs Act

On December 22, 2017, the Tax Cuts and Jobs Act (Tax Act) was enacted. Accounting Standards Codification (ASC) 740, *Accounting for Income Taxes*, requires companies to recognize the effect of tax law changes in the period of enactment regardless of the effective date of those tax law changes. Certain provisions of the Tax Act were effective September 27, 2017, others were effective or identified as of December 31, 2017 or January 1, 2018.

Given the timing of enactment of the Tax Act and the significance of the legislation, the SEC staff issued Staff Accounting Bulletin No. 118 (SAB 118), which allows registrants to record provisional amounts during a one year “measurement period” similar to that used when accounting for business combinations. However, the measurement period should not extend beyond one year from the Tax Act enactment date and is deemed to have ended when the registrant has obtained, prepared and analyzed the information necessary to finalize its accounting.

To the extent that a company’s accounting for certain income tax effects of the Tax Act is incomplete but is able to determine a reasonable estimate, it must record a provisional estimate in the financial statements. If a company cannot determine a provisional estimate to be included in the financial statements, it should continue to apply ASC 740 on the basis of the provisions of the tax laws that were in effect immediately before the enactment of the Tax Act. More specifically, SAB 118 summarizes a three-step process to be applied at each reporting period to account for and disclose the tax effects of the Tax Act. The steps are (1) to record the effects of the change in tax law for which accounting is complete; (2) to record provisional amounts (or adjustments to provisional amounts) for the effects of the tax law where accounting is not complete, but for which a reasonable estimate has been determined; and (3) where a reasonable estimate cannot yet be made, to continue to apply ASC 740 based on the tax law in effect prior to enactment of the Tax Act.

With respect to the reduction in the U.S. corporate income tax rate to 21 percent, we revalued our ending gross deferred tax items, previously recorded at 35 percent, using the enacted 21 percent corporate tax rate. This change caused a reduction to our U.S. federal deferred tax asset fully offset by a reduction of our valuation allowance. While we are able to make a reasonable estimate of the impact of the reduction in corporate rate, it may be affected by other analyses related to the Tax Act, including, but not limited to, our calculation of deemed repatriation of deferred foreign income and the state tax effect of adjustments made to federal temporary differences, as well as changes to our valuation allowance.

Further effects of tax law changes where we have made a provisional estimate include the one-time mandatory repatriation transition tax on the net accumulated earnings and profits of our foreign subsidiaries earned post 1986. We have performed a preliminary earnings and profits analysis with consideration given to foreign loss carryforwards acquired as a result of our acquisitions and determined that there should be no income tax effect in the current or any future period. We will continue to identify and evaluate data to more thoroughly identify the tax impact and record adjustments, if any, within the measurement period.

We have determined that the following provisions that are effective January 1, 2018 and relevant to us will not impact the current quarter tax expense, primarily as a result of the full valuation allowance in the U.S.: limitations on certain entertainment expenses, the inclusion of commissions and performance based compensation in determining the excessive compensation limitation, limitation on the current deductibility of net interest expense in excess of 30 percent of adjusted taxable income, and a minimum tax on certain foreign earnings in excess of 10 percent of the foreign subsidiaries tangible assets (i.e., global intangible low-taxed income or GILTI). We are still evaluating whether to make a policy election to treat the GILTI tax as a period expense or to provide U.S. deferred taxes on foreign earnings that are expected to generate GILTI income when they reverse in future years.

In addition, significant judgment is required in determining our worldwide provision for income taxes. In the ordinary course of our business, there are many transactions for which the ultimate tax determination is uncertain. Additionally, our calculations of income taxes are based on our interpretations of applicable tax laws in the jurisdictions in which we file.

Our effective tax rate was primarily impacted by tax rates in China and Hong Kong, the U.S. federal income tax rate, apportioned state income tax rates, generation of other credits and deductions available to us, as well as changes in valuation allowances, and certain non-deductible items. Certain foreign losses generated are not more likely than not to be realizable, and thus no income tax benefit has been recognized on these losses. We had a net deferred income tax liability of approximately $18.5 million and $4.9 million as of July 2, 2018 and January 1, 2018, respectively.

Liquidity and Capital Resources

Our principal sources of liquidity have been cash provided by operations, the issuance of senior notes, convertible senior notes, and term and revolving debt. Our principal uses of cash have been to finance acquisitions and capital expenditures, meet debt service requirements, fund working capital requirements, and repay existing debt. We anticipate that servicing debt, financing capital expenditures, financing acquisitions, and funding working capital requirements will continue to be the principal demands on our cash in the future.

Cash flow provided by operating activities during first two quarters of 2018 was $41.4 million as compared to $108.7 million in the same period in 2017. The decrease in cash flow was primarily due to increased investment in working capital. Cash cycle days increased to 49 days for the second quarter of 2018 as compared to 40 days for the same quarter of 2017 primarily due to increased accounts receivable resulting from a change in customer mix and timing of receivable collections. As of July 2, 2018, we had net working capital of approximately $513.4 million compared to $501.0 million as of January 1, 2018.

Net cash used in investing activities was approximately $677.5 million for the first two quarters of 2018, reflecting $596.4 million for acquisition of Anaren, net of debt assumed, and $81.1 million net purchases of property, plant and equipment. Net cash used in investing activities was approximately $69.0 million for the first two quarters of 2017 reflecting purchases of property, plant and equipment of $87.1 million less proceeds from sale of property, plant and equipment and assets held for sale of $18.1 million.

Net cash provided by financing activities was approximately $431.7 million for the first two quarters of 2018, primarily reflecting proceeds of $623.0 million from incremental term and revolving loan borrowings, offset by the repayment of assumed long-term debt in acquisition of $178.6 million, repayment of long-term debt $3.7 million, and payment of debt issuance costs and original issue discount of $9.2 million associated with the incremental term loans. Net cash used by financing activities was approximately $49.9 million the first two quarters of 2017 primarily reflecting additional prepayments of principal of long-term debt.

As of July 2, 2018, we had cash and cash equivalents of approximately $204.1 million, of which approximately $139.5 million was held by our foreign subsidiaries, primarily in China. Cash and cash equivalents held by our foreign locations are expected to be used in local operations.

Our 2018 net capital expenditures are expected to be in the range of $150.0 million to $170.0 million.

Long-term Debt and Letters of Credit

Term Loan Facility

On April 18, 2018, we closed our $600.0 million commitment of incremental loans concurrent with the completion of our acquisition of Anaren. We used the proceeds of the incremental loans along with cash on hand to fund the purchase of the acquisition and to pay related fees and expenses. These incremental loans increased the existing balance of our Term Loan Facility due 2024 from $348.3 million to $948.3 million. This Term Loan Facility had an outstanding balance of $945.9 million as of July 2, 2018, of which $40.0 million is included in short-term debt and $905.9 million is included in long-term debt, was issued at a weighted average discount of 99.7% and bears interest, at our option, at a floating rate of LIBOR, plus an applicable interest margin of 2.5%, or an alternate base rate, (defined as the greater of the JP Morgan prime, the New York Fed bank rate plus 0.5% or LIBOR plus 1%), subject to a 1% floor plus an applicable margin of 1.5%. At July 2, 2018, the interest rate on the outstanding borrowings under the Term Loan Facility was 4.60%. There is no provision, other than an event of default, for the interest margin to increase. The Term Loan Facility will mature on September 28, 2024. The Term Loan Facility is secured by a significant amount of our domestic assets and a pledge of 65% of voting stock of our first tier foreign subsidiaries and is structurally senior to our Senior Notes and Convertible Senior Notes. See Senior Notes and Convertible Senior Notes below.

We are required to make scheduled payments of the outstanding Term Loan Facility on a quarterly basis beginning January 1, 2018. Subsequent to July 2, 2018, we made an optional debt principal prepayment of $40.0 million. As a result of the prepayment, we are no longer required to make any quarterly scheduled payments until October 2022. However, based on certain parameters defined in the Term Loan Facility, including a First Lien Leverage Ratio, we may be required to make an additional principal payment on an annual basis beginning after fiscal year 2018. Any additional annual payments or prepayments would reduce future required scheduled payments. Any remaining outstanding balance under the Term Loan Facility is due at the maturity date of September 28, 2024.

Borrowings under the Term Loan Facility are subject to certain affirmative and negative covenants, including limitations on indebtedness, corporate transactions, investments and dispositions, and share payments. At July 2, 2018, we were in compliance with the covenants under the Term Loan Facility.

Senior Notes

The $375.0 million of Senior Notes, which is included in long-term debt, bear interest at a rate of 5.63% per annum. Interest is payable semiannually in arrears on April 1 and October 1 of each year beginning April 1, 2018. The Senior Notes will mature on October 1, 2025.

Borrowings under the Senior Notes are subject to certain affirmative and negative covenants, including limitations on indebtedness, corporate transactions, investments, dispositions, and share payments. At July 2, 2018, we were in compliance with the covenants under the Senior Notes.

Convertible Senior Notes due 2020

We maintain 1.75% convertible senior notes in the amount of $250.0 million due December 15, 2020. The convertible senior notes bear interest at a rate of 1.75% per annum. Interest is payable semiannually in arrears on June 15 and December 15 of each year. The convertible senior notes are senior unsecured obligations and rank equally to our future unsecured senior indebtedness and senior in right of payment to any of our future subordinated indebtedness. Offering expenses are being amortized to interest expense over the term of the convertible senior notes.

Asset-Based Lending Agreements

We maintain a $200.0 million U.S. Asset-Based Lending Credit Agreement (U.S. ABL), and a $150.0 million Asia Asset-Based Lending Credit Agreement (Asia ABL) (collectively the ABL Revolving Loans).

The U.S. ABL consists of three tranches comprised of a revolving credit facility of up to $200.0 million, a letter of credit facility for up to $50.0 million, and swingline loans for up to $30.0 million, provided that at no time may amounts outstanding under the tranches exceed in aggregate $200.0 million or the applicable borrowing base, which is a percentage of the principal amount of Eligible Accounts, as defined in the U.S. ABL agreement. Borrowings under the U.S. ABL bear interest at either a floating rate of LIBOR plus a margin of 150 basis points or JP Morgan Chase Bank's prime rate plus a margin of 50 basis points, at our option. At July 2, 2018, the interest rate on the outstanding borrowings under the U.S. ABL was 3.60%. The applicable margin can vary based on the remaining availability of the facility, from 125 to 175 basis points for LIBOR-based loans and from 25 to 75 basis points for JP Morgan Chase Bank's prime rate-based loans. Other than availability and an event of default, there are no other provisions for the interest margin to increase. The U.S. ABL will mature on May 31, 2020. Loans made under the U.S. ABL are secured first by all of our domestic cash, receivables and certain inventories as well as by a second position against a significant amount of our domestic assets and a pledge of 65% of the voting stock of our first tier foreign subsidiaries and are structurally senior to our Senior Notes and Convertible Senior Notes. See Senior Notes and Convertible Senior Notes elsewhere in this section. At July 2, 2018, $40.0 million of the U.S. ABL was outstanding and classified as long-term debt, which is consistent with its maturity date.

The Asia ABL consists of two tranches comprised of a revolving credit facility for up to $150.0 million and a letter of credit facility for up to $100.0 million, provided that at no time may amounts outstanding under both tranches exceed in aggregate $150.0 million or the applicable borrowing base, which is a percentage of the principal amount of Eligible Accounts, as defined in the Asia ABL agreement. Borrowings under the Asia ABL bear interest at a floating rate of LIBOR plus 140 basis points. At July 2, 2018, the interest rate on the outstanding borrowings under the Asia ABL was 3.50%. There is no provision, other than an event of default, for the interest margin to increase. The Asia ABL will mature on May 22, 2020. Loans made under the Asia ABL are secured by a portion of our Asia cash and receivables and are structurally senior to our domestic obligations, including the Senior Notes and Convertible Senior Notes. See Senior Notes and Convertible Senior Notes elsewhere in this section. At July 2, 2018, $30.0 million of the Asia ABL was outstanding and classified as long-term debt, which is consistent with its maturity date.

