UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

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

FOR THE QUARTERLY PERIOD ENDED MARCH 31, 2020
OR

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

For the transition period from ______ to ______
Commission File Number: 001-37771

Acacia Communications, Inc.
(Exact Name of Registrant as Specified in its Charter)

Delaware	**27-0291921**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

Three Mill and Main Place, Suite 400
Maynard, Massachusetts 01754
(Address of principal executive offices)

(978) 938-4896
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.0001 par value per share	ACIA	The Nasdaq Global Select Market

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

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

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

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

As of April 24, 2020, the registrant had 41,787,199 shares of common stock outstanding.

ACACIA COMMUNICATIONS, INC.

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EX-31.1	(CERTIFICATION OF THE CEO PURSUANT TO SECTION 302)
EX-31.2	(CERTIFICATION OF THE CFO PURSUANT TO SECTION 302)
EX-32.1	(CERTIFICATION OF THE CEO PURSUANT TO SECTION 906)
EX-32.2	(CERTIFICATION OF THE CFO PURSUANT TO SECTION 906)

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended. All statements other than statements of historical fact contained in this Quarterly Report on Form 10-Q, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “should,” “expects,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “potential,” “will” or “continue” or the negative of these terms or other similar expressions. The forward-looking statements in this Quarterly Report on Form 10-Q are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this Quarterly Report on Form 10-Q and are subject to a number of risks, uncertainties and assumptions described in the section titled “Risk Factors” under Part II, Item 1A below and elsewhere in this Quarterly Report on Form 10-Q. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as indicative of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Some of the key factors that could cause actual results to differ from our expectations include:

- the occurrence of any event, change or other circumstances that could give rise to the termination of the Agreement and Plan of Merger we have entered into with Cisco Systems, Inc. and Amarone Acquisition Corp. and any inability to complete the proposed merger due to the failure to satisfy conditions to completion of the proposed merger, including that a governmental entity may prohibit, delay or refuse to grant approval for the consummation of the proposed merger;
- uncertainty regarding the extent to which the COVID-19 pandemic and related response measures will adversely affect our business, results of operations and financial condition;
- our ability to sustain or increase revenue from our larger customers, generate revenues from new customers, or offset the discontinuation of concentrated purchases by our larger customers with purchases by new or existing customers;
- our ability to anticipate the timing and scale of demand for our products, including from our largest customers;
- our expectations regarding our expenses and revenue, our ability to maintain and expand gross profit, the sufficiency of our cash resources and needs for additional financing;
- our ability to produce products free of problems, defects, errors and vulnerabilities;
- our anticipated growth strategies;
- our expectations regarding competition;
- the anticipated trends and challenges in our business and the markets in which we operate;
- our expectations regarding, and the capacity and stability of, our supply chain and manufacturing;
- the size and growth of the potential markets for our products and the ability to serve those markets;
- the scope, progress, expansion, and costs of developing and commercializing our products;
- the timing, rate and degree of introducing any of our products into the market and the market acceptance of any of our products;
- our ability to establish and maintain development partnerships;
- our ability to attract or retain key personnel;
- our expectations regarding federal, state and foreign regulatory requirements, including export controls, tax law changes and interpretations, economic sanctions and anti-corruption regulations;
- regulatory or legislative developments in the United States and foreign countries, including trade policy and tariffs and export control laws or regulations that could impede our ability to sell our products to our

customer ZTE Kangxun Telecom Co. Ltd. or any of its affiliates, or that could impede our ability to sell our products to other customers in certain foreign jurisdictions, particularly in China, or that could impede sales by such customers in the United States; and

- our ability to obtain and maintain intellectual property protection for our products.

Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events or otherwise.

PART I—FINANCIAL INFORMATION

ITEM 1. Condensed Consolidated Financial Statements (Unaudited).

ACACIA COMMUNICATIONS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except per share amounts)
(Unaudited)

	March 31, 2020	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 86,010	$ 36,617
Marketable securities - short-term	281,686	300,129
Accounts receivable	96,826	97,948
Inventory	36,300	40,820
Prepaid expenses and other current assets	8,180	6,518
Total current assets	509,002	482,032
Marketable securities - long-term	122,545	134,632
Property and equipment, net	26,427	26,801
Operating lease right-of-use assets	30,097	25,046
Deferred tax asset	52,185	51,798
Other assets	789	1,106
Total assets	$ 741,045	$ 721,415
LIABILITIES AND STOCKHOLDERS’ EQUITY		
Current liabilities:		
Accounts payable	$ 43,578	$ 46,957
Accrued liabilities	58,524	61,680
Deferred revenue	3,496	4,483
Total current liabilities	105,598	113,120
Income taxes payable	7,117	7,117
Non-current operating lease liabilities	19,710	15,726
Other long-term liabilities	5,980	7,029
Total liabilities	138,405	142,992
Commitments and contingencies (Note 12)		
Stockholders’ equity:		
Preferred stock, $0.0001 par value; 5,000 shares authorized; none issued and outstanding at March 31, 2020 and December 31, 2019	—	—
Common stock, $0.0001 par value; 150,000 shares authorized; 42,690 and 42,399 shares issued at March 31, 2020 and December 31, 2019, respectively	4	4
Treasury stock, at cost; 974 shares at March 31, 2020 and December 31, 2019	(39,712)	(39,712)
Additional paid-in capital	411,618	402,032
Accumulated other comprehensive (loss) income	(293)	720
Retained earnings	231,023	215,379
Total stockholders’ equity	602,640	578,423
Total liabilities and stockholders’ equity	$ 741,045	$ 721,415

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

ACACIA COMMUNICATIONS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)
(Unaudited)

	Three Months Ended March 31,	
	2020	**2019**
Revenue	$ 125,626	$ 105,216
Cost of revenue	66,344	55,374
Gross profit	59,282	49,842
Operating expenses:		
Research and development	32,095	30,953
Sales, general and administrative	14,371	15,787
Total operating expenses	46,466	46,740
Income from operations	12,816	3,102
Other income, net:		
Interest income, net	2,293	2,446
Other expense, net	(43)	(52)
Total other income, net	2,250	2,394
Income before benefit for income taxes	15,066	5,496
Benefit for income taxes	(578)	(1,481)
Net income	$ 15,644	$ 6,977
Earnings per share:		
Basic	$ 0.38	$ 0.17
Diluted	$ 0.36	$ 0.17
Weighted-average shares used to compute earnings per share:		
Basic	41,575	40,284
Diluted	43,042	41,962

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

ACACIA COMMUNICATIONS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in thousands)
(Unaudited)

	Three Months Ended March 31,	
	2020	**2019**
Net income	$ 15,644	$ 6,977
Other comprehensive (loss) income:		
Changes in unrealized income (loss) on marketable securities, net of income taxes of $39 and $(88) for the three months ended March 31, 2020 and 2019, respectively	(1,013)	555
Comprehensive income	$ 14,631	$ 7,532

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

ACACIA COMMUNICATIONS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)
(Unaudited)

	Common Stock		Treasury Stock		Additional Paid-in Capital	Accumulated Other Comprehensive (Loss) Income	Retained Earnings	Total
	Shares	Amount	Shares	Amount				
Balance at December 31, 2018	41,024	$ 4	974	$ (39,712)	$ 360,267	$ (372)	$ 182,540	$ 502,727
Exercise of common stock options	190	—			1,400			1,400
Vesting of restricted stock units	316	—			—			—
Stock-based compensation expense					7,967			7,967
Unrealized losses on marketable securities, net of tax of $(88)						555		555
Net income							6,977	6,977
Balance at March 31, 2019	41,530	$ 4	974	$ (39,712)	$ 369,634	$ 183	$ 189,517	$ 519,626
Balance at December 31, 2019	42,399	$ 4	974	$ (39,712)	$ 402,032	$ 720	$ 215,379	$ 578,423
Exercise of common stock options	36	—			323			323
Vesting of restricted stock units	255	—			—			—
Stock-based compensation expense					9,263			9,263
Unrealized gains on marketable securities, net of tax of $39						(1,013)		(1,013)
Net income							15,644	15,644
Balance at March 31, 2020	42,690	$ 4	974	$ (39,712)	$ 411,618	$ (293)	$ 231,023	$ 602,640

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

ACACIA COMMUNICATIONS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(Unaudited)

	Three Months Ended March 31,	
	2020	**2019**
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	$ 15,644	$ 6,977
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation	2,670	3,243
Stock-based compensation	9,384	8,008
Deferred income taxes	(387)	(1,449)
Non-cash lease expense	1,206	1,074
Other non-cash benefits	(247)	(643)
Changes in operating assets and liabilities:		
Accounts receivable	1,122	7,440
Inventory	4,520	(1,201)
Prepaid expenses and other current assets	(1,662)	805
Other assets	324	(96)
Accounts payable	(2,828)	1,658
Accrued liabilities	(3,803)	4,661
Deferred revenue	(2,155)	519
Income taxes payable	—	(862)
Lease liabilities	(1,852)	(815)
Other long-term liabilities	119	9
Net cash provided by operating activities	22,055	29,328
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property and equipment	(2,742)	(2,724)
Purchases of marketable securities	(81,937)	(105,206)
Sales and maturities of marketable securities	111,701	90,290
Deposits	(7)	—
Net cash provided by (used in) investing activities	27,015	(17,640)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from the issuance of common stock under stock-based compensation plans	323	1,400
Net cash provided by financing activities	323	1,400
Net increase in cash and cash equivalents	49,393	13,088
Cash and cash equivalents—Beginning of period	36,617	60,444
Cash and cash equivalents—End of period	$ 86,010	$ 73,532
Supplemental cash flow disclosures:		
(Refunds received) cash paid for income taxes, net	$ (545)	$ 878
Supplemental disclosure of non-cash investing and financing activities:		
Right of use assets acquired under operating leases	$ 4,846	$ 3,328
Capital expenditures incurred but not yet paid	$ 787	$ 862

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Acacia Communications, Inc.
Notes to Unaudited Condensed Consolidated Financial Statements

1. NATURE OF THE BUSINESS AND OPERATIONS

Acacia Communications, Inc. was incorporated on June 2, 2009, as a Delaware corporation. Acacia Communications, Inc. and its wholly-owned subsidiaries (the "Subsidiaries") are collectively referred to as the Company. The Company's mission is to deliver high-speed coherent optical interconnect products that transform communications networks, relied upon by cloud infrastructure operators and content and communication service providers, through improvements in performance and capacity and reductions in associated costs. By implementing optical interconnect technology in a silicon-based platform, a process the Company refers to as the siliconization of optical interconnect, the Company believes it is leading a disruption that is analogous to the computing industry's integration of multiple functions into a microprocessor. The Company's products fall into three product groups: embedded modules, pluggable modules and semiconductors. The Company's embedded module and pluggable module product groups consist of optical interconnect modules with transmission speeds ranging from 100 to 1,200 gigabits per second ("Gbps"), for use in long-haul, metro and inter-data center markets. The Company's semiconductor product group consists of its low-power coherent digital signal processor application-specific integrated circuits ("DSP ASICs") and its silicon photonic integrated circuits ("silicon PICs") which are either integrated into the Company's embedded and pluggable modules or sold to customers on a standalone basis for integration into internally developed or other merchant modules. The Company is also developing a 400ZR module that will expand its pluggable module product group, and enable inter-data center transmission capacity of 400 Gbps in the same compact pluggable form factors used for 400G client optics, including QSFP-DD and OSFP. The Company's 400 Gbps pluggable product family will also include a new CFP2-DCO module that supports transmission rates up to 400 Gbps and the OpenROADM specification. The Company's modules perform a majority of the digital signal processing and optical functions in optical interconnects and offer low power consumption, high density and high speeds at attractive price points. Through the use of standard interfaces, the Company's modules can be easily integrated with customers' network equipment. The advanced software in the Company's modules enables increased configurability and automation, provides insight into network and connection point characteristics and helps identify network performance problems, all of which increase flexibility and reduce operating costs.

The Company is headquartered in Maynard, Massachusetts, and has wholly-owned subsidiaries in North America, Europe and Asia.

Proposed Merger with Cisco Systems

On July 8, 2019, the Company, Cisco Systems, Inc., a California corporation (the "Parent"), and Amarone Acquisition Corp., a Delaware corporation and a wholly owned subsidiary of the Parent (the "Merger Sub"), entered into an Agreement and Plan of Merger (the "Merger Agreement"), pursuant to which, among other things, the Merger Sub will be merged with and into the Company (the "Merger"), with the Company surviving the Merger as a wholly owned subsidiary of the Parent. The Merger Agreement was adopted by the Company's stockholders at a special meeting held on September 6, 2019. Completion of the Merger is subject to customary closing conditions, including (i) obtaining certain foreign antitrust approvals, including in China, (ii) the absence of governmental injunctions or other legal restraints prohibiting the Merger or imposing certain antitrust restraints and (iii) the absence of a "Material Adverse Effect," as defined in the Merger Agreement. The Company and the Parent have already received antitrust clearance for the Merger in the United States, Germany and Austria. If the Merger is completed, each share of the Company's common stock issued and outstanding immediately prior to the effective time of the Merger, subject to certain exceptions, will be converted into the right to receive $70.00 in cash. Subject to the satisfaction of these conditions, the parties expect the Merger to close in the second half of the Parent's 2020 fiscal year which ends on July 25, 2020.

For additional information related to the Merger Agreement, refer to the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 9, 2019, which includes the full text of the Merger Agreement as Exhibit 2.1.

During the three months ended March 31, 2020, the Company recorded acquisition-related costs of $0.9 million in sales, general and administrative expense within our condensed consolidated statements of operations.

2. BASIS OF PRESENTATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The unaudited condensed consolidated financial statements include the accounts of Acacia Communications, Inc. and its Subsidiaries and have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") and pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC").

Accordingly, they do not include all of the information and footnotes required by GAAP for annual financial statements. For further information, these condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and related notes contained in the Company’s Annual Report on Form 10-K for the year ended December 31, 2019, which was filed with the SEC on February 18, 2020. There have been no significant changes in the Company’s accounting policies from those disclosed in the Annual Report on Form 10-K that have had a material impact on the Company’s condensed consolidated financial statements.

The unaudited condensed consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements as of and for the year ended December 31, 2019, and in management’s opinion, include all adjustments, consisting of only normal recurring adjustments, necessary for the fair statement of the Company’s condensed consolidated balance sheet as of March 31, 2020, its condensed consolidated statements of operations for the three months ended March 31, 2020 and 2019, its condensed consolidated statements of comprehensive income for the three months ended March 31, 2020 and 2019, its condensed consolidated statements of stockholders’ equity for the three months ended March 31, 2020 and 2019, and its condensed consolidated statements of cash flows for the three months ended March 31, 2020 and 2019. All intercompany balances and transactions have been eliminated in consolidation. The financial data and the other financial information disclosed in the notes to these condensed consolidated financial statements related to the three months ended March 31, 2020 and 2019 are also unaudited. The results of operations for the three months ended March 31, 2020 are not necessarily indicative of the results to be expected for the full fiscal year or any other period.

Use of Estimates

The preparation of condensed consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the condensed consolidated financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates.

Recently Adopted Accounting Pronouncements

In June 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standard Update (“ASU”) 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* (“ASU 2016-13”). ASU 2016-13 is intended to provide more decision-useful information about expected credit losses on financial instruments, including trade receivables, and other commitments to extend credit held by a reporting entity at each reporting date. The main provisions include presenting financial assets measured at amortized cost at the amount expected to be collected, which is net of an allowance for expected credit losses, and recording credit losses related to available-for-sale securities through an allowance for credit losses. On January 1, 2020, the Company adopted ASU 2016-13 using the modified retrospective approach. There was no impact from the adoption of ASU 2016-13 on the Company’s condensed consolidated financial statements. The Company is exposed to credit losses through sales of its products. The Company determines if there is an expected loss on its accounts receivables using historical collection experience, current and future economic and market conditions and a review of the current status of customers' trade accounts receivables. The Company has not recorded any allowance for credit losses as of March 31, 2020 or December 31, 2019. Refer to Note 4 for information regarding how the Company assesses credit losses on its available-for-sale debt securities.

Recently Issued Accounting Pronouncements

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes* (“ASU 2019-12”). ASU 2019-12 is intended to simplify the accounting for income taxes by, among other things, eliminating certain exceptions related to the approach for intra-period tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. ASU 2019-12 is effective for fiscal years beginning after December 15, 2020, with early adoption permitted. Upon adoption, ASU 2019-12 will require companies to apply certain aspects of this standard retrospectively for all periods presented, while requiring other aspects to be applied on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of the beginning of the fiscal year of adoption. The Company is currently evaluating the impact of this new standard on its condensed consolidated financial statements.

3. REVENUE

The opening and closing balances of the Company’s accounts receivable and deferred revenue for the three months ended March 31, 2020 are as follows (in thousands):

	Balance at Beginning of Period	Decrease	Balance at End of Period
Three Months Ended March 31, 2020			
Accounts receivable	$ 97,948	(1,122)	$ 96,826
Deferred revenue (current)	$ 4,483	(987)	$ 3,496
Deferred revenue (non-current)	$ 3,444	(1,167)	$ 2,277

The amount of revenue recognized in the period that was included in the opening deferred revenue balances was approximately $2.3 million for the three months ended March 31, 2020. Generally, increases in current and non-current deferred revenue are related to billings to, or advance payments from, customers for which the Company has not yet fulfilled its performance obligations, and decreases are related to revenue recognized. Deferred revenue not expected to be recognized within the Company's operating cycle of one year is presented as a component of "Other long-term liabilities" on the condensed consolidated balance sheets.

At times, the Company receives orders for products that may be delivered over multiple dates that may extend across reporting periods. The Company invoices for each delivery upon shipment and recognizes revenues for each distinct product delivered, assuming transfer of control has occurred. Generally, scheduled delivery dates are within one year, and the Company has elected to use the optional exemption whereby revenues allocated to partially completed contracts with an expected duration of one year or less are not disclosed. As of March 31, 2020, the Company had no contracts with unsatisfied performance obligations with a duration of more than one year.

Disaggregation of Revenue

The following table provides information about disaggregated revenue based on product group (in thousands). Further disaggregation of revenue by geographic country can be found in Note 14.

	Three Months Ended March 31, 2020		Three Months Ended March 31, 2019	
	Revenue ($)	Revenue (%)	Revenue ($)	Revenue (%)
Embedded modules	$ 21,769	17%	$ 17,426	16%
Pluggable modules	58,658	47%	55,517	53%
Semiconductors	45,199	36%	32,273	31%
Total revenue	$ 125,626	100%	$ 105,216	100%

4. FINANCIAL INSTRUMENTS

The following tables set forth the Company's cash, cash equivalents and short- and long-term marketable securities as of March 31, 2020 and December 31, 2019 (in thousands):

	As of March 31, 2020					
		Gross Unrealized				
	Amortized Cost	Gains	Losses[(1)]	Estimated Fair Value	Cash and Cash Equivalents	Marketable Securities
Cash	$ 69,070	$ —	$ —	$ 69,070	$ 69,070	$ —
Money market funds	16,429	—	—	16,429	16,429	—
U.S. treasury bonds	99,264	635	—	99,899	—	99,899
Commercial paper	32,040	5	—	32,045	—	32,045
Certificates of deposit	22,841	27	(144)	22,724		22,724
Asset-backed securities	67,825	44	(87)	67,782	—	67,782
Corporate debt securities	183,081	183	(972)	182,292	511	181,781
Total	$ 490,550	$ 894	$ (1,203)	$ 490,241	$ 86,010	$ 404,231

(1) Losses represent marketable securities that were in loss positions for less than one year.

	As of December 31, 2019					
		Gross Unrealized				
		Gains	Losses[1]			
Cash	$ 29,116	$ —	$ —	$ 29,116	$ 29,116	$ —
Money market funds	2,010	—	—	2,010	2,010	—
U.S. treasury bonds	116,710	126	(1)	116,835	—	116,835
Commercial paper	44,300	—	—	44,300	5,491	38,809
Certificates of deposit	24,522	19	(2)	24,539	—	24,539
Asset-backed securities	73,370	134	(5)	73,499	—	73,499
Corporate debt securities	180,607	475	(3)	181,079	—	181,079
Total	$ 470,635	$ 754	$ (11)	$ 471,378	$ 36,617	$ 434,761

(1) Losses represent marketable securities that were in loss positions for less than one year.

The proceeds from the sales and maturities of marketable securities, which were primarily reinvested and resulted in realized gains and losses, were as follows (in thousands):

	Three Months Ended March 31,	
	2020	2019
Proceeds from the sales and maturities of marketable securities	$ 111,701	$ 90,290
Realized gains	$ 64	$ 3
Realized losses	$ —	$ (2)

The contractual maturities of short-term and long-term marketable securities held at March 31, 2020 and December 31, 2019 are as follows (in thousands):

	As of March 31, 2020		As of December 31, 2019	
	Amortized Cost Basis	Aggregate Fair Value	Amortized Cost Basis	Aggregate Fair Value
Due within one year	$ 281,658	$ 281,686	$ 299,725	$ 300,129
Due after one year through four years	122,880	122,545	134,292	134,632
Total	$ 404,538	$ 404,231	$ 434,017	$ 434,761

As of March 31, 2020, the Company believed that none of its unrealized losses on its available-for-sale investments were attributable to credit losses and therefore were not impaired. The investments with unrealized losses consisted primarily of corporate debt securities. In making the determination that the decline in fair value of these securities did not indicate impairment, the Company considered various factors, including, but not limited to: the extent to which fair value was less than cost; the financial condition and near-term prospects of the issuers; and the Company's intent not to sell these securities and the assessment that it is more likely than not that the Company would not be required to sell these securities before the recovery of their amortized cost basis.

Unrealized gains and losses, net of taxes, are reported as a component of accumulated other comprehensive (loss) income in the Company's condensed consolidated statements of stockholders' equity. No material amounts were reclassified out of accumulated other comprehensive (loss) income during the three months ended March 31, 2020 and 2019 for realized gains or losses on available-for-sale investments.

5. INVENTORY

Inventory consisted of the following as of March 31, 2020 and December 31, 2019 (in thousands):

	March 31, 2020	December 31, 2019
Raw materials	$ 20,909	$ 24,777
Work-in-process	307	673
Finished goods	15,084	15,370
Inventory	$ 36,300	$ 40,820

6. PROPERTY AND EQUIPMENT

Property and equipment consisted of the following as of March 31, 2020 and December 31, 2019 (in thousands):

	March 31, 2020	December 31, 2019
Engineering laboratory equipment	$ 59,066	$ 58,320
Computer software	3,780	3,730
Computer equipment	8,513	7,837
Furniture and fixtures	3,641	3,641
Leasehold improvements	4,104	3,999
Construction in progress	3,168	2,449
Total property and equipment	82,272	79,976
Less: Accumulated depreciation	(55,845)	(53,175)
Property and equipment, net	$ 26,427	$ 26,801

Depreciation expense was $2.7 million and $3.2 million for the three months ended March 31, 2020 and 2019, respectively.

7. ACCRUED LIABILITIES

Accrued liabilities consisted of the following as of March 31, 2020 and December 31, 2019 (in thousands):

	March 31, 2020	December 31, 2019
Employee-related liabilities	$ 9,227	$ 10,816
Current maturities of operating leases	4,269	4,228
Goods and services received not invoiced	3,906	2,297
Accrued manufacturing related expenses	3,731	3,781
Warranty reserve	9,835	10,354
Litigation and settlement accrual	20,000	20,000
Other accrued liabilities	7,556	10,204
Accrued liabilities	$ 58,524	$ 61,680

8. LEASES

The Company leases real estate assets and equipment. For leases with terms greater than 12 months, the Company records the related right -of-use ("ROU") asset and lease obligation at the present value of lease payments over the term. Many leases include fixed rental escalation clauses, renewal options and/or termination options that are factored into the determination of lease payments when appropriate. The Company's leases do not usually provide a readily determinable implicit discount rate; therefore, an estimate of the Company's incremental borrowing rate is used to discount the lease payments based on information available at lease commencement, including observable rates, adjusted for various factors including financing spreads and other lease specific adjustments, as applicable. The Company has elected not to record an ROU asset and lease obligation for short-term leases (with terms less than 12 months) or separate non-lease components from associated lease components for its real estate lease assets.

The Company's leases have remaining lease terms of less than one year to eight years. Some leases include one or more options to renew with renewal terms that can extend the lease term from three years to five years, or options to terminate the leases, both at the Company's discretion. The Company's lease terms include options to extend or terminate leases when the Company concludes it is reasonably certain that it would exercise those options. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term. The Company's lease agreements do not contain any variable lease payments, material residual value guarantees or material restrictive covenants.

The table below presents the lease-related assets and liabilities recorded on the condensed consolidated balance sheet as of March 31, 2020 (in thousands):

	Classification on the Balance Sheet	March 31, 2020	
Assets			
Operating lease assets	Operating lease right-of-use assets	$	30,097
Liabilities			
Current - operating	Accrued liabilities		4,269
Noncurrent - operating	Noncurrent operating lease liabilities		19,710
Total lease liabilities		$	23,979

Weighted-average remaining lease term - operating leases	6.6 years
Weighted-average discount rate - operating leases	4.25%

Operating lease costs were $1.5 million and $1.2 million during the three months ended March 31, 2020 and 2019, respectively. Short-term lease costs during the three months ended March 31, 2020 and 2019 were immaterial. Cash paid for amounts included in the measurement of lease liabilities was $1.1 million and $1.0 million during the three months ended March 31, 2020 and 2019, respectively, which were operating cash outflows.

The table below reconciles the undiscounted cash flows for each of the first five years and total of the remaining years to the operating lease liabilities recorded on the condensed consolidated balance sheet as of March 31, 2020 (in thousands):

	Operating Leases	
Remaining 2020	$	3,248
2021		4,375
2022		4,261
2023		4,414
2024		4,436
Thereafter		6,698
Total minimum lease payments		27,432
Less: amount of lease payments representing interest		(3,453)
Present value of future minimum lease payments		23,979
Less: current obligation under leases		4,269
Long-term lease obligations	$	19,710

As of March 31, 2020, the Company was committed to expend approximately $1.4 million for additional construction build-out at its New Jersey facility.

9. FAIR VALUE MEASUREMENT

The Company measures certain financial assets and liabilities at fair value. Fair value is determined based upon the exit price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants, as determined by either the principal market or the most advantageous market. Inputs used in the valuation techniques to derive fair values are classified based on a three-level hierarchy, as follows:

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

Level 2—Observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities, quoted prices in markets with insufficient volume or infrequent transactions (less active markets), or model-derived valuations in which all significant inputs are observable or can be derived principally from or corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3—Unobservable inputs to the valuation methodology that are significant to the measurement of fair value of assets or liabilities.

The Company considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents. The Company's investments are in money market funds, U.S. treasury bonds, commercial paper, certificates of deposit, asset-backed securities and corporate debt securities, which are classified as Level 2 within the fair value hierarchy, and were initially valued at the transaction price and subsequently valued at each reporting date utilizing market-observable data. The market-observable data included reportable trades, benchmark yields, credit spreads, broker/dealer quotes, bids, offers, current spot rates and other industry and economic events.

The fair value of these assets measured on a recurring basis was determined using the following inputs as of March 31, 2020 and December 31, 2019 (in thousands):

	March 31, 2020			
	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value
Assets:				
Money market funds	$ —	$ 16,429	$ —	$ 16,429
U.S. treasury bonds	—	99,899	—	99,899
Commercial paper	—	32,045	—	32,045
Certificates of deposit	—	22,724	—	22,724
Asset-backed securities	—	67,782	—	67,782
Corporate debt securities	—	182,292	—	182,292
Total	$ —	$ 421,171	$ —	$ 421,171

	December 31, 2019			
	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value
Assets:				
Money market funds	$ —	$ 2,010	$ —	$ 2,010
U.S. treasury bonds	—	116,835	—	116,835
Commercial paper	—	44,300	—	44,300
Certificates of deposit	—	24,539	—	24,539
Asset-backed securities	—	73,499	—	73,499
Corporate debt securities	—	181,079	—	181,079
Total	$ —	$ 442,262	$ —	$ 442,262

There were no transfers between fair value measurement levels during the three months ended March 31, 2020 or 2019. For certain other financial instruments, including accounts receivable, accounts payable and other current liabilities, the carrying amounts approximate their fair value due to the relatively short maturity of these balances.

10. STOCK COMPENSATION PLANS

The following table summarizes the classification of stock-based compensation in the condensed consolidated statements of operations for the three months ended March 31, 2020 and 2019 (in thousands):

	Three Months Ended March 31,	
	2020	2019
Cost of revenue	$ 522	$ 520
Research and development	5,985	4,746
Sales, general and administrative	2,877	2,742
Total stock-based compensation	$ 9,384	$ 8,008

The following table summarizes stock-based compensation expense by award type for the three months ended March 31, 2020 and 2019 (in thousands):

	Three Months Ended March 31,	
	2020	2019
Stock options	$ 302	$ 577
Restricted stock units	8,961	7,081
Employee stock purchase plan	—	309
Other awards	121	41
Total stock-based compensation	$ 9,384	$ 8,008

Stock Options

A summary of stock option activity under the Company's equity incentive plans for the three months ended March 31, 2020 is as follows:

	Number of Options (in thousands)	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2019	715	$ 11.14	4.6	$ 41,036
Granted	—	$ —		
Exercised	(36)	$ 9.03		$ 2,124
Canceled	—	$ —		
Outstanding at March 31, 2020	679	$ 11.25	4.3	$ 38,505
Vested and expected to vest at:				
March 31, 2020	679	$ 11.25	4.3	$ 38,505
December 31, 2019	715	$ 11.14	4.6	$ 41,036
Exercisable at:				
March 31, 2020	661	$ 10.51	4.2	$ 37,910
December 31, 2019	671	$ 9.99	4.4	$ 39,212

As of March 31, 2020 and December 31, 2019, there was $0.2 million and $0.5 million, respectively, of unrecognized compensation cost related to unvested common stock options which will be recognized over weighted-average periods of 1.1 years and 0.6 years, respectively.

No stock option awards were issued by the Company during the three months ended March 31, 2020 or 2019.

Restricted Stock Units

During the three months ended March 31, 2020, the Company granted approximately 103,000 restricted stock units ("RSUs") to employees under the 2016 Equity Incentive Plan that vest upon the satisfaction of a service condition, generally over four years. The cost of any RSUs with only a service condition is determined using the fair value of the Company's common stock on the date of grant, and compensation is recognized on a ratable basis over the requisite vesting period.

As soon as practicable following each vesting date of RSUs, the Company will issue to the holder of the RSUs the number of shares of common stock equal to the aggregate number of RSUs that have vested. Notwithstanding the foregoing, the Company may, in its sole discretion, in lieu of issuing shares of common stock to the holder of the RSUs, pay the holder an amount in cash equal to the fair market value of such shares of common stock. To date, the Company has not settled any vested RSUs with cash.

A summary of the changes in the Company's RSUs during the three months ended March 31, 2020 is as follows:

	RSUs (in thousands)	Weighted-Average Grant Date Fair Value
Outstanding at December 31, 2019	1,951	$ 48.69
Granted	103	$ 68.35
Vested	(255)	$ 42.35
Canceled	(2)	$ 52.98
Outstanding at March 31, 2020	1,797	$ 50.70

As of March 31, 2020 and December 31, 2019, there was $68.0 million and $70.1 million, respectively, of total unrecognized compensation cost related to unvested RSUs which will be recognized over weighted-average periods of 2.0 years and 2.1 years, respectively.

11. NET INCOME PER SHARE

The following table sets forth the computation of the Company's basic and diluted net income per share (in thousands, except per share amounts):

	Three Months Ended March 31,	
	2020	2019
Numerator:		
Net income	$ 15,644	$ 6,977
Denominator:		
Weighted-average shares used to compute net income per share - basic	41,575	40,284
Dilutive effect of stock options, unvested restricted stock units and employee stock purchase plan	1,467	1,678
Weighted-average shares used to compute net income per share - diluted	43,042	41,962
Net income per share		
Basic	$ 0.38	$ 0.17
Diluted	$ 0.36	$ 0.17

The following common stock equivalents (in thousands) were excluded from the computation of diluted net income per share for the periods presented because including them would have been antidilutive:

	Three Months Ended March 31,	
	2020	2019
Options to purchase common stock	21	49
Unvested restricted stock units	9	176

Estimates of the number of shares contingently issuable based on average market prices through March 31, 2020 for all outstanding performance-based RSUs that include a market condition in addition to a service condition have been included in the antidilutive table above.

12. COMMITMENTS AND CONTINGENCIES

Warranties

The Company's standard warranty obligation to its customers provides for repair or replacement of a defective product at the Company's discretion for a period of time following purchase, generally between 12 and 24 months. Factors that affect the warranty obligation include product failure rates, material usage and service delivery costs incurred in correcting product failures. In addition, from time to time, specific warranty accruals may be made if unforeseen technical problems arise. The estimated cost associated with fulfilling the Company's warranty obligation to customers is recorded in cost of revenue.

Changes in the Company's warranty liability, which is included as a component of accrued liabilities on the condensed consolidated balance sheets, are set forth in the table below (in thousands):

	Three Months Ended March 31,	
	2020	2019
Warranty reserve, beginning of period	$ 10,354	$ 8,220
Provisions made to warranty reserve during the period	1,847	5,026
Charges against warranty reserve during the period	(2,366)	(3,729)
Warranty reserve, end of period	$ 9,835	$ 9,517

Legal Contingencies

On January 21, 2016, ViaSat, Inc. filed a lawsuit in California state court, 37-2016-00002323-CU-BC-NC, later removed to the U.S. District Court for the Southern District of California, against the Company alleging, among other things, breach of contract, breach of the implied covenant of good faith and fair dealing and misappropriation of trade secrets. On February 19, 2016, the Company responded to ViaSat's lawsuit and alleged counterclaims against ViaSat including, among other things, patent misappropriation, breach of contract, breach of the implied covenant of good faith and fair dealing, misappropriation of trade secrets and unfair competition. In its response filed March 16, 2016, ViaSat denied the Company's counterclaims. On September 28, 2018 the matter was remanded back to the California Superior Court, County of San Diego, North County Division 3:16-cv-00463, D.I. 197.

In April 2019, the California Superior Court denied the parties' cross motions for summary adjudication. At the court's direction, the parties participated in a mandatory mediation process, but no resolution was reached. Trial took place in June and July of 2019, and the jury returned a verdict on July 17, 2019. The jury found against the Company for breach of contract, willful and malicious misappropriation of trade secrets, and breach of the covenant of good faith and fair dealing implied by law in the parties' contract. The jury also found that ViaSat breached the same contract and misappropriated the Company's trade secrets. The jury awarded damages of $49.3 million to ViaSat for the Company's breaches of contract, and $1 to ViaSat for its trade secret misappropriation claim. The jury awarded $1 to the Company for ViaSat's misappropriation of trade secrets and awarded no damages to the Company for ViaSat's breach of contract. ViaSat filed post-trial motions seeking up to approximately $10.0 million for attorney's fees and approximately $6.2 million for so-called "cost-of-proof" sanctions and an order that the Company pay ViaSat ongoing royalties on sales after December 31, 2018. ViaSat also sought a new trial and judgment in its favor notwithstanding the verdict on its trade secret damages claim. The Company filed post-trial motions for entry of judgment in its favor notwithstanding the verdict on ViaSat's breach of contract and trade secret damages claims and for a new trial, and moved to reduce the total damages awarded to ViaSat to no more than $12.8 million pursuant to a provision of the contract containing a limitation on liability for claims arising from the contract. The Court denied the post-trial motions filed by both parties, and on December 5, 2019, the Court entered judgment (the "December 2019 Judgment") against the Company in the amount of $49.3 million, and against ViaSat in the amount of $1. On January 17, 2020, the Court awarded ViaSat an additional $0.1 million in costs. On December 20, 2019, the Company filed a notice of appeal of the December 2019 Judgment, and ViaSat filed a notice of cross-appeal on December 26, 2019. The parties' respective appeals are pending and briefs have not yet been submitted. As of March 31, 2020, the Company has accrued a total of $20.0 million in litigation and settlement-related accruals. The amount of such accruals is based upon currently available information and is subject to significant judgment and a variety of assumptions and known and unknown uncertainties, which may change quickly and significantly from time to time. As a result, actual losses could significantly exceed the amount of such accruals, and no conclusion as to the Company's ultimate exposure from these proceedings should be drawn from such accruals. In view of the numerous legal, technical and factual issues involved in this lawsuit, the Company is not able to provide an estimate of the likely outcome or range of outcomes, if any, at this time.

On November 6, 2019, ViaSat, Inc. filed a second lawsuit in California Superior Court, County of San Diego, North County Division, 37-2019-00060731, D.I. 01, against the Company alleging breach of contract, breach of the implied covenant of good faith and fair dealing, and misappropriation of trade secrets. ViaSat's complaint relies on the verdict in the first lawsuit, seeks damages on sales of the Company's products after December 31, 2018, and its claims for relief include preliminary and permanent injunctive relief prohibiting sales of the Company's products alleged by ViaSat to misappropriate its trade secrets. On January 17, 2020, the Company responded to ViaSat's second lawsuit with a general denial and moved to stay the case. On February 28, 2020, the court issued an order granting the Company's motion to stay the case pending outcome of the appeal in the first lawsuit. In view of the numerous legal, technical and factual issues involved in this lawsuit, the Company is not able to provide an estimate of the likely outcome or range of outcomes, if any, at this time.

On July 28, 2017, the Company filed a lawsuit in the Commonwealth of Massachusetts Superior Court - Business Litigation Session against ViaSat asserting commercial disparagement, libel, slander of title, unfair competition, intentional interference with advantageous relations and intentional interference with contractual relations. On April 5, 2018, ViaSat

responded to the Company's action and alleged counterclaims including, among other things, breach of contract, breach of the implied covenant of good faith and fair dealing, misappropriation of trade secrets, and unfair competition. On December 13, 2018, the Massachusetts court entered an order staying the Massachusetts litigation pending resolution of the first California state court action discussed above. On December 12, 2019, the Massachusetts court entered an order continuing the stay of the Massachusetts litigation to and including July 10, 2020.

The litigation matters described above are referred to collectively as the ViaSat litigation.

In August 2019, two shareholder lawsuits and two putative class action lawsuits were filed against the Company and each of the Company's directors in connection with the proposed Merger, which lawsuits included Jiang v. Acacia Communications, Inc., et al., Civil Action No. 1:19-cv-07267 (the "Jiang lawsuit"), O'Brien v. Acacia Communications, Inc., et al., Civil Action No. 1:19-cv-01463 (the "O'Brien lawsuit"), Rosenblatt v. Acacia Communications, Inc., et al., Civil Action No. 1:19-cv-01470 (the "Rosenblatt lawsuit"), and Mac v. Acacia Communications, Inc., et al., Civil Action No. 1:19-cv-11706 (the "Mac lawsuit"). On August 27, 2019, the Company and the plaintiffs in the O'Brien, Rosenblatt and Mac lawsuits entered into a memorandum of understanding in which these plaintiffs agreed to dismiss with prejudice their individual claims and to dismiss without prejudice the class claims asserted in those actions, in return for the Company's agreement to make the supplemental disclosures set forth under the heading "Supplement to Proxy Statement" in the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on August 27, 2019 (the "Supplemental Disclosures"). On August 28, 2019, the Company and the plaintiff in the remaining Jiang lawsuit entered into a memorandum of understanding in which the plaintiff would dismiss with prejudice his claims asserted in that action, in return for the Company's agreement to make the Supplemental Disclosures. Pursuant to the memoranda of understanding, the plaintiffs in all four actions filed notices of voluntary dismissal on September 11, 2019. Pursuant to the memoranda of understanding, the plaintiffs in these four actions and their counsel reserved their right to file applications seeking attorney's fees and expenses based upon the purported benefit they believe was conferred upon the Company's stockholders by causing the Supplemental Disclosures to be disseminated. In February 2020, the parties resolved the fee claim and no fee applications will be necessary.