We have up to $50.0 million and $100.0 million Letters of Credit Facilities under the U.S. ABL and the Asia ABL, respectively. As of July 2, 2018, letters of credit in the amount of $6.1 million were outstanding under the U.S. ABL and $13.5 million were outstanding under the Asia ABL with various expiration dates through June 2019. Available borrowing capacity under the U.S. ABL and the Asia ABL was $153.9 million and $106.5 million, respectively, which considers letters of credit outstanding at July 2, 2018.

We are required to pay a commitment fee of 0.25% to 0.375% per annum on any unused portion of the ABL Revolving Loans. We paid commitment fees of $0.2 million and $0.5 million for the quarter and two quarters ended July 2, 2018, respectively. Under the occurrence of certain events, the ABL Revolving Loans are subject to various financial and operational covenants, including maintaining minimum fixed charge coverage ratios. At July 2, 2018, we were in compliance with the covenants under the ABL Revolving Loans.

Other Credit Facility

Additionally, we are party to a revolving loan credit facility (Chinese Revolver) with a lender in China. Under this arrangement, the lender has made available to us approximately $31.7 million in unsecured borrowing with all terms of the borrowing to be negotiated at the time the Chinese Revolver is drawn upon. There are no commitment fees on the unused portion of the Chinese Revolver, and this arrangement expires in January 2019. As of July 2, 2018, the Chinese Revolver had not been drawn upon.

Based on our current level of operations, we believe that cash generated from operations, cash on hand and cash from the issuance of term and revolving debt will be adequate to meet our currently anticipated capital expenditure, debt service, and working capital needs for the next 12 months.

Contractual Obligations and Commitments

The following table provides information on our contractual obligations as of July 2, 2018:

Contractual Obligations (1)	Total	Less Than 1 year	1 - 3 Years	4 - 5 Years	After 5 Years
			(In thousands)		
Long-term debt obligations	$ 1,392,435	$ 40,729	$ 70,827	$ 7,413	$ 1,273,466
Convertible debt obligations	249,985	—	249,985	—	—
Interest on debt obligations	437,289	70,388	135,378	127,170	104,353
Derivative liabilities	1,565	1,565	—	—	—
Purchase obligations	112,704	101,603	2,808	607	7,686
Operating lease commitments	29,526	11,176	9,052	3,522	5,776
Total contractual obligations	$ 2,223,504	$ 225,461	$ 468,050	$ 138,712	$ 1,391,281

(1) Unrecognized uncertain tax benefits of $39.7 million are not included in the table above as the settlement timing is uncertain.

Off Balance Sheet Arrangements

We do not currently have, nor have we ever had, any relationships 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. In addition, we do not engage in trading activities involving non-exchange traded contracts. As a result, we are not materially exposed to any financing, liquidity, market, or credit risk that could arise if we had engaged in these relationships.

Seasonality

Orders for our products generally correspond to the production schedules of our customers. We historically experience higher net sales in the third and fourth quarters due to end customer demand in the fourth quarter for consumer electronics products. Seasonal fluctuations also include the Chinese New Year holidays in the first quarter, which typically results in lower net sales. We attribute this decline to shutdowns of our customers' and our own China based manufacturing facilities surrounding the Chinese New Year public holidays, which normally occur in January or February of each year.

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

In the normal course of business operations we are exposed to risks associated with fluctuations in interest rates and foreign currency exchange rates. We address these risks through controlled risk management that includes the use of derivative financial instruments to economically hedge or reduce these exposures. We do not enter into derivative financial instruments for trading or speculative purposes.

We have not experienced any losses to date on any derivative financial instruments due to counterparty credit risk.

To ensure the adequacy and effectiveness of our interest rate and foreign exchange hedge positions, we continually monitor our interest rate swap positions and foreign exchange forward positions, both on a stand-alone basis and in conjunction with their underlying interest rate and foreign currency exposures, from an accounting and economic perspective. However, given the inherent limitations of forecasting and the anticipatory nature of the exposures intended to be hedged, we cannot assure that such programs will offset more than a portion of the adverse financial impact resulting from unfavorable movements in either interest or foreign exchange rates. In addition, the timing of the accounting for recognition of gains and losses related to mark-to-market instruments for any given period may not coincide with the timing of gains and losses related to the underlying economic exposures and, therefore, may adversely affect our consolidated operating results and financial position.

Interest rate risk

Our business is exposed to interest rate risk resulting from fluctuations in interest rates. Our interest expense is more sensitive to fluctuations in the general level of LIBOR interest rates than to changes in rates in other markets. Increases in interest rates would increase interest expense relating to our outstanding variable rate borrowings and increase the cost of debt. Fluctuations in interest rates can also lead to significant fluctuations in the fair value of our debt obligations.

On May 15, 2018, we entered into a four-year pay-fixed, receive floating (1-month LIBOR), interest rate swap arrangement with a notional amount of $400.0 million for the period beginning June 1, 2018 and ending on June 1, 2022. At inception, the fair value of the interest rate swap was zero and as of July 2, 2018, the fair value of the interest rate swap was recorded as a liability and as a component of other accrued liabilities in the amount of $1.4 million. Under the terms of the interest rate swap, we would pay a fixed rate of 2.84% against the first interest payments of a portion of our LIBOR-based debt and would receive floating 1-month LIBOR during the swap period. During the quarter ended July 2, 2018, we designated this interest rate swap as a cash flow hedge. No ineffectiveness was recognized for the quarter ended July 2, 2018. During the quarter ended July 2, 2018, the interest rate swap increased interest expense by $0.3 million.

See Liquidity and Capital Resources and Long-term Debt and Letters of Credit appearing in Item 2 of this Form 10-Q for further discussion of our financing facilities and capital structure. As of July 2, 2018, approximately 62.5% of our total debt was based on fixed rates. Based on our borrowings as of July 2, 2018, an assumed 100 basis point change in variable rates would cause our annual interest cost to change by $6.2 million.

Foreign currency risks

In the normal course of business we are exposed to risks associated with fluctuations in foreign currency exchange rates associated with transactions that are denominated in currencies other than our functional currencies, as well as the effects of translating amounts denominated in a foreign currency to the U.S. Dollar as a normal part of our financial reporting process. Most of our foreign operations have the U.S. Dollar as their functional currency, however, two of our China facilities utilize the Renminbi (RMB), which results in recognition of translation adjustments included as a component of other comprehensive income. Our foreign exchange exposure results primarily from employee-related and other costs of running our operations in foreign countries, foreign currency denominated purchases and translation of balance sheet accounts denominated in foreign currencies. Our primary foreign exchange exposure is to the RMB. Except for certain equipment purchases, we do not engage in hedging to manage foreign currency risk related to revenue and expenses denominated in RMB. However, we may consider the use of derivatives in the future. In general, our Chinese customers pay us in RMB, which partially mitigates this foreign currency exchange risk.

We enter into foreign currency forward contracts to mitigate the impact of changes in foreign currency exchange rates and to reduce the volatility of purchases and other obligations generated in currencies other than the functional currencies. Our foreign subsidiaries may at times purchase forward exchange contracts to manage their foreign currency risks in relation to certain purchases of machinery denominated in foreign currencies other than our foreign functional currency. The notional amount of the foreign exchange contracts at July 2, 2018 and January 1, 2018 was approximately $6.5 million and $10.9 million, respectively. We designated certain of these foreign exchange contracts as cash flow hedges.

The table below presents information about certain of the foreign currency forward contracts at July 2, 2018 and January 1, 2018:

	As of July 2, 2018		As of January 1, 2018	
	Notional Amount	Average Contract Rate or Strike Amount	Notional Amount	Average Contract Rate or Strike Amount
	(In thousands)		(In thousands)	
Receive foreign currency/pay USD				
Japanese Yen	$ 6,482	0.01	$ 9,687	0.01
Euro	—	—	1,241	1.11
	$ 6,482		$ 10,928	
Estimated fair value, net liability	$ (149)		$ (44)	

Debt Instruments

The table below presents information about certain of our debt instruments as of July 2, 2018 and January 1, 2018.

	As of July 2, 2018								
	Remaining 2018	2019	2020	2021	2022	Thereafter	Total	Fair Market Value	Weighted Average Interest Rate
	(In thousands)								
US$ Variable Rate	$ 40,000	$ —	$ 70,000	$ —	$ 2,671	$ 903,208	$1,015,879	$1,013,515	4.53%
US$ Fixed Rate	729	400	250,412	—	—	375,000	626,541	842,932	4.08%
Total	$ 40,729	$ 400	$ 320,412	$ —	$ 2,671	$1,278,208	$1,642,420	$1,856,447	

	As of January 1, 2018								
	2018	2019	2020	2021	2022	Thereafter	Total	Fair Market Value	Weighted Average Interest Rate
	(In thousands)								
US$ Variable Rate	$ 3,500	$ 2,625	$ 50,500	$ 4,375	$ 3,500	$ 331,625	$ 396,125	$ 393,943	3.94%
US$ Fixed Rate	1,078	407	250,419	—	—	375,000	626,904	815,887	4.08%
Total	$ 4,578	$ 3,032	$ 300,919	$ 4,375	$ 3,500	$ 706,625	$1,023,029	$1,209,830	

Interest Rate Swap Contracts

The table below presents information regarding our interest rate swaps (in thousands) as of July 2, 2018.

	2018	Fair Market Value
Average interest payout rate	2.84%	
Interest payout amount	$ (1,009)	
Average interest received rate	1.99%	
Interest received amount	706	
Fair value loss as of July 2, 2018		$ (1,416)

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

Evaluation of Disclosure Controls and Procedures

Our management, under the supervision and with the participation of our Chief Executive Officer (CEO) and Chief Financial Officer (CFO), has evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act of 1934, as amended (the Exchange Act)) as of the end of the period covered by this report. Based on this evaluation, our CEO and CFO have concluded that, as of July 2, 2018, such disclosure controls and procedures were effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and (ii) accumulated and communicated to our management, including our CEO and CFO, as appropriate to allow timely decisions regarding required disclosures.

In designing and evaluating our disclosure controls and procedures, our management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their desired control objectives, and our management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Changes in Internal Control Over Financial Reporting

As a result of the acquisition of Anaren on April 18, 2018, our management is in the process of reviewing and evaluating the design and operating effectiveness of its internal control over financial reporting relating to Anaren. Certain changes have been made and will continue to be made to our internal controls until management has completed its evaluation and integrated Anaren's information and accounting systems and processes. In reliance on interpretive guidance issued by the SEC staff permitting a company to exclude an acquired business from management's assessment of the effectiveness of internal control over financial reporting for one year following the date that the acquisition is completed, we have elected to exclude disclosure of changes in internal control over financial reporting related to Anaren from this Quarterly Report on Form 10-Q.

There have been no other changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter and two quarters ended July 2, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. *Legal Proceedings*

From time to time, we may become a party to various legal proceedings arising in the ordinary course of our business. There can be no assurance that we will prevail in any such litigation. We believe that the amount of any reasonably possible or probable loss for known matters would not be material to our financial statements; however, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate potential loss could have a material adverse effect on our financial condition, results of operations, or cash flows in a particular period.

Item 1A. *Risk Factors*

An investment in our common stock involves a high degree of risk. You should carefully consider the factors described below, in addition to those discussed elsewhere in this report, in analyzing an investment in our common stock. If any of the events described below occurs, our business, financial condition, and results of operations would likely suffer, the trading price of our common stock could fall, and you could lose all or part of the money you paid for our common stock. The risk factors described below are not the only ones we face. Risks and uncertainties not known to us currently, or that may appear immaterial, also may have a material adverse effect on our business, financial condition, and results of operations.

In addition, the following risk factors and uncertainties could cause our actual results to differ materially from those projected in our forward-looking statements, whether made in this report or the other documents we file with the SEC, or our annual or quarterly reports to stockholders, future press releases, or orally, whether in presentations, responses to questions, or otherwise.

Risks Related to our Business

Uncertainty and adverse changes in the economy and financial markets could have an adverse impact on our business and operating results.