The Company intends to continue to engage in a vigorous defense and pursuit of Company-favorable judgments of the ongoing litigation matters described above. The ultimate resolution of these proceedings may have a material adverse effect on the Company's results of operations and cash flows, potentially in the near term. In addition, the timing of the final resolution of these proceedings is uncertain. The Company will continue to incur litigation and other expenses as a result of these proceedings, which could have a material impact on the Company's business, consolidated financial position, results of operations and cash flows.

In addition, from time to time the Company may become involved in legal proceedings or be subject to claims arising in the ordinary course of the Company's business. Although the results of litigation and claims cannot be predicted with certainty, the Company currently believes that the final outcome of these ordinary course matters will not have a material adverse effect on the Company's business or on the Company's consolidated financial position, results of operations or cash flows. Regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management resources and other factors.

Surety Bond

On December 20, 2019, the Company filed a Notice of Appeal to appeal the final judgment issued by the California Superior Court in the ViaSat litigation. In order to stay the execution of the final judgment pending its appeal, the Company filed a surety bond in the amount of $75.0 million as provided by California Code of Civil Procedure Sec. 917.1. The bond is issued by the Philadelphia Indemnity Insurance Company ("Philadelphia Indemnity"). In support of the bond, the Company entered into an indemnity agreement with Philadelphia Indemnity to indemnify it from any liability or loss under the bond. The indemnity agreement does not require collateral to be posted at the time of the issuance of the bond. However, Philadelphia Indemnity may on demand require deposit of an amount sufficient to fund any liability or loss. For additional information, see the discussion regarding the ViaSat litigation under "Legal Contingencies" above.

Indemnification

In the ordinary course of business, the Company enters into various agreements containing standard indemnification provisions. The Company's indemnification obligations under such provisions are typically in effect from the date of execution of the applicable agreement through the end of the applicable statute of limitations. During the three months ended March 31, 2020 and 2019, the Company incurred an immaterial amount of expenses related to these indemnification obligations. Currently, the Company does not anticipate significant claims related to these indemnification obligations, and consequently,

has concluded that the fair value of these obligations is not material. Accordingly, as of March 31, 2020 and December 31, 2019, no material amounts have been accrued related to such indemnification provisions.

13. INCOME TAXES

The Company is subject to income tax in the United States as well as other tax jurisdictions in which it conducts business. Earnings from non-U.S. activities are subject to local country income tax. As a result of the concept of "deemed distributions" under the U.S. Tax Cuts and Jobs Act, the impact of global intangible low-tax income ("GILTI") on the Company's future foreign earnings, and lack of certain foreign governments' withholding tax imposed on dividends, the Company no longer takes the position that most of its foreign earnings are permanently reinvested. For certain foreign operating subsidiaries, the Company continues to take the position that earnings are permanently reinvested.

The Company's tax provision for interim periods has historically been determined using an estimate of its annual effective tax rate, adjusted for discrete items arising in that quarter. In each quarter, the Company updates its estimate of the annual effective tax rate, and if the estimated annual tax rate changes, the Company makes a cumulative adjustment in that quarter. The Company's quarterly tax (benefit) provision, and its quarterly estimate of its annual effective tax rate, are subject to significant volatility due to several factors, including the Company's ability to accurately predict its pre-tax income and loss in multiple jurisdictions, as well as the portions of stock-based compensation that will either not generate tax benefits or the tax benefit is unpredictable and reflected when realized by employees.

For the three months ended March 31, 2020, the Company recorded a benefit from income taxes of $0.6 million as compared to $1.5 million for the three months ended March 31, 2019, resulting in an effective tax rate of (3.8)% and (26.9)% for the three months ended March 31, 2020 and 2019, respectively. The benefits from income taxes recorded in the three months ended March 31, 2020 and 2019 were primarily a result of the recognition of excess tax benefits from the taxable compensation on share-based awards recognized in the respective periods, as well as federal and state research and development credits. The Company's historical (benefit) provision for income taxes is not necessarily reflective of its future tax provisions or results of operations.

In the normal course of business, the Company is potentially subject to examination by tax authorities throughout the United States and other foreign jurisdictions in which the Company operates. All tax years since inception remain open to examination by the Internal Revenue Service ("IRS") or state tax authorities, as carryforward attributes generated in prior period tax years may still be adjusted upon examination if they have or will be used in a future period. The Company also files foreign tax returns in the foreign jurisdictions in which it operates when required. The Company is currently being audited by the IRS for tax years 2014 through 2017, the state of New Jersey for tax years 2015 through 2017 and the state of Massachusetts for tax years 2016 through 2018. There are currently no foreign examinations in process.

As of March 31, 2020 and December 31, 2019, the Company identified $7.2 million and $6.8 million, respectively, of gross uncertain tax positions. Included in those balances as of March 31, 2020 and December 31, 2019 are $3.7 million and $3.6 million, respectively, of tax benefits that, if recognized, would impact the effective tax rate. These have been accrued for as long-term liabilities on the Company's condensed consolidated balance sheets. The Company's existing tax positions are expected to continue to generate an increase in unrecognized tax benefits in subsequent periods. The Company's policy is to record interest and penalties related to unrecognized tax benefits as income tax expense. During the three and three months ended March 31, 2020 and 2019, the amounts recorded related to interest and penalties were immaterial in each period.

On July 27, 2015, in Altera Corp. v. Commissioner, the U.S. Tax Court issued an opinion invalidating the regulations relating to the treatment of stock-based compensation expense in an intercompany cost-sharing arrangement. A final decision was issued by the Tax Court in December 2015. The IRS appealed the decision in June 2016. On July 24, 2018, the Ninth Circuit Court of Appeals issued a decision that was subsequently withdrawn and a reconstituted panel conferred on the appeal. On June 7, 2019, the Court of Appeals reversed the 2015 decision of the Tax Court and upheld the cost-sharing regulations. On July 22, 2019, Altera petitioned for a rehearing with the Court of Appeals, and on November 12, 2019, the court denied that petition. On February 10, 2020, Altera filed a petition asking the United States Supreme Court to review the decision of the Court of Appeals. Due to the uncertainty surrounding the status of the current regulations and questions related to jurisdiction, the Company has determined no adjustment is required to the consolidated financial statements as a result of this ruling. As of March 31, 2020, the Company has maintained its position which is consistent with the U.S. Tax Court decision in favor of Altera. The Company estimates that the potential impact of a final adverse decision could be as much as $6.3 million on a financial statement basis for prior years' taxes. The Company will continue to monitor ongoing developments and potential impacts to its consolidated financial statements.

On March 27, 2020, Congress enacted the Coronavirus Aid, Relief, and Economic Security ("CARES") Act to provide certain relief as a result of the global spread of the novel coronavirus, severe acute respiratory syndrome coronavirus 2 ("SARS-CoV-2"), and the coronavirus disease, COVID-19. The Company is currently evaluating how provisions in the CARES Act could impact the Company's income tax obligations, if at all, or its financial position, results of operations and cash flows.

14. SEGMENT INFORMATION AND GEOGRAPHIC DATA

The Company operates as one operating segment. Operating segments are defined as components of an enterprise for which separate financial information is regularly evaluated by the chief operating decision maker ("CODM"), which is the Company's president and chief executive officer, in deciding how to allocate resources and assess performance. The CODM evaluates the Company's financial information and resources and assesses the performance of these resources on a consolidated basis. Since the Company operates in one operating segment, all required financial segment information can be found in the condensed consolidated financial statements.

Revenue by country, based on ship-to destinations, which in certain instances may be the location of a contract manufacturer rather than the Company's end customer, was as follows (in thousands):

	Three Months Ended March 31,	
	2020	2019
United States	$ 27,201	$ 12,340
China	28,873	42,887
Germany	6,365	10,833
Thailand	22,096	23,681
Malaysia	13,027	2,384
Other	28,064	13,091
Total revenue	$ 125,626	$ 105,216

Certain prior period amounts have been reclassified to conform to the current period presentation. Specifically, for the three months ended March 31, 2019, $2.4 million of Malaysia revenue was included within "Other" and has now been reclassified to be presented on a separate line in conformity with the current period presentation.

Total long-lived assets by country consisted of the following as of March 31, 2020 and December 31, 2019 (in thousands):

	March 31, 2020	December 31, 2019
United States	$ 18,194	$ 18,325
Thailand	3,550	3,870
China	1,828	1,949
Other	2,855	2,657
Total long-lived assets	$ 26,427	$ 26,801

15. CONCENTRATIONS OF RISK

Customer Concentration

Customers with revenue equal to or greater than 10% of total revenue for the three months ended March 31, 2020 and 2019 were as follows:

	Three Months Ended March 31,	
	2020	2019
A	20%	31%
B	*	10%
C	29%	10%
E	15%	18%

* Less than 10% of revenue in the period indicated

Customers, which include their authorized contract manufacturers, that accounted for equal to or greater than 10% of accounts receivable at March 31, 2020 and December 31, 2019 were as follows:

	March 31, 2020	December 31, 2019
A	30%	28%
B	10%	16%
C	20%	*
G	*	10%

* Less than 10% of accounts receivable at the date indicated

Supplier Concentration

The Company's most significant vendor spending is related to purchases from contract manufacturers and component suppliers located in China and Thailand, from which the Company purchases a substantial portion of its inventory. For the three months ended March 31, 2020 and 2019, total purchases from each of the suppliers were as follows:

	Three Months Ended March 31,	
	2020	2019
X	13%	18%
Y	53%	56%

The Company also outsources certain engineering projects to vendors located throughout the world. Total research and development costs incurred with one vendor, not listed above, were less than 10% during the three months ended March 31, 2020 and 15% during the three months ended March 31, 2019.

16. RELATED PARTIES

One of the members of the Company's board of directors, Vincent Roche, is also the President and Chief Executive Officer and a member of the board of directors of Analog Devices, Inc. ("ADI"). The Company, through its contract manufacturers, periodically purchases supplies from ADI pursuant to purchase orders negotiated on an arm's length basis between ADI and the Company's contract manufacturers at prevailing prices. These purchased supplies are used as content in certain of the Company's manufactured products. Based on shipments during the respective periods, the Company's contract manufacturers made purchases from ADI of approximately $1.3 million and $0.9 million during the three months ended March 31, 2020 and 2019, respectively.

In 2018, the Company entered into a product development agreement with ADI related to the development of integrated circuits for $1.5 million, of which no costs were incurred during the three months ended March 31, 2020 and $0.3 million of costs were incurred during the three months ended March 31, 2019.

17. SUBSEQUENT EVENTS

An outbreak of SARS-CoV-2, and the coronavirus disease, COVID-19, was identified in China in late 2019 and has globally spread throughout other areas such as Asia, Europe, the Middle East and North America. The Centers for Disease Control and Prevention has recognized this outbreak as a pandemic which has resulted in authorities imposing, and businesses and individuals implementing, numerous unprecedented measures to try to contain the virus, such as travel bans and restrictions, quarantines, shelter-in-place/stay-at-home and social distancing orders and shutdowns. These measures have impacted and may further impact the Company's workforce and operations, the operations of the Company's customers, and those of the Company's and its customers respective vendors, suppliers and partners. While the pandemic and these measures did not have a significant impact on the Company's financial results for the three month period ended March 31, 2020, the extent to which the COVID-19 pandemic could impact the Company's going forward results of operations will depend on future developments that are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of the virus and the actions to contain its impact and the duration of the pandemic and related responsive measures. The Company is in the process of monitoring and assessing the effect of the COVID-19 pandemic.

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

You should read the following discussion of our financial condition and results of operations together with our unaudited condensed consolidated financial statements and the related notes and other financial information included elsewhere in this Quarterly Report on Form 10-Q and our Annual Report on Form 10-K filed with the SEC on February 18, 2020. The following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Quarterly Report on Form 10-Q, particularly in the section titled "Risk Factors" under Part II, Item 1A below.

Company Overview

Our mission is to deliver high-speed coherent optical interconnect products that transform communications networks, relied upon by cloud infrastructure operators and content and communication service providers, through improvements in performance and capacity and reductions in associated costs. By implementing optical interconnect technology in a silicon-based platform, a process we refer to as the siliconization of optical interconnect, we believe we are leading a disruption that is analogous to the computing industry's integration of multiple functions into a microprocessor. Our products fall into three product groups: embedded modules, pluggable modules and semiconductors. Our embedded module and pluggable module product groups consist of optical interconnect modules with transmission speeds ranging from 100 to 1,200 gigabits per second, or Gbps, for use in long-haul, metro and inter-data center markets. Our semiconductor product group consists of our low-power coherent digital signal processor application-specific integrated circuits, or DSP ASICs, and our silicon photonic integrated circuits, or silicon PICs, which are either integrated into our embedded and pluggable modules or sold to customers on a standalone basis for integration into internally developed or other merchant modules. We are also developing a 400ZR module that will expand our pluggable module product group, and enable inter-data center transmission capacity of 400 Gbps in the same compact pluggable form factors used for 400G client optics, including QSFP-DD and OSFP. Our 400 Gbps pluggable product family will also include a new CFP2-DCO module that supports transmission rates up to 400 Gbps and the OpenROADM specification. Our modules perform a majority of the digital signal processing and optical functions in optical interconnects and offer low power consumption, high density and high speeds at attractive price points. Through the use of standard interfaces, our modules can be easily integrated with customers' network equipment. The advanced software in our modules enables increased configurability and automation, provides insight into network and connection point characteristics and helps identify network performance problems, all of which increase flexibility and reduce operating costs.

Revenue from our five largest customers, the mix of which customers varied across each period, was 76% and 77% during the three months ended March 31, 2020 and 2019, respectively.

Proposed Merger with Cisco Systems

On July 8, 2019, we, Cisco Systems, Inc., a California corporation, or the Parent, and Amarone Acquisition Corp., a Delaware corporation and a wholly owned subsidiary of the Parent, or the Merger Sub, entered into an Agreement and Plan of Merger, or the Merger Agreement, pursuant to which, among other things, the Merger Sub will be merged with and into Acacia, which we refer to herein as the Merger, with Acacia surviving the Merger as a wholly owned subsidiary of the Parent. The Merger Agreement was adopted by our stockholders at a special meeting held on September 6, 2019. Completion of the Merger is subject to customary closing conditions, including (i) obtaining certain foreign antitrust approvals, including in China, (ii) the absence of governmental injunctions or other legal restraints prohibiting the Merger or imposing certain antitrust restraints and (iii) the absence of a "Material Adverse Effect," as defined in the Merger Agreement. We and the Parent have already received antitrust clearance for the Merger in the United States, Germany and Austria. If the Merger is completed, each share of our common stock issued and outstanding immediately prior to the effective time of the Merger, subject to certain exceptions, will be converted into the right to receive $70.00 in cash. Subject to the satisfaction of these conditions, the parties expect the Merger to close in the second half of the Parent's 2020 fiscal year which ends on July 25, 2020.

For additional information related to the Merger Agreement, we refer you to our Current Report on Form 8-K filed with the Securities and Exchange Commission on July 9, 2019, which includes the full text of the Merger Agreement as Exhibit 2.1.

During the three months ended March 31, 2020, we recorded acquisition-related costs of $0.9 million in sales, general and administrative expense within our condensed consolidated statements of operations.

Impact of COVID-19

Our global operations expose us to risks associated with public health crises, epidemics and pandemics, such as the novel coronavirus SARS-CoV-2, and the coronavirus disease, COVID-19. We cannot at this time predict the impact that the COVID-19 pandemic will have on our financial condition and operations, although we are continuing to monitor our supply chain and customer demand for COVID-19 related changes. In this time of uncertainty, we are staying in close communication with our customers and other business partners and have taken steps to mitigate the impact of this dynamic and evolving situation. In addition, in response to the COVID-19 pandemic, we have modified our business practices to include company-wide travel and visitor restrictions, work-from-home policies, social distancing and various other recommended preventive measures, and may implement further measures that we determine are in the best interests of our employees, customers, partners, vendors, and suppliers, or that are required or recommended by federal, state or local authorities.

While the COVID-19 pandemic did not have a material impact on the Company's financial results for the three month period ended March 31, 2020, the extent to which the COVID-19 pandemic could impact the Company's results of operations going forward depends on future developments that are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of the virus and required or voluntary actions to contain its impact. Due to the inherent uncertainty of this unprecedented and rapidly evolving situation, we are unable to predict with any confidence the likely impact of COVID-19 on our future business, results of operations and financial condition.

Additional information regarding COVID-19 related risks and uncertainties may be found in the section titled "Risk Factors" under Part II, Item 1A in this Quarterly Report on Form 10-Q.

Results of Operations

The following tables set forth the components of our condensed consolidated statements of operations for each of the periods presented and as a percentage of revenue for those periods. The period-to-period comparison of operating results is not necessarily indicative of results for future periods.

	Three Months Ended March 31,	
	2020	2019
	(in thousands)	
Consolidated Statement of Operation Data:		
Revenue	$ 125,626	$ 105,216
Cost of revenue	66,344	55,374
Gross profit	59,282	49,842
Operating expenses:		
Research and development	32,095	30,953
Sales, general and administrative	14,371	15,787
Total operating expenses	46,466	46,740
Income from operations	12,816	3,102
Total other income, net	2,250	2,394
Income before benefit for income taxes	15,066	5,496
Benefit for income taxes	(578)	(1,481)
Net income	$ 15,644	$ 6,977

	Three Months Ended March 31,	
	2020	2019
Revenue	100 %	100 %
Cost of revenue	53 %	53 %
Gross profit	47 %	47 %
Operating expenses:		
Research and development	26 %	29 %
Sales, general and administrative	11 %	15 %
Total operating expenses	37 %	44 %
Income from operations	10 %	3 %
Total other income, net	2 %	2 %
Income before benefit for income taxes	12 %	5 %
Benefit for income taxes	— %	(1)%
Net income	12 %	7 %

Percentages in the table above are based on actual values. Totals may not sum due to rounding.

Three Months Ended March 31, 2020 Compared to the Three Months Ended March 31, 2019

Revenue

Revenue by product group and the related changes during the three months ended March 31, 2020 and 2019 were as follows:

	Three Months Ended March 31, 2020	As a % of Total Revenue	Three Months Ended March 31, 2019	As a % of Total Revenue	Change in $	Change in %
			(dollars in thousands)			
Embedded modules	$ 21,769	17%	$ 17,426	16%	$ 4,343	25%
Pluggable modules	58,658	47%	55,517	53%	3,141	6%
Semiconductors	45,199	36%	32,273	31%	12,926	40%
Total revenue	$ 125,626	100%	$ 105,216	100%	$ 20,410	19%

Revenue increased by $20.4 million, or 19%, to $125.6 million in the three months ended March 31, 2020 from $105.2 million in the three months ended March 31, 2019. The increase was primarily due to a $12.9 million increase in sales of our semiconductors, a $4.3 million increase in sales of our embedded modules and a $3.1 million increase in sales of our pluggable modules. In the three months ended March 31, 2020 and 2019, we derived 23% and 41%, respectively, of our revenue from sales to customers with ship-to locations in China.

Cost of Revenue and Gross Profit

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019	Change in $	Change in %
		(dollars in thousands)		
Cost of revenue	$ 66,344	$ 55,374	$ 10,970	20%
Gross profit percentage	47.2%	47.4%		

Cost of revenue increased $11.0 million, or 20%, to $66.3 million in the three months ended March 31, 2020 from $55.4 million in the three months ended March 31, 2019. The increase is primarily attributable to increased sales volumes.

Our gross profit percentage was generally consistent at 47.2% in the three months ended March 31, 2020 compared to 47.4% in the three months ended March 31, 2019.

Research and Development

	Three Months Ended March 31,		Change in	
	2020	2019	$	%
	(dollars in thousands)			
Research and development	$ 32,095	$ 30,953	$ 1,142	4%

Research and development expense increased $1.1 million, or 4%, to $32.1 million in the three months ended March 31, 2020 from $31.0 million in the three months ended March 31, 2019, primarily due to a $4.3 million increase in personnel-related and other costs as we continued investing in our product and technology roadmap and a $1.7 million increase in prototype development costs, which were partially offset by a $4.9 million decrease in research and development expenses related to the timing of milestone payments associated with our development programs.

Sales, General and Administrative

	Three Months Ended March 31,		Change in	
	2020	2019	$	%
	(dollars in thousands)			
Sales, general and administrative	$ 14,371	$ 15,787	$ (1,416)	(9)%

Sales, general and administrative expenses decreased $1.4 million, or 9%, to $14.4 million in the three months ended March 31, 2020 from $15.8 million in the three months ended March 31, 2019. This decrease was primarily due to a $2.3 million decrease in professional services expense, which was primarily attributable to a decrease in estimated legal and settlement costs related to litigation matters recorded in the three months ended March 31, 2020, partially offset by a $0.9 million increase in personnel-related and other costs as we increased sales and customer support staffing and related support resources.

Other Income, Net

	Three Months Ended March 31,		Change in	
	2020	2019	$	%
	(dollars in thousands)			
Total other income, net	$ 2,250	$ 2,394	$ (144)	(6)%

Total other income, net, was generally consistent at $2.3 million during the three months ended March 31, 2020, as compared to $2.4 million during the three months ended March 31, 2019, and is mainly comprised of interest income from marketable securities.

Benefit from Income Taxes

	Three Months Ended March 31,		Change in	
	2020	2019	$	%
	(dollars in thousands)			
Benefit from income taxes	$ (578)	$ (1,481)	$ 903	(61)%
Effective tax rate	(4)%	(27)%		23 %

Income tax benefit for the three months ended March 31, 2020 was $0.6 million compared $1.5 million for the three months ended March 31, 2019. The benefit from income taxes recorded in the three months ended March 31, 2020 and 2019 was primarily a result of the recognition of excess tax benefits from the taxable compensation on share-based awards recognized in the respective periods, as well as federal and state research and development credits.

Liquidity and Capital Resources

	Three Months Ended March 31,	
	2020	2019
	(in thousands)	
Cash and cash equivalents	$ 86,010	$ 73,532
Marketable securities	404,231	355,710
Working capital	403,404	367,805
Net cash provided by operating activities	22,055	29,328
Net cash provided by (used in) investing activities	27,015	(17,640)
Net cash provided by financing activities	323	1,400

We fund our operations primarily through cash generated from operations. As of March 31, 2020, we had cash and cash equivalents totaling $86.0 million, marketable securities of $404.2 million and accounts receivable of $96.8 million.

We believe our existing cash balances and anticipated cash flow from future operations will be sufficient to meet our working capital and capital expenditure needs for at least the next 12 months and the foreseeable future. Our future capital requirements may vary materially from those currently planned and will depend on many factors, including our rate of revenue growth, the timing and extent of spending on research and development efforts and other business initiatives, purchases of capital equipment to support our growth, the expansion of sales and marketing activities, any expansion of our business through acquisitions of or investments in complementary products, technologies or businesses, the use of working capital to purchase additional inventory, the timing of new product introductions, market acceptance of our products and overall economic conditions. To the extent that current and anticipated future sources of liquidity are insufficient to fund our future business activities and requirements, we may be required to seek additional equity or debt financing. In the event additional financing is required from outside sources, we may not be able to raise it on terms acceptable to us or at all.

Operating Activities

Net cash provided by operating activities consists primarily of net income adjusted for certain non-cash items, including depreciation expense, stock-based compensation expense, deferred income taxes, non-cash lease expense and other non-cash benefits, net, as well as the effect of changes in working capital.

Net cash provided by operating activities was $22.1 million in the three months ended March 31, 2020 as compared to $29.3 million in the three months ended March 31, 2019. The decrease of $7.3 million was primarily due to an $18.3 million decrease in cash related to changes in operating assets and liabilities, partially offset by an $8.7 million increase in net income and a $2.4 million increase in non-cash expense items primarily consisting of stock-based compensation and deferred income taxes. Changes in cash flows related to operating assets and liabilities primarily consisted of a $13.0 million decrease in cash due to the timing of our accounts payable and accrued liability payments, a $6.3 million decrease in cash due to the timing of our accounts receivable collections in the three months ended March 31, 2020, a $2.7 million decrease in cash due to changes in deferred revenue balances and a $2.0 million decrease in cash due to changes in prepaid and other asset balances, partially offset by a $5.7 million increase in cash due to a decreased inventory balance.

The ultimate resolution of ongoing litigation matters may have a material adverse effect on our results of operations and cash flows, potentially in the near term. In addition, the timing of the final resolution of these proceedings is uncertain. As of March 31, 2020, we have accrued a total of $20.0 million in litigation and settlement-related accruals.

Investing Activities

Our investing activities have consisted primarily of purchases, sales and maturities of marketable securities and purchases of lab, engineering and computer equipment to support the development of new products and increase our manufacturing capacity to meet customer demand for existing products. In addition, our investing activities include expansion of, and certain improvements to, our leased facilities. We expect that we will continue to invest in these areas in line with growth in product demand.

Net cash provided by investing activities in the three months ended March 31, 2020 was $27.0 million as compared to net cash used in investing activities of $17.6 million in the three months ended March 31, 2019. This change was primarily attributable to a $44.7 million increase in net sales of marketable securities during the three months ended March 31, 2020.

Financing Activities

Our financing activities have consisted primarily of proceeds from the issuance of common stock under our stock-based compensation plans and payments to acquire treasury stock.

Net cash provided by financing activities during the three months ended March 31, 2020 was $0.3 million as compared to $1.4 million during the three months ended March 31, 2019, primarily attributable to a decrease in the number of stock options exercised.

Contractual Obligations and Commitments

Our principal commitments consist of operating lease payments, purchase obligations, taxes payable as a result of the U.S. Tax Cuts and Jobs Act, or the Tax Act, and other tax liabilities arising from the ordinary course of business. The following table summarizes these contractual obligations at March 31, 2020. Future events could cause actual payments to differ from these estimates.

	Payments due by period				
	Total	Less than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
	(in thousands)				
Operating lease liabilities, including imputed interest (1)	$ 27,432	$ 3,248	$ 8,636	$ 8,850	$ 6,698
Purchase obligations (2)	69,465	69,465	—	—	—
Income taxes payable (3)	7,744	627	2,407	4,710	—
Unrecognized tax benefits (4)	3,703	—	—	—	—
Total	$ 108,344	$ 73,340	$ 11,043	$ 13,560	$ 6,698

(1) We lease facilities and equipment under non-cancelable operating lease agreements. Refer to Note 8, Leases, of the “Notes to Consolidated Financial Statements” contained in Part I, Item 1 of this Quarterly Report on Form 10-Q for more information about our leases.

(2) Our purchase obligations primarily consist of outstanding purchase orders with our contract manufacturers for inventory and other third parties for the manufacturing of our wafers and semiconductors. Our relationships with these vendors typically allow for the cancellation of outstanding purchase orders, but require payments of all expenses incurred through the date of cancellation. Other obligations include future non-inventory purchases and commitments related to future fixed asset purchases.

(3) Income taxes payable relates to taxes owed as a result of the one-time transition tax on earnings of certain foreign subsidiaries that were previously tax-deferred until the enactment of the Tax Act in December 2017. The Tax Act allows the tax liability to be paid on an installment basis over eight years. The amount due in less than one year in the table above represents the transition tax amount owed in the short-term which is included in accrued liabilities on our consolidated balance sheet.

(4) We had $7.2 million of uncertain tax positions as of March 31, 2020. Included in the balance of unrecognized tax benefits as of March 31, 2020 were $3.7 million of tax benefits that, if recognized, would impact the effective tax rate, which have been accrued for as a long-term liability on our condensed consolidated balance sheet. We are not able to provide reasonably reliable estimates of future payments relating to these obligations.

Off-Balance Sheet Arrangements

As of March 31, 2020, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of Regulation S-K, such as the use of unconsolidated subsidiaries, structured finance, special purpose entities or variable interest entities.

Recently Issued Accounting Pronouncements

Refer to the “Basis of Presentation and Summary of Significant Accounting Policies” footnote within our condensed consolidated financial statements for analysis of recent accounting pronouncements that are applicable to our business.

Critical Accounting Policies and Estimates

We prepare our condensed consolidated financial statements in accordance with generally accepted accounting principles in the United States. The preparation of condensed consolidated financial statements also requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expenses and related disclosures. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Actual results could differ significantly from the estimates made by our management.

There have been no material changes to our critical accounting policies and estimates from those disclosed in our Annual Report on Form 10-K for the year ended December 31, 2019.

ITEM 3. Quantitative and Qualitative Disclosures About Market Risk.

Our exposure to changes in interest rates relates primarily to interest earned on and the market value of our cash, cash equivalents and marketable securities. Our cash, cash equivalents and marketable securities consist of bank deposit accounts, money market funds, U.S. government agency debt securities, commercial paper, certificates of deposit, asset-backed securities and corporate debt securities. Our securities with fixed interest rates may have their market value adversely impacted by a rise in interest rates. As a result, we may suffer losses in principal if we are forced to sell securities that decline in market value due to changes in interest rates. However, because we classify our investments in debt securities as available-for-sale, no gains or losses are recognized in the condensed consolidated statements of operation unless the securities' decline in market value is due to credit losses. An immediate 100 basis point change in interest rates would have a $2.1 million effect on the fair market value of our portfolio as of March 31, 2020. Our investment policy specifies credit quality standards for our investments and limits the amount of credit exposure from any single issue, issuer or type of investment.

Our exposure to market risk from changes in foreign currency exchange rates and inflation has not changed materially from our exposure as of December 31, 2019.

Additional information regarding COVID-19 related risks and uncertainties may be found in the sections titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" under Part I, Item 2 and "Risk Factors" under Part II, Item 1A in this Quarterly Report on Form 10-Q.

ITEM 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures. Our management, with the participation of our principal executive officer and principal financial officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on such evaluation, our principal executive officer and principal financial officer have concluded that as of such date, our disclosure controls and procedures were effective.

Changes in Internal Control Over Financial Reporting. There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the period covered by this Quarterly Report on Form 10-Q that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

COVID-19

In response to COVID-19, we have undertaken measures to protect our employees, partners and customers, including encouraging employees to work remotely. These changes have compelled us to modify some of our control procedures, however, those changes have so far not been material.

PART II—OTHER INFORMATION

ITEM 1. Legal Proceedings.

On January 21, 2016, ViaSat, Inc. filed a lawsuit in California state court, 37-2016-00002323-CU-BC-NC, later removed to the U.S. District Court for the Southern District of California, against us alleging, among other things, breach of contract, breach of the implied covenant of good faith and fair dealing and misappropriation of trade secrets. On February 19, 2016, we responded to ViaSat's lawsuit and alleged counterclaims against ViaSat including, among other things, patent misappropriation, breach of contract, breach of the implied covenant of good faith and fair dealing, misappropriation of trade secrets and unfair competition. In its response filed March 16, 2016, ViaSat denied our counterclaims. On September 28, 2018 the matter was remanded back to the California Superior Court, County of San Diego, North County Division 3:16-cv-00463, D.I. 197.

In April 2019, the California Superior Court denied the parties' cross motions for summary adjudication. At the court's direction, the parties participated in a mandatory mediation process, but no resolution was reached. Trial took place in June and July of 2019 and the jury returned a verdict on July 17, 2019. The jury found against us for breach of contract, willful and malicious misappropriation of trade secrets, and breach of the covenant of good faith and fair dealing implied by law in the parties' contract. The jury also found that ViaSat breached the same contract and misappropriated our trade secrets. The jury awarded damages of $49.3 million to ViaSat for our breaches of contract, and $1 to ViaSat for our trade secret misappropriation claim. The jury awarded $1 to us for ViaSat's misappropriation of trade secrets and awarded no damages to us for ViaSat's breach of contract. ViaSat filed post-trial motions seeking up to approximately $10.0 million for attorney's fees and approximately $6.2 million for so-called "cost-of-proof" sanctions and an order that we pay ViaSat ongoing royalties on sales after December 31, 2018. ViaSat also sought a new trial and judgment in its favor notwithstanding the verdict on its trade secret damages claim. We filed post-trial motions for entry of judgment in our favor notwithstanding the verdict on ViaSat's breach of contract and trade secret damages claims and for a new trial, and moved to reduce the total damages awarded to ViaSat to no more than $12.8 million pursuant to a provision of the contract containing a limitation on liability for claims arising from the contract. The Court denied the post-trial motions filed by both parties, and on December 5, 2019, the Court entered judgment (the "December 2019 Judgment") against us in the amount of $49.3 million, and against ViaSat in the amount of $1. On January 17, 2020, the Court awarded ViaSat an additional $0.1 million in costs. On December 20, 2019, we filed a notice of appeal of the December 2019 Judgment, and ViaSat filed a notice of cross-appeal on December 26, 2019. The parties' respective appeals are pending and briefs have not yet been submitted. As of March 31, 2020, we have accrued a total of $20.0 million in litigation and settlement-related accruals. The amount of such accruals is based upon currently available information and is subject to significant judgment and a variety of assumptions and known and unknown uncertainties, which may change quickly and significantly from time to time. As a result, actual losses could significantly exceed the amount of such accruals, and no conclusion as to our ultimate exposure from these proceedings should be drawn from such accruals. In view of the numerous legal, technical and factual issues involved in this lawsuit, we are not able to provide an estimate of the likely outcome or range of outcomes, if any, at this time.

On November 6, 2019, ViaSat, Inc. filed a second lawsuit in California Superior Court, County of San Diego, North County Division, 37-2019-00060731, D.I. 01, against us alleging breach of contract, breach of the implied covenant of good faith and fair dealing, and misappropriation of trade secrets. ViaSat's complaint relies on the verdict in the first lawsuit, seeks damages on sales of our products after December 31, 2018, and its claims for relief include preliminary and permanent injunctive relief prohibiting sales of our products alleged by ViaSat to misappropriate its trade secrets. On January 17, 2020, we responded to ViaSat's second lawsuit with a general denial and moved to stay the case. On February 28, 2020, the court issued an order granting our motion to stay the case pending outcome of the appeal in the first lawsuit. In view of the numerous legal, technical and factual issues involved in this lawsuit, we are not able to provide an estimate of the likely outcome or range of outcomes, if any, at this time.

On July 28, 2017, we filed a lawsuit in the Commonwealth of Massachusetts Superior Court - Business Litigation Session against ViaSat asserting commercial disparagement, libel, slander of title, unfair competition, intentional interference with advantageous relations and intentional interference with contractual relations. On April 5, 2018, ViaSat responded to our action and alleged counterclaims including, among other things, breach of contract, breach of the implied covenant of good faith and fair dealing, misappropriation of trade secrets, and unfair competition. On December 13, 2018, the Massachusetts court entered an order staying the Massachusetts litigation pending resolution of the first California state court action discussed above. On December 12, 2019, the Massachusetts court entered an order continuing the stay of the Massachusetts litigation to and including July 10, 2020.

In August 2019, two shareholder lawsuits and two putative class action lawsuits were filed against us and each of our directors in connection with the proposed Merger, which lawsuits included Jiang v. Acacia Communications, Inc., et al., Civil Action No. 1:19-cv-07267 (the "Jiang lawsuit"), O'Brien v. Acacia Communications, Inc., et al., Civil Action No. 1:19-

cv-01463 (the “O’Brien lawsuit”), Rosenblatt v. Acacia Communications, Inc., et al., Civil Action No. 1:19-cv-01470 (the “Rosenblatt lawsuit”), and Mac v. Acacia Communications, Inc., et al., Civil Action No. 1:19-cv-11706 (the “Mac lawsuit”). On August 27, 2019, we and the plaintiffs in the O’Brien, Rosenblatt and Mac lawsuits entered into a memorandum of understanding in which these plaintiffs agreed to dismiss with prejudice their individual claims and to dismiss without prejudice the class claims asserted in those actions, in return for our agreement to make the supplemental disclosures set forth under the heading “Supplement to Proxy Statement” in our Current Report on Form 8-K filed with the Securities and Exchange Commission on August 27, 2019 (the “Supplemental Disclosures”). On August 28, 2019, we and the plaintiff in the remaining Jiang lawsuit entered into a memorandum of understanding in which the plaintiff would dismiss with prejudice his claims asserted in that action, in return for our agreement to make the Supplemental Disclosures. Pursuant to the memoranda of understanding, the plaintiffs in all four actions filed notices of voluntary dismissal on September 11, 2019. Pursuant to the memoranda of understanding, the plaintiffs in these four actions and their counsel reserved their right to file applications seeking attorney’s fees and expenses based upon the purported benefit they believe was conferred upon our stockholders by causing the Supplemental Disclosures to be disseminated. In February, 2020, the parties resolved the fee claim and no fee applications will be necessary.

We intend to continue to engage in a vigorous defense and pursuit of Acacia favorable judgments of the ongoing litigation matters described above. The ultimate resolution of these proceedings may have a material adverse effect on our results of operations and cash flows, potentially in the near term. In addition, the timing of the final resolution of these proceedings is uncertain. We will continue to incur litigation and other expenses as a result of these proceedings, which could have a material impact on our business, consolidated financial position, results of operations and cash flows.

In addition, from time to time we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. Although the results of litigation and claims cannot be predicted with certainty, we currently believe that the final outcome of these ordinary course matters will not have a material adverse effect on our business or on our consolidated financial position, results of operations or cash flows. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

ITEM 1A. Risk Factors.

The following risk factors and other information included in this Quarterly Report on Form 10-Q should be carefully considered. This description of risk factors includes any material changes to, and supersedes the description of, risk factors associated with our business previously disclosed in Part I, Item 1A, “Risk Factors” of our Annual Report on Form 10-K for the year ended December 31, 2019. These risk factors may be important to understanding other statements in this Quarterly Report on Form 10-Q. The following information should be read in conjunction with the condensed consolidated financial statements and related notes in Part I, Item 1, “Condensed Consolidated Financial Statements (Unaudited)” and Part I, Item 2, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” of this Quarterly Report on Form 10-Q.

The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we presently deem less significant may also impair our business operations. Please see page 1 of this Quarterly Report on Form 10-Q for a discussion of some of the forward-looking statements that are qualified by these risk factors. If any of these risks occurs, our business, financial condition, operating results, cash flow and prospects could be materially and adversely affected.

Because of the following factors, as well as other factors affecting our financial condition and operating results, past financial performance should not be considered to be a reliable indicator of future performance, and investors should not use historical trends to anticipate results or trends in future periods.

Risks Related to the Merger

Our proposed Merger may be delayed or not occur at all for a variety of reasons, including the possibility that the Merger Agreement is terminated prior to the completion of the Merger.

On July 8, 2019, we entered into an Agreement and Plan of Merger, or the Merger Agreement, with Cisco Systems, Inc., a California corporation, or the Parent, and Amarone Acquisition Corp., a Delaware corporation and a wholly owned subsidiary of the Parent, or the Merger Sub. The Merger Agreement provides for the merger of the Merger Sub with and into us, which we refer to herein as the Merger, with us surviving the Merger as a wholly owned subsidiary of the Parent. Completion of the Merger is subject to customary closing conditions, including (i) obtaining certain foreign antitrust approvals, including in China, (ii) the absence of governmental injunctions or other legal restraints prohibiting the Merger or imposing

certain antitrust restraints and (iii) the absence of a “Material Adverse Effect,” as defined in the Merger Agreement. In addition, the obligation of each party to consummate the Merger is conditioned upon, among other things, the accuracy of the representations and warranties of the other party (subject to certain materiality exceptions), and material compliance by the other party with its covenants under the Merger Agreement. Therefore, the Merger may not be completed or may not be completed as quickly as expected.

Failure to complete the Merger could adversely affect our business and the market price of our common stock in a number of ways, including:

- the market price of our common stock may decline to the extent that the current market price reflects an assumption that the Merger will be consummated;
- if the Merger Agreement is terminated under certain circumstances specified in the Merger Agreement, we would be required to pay the Parent a termination fee of $120 million (including under specified circumstances in connection with an alternative acquisition proposal);
- we have incurred, and will continue to incur, significant expenses for professional services in connection with the Merger for which we will have received little or no benefit if the Merger is not consummated; and
- a failed Merger may result in negative publicity and/or give a negative impression of us in the investment community or business community generally.

The Merger could divert management’s attention, disrupt our relationships with third parties and employees and result in negative publicity or legal proceedings, any of which could negatively impact our operating results and ongoing business.