Uncertainty or adverse changes in the economy could lead to a significant decline in demand for the end products manufactured by our customers, which, in turn, could result in a decline in the demand for our products and pressure to reduce our prices. Any decrease in demand for our products could have an adverse impact on our financial condition, operating results and cash flows. Uncertainty and adverse changes in the economy could also increase the cost and decrease the availability of potential sources of financing and increase our exposure to losses from bad debts, either of which could have a material adverse effect on our financial condition, operating results and cash flows.

The integration of Anaren may present significant challenges to TTM, and although TTM expects the acquisition will result in cost savings, synergies, and other benefits to TTM, TTM may not realize those benefits because of difficulties related to integration, the realization of synergies, and other challenges.

TTM and Anaren have operated independently until consummation of the acquisition on April 18, 2018, and there can be no assurances that their businesses can be integrated successfully. It is possible that the integration process could result in the loss of key TTM or Anaren employees, the loss of customers, the disruption of either company's or both companies' ongoing businesses or other unexpected integration issues, higher than expected integration costs and an overall post-completion integration process that takes longer than originally anticipated. Specifically, the following issues and potential risks, among others, must be addressed in integrating the operations of TTM and Anaren in order to realize the anticipated benefits of the acquisition so the combined company performs as expected:

- failure to implement the business plan for the combined company;
- combining the businesses of TTM and Anaren and meeting the capital requirements of the combined company in a manner that permits the combined company to achieve the cost savings or revenue synergies anticipated to result from the acquisition, the failure of which would result in the anticipated benefits of the acquisition not being realized in the time frame currently anticipated or at all;
- satisfying the requirements of our customers and meeting their expectations while we integrate operations;
- integration of the contracting activities of TTM and Anaren, particularly with respect to the companies' respective military and government contracts;
- harmonizing the companies' operating practices, employee development and compensation programs, internal controls, and other policies, procedures, and processes;

- costs, including legal and settlement costs, associated with TTM's and Anaren's legal proceedings, and other costs, including legal and settlement costs, associated with the combined company's other loss contingencies, in each case whether known or unknown and whether relating to past, present or future facts, events, circumstances, or occurrences, any of which could be materially adverse to the business, results of operations, assets, or financial condition of TTM or Anaren and, following the acquisition, the financial position, results of operations, and liquidity of the combined company and the ability of the combined company to achieve expected benefits of the acquisition;
- potential deterioration in the financial performance of TTM and Anaren, including any potential deviation in results of operations from historical levels;
- difficulties in the retention and assimilation of employees;
- demands on management related to the increase in the size of our company after the acquisition;
- the diversion of management's attention from the management of daily operations to the integration of operations;
- unanticipated changes in applicable laws and regulations;
- the imposition of divestiture requirements or a required exit from business lines to obtain regulatory approvals;
- difficulties and risks in the integration of departments and systems (including accounting, health information and management information systems), technologies (including software), books and records and procedures, as well as in maintaining uniform standards and controls (including internal control over financial reporting and related procedures and policies); and
- other unanticipated issues, expenses, or liabilities that could materially adversely affect our ability to realize any expected synergies on a timely basis, or at all.

If we cannot successfully integrate Anaren, we may experience material negative consequences to our business, financial condition, or results of operations. Successful integration of TTM and Anaren will depend on our ability to manage these operations, to realize opportunities for revenue growth and to eliminate redundant and excess costs. Because of difficulties in combining the two companies, we may not be able to achieve the benefits that we expect to achieve as a result of the acquisition.

We serve customers and have manufacturing facilities outside the United States and are subject to the risks characteristic of international operations.

We have significant manufacturing operations in Asia and Canada and sales offices located in Asia and Europe, and we continue to consider additional opportunities to make foreign investments and construct new foreign facilities.

For the quarter ended July 2, 2018, we generated approximately 61.8% of our net sales from non-U.S. operations, and a significant portion of our manufacturing material was provided by international suppliers during this period. The United States' trade policies and those of foreign countries are subject to change which could adversely affect our ability to purchase and sell goods and materials without significant tariffs, taxes or duties that may be imposed on the materials we purchase or the goods we sell, thereby increasing the cost of such materials and potentially decreasing our margins. Further, our revenues could be impacted if our customers' ability to sell their goods is reduced by such tariffs, taxes or duties. The U.S. government has included PCBs among the third list of items that may be subjected to proposed tariffs to be imposed on imports from China, which may negatively impact our revenue and profitability. In addition, we are subject to risks relating to significant international operations, including but not limited to:

- managing international operations;
- imposition of governmental controls;
- unstable regulatory environments;
- compliance with employment laws;
- implementation of disclosure controls, internal controls, financial reporting systems, and governance standards to comply with U.S. accounting and securities laws and regulations;
- limitations on imports or exports of our product offerings;
- fluctuations in the value of local currencies;
- inflation or changes in political and economic conditions;
- labor unrest, rising wages, difficulties in staffing, and geographical labor shortages;
- government or political unrest;
- longer payment cycles;
- language and communication barriers, as well as time zone differences;

- cultural differences;
- increases in duties and taxation levied on our products;
- other potentially adverse tax consequences;
- imposition of restrictions on currency conversion or the transfer of funds;
- travel restrictions;
- expropriation of private enterprises;
- the potential reversal of current favorable policies encouraging foreign investment and trade; and
- the potential for strained trade relationships between the United States and its trading partners, including trade tariffs which could create competitive pricing risk.

We have substantial outstanding indebtedness, and our outstanding indebtedness could adversely impact our liquidity and flexibility in obtaining additional financing, our ability to fulfill our debt obligations and our financial condition and results of operations.

We have substantial debt and, as a result, we have significant debt service obligations. We maintain $250.0 million of Convertible Senior Notes due 2020 at an interest rate of 1.75%, a $945.9 million Term Loan Facility due 2024 (Term Loan Facility) at a floating rate of LIBOR plus 2.5%, $375.0 million of Senior Notes due 2025 (Senior Notes) at an interest rate of 5.63%, $40.0 million outstanding under a $200.0 million U.S. Asset-Based Lending Credit Agreement (U.S ABL), and $30.0 million outstanding under a $150.0 million Asia Asset-Based Lending Credit Agreement (Asia ABL). We and a number of our direct and indirect subsidiaries also have various credit facilities and letters of credit. Such agreements also contain certain financial covenants which require us to maintain, under the occurrence of certain events, a consolidated fixed charge coverage ratio.

Subject to the limits contained in the credit agreements governing the Term Loan Facility, the U.S. ABL, the Asia ABL, the indenture governing the Senior Notes, and our other debt instruments, we may be able to incur substantial additional debt from time to time to finance working capital, capital expenditures, investments or acquisitions, or for other purposes. If we do so, the risks related to our high level of debt could intensify. Specifically, our high level of debt could have important consequences to us and our shareholders. For example, it could:

- make it more difficult for us to satisfy our obligations with respect to our indebtedness, which could in turn result in an event of default on such indebtedness;
- require us to use a substantial portion of our cash flow from operations for debt service payments, thereby reducing the availability of cash for working capital, capital expenditures, acquisitions and other general corporate purposes;
- impair our ability to obtain additional financing in the future for working capital, capital expenditures, acquisitions and other investments or general corporate purposes, which may limit our ability to execute our business strategy;
- diminish our ability to withstand a downturn in our business, the industry in which we operate or the economy generally and restrict us from exploiting business opportunities or making acquisitions;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate or the general economy;
- increase our vulnerability to general adverse economic and industry conditions, including movements in interest rates, which could result in increased borrowing costs;
- limit management’s discretion in operating our business; and
- place us at a competitive disadvantage as compared to our competitors that have less debt as it could limit our ability to capitalize on future business opportunities and to react to competitive pressures or adverse changes.

In addition, the indenture governing the Senior Notes and the credit agreements governing the Term Loan Facility, the U.S. ABL and the Asia ABL contain restrictive covenants that will limit our ability to engage in activities that may be in our long-term best interest. Our failure to comply with those covenants could result in an event of default which, if not cured or waived, could result in the acceleration of all our debt.

Servicing our debt requires a significant amount of cash and we may not be able to generate sufficient cash to service all of our debt and may be forced to take other actions to satisfy our obligations under our debt, which may not be successful.

On July 2, 2018, we made an optional debt principal prepayment of $40.0 million. As a result of the prepayment, we are no longer required to make any quarterly scheduled payments until October 2022. However, based on certain parameters defined in the term loan facilities, including a First Lien Leverage Ratio, we may be required to make an additional principal payment on an annual basis, beginning after fiscal year 2018.

Our ability to make scheduled payments on or to refinance our debt obligations and to fund planned capital expenditures and expansion efforts depends on our ability to generate cash in the future and our financial condition and operating performance, which are subject to prevailing economic and competitive conditions and to certain regulatory, competitive, financial, business and other factors beyond our control. We cannot assure you that we will maintain a level of cash flows from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our debt.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we could face substantial liquidity problems and could be forced to reduce or delay investments and capital expenditures or to dispose of material assets or operations, seek additional capital (which could include obtaining additional equity capital on terms that may be onerous or highly dilutive) or restructure or refinance our indebtedness. We may not be able to effect any such alternative measures, if necessary, on commercially reasonable terms or at all and, even if successful, those alternative actions may not allow us to meet our scheduled debt service obligations. The credit agreements governing the Term Loan Facility, the U.S. ABL and the Asia ABL, the indenture governing the Senior Notes will restrict our ability to dispose of assets and use the proceeds from those dispositions and may also restrict our ability to raise debt or equity capital to be used to repay other indebtedness when it becomes due. We may not be able to consummate those dispositions or to obtain proceeds in an amount sufficient to meet any debt service obligations then due.

In addition, we conduct certain of our operations through our subsidiaries. Accordingly, repayment of our indebtedness may be dependent on the generation of cash flow by our subsidiaries and their ability to make such cash available to us, by dividend, debt repayment or otherwise. Unless they are guarantors of the Senior Notes or our other indebtedness, our subsidiaries do not have any obligation to pay amounts due on our indebtedness or to make funds available for that purpose. Our subsidiaries may not be able to, or may not be permitted to, make distributions to enable us to make payments in respect of our indebtedness. Each subsidiary is a distinct legal entity, and under certain circumstances, legal and contractual restrictions may limit our ability to obtain cash from our subsidiaries. While the indenture governing the Senior Notes and the credit agreements governing the Term Loan Facility, the U.S. ABL and the Asia ABL will limit the ability of our subsidiaries to incur consensual restrictions on their ability to pay dividends or make other intercompany payments to us, these limitations are subject to qualifications and exceptions. In the event that we do not receive distributions from our subsidiaries, we may be unable to make required principal and interest payments on our indebtedness.

Our inability to generate sufficient cash flows to satisfy our debt obligations, or to refinance our indebtedness on commercially reasonable terms or at all, would materially and adversely affect our financial position and results of operations and our ability to satisfy our obligations under our indebtedness.

If we cannot make scheduled payments on our debt, we will be in default and holders of the Senior Notes could declare all outstanding principal and interest to be due and payable, the lenders under the Term Loan Facility, the U.S. ABL and the Asia ABL could terminate their commitments to loan money, the lenders could foreclose against the assets securing their borrowings and we could be forced into bankruptcy or liquidation.

Despite our current level of indebtedness, we and our subsidiaries may still be able to incur substantially more debt. This could further exacerbate the risks to our financial condition described above.

We and our subsidiaries may be able to incur significant additional indebtedness in the future. Although the indenture governing the Senior Notes and the credit agreements governing the Term Loan Facility, the U.S. ABL and the Asia ABL will contain restrictions on the incurrence of additional indebtedness, these restrictions are subject to a number of qualifications and exceptions, and the additional indebtedness incurred in compliance with these restrictions could be substantial. These restrictions also will not prevent us from incurring obligations that do not constitute indebtedness.

Our variable rate indebtedness subjects us to interest rate risk, which could cause our debt service obligations to increase significantly.