We have expended, and continue to expend, significant management time and resources in an effort to complete the Merger, which may have a negative impact on our ongoing business. Uncertainty regarding the outcome of the Merger and our future could disrupt our business relationships with our existing and potential customers, suppliers, vendors, landlords and other business partners, who may attempt to negotiate changes in existing business relationships or consider entering into business relationships with parties other than us. Uncertainty regarding the outcome of the Merger could also adversely affect our ability to recruit and retain key personnel and other employees. The pendency of the Merger may also result in negative publicity and a negative impression of us in the financial markets, and it has led to, and may result in additional, litigation against us and our directors and officers. Such litigation is distracting to management and has required, and may in the future require, us to incur significant costs. Such litigation could result in the Merger being delayed and/or enjoined by a court of competent jurisdiction, which could prevent the Merger from becoming effective. The occurrence of any of these events individually or in combination could have a material and adverse effect on our business, financial condition and results of operations.

While the Merger Agreement is in effect, we are subject to restrictions on our business activities.

While the Merger Agreement is in effect, we are subject to restrictions on our business activities and must generally operate our business in the ordinary course, subject to certain exceptions. These restrictions could prevent us from pursuing attractive business opportunities that may arise prior to the consummation of the Merger. Although we may be able to pursue such activities with the Parent’s consent, the Parent may not be willing to provide its consent for us to do so.

If the Merger occurs, our stockholders will not be able to participate in any upside to our business.

If the Merger is consummated, our stockholders will receive $70.00 in cash per share, without interest and subject to applicable tax withholding, of our common stock owned by them, and will not receive any shares of the Parent’s common stock. As a result, if our business following the Merger performs well, our current stockholders will not receive any additional consideration and will therefore not receive any benefit from any such future performance of our business.

Litigation could delay and or prevent the Merger from becoming effective or from becoming effective within the expected timeframe.

We and our directors were named as defendants in several lawsuits brought by purported stockholders challenging the Merger and seeking various forms of injunctive and declaratory relief, as well as awards of damages, costs, expert fees and attorneys’ fees. While the plaintiffs in these lawsuits have dismissed their claims in exchange for our filing of supplemental disclosure regarding the Merger, which we filed on August 27, 2019, we may be subject to additional future litigation challenging the Merger. One of the conditions to the completion of the Merger is that no injunction by any governmental entity of competent jurisdiction, such as a court, will be in effect that prohibits or makes illegal the consummation of the Merger. As

such, if any future plaintiffs are successful in obtaining an injunction prohibiting the consummation of the Merger, then such injunction may prevent the Merger from becoming effective or from becoming effective within the expected timeframe, either of which could substantially harm our business.

Risks Related to Our Business and Industry

The extent to which the novel coronavirus 2019-nCoV pandemic, referred to as the COVID-19 pandemic, or COVID-19, has adversely affected, and may continue to adversely affect, our business, results of operations and financial condition is uncertain.

The global spread of the novel coronavirus, severe acute respiratory syndrome coronavirus 2, SARS-CoV-2, and the coronavirus disease, COVID-19, has resulted in authorities imposing, and businesses and individuals implementing, numerous unprecedented measures to try to contain the virus, such as travel bans and restrictions, quarantines, shelter-in-place/stay-at-home and social distancing orders, and shutdowns and has created significant uncertainty and economic disruption, both near-term and potentially long-term. The spread of COVID-19 has caused us to modify our business practices (including around employee travel, employee work locations, physical participation in meetings and onsite support, attendance at events and conferences and social distancing), and we may take further actions as may be required by government authorities or that we determine are in the best interests of our employees, customers, partners, vendors and suppliers. These measures have affected the way we conduct our product development, validation and qualification, customer sales and support services, including onsite support, and other activities, which could have an adverse effect on our business, results of operations and financial condition. While we have taken steps to mitigate the impact of COVID-19 on our financial condition and results of operations for the three month period ended March 31, 2020, the extent to which the COVID-19 pandemic could affect our business, results of operations and financial condition in the future is difficult to predict and depends on numerous evolving factors including: the duration and scope of the pandemic; government, social, business and other actions that have been and will be taken in response to the pandemic; the availability of reliable and effective testing, vaccines or other therapies; and the effect of the pandemic on short- and long-term general economic conditions. We have and may continue to experience short- or long-term constrained supply or volatility in customer demand, which could materially and adversely affect our business, results of operations and financial condition in future periods. In addition, several of our customers, contract manufacturers, suppliers and other business partners have experienced and are continuing to experience similar challenges and any adverse impact or disruption to their businesses, results of operations and financial condition could have a downstream adverse impact to ours. For example, our third-party contract manufacturers, foundries and other service providers have significant manufacturing operations in China, Singapore, Taiwan, Thailand and the United States, and each of these countries has been affected by the COVID-19 pandemic and have taken and continue to take measures to try to contain it. These measures have in some instances resulted in temporary shutdowns, reduction in capacity utilization and disruption in the movement of components and products through our supply chain. There is a significant degree of uncertainty and lack of visibility as to the extent and duration of the COVID-19 pandemic. As a result, it is difficult to predict the nature and extent to which the COVID-19 pandemic and responsive measures related thereto will impact our business, results of operations and financial condition.

We depend on a limited number of customers for a significant percentage of our revenue and the loss or temporary loss of a major customer for any reason could harm our financial condition.

We have historically generated most of our revenue from a limited number of customers. Our five largest customers, which differed by period, collectively accounted for 81% of our revenue in 2019, 74% of our revenue in 2018, 70% of our revenue in 2017, 76% of our revenue in the three months ended March 31, 2020 and 77% of our revenue in the three months ended March 31, 2019. In 2019, ZTE accounted for 27% of our revenue, Cisco Systems, Inc. and its affiliates, together Cisco, accounted for 17% of our revenue, Infinera Corporation, or Infinera, accounted for 17% of our revenue and ADVA Optical Networking North America, Inc., or ADVA, accounted for 13% of our revenue. In 2018, ZTE accounted for 20% of our revenue, Infinera, which on October 1, 2018 acquired another of our customers, Coriant, Inc, or Coriant, including all 2018 revenue from Infinera and Coriant, accounted for 17% of our revenue, ADVA accounted for 15% of our revenue and Cisco accounted for 14% of our revenue. In 2017, ZTE accounted for 30% of our revenue, ADVA accounted for 15% of our revenue and Coriant accounted for 11% of our revenue. In the three months ended March 31, 2020, Infinera accounted for 29% of our revenue, ZTE accounted for 20% of our revenue and Cisco accounted for 15% of our revenue. In the three months ended March 31, 2019, ZTE accounted for 31% of our revenue, Cisco accounted for 18% of our revenue, Infinera accounted for 10% of our revenue and ADVA accounted for 10% of our revenue. As a consequence of the concentrated nature of our customer base, our quarterly revenue and results of operations may fluctuate from quarter to quarter and are difficult to estimate, and any delay, reduction or cancellation of orders or any acceleration or delay in anticipated product purchases, including as a result of COVID-19 related disruptions in the operations and supply chains of our customers, or the acceptance

of shipped products by our larger customers or any government-mandated inability to sell to any of our larger customers could materially affect our revenue and results of operations in any quarterly period.

For example, in April 2018, the U.S. Department of Commerce imposed a seven-year denial of export privileges that prohibited sales of U.S.-regulated commodities, software and technology to ZTE and an affiliated company, or the ZTE Ban, based on adverse findings relating to the activities covered by ZTE's 2016 settlement with the U.S. Department of Commerce to resolve charges of export control violations by ZTE. The ZTE Ban added ZTE and the affiliate to the "Denied Persons List," suspending U.S. export privileges of ZTE and the affiliate, prohibiting them from participating in transactions subject to U.S. Department of Commerce export control regulations, and prohibiting other businesses and individuals, including us, from certain activities in support of ZTE's business. In June 2018, ZTE and the U.S. Department of Commerce reached a new settlement imposing additional penalties and compliance measures upon ZTE, pursuant to which the ZTE Ban was lifted and ZTE was removed from the Denied Persons List. Although this further U.S. Department of Commerce action ended the export control restriction specifically targeting ZTE, any violations by ZTE of the latest settlement may trigger a new, ten-year denial order. We may suspend our business with ZTE or other customers if we conclude or are notified by the U.S. Department of Commerce that such business presents an unacceptable risk of noncompliance with U.S. regulations, or if we determine that continued business with such customers is not feasible or desirable.

We may be unable to sustain or increase our revenue from our larger customers, grow revenues with new or other existing customers at the rate we anticipate or at all, or offset the discontinuation of concentrated purchases by our larger customers with purchases by new or existing customers. These larger customers may also reduce or discontinue their purchases of our products in the event they transition to internally developed products or determine to divide their purchases of our products between us and a second source, including to mitigate against actual or perceived supply chain risks related to COVID-19. We expect that such concentrated purchases will continue to contribute materially to our revenue for the foreseeable future and that our results of operations may fluctuate materially as a result of such larger customers' buying patterns. For example, one of our larger customers made significant purchases in the first and second quarters of 2019 and had reduced orders in the third quarter of 2019 before returning to a higher level of purchasing in the fourth quarter of 2019. We have experienced similar unevenness in purchases by our larger customers in prior years. Further, the markets our customers sell into may experience slower deployment than anticipated or these customers may lose market share with their end customers. In addition, we have seen, and may in the future see consolidation of our customer base which could result in loss of customers, reduced purchases or may increase the concentration of our customer purchases. The loss or temporary loss of such customers, or a significant delay or reduction in their purchases, could materially harm our business, financial condition, results of operations and prospects.

The future success of our business is substantially dependent on our successful development and release of new products.

The markets for our products are characterized by changes and improvements in existing technologies and the introduction of new technology approaches. The future success of our business will depend in large part upon the continuing relevance of our technological capabilities, our ability to interpret customer and market requirements in advance of product deliveries and our ability to introduce in a timely manner new products that address our customers' requirements for more cost-effective bandwidth solutions. The development of new products is a complex process, and we may experience delays and failures in completing the development, qualification, introduction and volume ramp of new products. Our successful product development depends on a number of factors, including the following:

- the accurate prediction of market requirements, changes in technology and evolving standards;
- the availability of qualified product designers and technologies needed to solve difficult design challenges in a cost-effective, reliable manner;
- our ability to design products that meet customers' cost, size, acceptance and specification criteria and performance requirements, as well as requirements and specifications established by industry groups or standards bodies;
- our ability to manufacture new products with acceptable quality and manufacturing yields in a sufficient quantity to meet customer demand and according to customer needs;
- our ability to provide onsite support to our customers in connection with the integration of our products into their product offerings, as well as the ramp and deployment of such product offerings, which has been made more challenging while COVID-19 related travel bans and restrictions, quarantines, shelter-in-place/stay-at-home and social distancing orders remain in place;
- our ability to offer new products at competitive prices;
- our dependence on suppliers to deliver in a timely manner materials that are critical components of our products;

- our dependence on single-source supplier and the impact of industry-wide component constraints;
- our dependence on third-party manufacturers to successfully manufacture our products in accordance with the specifications that we and our customers require;
- the identification of and entry into new markets for our products;
- the acceptance of our customers' products by the market and the lifecycle of such products; and
- our ability to deliver products in a timely manner within our customers' product planning and deployment cycle.

In general, a new product development effort may last two years or longer, and requires significant investments in engineering hours, third-party development costs, equipment, prototypes and sample materials, as well as sales and marketing expenses, which will not be recouped if the product launch is unsuccessful. We may not be able to design and introduce new products in a timely or cost-efficient manner, and our new products may be costlier to develop, may fail to meet the requirements of the market or our customers, or may be adopted by customers slower than we expect. In that case, we may not reach our expected level of production orders and may lose market share, which could adversely affect our ability to maintain our current revenue levels or resume revenue growth.

The failure to increase sales of our products to our customers and expand our customer base as anticipated could adversely affect our future revenue and business.

We believe that our future success will depend, in part, on our ability to expand sales of our products to our existing customers for use in a customer's existing or new product offerings. Our future success will also depend on our ability to continue to expand our customer base and drive the adoption of our products in adjacent markets. Our efforts to increase product sales to new and existing customers may generate less revenue than anticipated or take longer than anticipated. Further, our customers may elect to develop in-house modules, purchase modules that incorporate our DSP ASICs from alternate sources, or purchase lower-cost components, such as our DSP ASICs or silicon PICs, in place of modules, which could negatively affect our revenue. If we are unable to increase sales to our new and existing customers, expand our customer base or expand into adjacent markets as anticipated, our business, financial condition, results of operations and prospects could be adversely affected.

Product quality problems, defects, errors or vulnerabilities in our products could harm our reputation and adversely affect our business, financial condition, results of operations and prospects.

We produce highly complex products that incorporate advanced technologies and that we believe to be state-of-the-art for our industry. Despite our testing prior to their release, our products may contain undetected defects or errors, including design, contract manufacturing or supplier quality issues, especially when first introduced or when new versions are released. Product defects or errors have in the past and in the future could affect the performance of our products and could delay the development or release of new products or new versions of products. Allegations of unsatisfactory performance could cause us to lose revenue or market share, damage our reputation in the market and with customers, increase our warranty costs and related returns which would negatively impact our gross margins, cause us to incur substantial costs in redesigning the products, cause us to lose significant customers, subject us to liability for damages or divert our resources from other tasks, any one of which could materially adversely affect our business, financial condition, results of operations and prospects. For example, in May 2017, we announced a quality issue at one of our contract manufacturers, which we refer to as the Quality Issue, that affected a portion of the units manufactured by that contract manufacturer over approximately four months and negatively impacted our product performance. This resulted in a charge to the cost of revenue in our condensed consolidated statement of operations during the second quarter of 2017.

From time to time, we have had to replace certain components of products that we had shipped and provide remediation in response to the discovery of defects or bugs, including deficiencies in components provided by our suppliers and failures in software protocols or defective component batches resulting in reliability issues, in such products, and we may be required to do so in the future. We may also be required to provide full replacements or refunds or extend warranty terms for such defective products. Such remediation could have a material effect on our business, financial condition, results of operations and prospects.

Quality control problems in manufacturing could result in delays in product shipments to customers or in quality problems with our products which could adversely affect our business.

We have and in the future may again experience quality control problems in our manufacturing operations or the manufacturing operations of our contract manufacturers. For example, we experienced product quality control problems in the

second quarter of 2017 in connection with the Quality Issue. If we are unable to promptly identify and correct certain quality issues in our products prior to the products' being shipped to customers, failure of our deployed products could cause failures in our customers' products, which could require us to issue a product recall or trigger epidemic failure claims pursuant to our customer contracts, which may require us to indemnify or pay liquidated damages to affected customers, repair or replace damaged products, or discontinue or significantly delay shipments. Quality control problems with materials provided by suppliers may adversely impact our ability to ship our products to customers. Undetected quality problems may prompt unexpected product returns and adversely affect warranty costs. As a result, we could experience a decline in revenue from existing customers or the loss of a customer entirely, or incur additional costs that would adversely affect our gross margins. In addition, even if a problem is identified and corrected at the manufacturing stage, product shipments to our customers could be delayed, which would negatively affect our revenue, competitive position and reputation.

If we fail to accurately predict market requirements or market demand for our products, our business, competitive position and operating results will suffer.

We operate in a dynamic and competitive industry and use significant resources to develop new products for existing and new markets. After we have developed a product, there is no guarantee that our customers will integrate our product into their equipment or devices and, ultimately, bring the equipment and devices incorporating our product to market, including because we may be considered a sole-source supplier with a relatively limited operating history or, with respect to certain of our products, because we have enabled a second source supplier who may capture market share. In addition, there is no guarantee that cloud, network and communications service providers will ultimately choose to purchase network equipment that incorporates our products. In these situations, we may never produce or deliver significant quantities of our products, even after incurring substantial development expenses. From the time a customer elects to integrate our interconnect technology into their product, it typically takes 18 to 24 months for high-volume production of that product to commence. After volume production begins, we cannot be assured that the equipment or devices incorporating our product will gain market acceptance by network operators.

If we fail to accurately predict and interpret market requirements or market demand for our new products, our business and growth prospects will be harmed. If high-speed networks are deployed to a lesser extent or more slowly than we currently anticipate, including as a result of market uncertainty and changes to network deployment schedules as a result of COVID-19, we may not realize anticipated benefits from our investments in research and development. For example, between 2017 and 2019 our industry experienced a slowdown in the rate of new network deployments in the China long-haul and metro network markets, which, when combined with weakening prices and excess inventory, resulted in a corresponding slowdown in the order rate of certain of our China-based customers. Although these order rates began to improve in 2019, the impact of COVID-19 on China and the risk of the pandemic returning to China in the future, has adversely impacted, and may continue to adversely impact, our China-based customers and further disrupt the timing and scope of their network deployment schedules. The combined impact of governmental policy, the cyclical nature of a major market and uncertainties around COVID-19 impacts has made it difficult to predict demand from Chinese customers. As a result, our business, competitive position, market share and operating results have experienced, and may continue to experience, pressure.

As demand for our products in one market grows, demand in another market may decrease. For example, if we sell our products directly to content providers in addition to network equipment manufacturers, our sales to network equipment manufacturers may decrease due to reduced demand from their customers or due to dissatisfaction by network equipment manufacturers with this change in our business model. Further, the inter-data center market is subject to upgrade cycles and volatility driven by changing priorities. In addition, even in the event of expansion in our markets, we may not experience a corresponding increase in demand for our products or competition may drive pricing pressure. Any reduction in demand in one market that is not offset by an increase in demand in another market could adversely affect our market share or results of operations.

Additionally, the ongoing COVID-19 pandemic has significantly increased economic and demand uncertainty. It is likely that the current pandemic and continued spread of COVID-19 will cause an economic slowdown, and it is possible that it could cause a global recession. There is a significant degree of uncertainty and lack of visibility as to the extent and duration of any such slowdown or recession. Given the significant economic uncertainty and volatility created by the pandemic, it is difficult to predict the nature and extent of impacts on demand for our products.

Negative economic conditions created or exacerbated by the ongoing COVID-19 pandemic could adversely impact our business in various respects.

Our results of operations could be adversely affected by general conditions in the global economy. For example, a slowdown in the economies of, or adverse changes in economic conditions in, one or more of the countries in which we operate

as a result of the ongoing COVID-19 pandemic could adversely affect demand for our products, change the mix of products we sell to a mix with a lower average gross margin, adversely affect our net sales, cause customers or other business partners to delay or fail to make payments owed to us, result in slower inventory turnover, adversely impact the rate of return on our investments or otherwise materially adversely affect our business, financial condition, stock price and results of operations. Further, a prolonged COVID-19 pandemic could result in the imposition of additional quarantines or closures of office spaces or manufacturing facilities, travel and transportation restrictions and/or import and export restrictions after the various responsive measures that are currently in place are lifted, any of which could contribute to a general slowdown in the global economy and the economies of the markets in which we operate. The economic factors that affect our operations also may adversely affect the operations of our customers, contract manufacturers, suppliers and other business partners. The extent and duration of such economic impacts remain largely uncertain and dependent on future developments that cannot be accurately predicted at this time, such as the severity and transmission rate of COVID-19, the extent and effectiveness of containment actions taken, the availability of reliable and effective testing, vaccines or other therapies and the impact of these and other factors on our operations and the global economy.

We may not be able to maintain or improve our gross margins.

We may not be able to maintain or improve our gross margins. Factors such as significant decreases in our revenue, slow introductions of new products, our failure to effectively reduce the cost of existing products, our failure to maintain or improve our product mix or pricing, changes in customer demand or share allocation, annual, semi-annual or quarterly price reductions in excess of industry forecasts and pricing discounts required under the terms of our customer contracts, pricing pressure resulting from increased competition, the availability of superior, 'good enough' or lower-cost technologies, market consolidation or the potential for future macroeconomic or market volatility to reduce sales volumes have and may continue to adversely impact our gross margins. Our gross margins could also be adversely affected by unfavorable production yields or variances, increases in or the inability to secure appropriate periodic decreases in costs of components and materials, the timing changes in our inventory, warranty costs and quality-related returns, changes in foreign currency exchange rates (including any substantial changes resulting from the ongoing COVID-19 pandemic), potential inability to reduce manufacturing costs in response to any decrease in our revenue and possible exposure to inventory valuation reserves. Our competitors have a history of reducing their prices to increase or avoid losing market share, and we may have to reduce our prices to continue to effectively compete. If we are unable to maintain or improve our gross margins, our financial results will be adversely affected.

We generate a significant portion of our revenue from international sales and rely on foreign manufacturers to make our products, and therefore are subject to additional risks associated with our international operations.

Since January 1, 2013, we have shipped our products to customers located in 23 foreign countries. In 2019, 2018, 2017, and the three months ended March 31, 2020 and 2019, we derived 85%, 83%, 84%, 78% and 88%, respectively, of our revenue from sales to customers with ship-to locations outside the United States. A significant portion of our international sales are made to customers with ship-to locations in China. In 2019, 2018, 2017, and the three months ended March 31, 2020 and 2019, we derived 34%, 29%, 39%, 23% and 41%, respectively, of our revenue from sales to customers with ship-to locations in China. We also work with manufacturing facilities outside of the United States. We have expanded, and in the future may further expand, our international operations to locate additional functions related to the development, manufacturing and sale of our products outside of the United States. Our international operations are subject to inherent risks, and our results of operations could be adversely affected by a variety of factors, many of which are beyond our control, including:

- U.S. or foreign governmental action, such as export control or import restrictions, that could prevent or significantly hinder our ability to sell our products to certain customers or customers in certain foreign jurisdictions or build our products internationally;
- greater difficulty in enforcing contracts and accounts receivable obligations and longer collection periods, which may be exacerbated by the ongoing COVID-19 pandemic;
- difficulties in managing, staffing and overseeing international offices and foreign manufacturers, including while COVID-19 related travel bans and restrictions, quarantines, shelter-in-place/stay-at-home and social distancing orders remain in place;
- increased travel, infrastructure and legal compliance costs associated with multiple international locations;
- the impact of general economic and political conditions in economies outside the United States, including the uncertainty related to the withdrawal of the United Kingdom from the European Union, commonly known as Brexit, the terms of the post-Brexit relationship between the United Kingdom and the European Union, and heightened economic and political uncertainty within the United Kingdom, and within and among European Union member states;

- tariff and trade barriers, changes in custom and duties requirements or compliance interpretations and other regulatory requirements or contractual limitations on our ability to sell or develop our products in certain foreign markets and our ability to pass through to our customers any tariff or trade costs imposed on our products;
- heightened risk of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements that may impact financial results and result in restatements of, or irregularities in, financial statements;
- certification requirements;
- greater difficulty documenting and testing our internal controls;
- reduced protection for intellectual property rights in some countries;
- potentially adverse tax consequences, including further reform to the U.S. tax code and international tax rules such as the base erosion and profit shifting initiative;
- the effects of changes in currency exchange rates;
- changes in service provider and government spending patterns;
- social, political and economic instability;
- higher incidence of corruption or unethical business practices that could expose us to liability or damage our reputation; and
- natural disasters, major public health issues (including the COVID-19 pandemic discussed further in the risk factor "The extent to which the COVID-19 pandemic will adversely affect our business, results of operations and financial condition is uncertain," above), acts of war or terrorism and other catastrophic events.

The U.S. Tax Cuts and Jobs Act, or the Tax Act, enacted in December 2017, brings about far-ranging changes to the existing corporate tax system and establishes a quasi-territorial system for taxing foreign-source income of multinational corporations. It is not known what specific additional measures might be proposed or how they would be implemented or enforced, or what effect emerging tax reform or other near-term Congressional action may have on other companies' or our business practices. Further, pending or new legislation or executive action in the United States that could significantly increase our cost of manufacturing and, consequently, adversely affect our business, financial condition or results of operations, may be enacted.

In addition, international customers may also require that we comply with additional testing or customization of our products to conform to local regulations or other standards, including environmental considerations, which could materially increase the costs to sell our products in those markets.

As we continue to operate on an international basis, our success will depend, in large part, on our ability to anticipate and effectively manage these and other risks associated with our international operations. Our failure to manage any of these risks could harm our international operations and reduce our international sales.

Changes in U.S. trade policies could disrupt global supply, manufacturing and customer relationships, which may materially increase costs of components contained in our products, increase our manufacturing costs and make our products more expensive or unavailable in foreign markets.

The current U.S. Administration has made significant changes to U.S. trade policy, including new or increased tariffs on a broad range of goods imported into the United States, particularly from China, with additional tariffs and other actions still under consideration. Since we rely primarily upon non-U.S. manufacturers to make our products, such actions, whether adopted or threatened, and the perceived negative effect of such actions, could have a disproportionate impact on us and make our products more expensive and less competitive in domestic markets. Further, these changes in U.S. trade policy have triggered retaliatory protectionist actions by affected countries, the continuation or expansion of which could restrict our ability to do business in or with affected countries or could prohibit, reduce or discourage purchases of our products by foreign customers, leading to increased costs of components contained in our products, increased costs of manufacturing our products, and higher prices and reduced demand for our products in foreign markets. For example, there are risks that the Chinese government may, among other things, impose additional or increased tariffs on imports of U.S. goods, require Chinese companies to use more local suppliers, compel companies that do business in China to partner with local companies and provide incentives to government-backed local customers to buy from local suppliers rather than companies like ours. In addition, foreign governments may pursue internal programs and policies to develop domestic technologies that reduce foreign customers'

demand for our products. For example, China's Made in China 2025 program aims to build industries in numerous technological sectors, including 5G mobile communications, among others. As a result, risk of doing business in China is likely to increase, if it has not already, including the risk of theft of intellectual property and data and potentially different treatment of foreign owned intellectual property rights and data than that owned or developed in China. Changes in, and responses to, U.S. trade policy could reduce the competitiveness of our products through increased costs and cause our sales and revenues to drop, which could materially and adversely impact our business and results of operations. Moreover, escalating and retaliatory tariffs or other protectionist measures among the U.S. and other countries may depress the overall economic condition of countries in which our customers are located, such as China, which could harm our business.

We are subject to government regulation, including import, export, economic sanctions, privacy, and anti-corruption laws and regulations that may limit our sales opportunities, expose us to liability and increase our costs.

We are subject to those government regulations that relate to various aspects of our business. Government regulations that are applicable to us are increasingly prevalent, continue to evolve and vary from jurisdiction to jurisdiction.

Our products are subject to export controls, including the U.S. Department of Commerce's Export Administration Regulations and economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, and similar laws and regulations that apply in other jurisdictions in which we distribute or sell our products. Export control and economic sanctions laws and regulations include restrictions and prohibitions on the sale or supply of certain products and on our transfer of parts, components, and related technical information and know-how to certain countries, regions, governments, persons and entities. For example, in April 2018, the U.S. Department of Commerce imposed the ZTE Ban. The ZTE Ban added ZTE and an affiliate to the "Denied Persons List," suspending U.S. export privileges of ZTE and the affiliate, prohibiting them from participating in transactions subject to U.S. Department of Commerce export control regulations, and prohibiting other businesses and individuals, including us, from certain activities in support of ZTE's business. In June 2018, ZTE and the U.S. Department of Commerce reached a new settlement imposing additional penalties and compliance measures upon ZTE, pursuant to which the ZTE Ban was terminated and ZTE was removed from the Denied Persons List. Although this further U.S. Department of Commerce action authorized us to resume sales to and related activities involving ZTE, any violations by ZTE of the latest settlement may trigger a new ten-year denial order. We may suspend our business with ZTE or other customers, suppliers or partners, if we conclude or are notified by the U.S. Department of Commerce that such business presents an unacceptable risk of noncompliance with U.S. regulations, or if we determine that continued business with such customers, suppliers or partners is not feasible or desirable.

The U.S. Congress or U.S. regulatory authorities may take future legislative or regulatory action that may materially interfere with our ability to make sales to ZTE or others of our customers, particularly in China, or that could impede sales by such customers in the United States. For example, in May 2019, the U.S. Department of Commerce designated Huawei Technologies Co. Ltd., or Huawei, and numerous affiliated companies on its "Entity List" upon finding reasonable cause to believe that the companies have been involved in activities contrary to the national security or foreign policy interests of the United States. This designation imposed new requirements for export licenses for exports, reexports, and in-country transfers of any items or technologies subject to the U.S. export control regulations, and requests for licenses are reviewed with a presumption of denial. U.S. regulators are reportedly considering additional measures that may be used to restrict access to U.S. products and technologies by countries such as China and specific companies such as Huawei. Such measures could include extending the extraterritorial reach of U.S. restrictions by reducing the thresholds for applying U.S. regulations to non-U.S.-made items incorporating or derived from U.S. parts, components, software or technologies. U.S. regulators may also impose new export license requirements for items that can currently be furnished under broad license exceptions, or new restrictions on previously non-controlled emerging or foundational items and technologies for which exports to countries such as China are deemed to present undesirable national security risks.

Even without such action, we would be prohibited from exporting our products to any foreign recipient if we have knowledge that a violation of U.S. export regulations has occurred, is about to occur, or is intended to occur in connection with the item. In addition, our suppliers may restrict our rights to use their components in products destined for end users or end uses that present heightened regulatory or reputational risks, and some customers may decline to purchase our products that contain parts or components from, or that were manufactured by, suppliers and service providers that present heightened regulatory or reputational risks. The loss or temporary loss of customers as a result of such future regulatory or supply chain limitations could materially harm our business, financial condition, results of operations and prospects. Further, our association with such customers could subject us to actual or perceived reputational harm among current or prospective investors in our common stock, suppliers or customers, customers of our customers, other parties doing business with us, or the general public. Any such reputational harm could result in the loss of investors in our common stock, suppliers or customers, which could harm our business, financial condition, results of operations or prospects.

In addition, various countries regulate imports and exports of certain products, through permitting and licensing requirements, and have enacted laws that could limit our ability to produce and distribute our products. Exports, re-exports, transfers within foreign countries and imports of our products, including by our partners, must comply with these laws and regulations, and any violations may result in reputational harm, government investigations, penalties and/or a denial or curtailment of our ability to export our products. Complying with import, export and sanctions laws for a particular sale may be time consuming, may increase our costs and may result in the delay or loss of sales opportunities. Although we take precautions to prevent our products from being provided in violation of such laws and regulations, if we are found to be in violation of sanctions or export control laws, we and the individuals working for us could incur substantial fines and penalties. Changes in export, sanctions or import laws or regulations may affect whether it feasible and profitable for us to manufacture our products in and distribute our products from countries that impose regulatory restrictions on the movement of our parts, components, finished products, and related technologies. For example, in December 2019, China published a proposed new, comprehensive export control law that would, if adopted, create a system through which China may selectively restrict exports of products and technologies from China, perhaps in response to regulatory actions affecting China that may be imposed by adversary trading partners such as the United States. Such regulatory changes may also delay the introduction and sale of our products in international markets, cause us to spend resources to seek necessary government authorizations or to develop different versions of our products, or, in some cases, prevent the export or import of our products to certain countries, regions, governments, persons or entities altogether, any of which could adversely affect our business, financial condition and operating results.

New regulations in the United States and other countries that purport to protect national telecommunications systems and infrastructure may reduce the demand for products and services provided by certain of our customers, which may, in turn, reduce the demand for our products. In particular the U.S. government is pressing foreign governments to ban Huawei equipment and services from national 5G network infrastructure. While many countries continue to allow Huawei technologies in 5G network infrastructure, such bans have been implemented in the United States, Australia, Japan and New Zealand, and dozens of other countries have not yet decided.

Pursuant to an executive order issued in May 2019, the U.S. government is developing a new regulatory mechanism through which it may block imports into the United States of certain information and communications products and services designed, developed, manufactured, or supplied by entities owned by, controlled by, or subject to the jurisdiction or direction of a foreign adversary, where the transaction presents an undue risk to U.S. information and communications technology or services, critical infrastructure or the digital economy of the United States, or other unacceptable risks to the national security of the United States or the security and safety of United States persons. It is widely expected that these restrictions will be implemented to block Chinese suppliers, such as Huawei, from serving U.S. telecommunications and telecommunications infrastructure markets, but specific targets of these restrictions are not enumerated and the regulatory procedures have not yet been finalized.

A similar type of supply chain risk regulation has already been imposed in U.S. government contracting regulations, which were revised in August 2019 to prohibit U.S. government agencies from directly or indirectly procuring, or obtaining, or extending or renewing contracts to procure or obtain, certain equipment, systems or services that include, as a substantial or essential component or critical technology, certain equipment or services produced or provided by Huawei or ZTE, or their subsidiaries or affiliates, or, with respect to certain video surveillance and telecommunications equipment or services, produced or performed by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company, or their subsidiaries or affiliates. These restrictions may be extended to target additional suppliers. Future regulations are expected to extend these restrictions to prohibit U.S. government contracts with entities that use the restricted equipment or services and to prohibit recipients of U.S. government grant or loan funding from using such funding for acquiring the restricted equipment or services or awarding, extending or renewing contracts with entities that use the restricted equipment or services.

We are required to comply with various data protection laws and regulations in each of the states and countries where we maintain offices or conduct business, including laws and regulations relating to data privacy, security, and breach notification and reporting. These laws and regulations, known as data protection regulations, are complex, frequently conflict with one another, and have become more onerous in recent years. Complying with existing and future regulatory requirements relating to data privacy, security and breach response could cause us to incur substantial expenses and may require us to change our business practices in a manner that could harm our business and any non-compliance may result in lawsuits, regulatory fines, or other actions or liability. Our business may also be harmed if these privacy-related laws or any newly adopted privacy-related laws are interpreted or implemented in a manner that is inconsistent among different states and countries or inconsistent with our current policies and practices, or those of our customers, suppliers, or other business partners. If we or our suppliers fail to comply with such laws or regulations, we could face sanctions for such noncompliance, and our customers may refuse to purchase our products, which would have a material adverse effect on our business, financial condition and results of operations.

We are also subject to various domestic and international anti-corruption laws, such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act, as well as other similar anti-bribery and anti-kickback laws and regulations. These laws and regulations generally prohibit companies and their intermediaries from offering or making improper payments to non-U.S. officials for the purpose of obtaining, retaining or directing business. Our exposure for violating these laws and regulations increases as our international presence expands and as we increase sales and operations in foreign jurisdictions.

The markets in which we operate are highly competitive.

The market for high-speed optical interconnect technology is highly competitive. We are aware of a number of companies that have developed or are developing coherent DSP ASICs, coherent and non-coherent PICs, 100 to 1,200 Gbps and above modules and indium phosphide based optics, among other technologies, that compete directly with some or all of our current and proposed product offerings.

Competitors may be able to more quickly and effectively:

- develop or respond either directly or in partnership with other market participants to new technologies or technical standards;
- react to changing customer requirements and expectations;
- devote needed resources to the development, production, promotion and sale of products;
- attain high manufacturing yields on new product designs;
- establish and take advantage of operations in lower-cost regions;
- bring relevant products to the market or enable their customers to bring relevant products to the market through a faster integration cycle; and
- deliver competitive products, including products incorporating our DSP ASICs and PICs, at lower prices, with lower gross margins or at lower costs than our products.

In order to expand market acceptance of our products, we must differentiate our products from those of our competition while continuing to meet the changing needs of our customers. We cannot provide assurance that we will be successful in making this differentiation or increasing acceptance of our products as we have limited resources dedicated to marketing of our products. In addition, we may take other steps to expand market acceptance of our products, including through strategic transactions or otherwise, which steps may not be successful and may lead to a decrease in our revenues either in the short-term or long-term. The same standardization that allows for the integration of our products into diverse optical systems carries the side effect of lowing the competitive threshold for new market entrants. Established companies in related industries or newly funded companies targeting markets we serve, such as semiconductor manufacturers and data communications providers, may also have significantly more resources than we do and may in the future develop and offer competing products. Further, companies that have historically been competitors or industry participants on the component level have in the past and may continue to establish joint ventures or other strategic partnerships to compete with our products. All of these risks may be increased if the market were to further consolidate through mergers or other business combinations between our competitors or if more capital is invested in the market to create additional competitors.

We may not be able to compete successfully with our competitors and aggressive competition in the market may result in lower prices for our products and/or decreased gross margins. New technology and investments from existing competitors and competitive threats from newly funded companies may erode our technology and product advantages and slow our overall growth and profitability. Any such development could have a material adverse effect on our business, financial condition and results of operations.

Our sales cycles can be long and unpredictable, and our sales efforts require considerable effort and expense. As a result, our sales and revenue are difficult to predict and may vary substantially from period to period, which may cause our results of operations to fluctuate significantly.

The timing of our sales and revenue recognition is difficult to predict because of the length and unpredictability of our products' sales cycles. A sales cycle is the period between initial contact with a prospective network equipment manufacturer customer and any sale of our products. Customer orders are complex and difficult to complete because prospective customers generally consider a number of factors over an extended period of time before committing to purchase the products we sell. Customers often view the purchase of our products as a significant and strategic decision and require considerable time to evaluate, test and qualify our products prior to making a purchase decision and placing an order. The length of time that

customers devote to their evaluation, contract negotiation and budgeting processes varies significantly. Our products' sales cycles can be lengthy in certain cases. During the sales cycle, we expend significant time and money on sales and marketing activities and make investments in evaluation equipment, all of which lower our operating margins, particularly if no sale occurs or if the sale is delayed as a result of extended qualification processes or delays from our customers' customers. Even if a customer decides to purchase our products, there are many factors affecting the timing of our recognition of revenue, which makes our revenue difficult to forecast. For example, there may be unexpected delays in a customer's internal procurement processes.

Even after a customer makes a purchase, there may be circumstances or terms relating to the purchase that delay our ability to recognize revenue from that purchase. For example, recognizing revenue from the sale of our products may be subject to delivery to the customer or their carrier or the products may be placed into a remote stocking location. In addition, the significance and timing of our product enhancements, and the introduction of new or similar products by our competitors, may also affect customers' purchases both in the short-term and long-term. Further, our customers' solutions often require components from other optical providers and any inability by those providers to ship products or maintain continuity of supply could have an impact on the sales of our customers, which impact could pass through to us. For all of these reasons, it is difficult to predict whether a sale will be completed, the particular period in which a sale will be completed or the period in which revenue from a sale will be recognized. If our sales cycles lengthen, our revenue could be lower than expected, which would have an adverse effect on our business, financial condition, results of operations and prospects.

The industry in which we operate is volatile and subject to significant cyclicality.

Industries focused on semiconductor and optical network technologies can be volatile and highly cyclical. The markets are characterized by constant and rapid technological change and price erosion, increasing effects of competition, and frequent new product introductions and technology displacement, including those driven by fragmented and proprietary system designs. The industries are further impacted by evolving technical standards, short product life cycles both for semiconductors and optical technologies and for many of the end products in which they are used, and changes in end market demand, as the industry has recently experienced across China, as well as within inter-data center and metro markets. In addition, product demand in the markets in which we compete is tied to the aggregate capital expenditures of telecommunications and network and content service providers as they build out and upgrade their network infrastructure. Capital expenditures can be highly cyclical due to the importance and focus of local initiatives, such as the ongoing telecommunications build out and upgrade in China and the expansion of the inter-data center market, government funding and other factors, thus resulting in wide fluctuations in product supply and demand. From time to time, these factors, together with changes in general economic conditions, have caused significant industry upturns and downturns that have had a direct impact on the financial stability of our customers, their customers and our suppliers. Periods of industry downturns have been characterized by diminished demand for products, unanticipated declines in telecommunications and communications system capital expenditures, industry consolidation, excess capacity compared to demand, high inventory levels and periods of inventory adjustment, under-utilization of manufacturing capacity, changes in revenue mix and erosion of average selling prices, any of which could result in an adverse effect on our business, financial condition and results of operations. We expect our business to continue to be subject to cyclical downturns, such as the cyclical downturn in China between 2017 and 2019, even when overall economic conditions are relatively stable. Additionally, although conditions in China began to improve in 2019, the impact of COVID-19 on China and the risk of the pandemic returning to China in the future, has adversely impacted, and may continue to adversely impact, China which may adversely impact overall economic conditions in China and lead to an extended or new cyclical downturn. To the extent we cannot offset recessionary periods or periods of reduced growth that may occur in the industry or in our target markets in particular through increased market share or otherwise, our business can be adversely affected, revenue may decline and our financial condition and results of operations may be harmed. In addition, in any future economic downturn or periods of inflationary increase we may be unable to reduce our costs quickly enough to maintain profitability levels.