Borrowings under the Term Loan Facility, the U.S. ABL and the Asia ABL are at variable rates of interest and expose us to interest rate risk. If interest rates were to increase, our debt service obligations on the variable rate indebtedness would increase even though the amount borrowed remained the same, and our net income and cash flows, including cash available for servicing our indebtedness, will correspondingly decrease. On May 15, 2018, we entered into an interest rate swap arrangement with a notional amount of $400.0 million, which expires on June 1, 2022, in order to reduce interest rate volatility exposure. This arrangement effectively converts $400.0 million of our variable rate debt to fixed rate. Under the terms of the interest rate swap, we would pay a fixed rate of 2.84% and would receive floating 1-month LIBOR during the swap period.

For illustrative purposes and assuming all loans under the Term Loan Facility, the U.S. ABL and the Asia ABL were fully drawn, each quarter point change in interest rates would result in a $2.2 million change in annual interest expense on our indebtedness under the Term Loan Facility, the U.S. ABL and the Asia ABL, after giving effect to our interest rate swap.

A lowering or withdrawal of the ratings assigned to our debt securities by rating agencies may increase our future borrowing costs and reduce our access to capital.

When issued, our debt will have a non-investment grade rating, and any rating assigned could be lowered or withdrawn entirely by a rating agency if, in that rating agency's judgment, future circumstances relating to the basis of the rating, such as adverse changes, so warrant. Consequently, real or anticipated changes in our credit ratings will generally affect the market value of the Senior Notes. Credit ratings are not recommendations to purchase, hold or sell the Senior Notes. Additionally, credit ratings may not reflect the potential effect of risks relating to the structure or marketing of the Senior Notes.

Any future lowering of our ratings likely would make it more difficult or more expensive for us to obtain additional debt financing.

Changes in prices or availability of raw materials could have a material adverse effect on our business, financial condition, and results of operations and reduce our gross margins.

To manufacture PCBs, we use raw materials such as laminated layers of fiberglass, copper foil, chemical solutions, gold, copper and other commodity products, which we order from our suppliers. In the case of backplane assemblies, components include connectors, sheet metal, capacitors, resistors and diodes, many of which are custom made and controlled by our customers' approved vendors. If raw material and component prices increase or if there is inflationary pressure on the cost of the metals that we use to produce our product, especially copper, it may reduce our gross margins. Further, if the supply of materials which we use in our manufacturing process becomes limited, our ability to obtain the quantities necessary to meet our customers' demand may be impacted which could cause us to encounter reduced revenue levels or price increases which would impact our profit margins. If either of these situations occurs our financial condition and results of operations could be negatively impacted.

The Company may experience cash flow volatility.

We experience fluctuations in our revenues and cost structure and the resulting cash flows and expect that this will continue to occur in the future. We experience fluctuations in our cash flows for reasons that include (i) the types and complexity, number, size, timing and duration of client engagements; (ii) the timing of revenue recognition under U.S. GAAP; (iii) the seasonality of our business; (iv) fluctuations in costs of labor; (v) fluctuations in the cost and availability of raw materials; (vi) fluctuations in demand for our products; (vii) the length of billing and collection cycles and changes in amounts that may become uncollectible; (viii) changes in the frequency and complexity of government regulatory and enforcement activities; (ix) timing of customer payments; (x) fluctuations in the exchange rates of various currencies against the U.S. dollar; and (xi) economic factors beyond our control. Such fluctuations could affect our ability to meet our obligations including debt repayments. Any failure to meet our financial obligations could have a material adverse effect on our financial position and results of operations.

We are subject to risks of currency fluctuations.

A portion of our cash, other current assets and current liabilities is held in currencies other than the U.S. dollar. Changes in exchange rates among other currencies and the U.S. dollar will affect the value of these assets or liabilities as re-measured to U.S. dollars on our balance sheet. To the extent that we ultimately decide to repatriate some portion of these funds to the United States, the actual value transferred could be impacted by movements in exchange rates. Any such type of movement could negatively impact the amount of cash available to fund operations or to repay debt. Additionally, we have revenues and costs denominated in currencies other than the U.S. dollar (primarily the RMB). Fluctuations in the exchange rates between the U.S. dollar and the RMB could result in increases or decreases in our costs or revenues which could negatively impact our business, financial condition, and results of operations. Significant inflation or disproportionate changes in foreign exchange rates could occur as a result of general economic conditions, acts of war or terrorism, changes in governmental monetary or tax policy, or changes in local interest rates Further, China's government imposes controls over the convertibility of RMB into foreign currencies, which subjects us to further currency exchange risk.

Our results of operations are often subject to demand fluctuations and seasonality. With a high level of fixed operating costs, even small revenue shortfalls would decrease our gross margins.

Our results of operations fluctuate for a variety of reasons, including:

- timing of orders from and shipments to major customers;
- the levels at which we utilize our manufacturing capacity;
- price competition;
- changes in our mix of revenues generated from quick-turn versus standard delivery time services;
- expenditures, charges or write-offs, including those related to acquisitions, facility restructurings, or asset impairments; and
- expenses relating to expanding existing manufacturing facilities.

A significant portion of our operating expenses is relatively fixed in nature, and planned expenditures are based in part on anticipated orders. Accordingly, unexpected revenue shortfalls may decrease our gross margins. In addition, we have experienced sales fluctuations due to seasonal patterns in the capital budgeting and purchasing cycles, as well as inventory management practices of our customers and the end markets we serve. In particular, the seasonality of the cellular phone and tablet industries and quick-turn ordering patterns affect the overall PCB industry. These seasonal trends have caused fluctuations in our operating results in the past and may continue to do so in the future. Results of operations in any period should not be considered indicative of the results that may be expected for any future period. In addition, our future quarterly operating results may fluctuate and may not meet the expectations of securities analysts or investors.

Recently enacted changes in tax law could materially affect our financial position and results of operations.

On December 22, 2017, the President of the United States signed into law H.R. 1 (the "U.S. Tax Reform"). We are in the process of determining the impact to our financial statements of all aspects of U.S. Tax Reform and intend to reflect the impact of such reform in the financial statements during the period in which such amounts can be reasonably estimated. The U.S. Tax Reform includes a number of provisions, including the lowering of the U.S. corporate tax rate from 35% to 21%, effective January 1, 2018. There are also provisions that may partially offset the benefit of such rate reduction, such as the repeal of the deduction for domestic production activities. The U.S. Tax Reform also includes international provisions, which generally establish a territorial-style system for taxing foreign-source income of domestic multinational corporations. Financial statement impacts could include adjustments for the re-measurement of deferred tax assets (liabilities) and the accrual for deemed repatriation tax on unremitted foreign earnings and profits. There is substantial uncertainty regarding the details of the U.S. Tax Reform. The intended and unintended consequences of the U.S. Tax Reform on our business are not yet widely understood and, due to the large and expanding scale of our international business activities, the changes to the taxation of our activities effected by the U.S. Tax Reform could increase our worldwide effective tax rate and could materially impact our financial position or results of operations.

We rely on the cellular phone and mobile technology industry for a significant portion of sales. The economic volatility in this industry has had, and may continue to have, a material adverse effect on our ability to forecast demand and production and to meet desired sales levels.

A large percentage of our business is conducted with customers who are in the cellular phone and mobile technology industry. This industry is characterized by intense competition, short product life cycles, seasonality, particularly around the year-end holiday season, and significant fluctuations in consumer demand. This industry is heavily dependent on consumers and therefore can be affected by their demand patterns. If the volatility in this industry continues, it may have a material adverse effect on our business, financial condition, and results of operations.

If we are unable to respond to rapid technological change and process development, we may not be able to compete effectively.

The market for our manufacturing services is characterized by rapidly changing technology and continual implementation of new production processes. The future success of our business will depend in large part upon our ability to maintain and enhance our technological capabilities, to manufacture products that meet changing customer needs, and to successfully anticipate or respond to technological changes on a cost-effective and timely basis. We expect that the investment necessary to maintain our technological position will increase as customers make demands for products and services requiring more advanced technology on a quicker turnaround basis. For example, in 2018 we expect to continue to make significant capital expenditures to expand our HDI, mSAP, and other advanced manufacturing capabilities. We may not be able to obtain access to additional sources of funds in order to respond to technological changes as quickly as our competitors. In addition, failure to adopt and implement technological improvements quickly may cause inefficiencies as our product yields or quality may decrease, resulting in increased costs.

In addition, the PCB industry could encounter competition from new or revised manufacturing and production technologies that render existing manufacturing and production technology less competitive or obsolete. We may not respond effectively to the technological requirements of the changing market. If we need new technologies and equipment to remain competitive, the development, acquisition, and implementation of those technologies and equipment will require us to make significant capital investments.

An increase in the cost of raw materials could have a material adverse effect on our business, financial condition, and results of operations and reduce our gross margins.

To manufacture PCBs, we use raw materials such as laminated layers of fiberglass, copper foil, chemical solutions, gold, and other commodity products, which we order from our suppliers. In the case of backplane assemblies, components include connectors, sheet metal, capacitors, resistors and diodes, many of which are custom made and controlled by our customers' approved vendors. If raw material and component prices increase, it may reduce our gross margins.

Products we manufacture may contain design or manufacturing defects, which could result in reduced demand for our services and liability claims against us.

We manufacture products to our customers' specifications, which are highly complex and may contain design or manufacturing errors or failures, despite our quality control and quality assurance efforts. Defects in the products we manufacture, whether caused by a design, manufacturing, or materials failure or error, may result in delayed shipments, customer dissatisfaction, a reduction or cancellation of purchase orders, or liability claims against us. If these defects occur either in large quantities or too frequently, our business reputation may be impaired. Since our products are used in products that are integral to our customers' businesses, errors, defects, or other performance problems could result in financial or other damages to our customers beyond the cost of the PCB, for which we may be liable. Although our invoices and sales arrangements generally contain provisions designed to limit our exposure to product liability and related claims, existing or future laws or unfavorable judicial decisions could negate these limitation of liability provisions. In addition, we manufacture products for a range of automotive customers. If any of our products are or are alleged to be defective, we may be required to participate in a recall of such products. As suppliers become more integral to the vehicle design process and assume more of the vehicle assembly functions, vehicle manufacturers are increasingly looking to their suppliers for contributions when faced with product liability claims or recalls. In addition, vehicle manufacturers, which have traditionally borne the costs associated with warranty programs offered on their vehicles, are increasingly requiring suppliers to guarantee or warrant their products and may seek to hold us responsible for some or all of the costs related to the repair and replacement of parts supplied by us to the vehicle manufacturer.

We depend upon a relatively small number of OEM customers for a large portion of our sales, and a decline in sales to major customers would materially adversely affect our business, financial condition, and results of operations.

A small number of customers are responsible for a significant portion of our sales. Our five largest OEM customers accounted for approximately 27% and 33% of our net sales for the quarters ended July 2, 2018 and July 3, 2017 respectively. Sales attributed to OEMs include both direct sales as well as sales that the OEMs place through EMS providers. Our customer concentration could fluctuate, depending on future customer requirements, which will depend in large part on market conditions in the electronics industry segments in which our customers participate. The loss of one or more significant customers or a decline in sales to our significant customers would materially adversely affect our business, financial condition, and results of operations. In addition, we generate significant accounts receivable in connection with providing manufacturing services to our customers. If one or more of our significant customers were to become insolvent or were otherwise unable to pay for the manufacturing services provided by us, our business, financial condition, and results of operations would be materially adversely affected.

In addition, during industry downturns, we may need to reduce prices to limit the level of order losses, and we may be unable to collect payments from our customers. There can be no assurance that key customers would not cancel orders, that they would continue to place orders with us in the future at the same levels as experienced by us in prior periods, that they would be able to meet their payment obligations, or that the end-products that use our products would be successful. This concentration of customer base may materially adversely affect our business, financial condition, and results of operations due to the loss or cancellation of business from any of these key customers, significant changes in scheduled deliveries to any of these customers, or decreases in the prices of the products sold to any of these customers.

If we are unable to maintain satisfactory capacity utilization rates, our business, financial condition, and results of operations would be materially adversely affected.