If we fail to attract, retain and motivate key personnel, or if any of our key personnel become ill, are required to self-quarantine or otherwise become unwilling or unable to perform their duties as a result of the COVID-19 pandemic, our business could suffer.

Our business depends on the services of highly qualified employees in a variety of disciplines, including optical systems and networking, digital signal processing, large-scale ASIC design and verification, mixed-signal ASIC design, silicon photonic integration, system software development, hardware design and high-speed electronics design. Our success depends on the skills, experience and performance of these employees and members of our senior management team, as well as our ability to attract and retain other highly qualified management and technical personnel. There is intense competition for qualified personnel in our industry and a limited number of qualified personnel with expertise in the areas that are relevant to our business, and as a result we may not be able to attract and retain the personnel necessary for the expansion and success of our business. Competition for qualified personnel and the ability to attract and onboard such quality personnel may increase,

perhaps significantly, as a result of COVID-19 related preventative measures. All of our founders are currently employees of our company. The loss of services of any of our founders, other members of our senior management team or key personnel, or our inability to continue to attract qualified personnel, could have a material adverse effect on our business. In addition, in response to the COVID-19 pandemic, we modified our business practices to include company-wide travel and visitor restrictions, work-from-home policies, social distancing and various other recommended preventive measures. These measures have affected the way we conduct our product development, validation, and qualification, customer support, and other activities, and apply to all our employees worldwide, including our key personnel, some of whom continue to work onsite supporting our business-critical operations. There is no certainty that such measures will be sufficient to mitigate the risks posed by the virus, and disruptions to our business operations resulting from illness, quarantines, self-isolation or on the ability of our employees to perform their jobs or work onsite could lead to unavailability of key personnel and could harm our ability to develop and design our products in a timely manner or meet required milestones or customer commitments.

Customer requirements for new products, as well as specifications established by industry groups and standards bodies, are increasingly challenging, which could lead to significant executional risk in designing such products or make our products obsolete. We may incur significant expenses long before we can recognize revenue from new products, if at all, due to the costs and length of research, development and manufacturing process cycles.

Network equipment manufacturers seek increased performance optical interconnect products, at lower prices and in smaller and lower-power designs. These requirements can be technically challenging, and are sometimes customer-specific, which can require numerous design iterations. Because of the increasing level of complexity of design requirements, including stringent customer-imposed acceptance criteria and specifications established by industry groups or standards bodies, executing on our product development goals is difficult and sometimes unpredictable. These difficulties could result in product sampling delays and/or missing targets on key specifications and customer requirements and acceptance criteria. Our failure to meet our customers' requirements could result in our customers seeking alternative suppliers, which would adversely affect our reputation and results of operations.

We design our products to conform to regulations established by governments and to standards set by industry groups and standards bodies worldwide. Various industry groups are currently considering whether and to what extent to create standards applicable to our current products or those under development. Because certain of our products are designed to conform to current specific industry standards, if competing or new standards emerge that are preferred by our customers, or if our customers prefer a proprietary solution, we may have to make significant expenditures to develop new products. If our customers adopt new or competing industry standards with which our products are not compatible, or industry groups adopt standards or governments issue regulations with which our products are not compatible, our existing products would become less desirable to our customers and our net revenues and results of operations would suffer.

Additionally, we and our competitors often incur significant research and development and sales and marketing costs for products that, at the earliest, will be purchased by our customers long after much of the cost is incurred and, in some cases, may never be purchased due to changes in industry or customer requirements in the interim.

We depend on third parties for a significant portion of the fabrication, assembly and testing of our products.

The fabrication, assembly and testing of our products is done by third-party contract manufacturers, foundries and other service providers. As a result, we face competition for manufacturing capacity in the open market. We rely on foundries to manufacture wafers and on third-party contract manufacturers to assemble, test and manufacture substantially all of our coherent DSP ASICs, silicon PICs, modules and other components. Our contract manufacturers, foundries and other service providers implement any customer-specific configurations and packaging before customer shipments. Accordingly, we cannot directly control our product delivery schedules and quality assurance. This lack of control has in the past and in the future could result in product shortages or quality assurance problems. For example, we experienced product shortages in the second quarter of 2017 in connection with the Quality Issue. These issues have in the past and in the future could delay shipments of our products, increase our assembly or testing costs or lead to costly epidemic failure claims. In addition, the consolidation of contract manufacturers and foundries, as well as the increasing capital intensity and complexity associated with fabrication in smaller process geometries, has limited the number of available contract manufacturers and foundries and increased our dependence on a smaller number of contract manufacturers and foundries. The limited number of contract manufacturers or foundries could also increase the costs of components or manufacturing and adversely affect our results of operations, including our gross margins. In addition, to the extent we engage additional contract manufacturers or foundries, introduce new products with new manufacturers or foundries, move existing production lines to new manufacturers or foundries and/or vertically integrate processes by assuming new responsibilities internally, we could experience supply disruptions during the transition process.

Further, our third-party contract manufacturers, foundries and other service providers have significant manufacturing operations in China, Singapore, Taiwan, Thailand and the United States, and each of these countries has been affected by the COVID-19 pandemic and have taken and continue to take measures to try to contain it. These measures have in some instances resulted in temporary shutdowns, reduction in capacity utilization and disruption in the movement of components and products through our supply chain. In addition, certain of our third-party contract manufacturers, foundries and other service providers have been and will be disrupted by worker absenteeism, quarantines and travel and health-related restrictions that impact the ability of their facilities to operate at full capacity. While we are staying in close communication with these business partners and acting to mitigate the impact of this dynamic and evolving situation, the duration, nature and extent of the effect of COVID-19 on our supply chain is not determinable and depends on future developments, which are highly uncertain and cannot be predicted.

Because we rely on third-party contract manufacturers, foundries and other service providers, we face several significant risks in addition to those discussed above, including:

- a lack of guaranteed supply of manufactured wafers and other raw and finished components and incorporated products and potential higher wafer, component and incorporated product prices due to limited and, at times, single-source, suppliers and industry-wide component constraints;
- the limited availability of, or potential delays in obtaining access to, key process and leading edge technologies;
- the location of contract manufacturers, foundries and other service providers in regions that are subject to earthquakes, typhoons, tsunamis and other natural disasters;
- the location of contract manufacturers, foundries and other service providers in regions that are and historically have been disproportionately impacted by major public health issues, such as the ongoing COVID-19 pandemic, and our inability to effectively manage, staff and oversee the activities of these providers while COVID-19 related travel bans and restrictions, quarantines, shelter-in-place/stay-at-home and social distancing orders remain in place;
- competition with our contract manufacturers', foundries' and other service providers' other customers for allocated capacity or supply during periods of capacity constraint or supply shortages; and
- potential regulatory changes, including in the United States, that could in the future prohibit, or increase our costs relating to, the use of contract manufacturers, foundries and other service providers in certain regions.

The manufacture of our products is a highly complex and technologically demanding process that utilizes many state of the art manufacturing processes and specialized components. Our foundries, suppliers, and contract manufacturers have from time to time experienced lower than anticipated manufacturing yields for our wafers or PIC components and modules. This often occurs during the production or assembly of new products or the installation and start-up of new process technologies and can occur even in mature processes due to break downs in mechanical systems, process controls, clean room controls, equipment failures, environmental controls and conditions, calibration errors and the handling of the material from station to station as well as damage resulting from the shipment and handling of the products to various points of processing and from changes to and turnover of trained personnel that assemble, test and package our products.

We depend on a limited number of suppliers, some of which are sole sources, and our business could be disrupted if they are unable to meet our needs.

We depend on a limited number of suppliers of the key materials, including silicon wafers, substrate materials and components, equipment used to manufacture and test our products, and key design tools used in the design, testing and manufacturing of our products. Some of these suppliers are sole sources and in certain instances we face capacity competition from some of our suppliers. With some of these suppliers, we do not have long-term agreements and instead purchase materials and equipment through a purchase order process. As a result, these suppliers may stop supplying us materials and equipment, limit the allocation of supply and equipment to us due to increased industry demand or significantly increase their prices at any time with little or no advance notice. Our reliance on sole source suppliers or a limited number of suppliers could result in delivery problems, reduced control over product pricing and quality, and our inability to identify and qualify another supplier in a timely manner. Some of our suppliers may experience quality, manufacturing or financial difficulties that could cause them to terminate development efforts related to, or prevent them from supplying to us in desired quantities, or at all, materials, or equipment used in, the design and manufacture of our products. In addition, our suppliers, including our sole source suppliers, may experience manufacturing delays or shutdowns due to circumstances beyond their control such as labor issues, political unrest, natural disasters or major public health issues. For example, certain of our contract manufacturers and suppliers have experienced manufacturing delays and shutdowns as a result of the ongoing COVID-19 pandemic. Our suppliers, including our

sole source suppliers, could also determine to discontinue the manufacture of materials, components, equipment or tools that may be difficult for us to obtain from alternative sources. In addition, the suppliers of design tools that we rely on may not maintain or advance the capabilities of their tools in a manner sufficient to meet the technological requirements for us to design advanced products or provide such tools to us at reasonable prices. Further, the industry in which our suppliers operate is subject to a trend of consolidation. To the extent this trend continues, we may become dependent on even fewer suppliers to meet our material and equipment needs. In the event we need to establish relationships with additional suppliers, doing so may be a time-consuming process and require that we agree to terms, including on costs, that are less favorable to us, and there are no assurances that we would be able to enter into necessary arrangements with these additional suppliers in time to avoid supply constraints in sole sourced components.

Any supply deficiencies or industry allocation shortages relating to the materials, equipment or tools we use to design and manufacture our products could materially and adversely affect our ability to fulfill customer orders and our results of operations. Lead times for the purchase of certain materials, equipment and tools from suppliers have increased and in some instances, have exceeded the lead times provided to us by our customers. In some cases, these lead time increases have limited our ability to respond to or meet customer demand. We have in the past and may in the future, experience delays or reductions in supply shipments, which could reduce our revenue and profitability. In addition, potential regulatory changes, including in the United States, could in the future prohibit, or increase our costs relating to, the use of suppliers in certain regions. If key components or materials are unavailable, our costs would increase and our revenue would decline.

We may not be able to manufacture our products in volumes or at times sufficient to meet customer demands, which could result in delayed or lost revenue and harm to our reputation.

Given the high level of sophisticated functionality embedded in our products, our manufacturing processes are complex and often involve more than one manufacturer. This complexity may result in lower manufacturing yields and may make it more difficult for our current and future contract manufacturers to scale to higher production volumes. In addition, as a result of the ongoing COVID-19 pandemic, certain of our suppliers have shifted some of their manufacturing capacity to the production of personal protective equipment, medical devices or subcomponents and other COVID-19 related activities, which has extended, and could continue to extend, lead times and the overall availability of components and other materials used in the manufacture of our products. If we are unable to manufacture our products in volumes or at times sufficient to meet demand, our customers could postpone or cancel orders or seek alternative suppliers for these products, or lower cost, easier to manufacture competitive products, which would harm our reputation and adversely affect our results of operations.

If our customers do not qualify our manufacturing lines or the manufacturing lines of our subcontractors for volume shipments, our operating results could suffer.

Our manufacturing lines have passed our qualification standards, as well as our technical standards. However, our customers may also require that our manufacturing lines pass their specific qualification standards and that we, and any subcontractors that we may use, be registered under international quality standards. In addition, many of our customers require that we maintain our ISO certification. In the event we are unable to maintain process controls required to maintain ISO certification, or in the event we fail to pass the ISO certification audit for any reason, we could lose our ISO certification. In addition, we may encounter quality control issues in the future as a result of relocating our manufacturing lines or ramping new products to full volume production. We may be unable to obtain customer qualification of our or our subcontractors' manufacturing lines or we may experience delays in obtaining customer qualification of our or our subcontractors' manufacturing lines. Such delays or failure to obtain qualifications would harm our operating results and customer relationships. If we introduce new contract manufacturers and move any production lines from existing internal or external facilities, the new production lines will likely need to be re-qualified with our customers. Any delay in the qualification of our or our subcontractors' manufacturing lines may adversely affect our operations and financial results. Any delay in the qualification or requalification of our or our subcontractors' manufacturing lines may delay the manufacturing of our products or require us to divert resources away from other areas of our business, which could adversely affect our operations and financial results.

Our results of operations may suffer if we do not effectively manage our inventory, and we may continue to incur inventory-related charges.

We need to manage our inventory of component parts and finished goods effectively to meet changing customer requirements. Accurately forecasting customers' product needs is difficult. Our product demand forecasts are based on multiple assumptions, each of which may introduce error into our estimates. In the event we overestimate customer demand or if our customers overstate their demand for our products to us in an attempt to mitigate against potential future COVID-19 related supply shortages, we may allocate resources to manufacturing products that we may not be able to sell. As a result, we could

hold excess or obsolete inventory, which would reduce our profit margins and adversely affect our financial results. Conversely, if we underestimate customer demand or if sufficient manufacturing capacity or critical components are unavailable, we could forego revenue opportunities, lose market share and damage our customer relationships.

Also, due to our industry's use of inventory management techniques, such as direct order fulfillment, to reduce inventory levels and the period of time inventory is held, any disruption in the supply chain could lead to more immediate shortages in product or component supply. Additionally, any enterprise system failures, including implementing new systems or upgrading existing systems that help us manage our financial, purchasing, inventory, sales, invoicing and product return functions, could harm our ability to fulfill orders and interrupt other billing and logistical processes.

Some of our products and supplies have in the past, and may in the future, become obsolete or be deemed excess while in inventory due to rapidly changing customer specifications, changes to product structure, components or bills of material as a result of engineering changes, or a decrease in customer demand. We also have exposure to contractual liabilities to our contract manufacturers for inventories purchased by them on our behalf, based on our forecasted requirements, which may become excess or obsolete. Our inventory balances also represent an investment of cash. To the extent our inventory turns are slower than we anticipate based on historical practice, our cash conversion cycle extends and more of our cash remains invested in working capital. If we are not able to manage our inventory effectively, we may need to write down the value of some of our existing inventory or write off non-saleable or obsolete inventory. We have from time to time incurred significant inventory-related charges and taken excess or obsolete inventory from our contract manufacturers. Incurring any such charges or taking any such inventory in future periods could materially and adversely affect our results of operations.

Certain of our customers may require that we ship our finished products to a central location, which is not controlled by us. If that facility is damaged, or if our relationship with that facility deteriorates, we may suffer losses or be forced to find an alternate facility. In addition, revenue is only recognized once our customers take delivery of the products from this location, rather than when we ship them, which could have an adverse effect on our results of operations. We often lack insight into when customers will take delivery of our products, making it difficult to forecast our revenue.

Our operating history makes it difficult to evaluate our current business and future prospects and may increase the risk associated with investments by investors in our common stock.

We were founded in 2009 and shipped our first products in 2011. Our relatively limited operating history, combined with the rapidly evolving, complex, cyclical and competitive nature and consolidation of our industry, suppliers, manufacturers and customers, make it difficult to evaluate our current business and future prospects. We have encountered and may continue to encounter risks and difficulties frequently experienced by companies in constantly evolving, complex industries, including unpredictable and volatile revenues and increased expenses as we seek to grow our business. If we do not manage these risks and overcome these difficulties successfully, our business, financial condition, results of operations and prospects could be adversely affected, and the market price of our common stock could decline. Further, we have limited historic financial data, and we operate in a rapidly evolving and increasingly competitive market. As such, any predictions about our future revenue and expenses may not be as accurate as they would be if we had a longer operating history or operated in a more predictable market.

Since we began commercial shipments of our products, our revenue, gross profit and results of operations have varied and are likely to continue to vary from quarter to quarter due to a number of factors, many of which are not within our control. It is difficult for us to accurately forecast our future revenue and gross profit and plan expenses accordingly and, therefore, it is difficult for us to predict our future results of operations.

Our revenue growth rate in prior periods is not likely to be indicative of our future growth or performance.

Our revenue growth rate in prior periods is not likely to be indicative of our future growth or performance. During the years ended December 31, 2019 and December 31, 2016, we experienced revenue growth rates of 37% and 100%, respectively, as compared to the immediately preceding annual period, and during the three months ended March 31, 2020 and 2019 we experienced revenue growth rates of 19% and 44%, respectively, as compared to the same period in the prior year. Conversely, during the years ended December 31, 2018 and 2017, our revenue declined 12% and 19%, respectively, as compared to the immediately preceding annual period. The revenue growth rates we experienced in the years ended December 31, 2019 and December 31, 2016 and the three months ended March 31, 2020 and 2019 are not likely to be repeated in future periods. Our revenue for any prior annual or quarterly period should not be relied upon as any indication of our future revenue or revenue growth. In addition, the ongoing COVID-19 pandemic will in the short-run and may in the longer term adversely affect the economies and financial markets of many countries, resulting in an economic downturn that could affect the demand for our

products. If we are unable to maintain consistent revenue or revenue growth, our business, financial condition, results of operations and prospects could be materially adversely affected.

We have had a history of operating losses, and we may not maintain or increase our profitability.

Although we were profitable in the three months ended March 31, 2020 and 2019 and the years ended December 31, 2014 through 2017 and again in the year ended December 31, 2019, we incurred operating losses in the years ended December 31, 2009 through 2013 and again in the year ended December 31, 2018. We may not be able to sustain or increase profitability on a quarterly or annual basis and have experienced variability on a quarter to quarter basis. If we are unable to sustain or increase profitability, the market value of our stock may decline, and investors in our common stock could lose all or a part of their investment.

We may not be able to successfully manage our business if we are unable to maintain our internal systems, processes and controls.

In order to effectively manage our operations and any future growth, we need to continue to maintain our internal systems, processes and controls. Furthermore, in light of the ongoing COVID-19 pandemic, modified processes, procedures and controls may be required to respond to changes in our business environment, as the vast majority of our employees are required to work from home and many onsite locations remain closed. We may not be able to successfully maintain and implement improvements to our internal control systems, processes and controls in an efficient, cost effective or timely manner. In addition, our systems and processes, including any that we adopt in response to COVID-19 related changes in our business environment, may not prevent or detect all errors, omissions or fraud. We may experience difficulties in maintaining and managing improvements to our systems or processes and controls, which could impair our ability to provide products to our customers in a timely manner, causing us to lose customers, limit us to smaller deployments of our products or increase our technical support costs.

If we do not effectively expand and train our direct sales force, we may be unable to add new customers or increase sales to our existing customers, and our business will be adversely affected.

We depend on our direct sales force to increase sales with existing customers and to obtain new customers. As such, we have invested and will continue to invest in our sales organization. In recent periods, we have been adding personnel and other resources to our sales function as we focus on growing our business, entering new markets and increasing our market share, and we expect to incur additional expenses in expanding our sales personnel in order to achieve revenue growth. There is significant competition for sales and sales operations personnel with the skills and technical knowledge that we require. Our ability to achieve significant revenue growth will depend, in large part, on our success in recruiting, training, retaining and integrating sufficient numbers of sales personnel to support our growth, particularly in international markets. New hires require significant training and may take significant time before they achieve full productivity. Additional personnel may not become productive as quickly as we expect, and we may be unable to hire, retain or integrate into our corporate culture sufficient numbers of qualified individuals in the markets where we do business or plan to do business. If we are unable to hire, integrate and train a sufficient number of effective sales personnel, or the sales personnel we hire are not successful in increasing sales to our existing customer base or obtaining new customers, our business, financial condition, results of operations and prospects will be adversely affected.

Most of our long-term customer contracts do not commit customers to specified purchase commitments, and our customers may decrease, cancel or delay their purchases at any time with little or no advance notice to us.