Given the high fixed costs of our operations, decreases in capacity utilization rates can have a significant effect on our business. Accordingly, our ability to maintain or enhance gross margins will continue to depend, in part, on maintaining satisfactory capacity utilization rates. In turn, our ability to maintain satisfactory capacity utilization will depend on the demand for our products, the volume of orders we receive, and our ability to offer products that meet our customers' requirements at competitive prices. If current or future production capacity fails to match current or future customer demands, our facilities would be underutilized, our sales may not fully cover our fixed overhead expenses, and we would be less likely to achieve expected gross margins. If forecasts and assumptions used to support the realizability of our long-lived assets change in the future, significant impairment charges could result that would materially adversely affect our business, financial condition, and results of operations.

In addition, we generally schedule our quick turnaround production facilities at less than full capacity to retain our ability to respond to unexpected additional quick-turn orders. However, if these orders are not received, we may forego some production and could experience continued excess capacity. If we conclude we have significant, long-term excess capacity, we may decide to permanently close one or more of our facilities and lay off some of our employees. Closures or lay-offs could result in our recording restructuring charges such as severance, other exit costs, and asset impairments, as well as potentially causing disruptions in our ability to supply customers.

We are heavily dependent upon the worldwide electronics industry, which is characterized by economic cycles and fluctuations in product demand. A downturn in the electronics industry or prolonged global economic crisis could result in decreased demand for our manufacturing services and materially adversely affect our business, financial condition, and results of operations.

A majority of our revenue is generated from the electronics industry, which is characterized by intense competition, relatively short product life cycles, and significant fluctuations in product demand. The industry is subject to economic cycles and recessionary periods. Due to the uncertainty in the end markets served by most of our customers, we have a low level of visibility with respect to future financial results. Consequently, our past operating results, earnings, and cash flows may not be indicative of our future operating results, earnings, and cash flows.

We participate in the competitive, cyclical automotive industry, which is subject to strict quality control standards. Failure to meet quality standards may adversely affect our business, financial condition and results of operations.

A significant portion of our sales are to customers within the automotive industry. The automotive industry has historically experienced multi-year cycles of growth and decline. In recent years, we have witnessed a growth cycle. If sales of automobiles should decline or go into a cyclical down turn, our sales could decline and this could have a materially adverse impact on our business, financial condition and result of operations.

In addition, for safety reasons, automotive customers have strict quality standards that generally exceed the quality requirements of other customers. If such products do not meet these quality standards, our business, financial condition, and results of operations may be materially adversely affected. These automotive customers may require long periods of time to evaluate whether our manufacturing processes and facilities meet their quality standards. If we were to lose automotive customers due to quality control issues, we might not be able to regain those customers or gain new automotive customers for long periods of time, which could have a material adverse effect on our business, financial condition, and results of operations. Moreover, we may be required under our contracts with automotive industry customers to indemnify them for the cost of warranties and recalls relating to our products.

Our results can be adversely affected by rising labor costs.

There is uncertainty with respect to rising labor costs, particularly within China, where we have most of our manufacturing facilities. In recent periods there have been regular and significant increases in the minimum wage payable in various provinces of China. In addition, we have experienced very high employee turnover in our manufacturing facilities in China, generally after the Chinese New Year, and we are experiencing ongoing difficulty in recruiting employees for these facilities. Furthermore, labor disputes and strikes based partly on wages have in the past slowed or stopped production by certain manufacturers in China. In some cases, employers have responded by significantly increasing the wages of workers at such plants. Any increase in labor costs due to minimum wage laws or customer requirements about scheduling and overtime that we are unable to recover in our pricing to our customers could materially adversely affect our business, financial condition, and results of operations. In addition, the high turnover rate and our difficulty in recruiting and retaining qualified employees and the other labor trends we are noting in China could result in a potential for defects in our products, production disruptions or delays, or the inability to ramp production to meet increased customer orders, resulting in order cancellation or imposition of customer penalties if we are unable to deliver products in a timely manner.

To respond to competitive pressures and customer requirements, we may further expand internationally in lower-cost locations. If we pursue such expansions, we may be required to make additional capital expenditures. In addition, the cost structure in certain countries that are now considered to be favorable may increase as economies develop or as such countries join multinational economic communities or organizations, causing local wages to rise. As a result, we may need to continue to seek new locations with lower costs and the employee and infrastructure base to support PCB manufacturing. We cannot assure investors that we will realize the anticipated strategic benefits of our international operations or that our international operations will contribute positively to our operating results.

In our North America operations, rising labor and health care costs pose a significant risk. We work with our insurance brokers and carriers to control the cost of health care for our employees. However, there can be no assurance that our efforts will succeed, especially given recent and pending changes in government oversight of health care.

We rely on the telecommunication industry for a significant portion of sales. The economic volatility in this industry has had, and may continue to have, a material adverse effect on our ability to forecast demand and production and to meet desired sales levels.

A large percentage of our business is conducted with customers who are in the telecommunication industry. This industry is characterized by intense competition, relatively short product life cycles, and significant fluctuations in product demand. This industry is heavily dependent on the end markets it serves and therefore can be affected by the demand patterns of those markets. If the volatility in this industry continues, it may have a material adverse effect on our business, financial condition, and results of operations.

Unanticipated changes in our tax rates or in our assessment of the realizability of our deferred income tax assets or exposure to additional income tax liabilities could affect our business, financial condition, and results of operations.

We are subject to income taxes in the United States and various foreign jurisdictions. Significant judgment is required in determining our provision for income taxes and, in the ordinary course of business, there are many transactions and calculations in which the ultimate tax determination is uncertain. Our effective tax rates could be materially adversely affected by changes in the mix of earnings in countries and states with differing statutory tax rates, changes in the valuation of deferred income tax assets and liabilities, changes in tax laws, as well as other factors. Our tax determinations are regularly subject to audit by tax authorities, and developments in those audits could adversely affect our income tax provision. Although we believe that our tax estimates are reasonable, the final determination of tax audits or tax disputes may be different from what is reflected in our historical income tax provisions, which could materially adversely affect our business, financial condition, and results of operations.

If our net earnings do not remain at or above recent levels, or we are not able to predict with a reasonable degree of probability that they will continue, we may have to record a valuation allowance against our net deferred income tax assets.

Certain of our foreign subsidiaries have deferred income tax assets. Based on our forecast for future taxable earnings for these foreign subsidiaries, we believe we will utilize the deferred income tax assets in future periods. However, if our estimates of future earnings decline, we may have to increase our valuation allowance against our net deferred income tax assets, resulting in a higher income tax provision, which would reduce our results of operations.

Issues arising during the upgrade of our enterprise resource planning system could affect our operating results and ability to manage our business effectively.

We are in the process of upgrading our enterprise resource planning, or ERP, management system to enhance operating efficiencies and provide more effective management of our business operations. We are investing significant financial and personnel resources into this project. However, there is no assurance that the system upgrade will meet our current or future business needs or that it will operate as designed. The transition to the new ERP system will affect numerous systems necessary for our operation. If we fail to correctly implement one or more components of the ERP system, we could experience significant disruption to our operations. Such disruptions could include, among other things, temporary loss of data, inability to process certain orders, failure of systems to communicate with each other and the inability to track or reconcile key data. We are heavily dependent on automated management systems, and any significant failure or delay in the system upgrade could cause a substantial interruption to our business and additional expense, which could result in an adverse impact on our operating results, cash flows or financial condition.

We have a significant amount of goodwill, indefinite-lived intangible assets, and other intangible assets on our consolidated balance sheet. If our goodwill, indefinite-lived intangible assets, or other intangible assets become impaired in the future, we would be required to record a non-cash charge to earnings, which may be material and would also reduce our stockholders' equity.

As of July 2, 2018, our consolidated balance sheet included $1,173.4 million of goodwill and definite-lived intangible assets. We periodically evaluate whether events and circumstances have occurred, such that the potential for reduced expectations for future cash flows coupled with further decline in the market price of our stock and market capitalization may indicate that the remaining balance of goodwill and definite-lived intangible assets may not be recoverable. If factors indicate that assets are impaired, we would be required to reduce the carrying value of our goodwill and definite-lived intangible assets, which could harm our results during the periods in which such a reduction is recognized.

Our ability to use net operating loss carryforwards to offset future taxable income for U.S. federal income tax purposes is subject to limitations, and future transfers of shares of our common stock, when aggregated with the November 2016 and February 2017 secondary sales of our shares, could cause us to experience an "ownership change" that could further limit our ability to utilize our net operating losses.

Under U.S. federal income tax law, a corporation's ability to utilize its net operating losses (NOL's) to offset future taxable income may be significantly limited if it experiences an "ownership change" as defined in Section 382 of the Internal Revenue Code of 1986, as amended (the Code). In general, an ownership change will occur if there is a cumulative change in a corporation's ownership by "5-percent shareholders" that exceeds 50 percentage points over a rolling three-year period.

A corporation that experiences an ownership change will generally be subject to an annual limitation on its pre-ownership change NOLs equal to the value of the corporation immediately before the ownership change, multiplied by the long-term tax-exempt rate (subject to certain adjustments). The annual limitation for a taxable year is generally increased by the amount of any "recognized built-in gains" for such year and the amount of any unused annual limitation in a prior year. As a result of our acquisition of Viasystems, the NOLs acquired were subject to this limitation. In February 2017 and November 2016, 4,000,000 and 13,800,000 shares of common stock, respectively, were sold by Su Sih, our largest shareholder and a "5-percent shareholder." Additional future transfers or sales of our common stock during the rolling period by "5-percent shareholders" could cause us to experience an ownership change under Section 382, which could further limit our use of NOLs.

Adverse judgments or settlements resulting from legal proceedings in which we may be involved in the normal course of our business could reduce our profitability or limit our ability to operate our business.

In the normal course of our business, we have been, and may in the future be subject to employee claims based on, among other things, discrimination, minimum wage, overtime pay and other employment related matters. We cannot predict with certainty the cost of defense, the cost of prosecution or the ultimate outcome of these legal proceedings. Any significant adverse determinations, judgments or settlements could reduce our profitability and could materially adversely affect our business, financial condition and results of operations, limit our ability to operate our business or harm our reputation.

Our failure to comply with the requirements of environmental laws could result in litigation, fines, revocation of permits necessary to our manufacturing processes, or debarment from our participation in federal government contracts.

Our operations are regulated under a number of domestic and foreign environmental and safety laws and regulations that govern, among other things, the discharge of hazardous materials into the air and water, as well as the handling, storage, recycling, and disposal of such materials. These laws and regulations include the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Superfund Amendment and Reauthorization Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Toxic Substances Control Act, and the Federal Motor Carrier Safety Improvement Act, as well as analogous state, local, and foreign laws. Compliance with these environmental laws is a major consideration for us because our manufacturing processes use and generate materials classified as hazardous. Because we use hazardous materials and generate hazardous wastes in our manufacturing processes, we may be subject to potential financial liability for costs associated with the investigation and remediation of our own sites, or sites at which we have arranged for the disposal of hazardous wastes, if such sites become contaminated. Even if we fully comply with applicable environmental laws and are not directly at fault for the contamination, we may still be liable. The wastes we generate include spent ammoniacal and cupric etching solutions, metal stripping solutions, waste acid solutions, waste alkaline cleaners, waste oil, and waste waters that contain heavy metals such as copper, tin, lead, nickel, gold, silver, cyanide, and fluoride, and both filter cake and spent ion exchange resins from equipment used for on-site waste treatment.

Environmental law violations, including the failure to maintain required environmental permits, could subject us to fines, penalties, and other sanctions, including the revocation of our effluent discharge permits. This could require us to cease or limit production at one or more of our facilities and could have a material adverse effect on our business, financial condition, and results of operations. Even if we ultimately prevail, environmental lawsuits against us would be time consuming and costly to defend.

Environmental laws have generally become more stringent and we expect this trend to continue over time, especially in developing countries, imposing greater compliance costs and increasing risks and penalties associated with violation. We operate in environmentally sensitive locations, and we are subject to potentially conflicting and changing regulatory agendas of political, business, and environmental groups. Changes or restrictions on discharge limits, emissions levels, material storage, handling, or disposal might require a high level of unplanned capital investment or relocation to another global location where prohibitive regulations do not exist. It is possible that environmental compliance costs and penalties from new or existing regulations may materially adversely affect our business, financial condition, and results of operations.

We are increasingly required to certify compliance with various material content restrictions in our products based on laws of various jurisdictions or territories such as the Restriction of Hazardous Substances (RoHS) and Registration, Evaluation, Authorization and Restriction of Chemicals, or REACH directives in the European Union and China's RoHS legislation. Similar laws have been adopted in other jurisdictions and may become increasingly prevalent. In addition, we must also certify as to the non-applicability of the EU's Waste Electrical and Electronic Equipment directive for certain products that we manufacture. The REACH directive requires the identification of Substances of Very High Concern, or SVHCs periodically. We must survey our supply chain and certify to the non-presence or presence of SVHCs to our customers. As with other types of product certifications that we routinely provide, we may incur liability and pay damages if our products do not conform to our certifications.

We are also subject to an increasing variety of environmental laws and regulations in China, which impose limitations on the discharge of pollutants into the air and water and establish standards for the treatment, storage, and disposal of solid and hazardous wastes for us and our vendors that assist us in managing the waste generated by our manufacturing processes. The manufacturing of our products generates gaseous chemical wastes, liquid wastes, waste water, and other industrial wastes from various stages of the manufacturing process. Production sites, waste collectors, and vendors in China are subject to increasing regulation and periodic monitoring by the relevant environmental protection authorities. Environmental claims or the failure to comply with current or future regulations could result in the assessment of damages or imposition of fines against us, suspension of production, or cessation of operations.

The process to manufacture PCBs requires adherence to domestic and foreign environmental regulations regarding the storage, use, handling, recycling, and disposal of chemicals, solid wastes, and other hazardous materials, as well as compliance with air quality standards and chemical use reporting. In China, governmental authorities have adopted new rules and regulations governing environmental issues. An update to Chinese environmental waste water law was issued in late 2012, allowing for an interim period in which plants subject to such law may install equipment that meet the new regulatory regime. Our plants in China are not yet in full compliance with the newly adopted environmental regulations. We have developed plans for these new regulations and we are in the process of implementing these plans. However, there can be no assurance that violations will not occur in the future.

Employee strikes and other labor-related disruptions may materially adversely affect our business, financial condition, and results of operations.

Our business is labor intensive, utilizing large numbers of engineering and manufacturing personnel. Strikes or labor disputes with our unionized employees, primarily in China, may adversely affect our ability to conduct our business. If we are unable to reach agreement with any of our unionized work groups on future negotiations regarding the terms of their collective bargaining agreements, we may be subject to work interruptions or stoppages. Any of these events could be disruptive to our operations and could result in negative publicity, loss of contracts, and a decrease in revenues. We may also become subject to additional collective bargaining agreements in the future if more employees or segments of our workforce become unionized, including any of our employees in the United States. We have not experienced any labor problems resulting in a work stoppage since 2013.

We are exposed to the credit risk of some of our customers and to credit exposures in weakened markets.

Most of our sales are on an “open credit” basis, with standard industry payment terms. We monitor individual customer payment capability in granting such open credit arrangements, seek to limit such open credit to amounts we believe the customers can pay, and maintain reserves we believe are adequate to cover exposure for doubtful accounts. During periods of economic downturn in the electronics industry and the global economy, our exposure to credit risks from our customers increases. Although we have programs in place to monitor and mitigate the associated risks, such programs may not be effective in reducing our credit risks.

Additionally, our OEM customers often direct a significant portion of their purchases through a relatively limited number of EMS companies. Sales to EMS companies represented approximately 38% and 36% of our net sales for the quarters ended July 2, 2018 and July 3, 2017, respectively. Our contractual relationship is often with the EMS companies, who are obligated to pay us for our products. Because we expect our OEM customers to continue to direct our sales to EMS companies, we expect to continue to be subject to this credit risk with a limited number of EMS customers. If one or more of our significant customers were to become insolvent or were otherwise unable to pay us, our business, financial condition, and results of operations would be materially adversely affected.

We rely on suppliers and equipment manufacturers for the timely delivery of raw materials, components, equipment and spare parts used in manufacturing our PCBs and E-M Solutions. If a raw material supplier or equipment manufacturer goes bankrupt, liquidates, consolidates out of existence or fails to satisfy our product quality standards, it could harm our ability to purchase new manufacturing equipment, service the equipment we have, or timely produce our products, thereby affecting our customer relationships.

Consolidations and restructuring in our supplier base and equipment fabricators related to our raw materials purchases or the manufacturing equipment we use to fabricate our products may result in adverse changes in pricing of materials due to reduction in competition among our raw material suppliers or an elimination or shortage of equipment and spare parts from our manufacturing equipment supply base. Suppliers and equipment manufacturers may be impacted by other events outside our control including macro-economic, financial instability, environmental occurrences, or supplier interruptions due to fire, natural catastrophes or otherwise. Suppliers and equipment manufacturers may extend lead times, limit supplies, or increase prices due to capacity constraints or other factors, which could harm our ability to deliver our products on a timely basis and negatively impact our financial results. In addition, in extreme circumstances, the suppliers we purchase from could cease production due to a fire, natural disaster, consolidation or liquidation of their businesses. As such, this may impact our ability to deliver our products on a timely basis and harm our customer relationships and negatively impact our financial results.

We have pursued and intend to continue to pursue acquisitions of other businesses and may encounter risks associated with these activities, which could harm our business and operating results.

As part of our business strategy, we expect that we will continue to grow by pursuing acquisitions of businesses, technologies, assets, or product lines that complement or expand our business. Risks related to an acquisition may include:

- the potential inability to successfully integrate acquired operations and businesses or to realize anticipated synergies, economies of scale, or other expected value;
- diversion of management’s attention from normal daily operations of our existing business to focus on integration of the newly acquired business;
- unforeseen expenses associated with the integration of the newly acquired business;
- difficulties in managing production and coordinating operations at new sites;
- the potential loss of key employees of acquired operations;
- the potential inability to retain existing customers of acquired companies when we desire to do so;
- insufficient revenues to offset increased expenses associated with acquisitions;
- the potential decrease in overall gross margins associated with acquiring a business with a different product mix;

- the inability to identify certain unrecorded liabilities;
- the potential need to restructure, modify, or terminate customer relationships of the acquired company;
- an increased concentration of business from existing or new customers; and
- the potential inability to identify assets best suited to our business plan.

Acquisitions may cause us to:

- enter lines of business and/or markets in which we have limited or no prior experience;
- issue debt and be required to abide by stringent loan covenants;
- assume liabilities; record goodwill and indefinite-lived intangible assets that will be subject to impairment testing and potential periodic impairment charges;
- become subject to litigation and environmental issues, which include product material content certifications related to conflict minerals;
- incur unanticipated costs;
- incur large and immediate write-offs; and
- incur substantial transaction-related costs, whether or not a proposed acquisition is consummated.

Acquisitions of high technology companies are inherently risky, and no assurance can be given that our recent or future acquisitions will be successful. Failure to manage and successfully integrate acquisitions we make could have a material adverse effect on our business, financial condition, and results of operations. Even when an acquired company has already developed and marketed products, product enhancements may not be made in a timely fashion. In addition, unforeseen issues might arise with respect to such products after any such acquisition.

Our operations in China subject us to risks and uncertainties relating to the laws and regulations of China.

Under its current leadership, the government of China has been pursuing economic reform policies, including the encouragement of foreign trade and investment and greater economic decentralization. No assurance can be given, however, that the government of China will continue to pursue such policies, that such policies will be successful if pursued, or that such policies will not be significantly altered from time to time, particularly in light of the increasingly tense trade climate with the United States. Despite progress in developing its legal system, China does not have a comprehensive and highly developed system of laws, particularly with respect to foreign investment activities and foreign trade. Enforcement of existing and future laws and contracts is uncertain, and implementation and interpretation thereof may be inconsistent. As the Chinese legal system develops, the promulgation of new laws, changes to existing laws, and the preemption of local regulations by national laws may adversely affect foreign investors. Further, any litigation in China may be protracted and may result in substantial costs and diversion of resources and management's attention. In addition, though changes in government policies and rules are timely published or communicated, there is usually no indication of the duration of any grace period before which full implementation and compliance will be required. As a result, we may operate our business in violation of new rules and policies before full compliance can be achieved. These uncertainties could limit the legal protections available to us.

We depend on the U.S. government for a significant portion of our business, which involves unique risks. Changes in government defense spending or regulations could have a material adverse effect on our business, financial condition, and results of operations.

A significant portion of our revenues is derived from products and services that are ultimately sold to the U.S. government by our OEM and EMS customers and is therefore affected by, among other things, the federal government budget process. We are a supplier, primarily as a subcontractor, to the U.S. government and its agencies, as well as foreign governments and agencies. The contracts between our direct customers and the government end user are subject to political and budgetary constraints and processes, changes in short-range and long-range strategic plans, the timing of contract awards, the congressional budget authorization and appropriation processes, the government's ability to terminate contracts for convenience or for default, as well as other risks, such as contractor suspension or debarment in the event of certain violations of legal and regulatory requirements.

For the quarter ended July 2, 2018, aerospace and defense sales accounted for approximately 24% of our total net sales. The substantial majority of aerospace and defense sales are related to both U.S. and foreign military and defense programs. While we do not sell any significant volume of products directly to the U.S. government, we are a supplier to the U.S. government and its agencies, as well as foreign governments and agencies. Consequently, our sales are affected by changes in the defense budgets of the U.S. and foreign governments and may be affected by federal budget sequestration measures.

The domestic and international threat of terrorist activity, emerging nuclear states, and conventional military threats have led to an increase in demand for defense products and services and homeland security solutions in the recent past. The U.S. government, however, is facing unprecedented budgeting constraints. The termination or failure to fund one or more significant contracts by the U.S. government could have a material adverse effect on our business, financial condition, and results of operations.

Future changes to the U.S. Munitions List could reduce or eliminate restrictions that currently apply to some of the products we produce. If these regulations or others are changed in a manner that reduces restrictions on products being manufactured overseas, we would likely face an increase in the number of competitors and increased price competition from overseas manufacturers, who are restricted by the current export laws from manufacturing products for U.S. defense systems.

We are subject to the requirements of the National Industrial Security Program Operating Manual for our facility security clearance, which is a prerequisite to our ability to perform on classified contracts for the U.S. government.

A facility security clearance is required in order to be awarded and perform on classified contracts for the Department of Defense and certain other agencies of the U.S. government. As a cleared entity, we must comply with the requirements of the National Industrial Security Program Operating Manual (NISPOM), and any other applicable U.S. government industrial security regulations. Further, due to the fact that a significant portion of our voting equity is owned by a non-U.S. entity, we are required to be governed by and operate in accordance with the terms and requirements of the Special Security Agreement (SSA). The terms of the SSA have been previously disclosed in our SEC filings.

If we were to violate the terms and requirements of the SSA, the NISPOM, or any other applicable U.S. government industrial security regulations (which may apply to us under the terms of classified contracts), we could lose our security clearance. We cannot be certain that we will be able to maintain our security clearance. If for some reason our security clearance is invalidated or terminated, we may not be able to continue to perform on classified contracts and would not be able to enter into new classified contracts, which could materially adversely affect our business, financial condition, and results of operations.

Competition in the PCB market is intense, and we could lose market share if we are unable to maintain our current competitive position in end markets using our quick-turn, high technology, and high-mix manufacturing services.

The PCB industry is intensely competitive, highly fragmented, and rapidly changing. We expect competition to continue, which could result in price reductions, reduced gross margins, and loss of market share. Our principal PCB and substrate competitors include AT & S Austria Technologie & Systemtechnik AG, Chin Poon Industrial Co., LTD., Compeq Manufacturing Co., Ltd., IBIDEN Co., Ltd., ISU Petasys Co., Ltd., Multek Corporation, Sanmina Corporation, Tripod Technology Corp., Unimicron Technology Corp., and Wus Printed Circuit Co., Ltd. Our principal E-M Solutions competitors include Amphenol Corp, Flex, Jabil Circuit, Inc. and Sanmina Corporation. In addition, we increasingly compete on an international basis, and new and emerging technologies may result in new competitors entering our markets.

Some of our competitors and potential competitors have advantages over us, including:

- greater financial and manufacturing resources that can be devoted to the development, production, and sale of their products;
- more established and broader sales and marketing channels;
- more manufacturing facilities worldwide, some of which are closer in proximity to OEMs;
- manufacturing facilities that are located in countries with lower production costs;
- lower capacity utilization, which in peak market conditions can result in shorter lead times to customers;
- ability to add additional capacity faster or more efficiently;
- preferred vendor status with existing and potential customers;
- greater name recognition; and
- larger customer bases.

In addition, these competitors may respond more quickly to new or emerging technologies or adapt more quickly to changes in customer requirements than we do. We must continually develop improved manufacturing processes to meet our customers' needs for complex products, and our manufacturing process technology is generally not subject to significant proprietary protection. During recessionary periods in the electronics industry, our strategy of providing quick-turn services, an integrated manufacturing solution, and responsive customer service may take on reduced importance to our customers. As a result, we may need to compete more on the basis of price, which would cause our gross margins to decline.

If we are unable to provide our customers with high-end technology, high-quality products, and responsive service, or if we are unable to deliver our products to our customers in a timely manner, our business, financial condition, and results of operations may be materially adversely affected.

In order to maintain our existing customer base and obtain business from new customers, we must demonstrate our ability to produce our products at the level of technology, quality, responsiveness of service, timeliness of delivery, and cost that our customers require. If our products are of substandard quality, if they are not delivered on time, if we are not responsive to our customers' demands, or if we cannot meet our customers' technological requirements, our reputation as a reliable supplier of our products would likely be damaged. If we are unable to meet anticipated product and service standards, we may be unable to obtain new contracts or keep our existing customers, and this would have a material adverse effect on our business, financial condition, and results of operations.

We are subject to risks for the use of certain metals from "conflict minerals" originating in the Democratic Republic of the Congo.

During the third quarter of 2012, the SEC adopted rules implementing the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank). These rules impose diligence and disclosure requirements regarding the use of "conflict minerals" mined from the Democratic Republic of Congo and neighboring countries. While these new rules continue to be the subject of ongoing litigation and, as a result, uncertainty, we submitted a conflict minerals report on Form SD with the SEC for the past four years, most recently on May 25, 2018. Compliance with these rules results in additional costs and expenses, including costs and expenses incurred for due diligence to determine and verify the sources of any conflict minerals used in our products, in addition to the costs and expenses of remediation and other changes to products, processes, or sources of supply as a consequence of such verification efforts. These rules may also affect the sourcing and availability of minerals used in the manufacture of our PCBs, as there may be only a limited number of suppliers offering "conflict free" minerals that can be used in our products. There can be no assurance that we will be able to obtain such minerals in sufficient quantities or at competitive prices. Also, since our supply chain is complex, we may, at a minimum, face reputational challenges with our customers, stockholders, and other stakeholders if we are unable to sufficiently verify the origins of the minerals used in our products. We may also encounter customers who require that all of the components of our products be certified as conflict free. If we are not able to meet customer requirements, such customers may choose to disqualify us as a supplier, which could impact our sales and the value of portions of our inventory.

We may be unable to hire and retain sufficient qualified personnel, and the loss of any of our key executive officers could materially adversely affect our business, financial condition, and results of operations.

We believe that our future success will depend in large part on our ability to attract and retain highly skilled, knowledgeable, sophisticated, and qualified managerial and professional personnel. We may not be able to retain our executive officers and key personnel or attract additional qualified management in the future. We can make no assurances that future changes in executive management will not have a material adverse effect on our business, financial condition, or results of operations. Our business also depends on our continuing ability to recruit, train, and retain highly qualified employees, particularly engineering and sales and marketing personnel. The competition for these employees is intense, and the loss of these employees could harm our business. Further, our ability to successfully integrate acquired companies depends in part on our ability to retain key management and existing employees at the time of the acquisition.

Outages, computer viruses, break-ins, and similar events could disrupt our operations, and breaches of our security systems may cause us to incur significant legal and financial exposure.

We rely on information technology networks and systems, some of which are owned and operated by third parties, to collect, process, transmit, and store electronic information. In particular, we depend on our information technology infrastructure for a variety of functions, including worldwide financial reporting, inventory management, procurement, invoicing, and email communications. Any of these systems may be susceptible to outages due to fire, floods, power loss, telecommunications failures, hacking, terrorist attacks, and similar events. In addition, in the ordinary course of our business, we collect and store sensitive data in our data centers and on our networks, including intellectual property, our proprietary and confidential business information and that of our customers, suppliers and business partners, and personally identifiable information of our employees. The secure collection, processing, storage, maintenance and transmission of this information is critical to our operations. Despite the implementation of network security measures, our systems and those of third parties on which we rely may also be vulnerable to computer viruses, break-ins, cyber attacks, attacks by hackers or breached due to employee or third party (including suppliers and business partners) error, malfeasance or other disruptions. If we or our vendors are unable to prevent such outages and breaches, our operations could be disrupted. If unauthorized parties gain access to our information systems or such information is used in an unauthorized manner, misdirected, altered, lost, or stolen during transmission, any theft or misuse of such information could result in, among other things, unfavorable publicity, governmental inquiry and oversight, difficulty in marketing our services, allegations by our customers that we have not performed our contractual obligations, loss of customers, litigation by affected parties, and possible financial obligations for damages related to the theft or misuse of such information, any of which could have a material adverse effect on our business, financial condition, and results of operations.

Damage to our manufacturing facilities due to fire, natural disaster, or other events could materially adversely affect our business, financial condition, and results of operations.

The destruction or closure of any of our facilities for a significant period of time as a result of fire, explosion, blizzard, act of war or terrorism, flood, tornado, earthquake, lightning, other natural disasters, an outbreak of epidemics such as Ebola or severe acute respiratory syndrome, required maintenance, or other events could harm us financially, increasing our costs of doing business and limiting our ability to deliver our manufacturing services on a timely basis.

Our insurance coverage with respect to damages to our facilities or our customers' products caused by natural disasters is limited and is subject to deductibles and coverage limits. Such coverage may not be adequate or continue to be available at commercially reasonable rates and terms.

In the event one or more of our facilities is closed on a temporary or permanent basis as a result of a natural disaster, required maintenance or other event, or in the event that an outbreak of a serious epidemic results in quarantines, temporary closures of offices or manufacturing facilities, travel restrictions or the temporary or permanent loss of key personnel, our operations could be significantly disrupted. Such events could delay or prevent product manufacturing and shipment for the time required to transfer production or repair, rebuild or replace the affected manufacturing facilities. This time frame could be lengthy and result in significant expenses for repair and related costs. While we have disaster recovery plans in place, there can be no assurance that such plans will be sufficient to allow our operations to continue in the event of every natural or man-made disaster, pandemic, required repair or other extraordinary event. Any extended inability to continue our operations at unaffected facilities following such an event would reduce our revenue and potentially damage our reputation as a reliable supplier.

We face constant pricing pressure from our customers and competitors, which may decrease our profit margins.

Competition in the PCB market is intense, and we expect that competition will continue to increase, thereby creating a highly aggressive pricing environment. We and some of our competitors have reduced average selling prices in the past. In addition, competitors may reduce their average selling prices faster than our ability to reduce costs, which can also accelerate the rate of decline of our selling prices. When prices decline, we may also be required to write down the value of our inventory.

The effects of such pricing pressures on our business may be exacerbated by inflationary pressures that affect our costs of supply. When we are unable to extract comparable concessions from our suppliers on prices they charge us, this in turn reduces gross profit if we are unable to raise prices. Further, uncertainty or adverse changes in the economy could also lead to a significant decline in demand for our products and pressure to reduce our prices. As a result of the recent global economic downturn, many businesses have taken a more conservative stance in ordering inventory. Any decrease in demand for our products, coupled with pressure from the market and our customers to decrease our prices, would materially adversely affect our business, financial condition, and results of operations.

The pricing pressure we face on our products requires us to introduce new and more advanced technology products to maintain average selling prices or reduce any declines in average selling prices. As we shift production to more advanced, higher-density PCBs, we tend to make significant investments in plants and other capital equipment and incur higher costs of production, which may not be recovered.

The prominence of EMS companies as our customers could reduce our gross margins, potential sales, and customers.

Sales to EMS companies represented approximately 38% and 36% of our net sales for the quarters ended July 2, 2018 and July 3, 2017, respectively. Sales to EMS providers include sales directed by OEMs as well as orders placed with us at the EMS providers' discretion. EMS providers source on a global basis to a greater extent than OEMs. The growth of EMS providers increases the purchasing power of such providers and has in the past, and could in the future, result in increased price competition or the loss of existing OEM customers. In addition, some EMS providers, including some of our customers, have the ability to directly manufacture PCBs and create backplane assemblies. If a significant number of our other EMS customers were to acquire these abilities, our customer base might shrink, and our sales might decline substantially. Moreover, if any of our OEM customers outsource the production of PCBs and creation of backplane assemblies to these EMS providers, our business, financial condition, and results of operations may be materially adversely affected.

If we are unable to manage our growth effectively, our business, financial condition, and results of operations could be materially adversely affected.

We have experienced, and expect to continue to experience, growth in the scope and complexity of our operations. This growth may strain our managerial, financial, manufacturing, and other resources. In order to manage our growth, we may be required to continue to implement additional operating and financial controls and hire and train additional personnel. There can be no assurance that we will be able to do so in the future, and failure to do so could jeopardize our expansion plans and seriously harm our operations. In addition, growth in our capacity could result in reduced capacity utilization and a corresponding decrease in gross margins.

Our international sales are subject to laws and regulations relating to corrupt practices, trade, and export controls and economic sanctions. Any non-compliance could have a material adverse effect on our business, financial condition, and results of operations.

We operate on a global basis and are subject to anti-corruption, anti-bribery, and anti-kickback laws and regulations, including restrictions imposed by the Foreign Corrupt Practices Act (the FCPA). The FCPA and similar anti-corruption, anti-bribery, and anti-kickback laws in other jurisdictions generally prohibit companies and their intermediaries and agents from making improper payments to government officials or any other persons for the purpose of obtaining or retaining business. We operate and sell our products in many parts of the world that have experienced governmental corruption to some degree and, in certain circumstances, strict compliance with anti-corruption, anti-bribery, and anti-kickback laws may conflict with local customs and practices. We also, from time to time, undertake business ventures with state-owned companies or enterprises.

Our global business operations must also comply with all applicable domestic and foreign export control laws, including International Traffic In Arms Regulations (ITAR), and Export Administration Regulations (EAR). Some items we manufacture are controlled for export by the U.S. Department of Commerce's Bureau of Industry and Security under EAR.

We train our employees concerning anti-corruption, anti-bribery, and anti-kickback laws and compliance with international regulations regarding trades and exports, and we have policies in place that prohibit employees from making improper payments. We cannot provide assurances that our internal controls and procedures will guarantee compliance by our employees or third parties with whom we work. If we are found to be liable for violations of the FCPA or similar anti-corruption, anti-bribery, or anti-kickback laws in international jurisdictions or for violations of ITAR, EAR, or other similar regulations regarding trades and exports, either due to our own acts or out of inadvertence, or due to the inadvertence of others, we could suffer criminal or civil fines or penalties or other repercussions, including reputational harm, which could have a material adverse effect on our business, financial condition, and results of operations.

Our global business operations also must be conducted in compliance with applicable economic sanctions laws and regulations, such as laws administered by the U.S. Department of the Treasury's Office of Foreign Asset Control, the U.S. State Department, and the U.S. Department of Commerce. We must comply with all applicable economic sanctions laws and regulations of the United States and other countries. Violations of these laws or regulations could result in significant additional sanctions including criminal or civil fines or penalties, more onerous compliance requirements, more extensive debarments from export privileges, or loss of authorizations needed to conduct aspects of our international business.

In certain countries, we may engage third-party agents or intermediaries, such as customs agents, to act on our behalf, and if these third-party agents or intermediaries violate applicable laws, their actions may result in criminal or civil fines or penalties or other sanctions being assessed against us. We take certain measures designed to ensure our compliance with U.S. export and economic sanctions laws, anti-corruption laws and regulations, and export control laws. However, it is possible that some of our products were sold or will be sold to distributors or other parties, without our knowledge or consent, in violation of applicable law. There can be no assurances that we will be in compliance in the future. Any such violation could result in significant criminal or civil fines, penalties, or other sanctions and repercussions, including reputational harm, which could have a material adverse effect on our business, financial condition, and results of operations.

Employee theft or fraud could result in loss.

Certain of our employees have access to, or signature authority with respect to, bank accounts or other company assets, which could expose us to fraud or theft. In addition, certain employees have access to certain precious metals used in connection with our manufacturing and key information technology infrastructure and to customer and other information that is commercially valuable. Should any employee, for any reason, steal any such precious metals (which has occurred from time to time), compromise our information technology systems, or misappropriate customer or other information, we could incur losses, including losses relating to claims by our customers against us, and the willingness of customers to do business with us may be damaged. Additionally, in the case of our defense business, we could be barred from future participation in government programs. Any such losses may not be fully covered by insurance.

Because we sell on a purchase order basis, we are subject to uncertainties and variability in demand by our customers that could decrease revenues and harm our operating results.

Although we have long-term contracts with many customers, those contracts generally do not contain volume commitments. We generally sell to customers on a purchase order basis. Our quick-turn orders are subject to particularly short lead times. Consequently, our sales are subject to short-term variability in demand by our customers. Customers submitting purchase orders may cancel, reduce, or delay their orders for a variety of reasons, subject to negotiations. The level and timing of orders placed by our customers may vary due to:

- customer attempts to manage inventory;
- changes in customers' manufacturing strategies, such as a decision by a customer to either diversify or consolidate the number of PCB manufacturers or backplane assembly service providers used or to manufacture or assemble its own products internally;
- variation in demand for our customers' products; and
- changes in new product introductions.

We have periodically experienced terminations, reductions, and delays in our customers' orders. Further terminations, reductions, or delays in our customers' orders could materially adversely affect our business, financial condition, and results of operations.

Increasingly, our customers are requesting that we enter into supply agreements with them that have restrictive terms and conditions. These agreements typically include provisions that increase our financial exposure, which could result in significant costs to us.

Increasingly, our customers are requesting that we enter into supply agreements with them. These agreements typically do not include volume commitments, but do include provisions that generally serve to increase our exposure for product liability and limited sales returns, which could result in higher costs to us as a result of such claims. In addition, these agreements typically contain provisions that seek to limit our operational and pricing flexibility and extend payment terms, which could materially adversely affect our cash flow, business, financial condition, and results of operations.

Our business has benefited from OEMs deciding to outsource their PCB manufacturing and backplane assembly needs to us. If OEMs choose to provide these services in-house or select other providers, our business could suffer.

Our future revenue growth partially depends on new outsourcing opportunities from OEMs. Current and prospective customers continuously evaluate our performance against other providers. They also evaluate the potential benefits of manufacturing their products themselves. To the extent that outsourcing opportunities are not available either due to OEM decisions to produce these products themselves or to use other providers, our financial results and future growth could be materially adversely affected.

Consolidation among our customers could materially adversely affect our business, financial condition, and results of operations.

Recently, some of our large customers have consolidated, and further consolidation of customers may occur. Depending on which organization becomes the controller of the supply chain function following the consolidation, we may not be retained as a preferred or approved supplier. In addition, product duplication could result in the termination of a product line that we currently support. While there is potential for increasing our position with the combined customer, there does exist the potential for decreased revenue if we are not retained as a continuing supplier. We also face the risk of increased pricing pressure from the combined customer because of its increased market share.

We may need additional capital in the future to fund investments in our operations, refinance our indebtedness, and to maintain and grow our business, and such capital may not be available on a timely basis, on acceptable terms, or at all.

Our business is capital-intensive, and our ability to increase revenue, profit, and cash flow depends upon continued capital spending. To the extent that the funds generated by our ongoing operations are insufficient to cover our liquidity requirements, we may need to raise additional funds through financings. If we are unable to fund our operations and make capital expenditures as currently planned or if we do not have sufficient liquidity to service the interest and principal payments on our debt, it would have a material adverse effect on our business, financial condition, and results of operations. If we do not achieve our expected operating results, we would need to reallocate our sources and uses of operating cash flows. This may include borrowing additional funds to service debt payments, which may impair our ability to make investments in our business. Looking ahead at long-term needs, we may need to raise additional funds for a number of purposes, including the following:

- to fund capital equipment purchases to increase production capacity, upgrade and expand our technological capabilities and replace aging equipment or introduce new products;
- to refinance our existing indebtedness;
- to fund our operations beyond 2018;
- to fund working capital requirements for future growth that we may experience;
- to enhance or expand the range of services we offer;
- to increase our sales and marketing activities; or
- to respond to competitive pressures or perceived opportunities, such as investment, acquisition, and international expansion activities.

Should we need to raise funds through incurring additional debt, we may become subject to covenants even more restrictive than those contained in our current debt instruments. There can be no assurance that additional capital, including any future equity or debt financing, would be available on a timely basis, on favorable terms, or at all. If such funds are not available to us when required or on acceptable terms, our business, financial condition, and results of operations could be materially adversely affected.

Our operations could be materially adversely affected by a shortage of utilities or a discontinuation of priority supply status offered for such utilities.

The manufacturing of PCBs requires significant quantities of electricity and water. Our operations in Asia have historically purchased substantially all of the electrical power for their manufacturing plants in China from local power plants. Because China's economy has recently been in a state of growth, the strain on the nation's power plants is increasing, which has led to continuing power outages in various parts of the country. There may be times when our operations in China may be unable to obtain adequate sources of electricity to meet production requirements. Various regions in China have in the past experienced shortages of both electricity and water and unexpected interruptions of power supply. From time to time, the Chinese government rations electrical power, which can lead to unscheduled production interruptions at our manufacturing facilities.

In addition, certain areas in which our North America operations have manufacturing facilities, particularly in California, have experienced power and resource shortages from time to time, including mandatory periods without electrical power, changes to water availability, and significant increases in utility and resource costs.

We do not generally maintain any back-up power generation facilities or reserves of water for our operations, so if we were to lose supplies of power or water at any of our facilities, we would be required to cease operations until such supply was restored. Any resulting cessation of operations could materially adversely affect our ability to meet our customers' orders in a timely manner, thus potentially resulting in a loss of business, along with increased costs of manufacturing, and under-utilization of capacity. In addition, the sudden cessation of our power or water supply could damage our equipment, resulting in the need for costly repairs or maintenance, as well as damage to products in production, resulting in an increase in scrapped products.

Our manufacturing processes depend on the collective industry experience of our employees. If a significant number of these employees were to leave us, it could limit our ability to compete effectively and could materially adversely affect our business, financial condition, and results of operations.

We have limited patent or trade secret protection for our manufacturing processes. We rely on the collective experience of our employees involved in our manufacturing processes to ensure that we continuously evaluate and adopt new technologies in our industry. Although we are not dependent on any one employee or a small number of employees, if a significant number of our employees involved in our manufacturing processes were to leave our employment, and we were not able to replace these people with new employees with comparable experience, our manufacturing processes might suffer as we might be unable to keep up with innovations in the industry. As a result, we may lose our ability to continue to compete effectively. For example, we have experienced a significant amount of employee attrition in our China operations each year, which has negatively impacted our yield, costs of production, and service times.

Infringement of our intellectual property rights could negatively affect us, and we may be exposed to intellectual property infringement claims from third parties that could be costly to defend, could divert management's attention and resources, and if successful, could result in liability.

We rely on a combination of copyright, patent, trademark, and trade secret laws, confidentiality procedures, contractual provisions, and other measures to establish and protect our proprietary and confidential information. All of these measures afford only limited protection. These measures may be invalidated, circumvented, breached, or challenged, and others may develop intellectual property, technologies or processes that are similar, or superior to, our intellectual property or technology. We may not have adequate controls and procedures in place to protect our proprietary and confidential information. Despite our efforts to protect our intellectual property and proprietary rights, unauthorized parties may attempt to copy, and succeed in, copying, our products or may obtain or use information that we regard as proprietary or confidential. If it becomes necessary for us to resort to litigation to protect our intellectual property rights, any proceedings could be burdensome, costly, and distracting to management, and we may not prevail. Further, adequate remedies may not be available in the event of an unauthorized use or disclosure of our proprietary or confidential information. Failure to successfully establish or enforce our intellectual property rights could materially and adversely affect our business, financial condition, and results of operations.

Furthermore, there is a risk that we may infringe on the intellectual property rights of others. As is the case with many other companies in the PCB industry, we from time to time receive communications from third parties asserting patent rights over our products and enter into discussions with such third parties. Irrespective of the validity or the successful assertion of such claims, we could incur costs in either defending or settling any intellectual property disputes alleging infringement. If any claims, whether or not they have merit, are brought against our customers for such infringement, we could be required to expend significant resources in defending such claims. In the event we are subject to any infringement claims, we may be required to spend a significant amount of money to develop non-infringing alternatives or obtain licenses. We may not be successful in developing such alternatives or in obtaining such licenses on reasonable terms, or at all, and may be required to modify or cease marketing our products or services, which could disrupt the production processes, damage our reputation, and materially and adversely affect our business, financial condition, and results of operations.

Our business, financial condition, and results of operations could be materially adversely affected by climate change initiatives.

Our manufacturing processes require that we purchase significant quantities of energy from third parties, which results in the generation of greenhouse gases, either directly on-site or indirectly at electric utilities. Both domestic and international legislation to address climate change by reducing greenhouse gas emissions could create increases in energy costs and price volatility. Considerable international attention is now focused on development of an international policy framework to guide international action to address climate change. Proposed and existing legislative efforts to control or limit greenhouse gas emissions could affect our energy sources and supply choices, as well as increase the cost of energy and raw materials that are derived from sources that generate greenhouse gas emissions.

Item 6. ***Exhibits***

Exhibit Number	Exhibits
31.1	CEO Certification Pursuant to Section 302 of the Sarbanes — Oxley Act of 2002.
31.2	CFO Certification Pursuant to Section 302 of the Sarbanes — Oxley Act of 2002.
32.1	CEO Certification Pursuant to Section 906 of the Sarbanes — Oxley Act of 2002.
32.2	CFO Certification 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 Extension Calculation Linkbase Documents
101.DEF	XBRL Taxonomy Extension Definition Linkbase Documents
101.LAB	XBRL Taxonomy Extension Label Linkbase Documents
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Documents

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.

TTM Technologies, Inc.

/s/ Thomas T. Edman

Dated: August 9, 2018

Thomas T. Edman
President and Chief Executive Officer

/s/ Todd B. Schull

Dated: August 9, 2018

Todd B. Schull
Executive Vice President and Chief Financial Officer

Exhibit 31.1

CERTIFICATION

I, Thomas T. Edman, certify that:

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

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

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

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

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

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

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

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

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

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

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

/s/ Thomas T. Edman

Thomas T. Edman
President and Chief Executive Officer
(Principal Executive Officer)

Date: August 9 , 2018

Exhibit 31.2

CERTIFICATION

I, Todd B. Schull, certify that:

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

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

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

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

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

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

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

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

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

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

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

/s/ Todd B. Schull

Todd B. Schull
Executive Vice President and Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)

Date: August 9, 2018

Exhibit 32.1

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

In connection with the Quarterly Report on Form 10-Q of TTM Technologies, Inc. (the “Company”) for the quarter and two quarters ended July 2, 2018, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Thomas T. Edman, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a) or 78o(d)); and

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

By: /s/ Thomas T. Edman

Thomas T. Edman
President and Chief Executive Officer

August 9, 2018

Exhibit 32.2

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

In connection with the Quarterly Report on Form 10-Q of TTM Technologies, Inc. (the “Company”) for the quarter and two quarters ended July 2, 2018, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Todd B. Schull, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a) or 78o(d)); and

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

By: /s/ Todd B. Schull

Todd B. Schull
Executive Vice President and Chief Financial Officer
(Principal Financial Officer and Principal
Accounting Officer)

August 9, 2018