Most of our customers purchase our products pursuant to individual purchase orders or contracts that do not contain purchase commitments. Although some of our customers have committed, subject to agreed upon terms and conditions, including reschedule and cancellation rights, to purchase a specified share of their required volume for a particular product from us, monitoring and enforcing these commitments can be difficult. Some customers provide us with their expected, non-binding forecasts for our products several months in advance, but customers may decrease, cancel or delay purchase orders already in place, and the impact of any such actions may be intensified given our dependence on a small number of large customers. If any of our major customers decrease, stop or delay purchasing our products, or change the mix of our products that they are purchasing, for any reason, our business and results of operations would be harmed. For example, one of our larger customers provided a non-binding forecast for 2018, but actual orders were approximately 40% lower than the forecasted amount. Also, several of our customers have historically experienced period-to-period demand variability or elected to defer purchases scheduled for the fourth quarter into the first quarter of the following year, resulting in a decrease in our anticipated revenue during the fourth quarter. Our customers often lack visibility to end customer demand, and in the event that any of our customers lose significant market share with one or more end customers, those losses could pass through to us and materially

and adversely affect our results of operations. Cancellation or delays of such orders may cause us to fail to achieve our short-term and long-term financial and operating goals and result in excess and obsolete inventory.

Acquisitions or other strategic transactions that we may pursue in the future, whether or not consummated, could result in operating and financial difficulties.

We may in the future acquire businesses or assets or engage in other strategic transactions in an effort to increase our growth, enhance our ability to compete, complement our product offerings, enter new and adjacent markets, obtain access to additional technical resources, enhance our intellectual property rights, expand market acceptance of our products or pursue other competitive opportunities. If we seek acquisitions, we may not be able to identify suitable acquisition candidates at prices we consider appropriate. We are in an industry that is actively consolidating and, as a result, there is no guarantee that we will successfully and satisfactorily bid against third parties, including competitors, if we identify a target we seek to acquire.

We cannot readily predict the timing or size of our future acquisitions or other strategic transactions, or the success of such acquisitions or transactions. Failure to successfully execute on any future acquisition or other strategic transactions could have a material adverse effect on our business, prospects, financial condition and results of operations.

To the extent that we consummate acquisitions, we may face financial risks as a result, including increased costs associated with merged or acquired operations, increased indebtedness, economic dilution to gross and operating profit and earnings per share, or unanticipated costs and liabilities, including the impairment of assets and expenses associated with restructuring costs and reserves, the failure to realize expected synergies and unforeseen accounting charges. We would also face operational risks, such as difficulties in integrating the operations, retention of key personnel and our ability to maintain and support products of the acquired businesses, disrupting their or our ongoing business, increasing the complexity of our business, failing to successfully further develop the combined, acquired or remaining technology, and impairing management resources and management's relationships with employees and customers as a result of changes in their ownership and management. Further, the evaluation and negotiation of potential acquisitions, as well as the integration of an acquired business, may divert management time and other resources.

If we are unable to successfully carry out any future acquisition or other strategic transaction, our business, financial condition and prospects for growth could suffer. In addition, we may not realize the benefits of any future acquisition or other strategic transaction to the extent anticipated and the perception of the effectiveness of our management team and our company may suffer in the marketplace. Further, even if we are able to achieve the long-term benefits associated with any future acquisition or other strategic transaction, our short-term financial conditions may be materially and adversely affected.

We may need additional equity, debt or other financing in the future, which we may not be able to obtain on acceptable terms, or at all, and any additional financing may result in restrictions on our operations or substantial dilution to our stockholders.

We may need to raise funds in the future, for example, to develop new technologies, expand our business or acquire complementary businesses. We may try to raise additional funds through public or private financings, strategic relationships or other arrangements. Our ability to obtain debt or equity funding will depend on a number of factors, including market conditions, interest rates, our operating performance and investor interest. Further, the COVID-19 pandemic has already caused significant disruptions in the financial markets, and may continue to cause such disruptions, which could impact our ability to raise additional funds. Additional funding may not be available to us on acceptable terms or at all. If adequate funding is not available, we may be required to reduce expenditures, including curtailing our growth strategies and reducing our product development efforts, or forgo acquisition opportunities. If we succeed in raising additional funds through the issuance of equity or convertible securities, then the issuance could result in substantial dilution to existing stockholders. If we raise additional funds through the issuance of debt securities or preferred stock, these new securities would have rights, preferences and privileges senior to those of the holders of our common stock. In addition, any preferred equity issuance or debt financing that we may obtain in the future could have restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions.

If our estimates or judgments relating to our critical accounting policies are based on assumptions that change or prove to be incorrect, our results of operations could fall below expectations of securities analysts and investors, resulting in a decline in the market price of our stock.

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

condensed consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, as described in Part I, Item 2. "Management's Discussion and Analysis of Financial Condition and Results of Operations" in this Quarterly Report on Form 10-Q, the results of which form the basis for making judgments about the carrying values of assets, liabilities, equity, revenue and expenses that are not readily apparent from other sources. Significant assumptions and estimates used in preparing our condensed consolidated financial statements include those related to revenue recognition, stock-based compensation, inventories and the related contract manufacturing liabilities and income taxes. If our assumptions change or if actual circumstances differ from those in our assumptions, our results of operations may be adversely affected and may fall below the expectations of securities analysts and investors, resulting in a decline in the market price of our stock.

We may face product liability and other types of claims, which could be expensive and time consuming and result in substantial damages to us and increases in our insurance rates.

Despite quality assurance measures, defects may occur in our products. The occurrence of any defects in our products could give rise to product liability or epidemic failure claims, which could divert management's attention from our core business, be expensive to defend, result in the loss of key customer contracts and result in sizable damage awards against us and, depending on the nature or scope of any network outage caused by a defect in or epidemic failure related to our products, could also harm our reputation. Our current insurance coverage may not be sufficient to cover these claims. Moreover, in the future, we may not be able to obtain insurance in amount or scope sufficient to provide us with adequate coverage against potential liabilities. Any product liability claims brought against us, with or without merit, could increase our product liability insurance rates or prevent us from securing continuing coverage, could harm our reputation in the industry and reduce product sales. We would need to pay any product losses in excess of our insurance coverage out of cash reserves, harming our financial condition and adversely affecting our financial performance and operating results.

In addition, we have also been forced to expend significant resources in the defense of the matters brought against us as described in Part II, Item 1 "Legal Proceedings" in this Quarterly Report on Form 10-Q, and we may need to continue to do so in the future. Class action, derivative lawsuits and other securities or other litigation, whether successful or not, could result in substantial costs, damage, indemnification or settlement awards and divert management's attention and resources from running our business, which could materially harm our reputation, financial condition and results of operations.

Our business and operating results may be adversely affected by natural disasters, major public health issues, including the ongoing COVID-19 pandemic, or other catastrophic events beyond our control.

Our internal manufacturing headquarters and new product introduction labs, design facilities, assembly and test facilities, and supply chain, and those of our contract manufacturers, are subject to risks associated with natural disasters, such as earthquakes, fires, tsunami, typhoons, volcanic activity, floods and major public health issues, including pandemics, as well as other events beyond our control such as power loss, facilities structural damage, telecommunications failures, system failures or Internet failures and uncertainties arising out of terrorist attacks in the United States and armed conflicts or terrorist attacks overseas. The majority of our semiconductor products are currently fabricated and assembled in China, Japan, Malaysia, Philippines, Singapore, Taiwan and the United States. The majority of the internal and outsourced assembly and test facilities we utilize or plan to utilize are located in China and Thailand, countries that have been affected by the COVID-19 pandemic and have taken and continue to take measures to try and contain it. There is considerable uncertainty regarding such measures and potential future measures, and restrictions on the ability of our employees to travel to and access these facilities or on our support operations, or similar limitations imposed on our assembly and fabrication partners, could limit our capacity to meet customer demand and have a material adverse effect on our financial condition and results of operations. Additionally, some of our internal design, assembly and test facilities are located in California (design only), New Jersey and Massachusetts, regions with significant community spread of COVID-19 and a history of severe weather activity and, in the case of California, above average seismic activity. Further, our research and development personnel are concentrated primarily in our headquarters in Maynard, Massachusetts and in our research center in Holmdel, New Jersey. Any catastrophic loss or significant disruption or damage to any of these facilities or to any facilities that we use in the future would likely disrupt our operations, delay production, and adversely affect our product development schedules, shipments and revenue. For example, as a result of the extension of the lunar new year holidays in China due to the COVID-19 pandemic, shipments of certain supplies and components used by our contract manufacturers in the manufacture of our products and the operations of our contract manufacturers and other suppliers were disrupted, which resulted in delayed shipment of certain of our products to our customers. In addition, any such catastrophic loss or significant damage could result in significant expense to repair or replace the facility and could significantly curtail our research and development efforts in a particular product area or primary market, which could have a material adverse effect on our operations and operating results.

Breaches, failures or interruptions of our cybersecurity systems could degrade our ability to conduct our business operations and deliver products to our customers, compromise the integrity of the software embedded in our products, result in significant data losses and the theft of our intellectual property, damage our reputation, expose us to liability to third parties and require us to incur significant additional costs to maintain the security of our networks and data.

We increasingly depend upon our information technology, or IT, systems to conduct virtually all of our business operations, ranging from our internal operations and product development and manufacturing activities to our marketing and sales efforts and communications with our customers and business partners. Computer programmers may attempt to penetrate our network security, or that of our website and email services, and misappropriate our proprietary information, provide false or misleading instructions to our personnel, embed malicious code in our products or cause interruptions of our service. Work-from-home and other measures that we have adopted in response to the COVID-19 pandemic introduce additional cybersecurity risks. Because the techniques used by such computer programmers to access or sabotage networks change frequently and may not be recognized until launched against a target, we may be unable to anticipate these techniques. In addition, sophisticated hardware and operating system software and applications that we produce or procure from third parties may contain defects in design or manufacture, including “bugs” and other problems that could unexpectedly interfere with the operation of the system. We have also outsourced a number of our business functions to third-party contractors, including our manufacturers and logistics providers, and our business operations also depend, in part, on the success of our contractors’ own cybersecurity measures and adherence to their contractual obligations to us, including in connection with their use of and access to our systems. Additionally, we depend upon our employees, customers, suppliers, manufacturers, contractors and other third parties, or our related parties, to appropriately handle confidential data and deploy our IT resources in a safe and secure fashion that does not expose our network systems to security breaches and the loss of data. Data may be accessed or modified improperly as a result of related party theft, error or malfeasance and third parties may attempt to fraudulently induce our related parties into disclosing sensitive information such as user names, passwords or other information in order to gain access to our data or IT systems or our related parties’ data or IT systems. Accordingly, if our cybersecurity systems and those of our related parties fail to protect against unauthorized access, sophisticated cyberattacks and the mishandling of data by our related parties, our ability to conduct our business effectively could be damaged in a number of ways, including:

- sensitive data regarding our related parties or business, including intellectual property and other proprietary data, could be stolen;
- our electronic communications systems, including email and other methods, could be disrupted, and our ability to conduct our business operations could be seriously damaged until such systems can be restored;
- our ability to process customer orders and deliver products could be degraded or disrupted, resulting in delays in revenue recognition; and
- defects and security vulnerabilities could be introduced into the software embedded in or used in the development of our products, thereby damaging the reputation and perceived reliability and security of our products.

The steps we have taken to protect our intellectual property rights and data may be inadequate to protect such assets from disclosure or theft by third parties. If unauthorized disclosure or theft were to occur, we might not be able to prevent others from using what we regard as our intellectual property and data to compete with us. Existing trade secret, copyright, patent and trademark laws offer only limited protection. In addition, the laws of some foreign countries do not protect our intellectual property rights and data or allow enforcement of confidentiality covenants to the same extent as the laws of the United States. For example, doing business in China poses risks, including but not limited to, theft of intellectual property and data and potentially different treatment of foreign owned intellectual property rights and data than that owned or developed in China. If we have to resort to legal proceedings to enforce our intellectual property rights or protect our data, the proceedings could be burdensome, protracted and expensive and could involve a high degree of risk and be unsuccessful.

Should any of the above events occur, we could be subject to significant claims for liability from our customers and regulatory actions from governmental agencies, including sanctions and civil or criminal penalties. In addition, our ability to protect our intellectual property rights could be compromised and our reputation and competitive position could be significantly harmed. Additionally, we could incur significant costs in order to upgrade our cybersecurity systems and remediate damages. Consequently, our competitive position, reputation, financial performance and results of operations could be adversely affected.

We are subject to environmental, health and safety laws and regulations, which could subject us to liabilities, increase our costs or restrict our business or operations in the future.

Our operations and our products are subject to a variety of environmental, health and safety laws and regulations in each of the jurisdictions in which we operate or sell our products. These laws and regulations govern, among other things, the handling and disposal of hazardous substances and wastes, employee health and safety and the use of hazardous materials in, and the recycling of, our products. Failure to comply with present and future environmental, health or safety requirements, or the identification of contamination, could cause us to incur substantial costs, monetary fines, civil or criminal penalties and curtailment of operations. In addition, these laws and regulations have increasingly become more stringent over time. The identification of presently unidentified environmental conditions, more vigorous enforcement of current environmental, health and safety requirements by regulatory agencies, the enactment of more stringent laws and regulations or other unanticipated events could restrict our ability to use or expand our facilities, require us to incur additional expenses or require us to modify our manufacturing processes or the contents of our products, which could have a material adverse effect on our business, financial condition and results of operations.

If we do not achieve the anticipated financial, operational and effective tax rate efficiencies expected from our corporate tax structure, our financial condition and results of operations could be adversely affected.

In 2015, we implemented a reorganization of our corporate structure and intercompany relationships to more closely align our corporate structure with the international nature of our business activities. This corporate restructuring has allowed us to achieve financial and operational efficiencies and to reduce our overall effective tax rate through changes in our international procurement, manufacturing and sales operations, and in the ways we develop, own and use certain intellectual property. This corporate restructuring has also allowed us to achieve financial and operational efficiencies.

The Tax Act, enacted in December 2017, makes far-ranging changes to the existing U.S. corporate tax system. This legislation establishes a quasi-territorial system for taxing foreign-source income of multinational corporations and, among other items, made changes to the rules governing taxable and tax-free cross-border transfers of intangible property. Certain changes to the U.S. corporate tax system resulting from the Tax Act, mainly that foreign earnings are no longer deferred but are currently subject to U.S. taxes, have, and are expected to continue to, negatively affect the financial, operational and effective tax rate efficiencies of this corporate restructuring.

We cannot provide assurance that these tax benefits and operational efficiencies will continue into future periods. Our efforts in connection with this corporate restructuring have required and will continue to require us to incur expenses for which we may not realize related benefits. If any of the tax benefits are challenged by the applicable taxing authorities upon audit or if there are adverse changes in domestic or international tax laws, including any legislation enacted in pursuance of the Base Erosion and Profit Shifting Initiative, described below, our results of operations may be negatively affected. In addition, if we do not operate our business in a manner that is consistent with this corporate restructuring or any applicable tax laws, we may fail to achieve the financial, operational and effective tax rate efficiencies that we anticipate and our results of operations may be negatively affected.

The implementation of our corporate restructuring increases the likelihood that unfavorable tax law changes, unfavorable government review of our tax returns, changes in our geographic earnings mix or imposition of withholding taxes on repatriated earnings could have an adverse effect on our effective tax rate and our operating results.

We have expanded and may continue to expand our operations into multiple non-U.S. jurisdictions in connection with our 2015 corporate restructuring, including those having tax rates higher and lower than those we are subject to in the United States. As a result, our effective tax rate will be influenced by the amounts of income and expense attributed to each such jurisdiction, which is materially affected by our valuation and pricing of intercompany transactions, both of which can be based on significant management assumptions or estimates. If such amounts were to change so as to increase the amounts of our net income subject to taxation in higher tax jurisdictions, or if we were to commence operations in jurisdictions assessing relatively higher tax rates, our effective tax rate could be adversely affected. In addition, the COVID-19 pandemic and responsive measures related thereto could materially change the geographic mix of revenue earned in U.S. and non-U.S. jurisdictions, as well as the income and expense attributed to such jurisdictions. As a result, the COVID-19 pandemic and responsive measures related thereto could have a material impact on our effective tax rate. As a result of our corporate restructuring, we will be subject to periodic audits or other reviews by tax authorities in the jurisdictions in which we conduct our activities in the future and there is a risk that the tax authorities could challenge our tax positions, including the assumptions and estimates on which we base the valuation and pricing of intercompany transactions.

The Tax Act establishes a quasi-territorial system for taxing foreign-source income of multinational corporations and other tax proposals are being considered by legislative bodies in some of the foreign jurisdictions in which we operate that could negatively affect our effective tax rate and other tax liabilities.

We cannot predict the form or timing of potential legislative changes, but any newly enacted tax law could have a material adverse impact on our tax provision, net income and cash flows. This could result in additional tax liabilities or other adjustments to our historical results.

The final determination of our income tax liability may be materially different from our income tax provision.

The final determination of our income tax liability, which includes the impact of our corporate restructuring, may be materially different from our income tax provision. We are subject to income taxes in the United States and, as a result of our corporate restructuring, have become subject to income taxes in international jurisdictions. Significant judgment is required in determining our worldwide provision for income taxes. In the ordinary course of our business, there are some transactions where 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 or will file as a result of the implemented corporate restructuring. Although we believe our tax estimates, which include the impact of anticipated tax benefits in connection with our corporate restructuring, are and will be appropriate, the ultimate tax outcome may materially differ from the tax amounts recorded in our condensed consolidated financial statements and may materially affect our income tax provision, net income or cash flows in the period or periods for which such determination is made.

We are also subject to periodic examination of our income tax returns by the Internal Revenue Service, or IRS, in the United States and will be subject to periodic examination of our income tax and other returns by taxing authorities in other tax jurisdictions. For example, we have been selected for examination by the IRS for our income tax years 2014 through 2017, by the State of New Jersey for income tax years 2015 through 2017 and by the Commonwealth of Massachusetts for sales and use tax years 2016 through 2018. We assess and will continue to assess on a regular basis the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. The outcomes from these examinations may have an adverse effect on our operating results and financial condition.

Furthermore, our provision for income tax could increase as we further expand our international operations, adopt new products or undertake intercompany transactions in light of acquisitions, changing tax laws, expiring rulings and our current and anticipated business and operational requirements.

Our ability to utilize certain net operating loss carryforwards and tax credit carryforwards may be limited under Sections 382 and 383 of the Internal Revenue Code.

As of December 31, 2019, we had net operating loss carryforward amounts, or NOLs, of approximately $42.4 million and $117.1 million for U.S. federal and state income tax purposes, respectively, and research and development and other credit carryforward amounts of approximately $17.3 million, $21.7 million and $1.3 million for U.S. federal, state and foreign income tax purposes, respectively. The state net operating loss carryforwards and portions of the federal net operating loss carryforward will expire at various dates beginning in 2029 through 2039. Federal net operating loss carryforwards generated after December 31, 2017 are subject to carryforward indefinitely. The federal and state tax credit carryforwards will expire at various dates beginning in 2020 through 2039 and $0.7 million of such carryforwards will expire between 2020 and 2022 if not used. Utilization of these net operating loss and tax credit carryforward amounts could be subject to a substantial annual limitation if ownership changes under Sections 382 and 383 of the Internal Revenue Code and similar state provisions are triggered by changes in the ownership of our capital stock. Our existing NOLs may be subject to limitations arising from previous ownership changes, including in connection with our initial public offering, or IPO, a follow-on offering in 2016, and any future follow-on public offerings. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change. There is also a risk that due to regulatory and legislative changes, such as suspensions on the use of NOLs, or other unforeseen reasons, our existing NOLs could expire or otherwise be unavailable to offset future income tax liabilities. Additionally, state NOLs generated in one state generally cannot be used to offset income generated in another state. For these reasons, we may be limited in our ability to fully utilize the tax benefit from the use of our NOLs, even if our profitability would otherwise allow for it.

We are a multinational organization faced with increasingly complex tax issues in many jurisdictions, and we could be obligated to pay additional taxes in various jurisdictions, including in the United States.

As a multinational organization, we are subject to taxation in jurisdictions around the world with increasingly complex tax laws, the application of which can be uncertain. The amount of taxes we pay in these jurisdictions could increase substantially as a result of changes in the applicable tax principles, including increased tax rates, new tax laws or revised interpretations of existing tax laws and precedents, which could have a material adverse effect on our liquidity and operating results. In addition, the authorities in these jurisdictions could review our tax returns and impose additional tax, interest and penalties, and the authorities could claim that various withholding requirements apply to us or our subsidiaries or assert that

benefits of tax treaties are not available to us or our subsidiaries, any of which could have a material impact on us and the results of our operations.

There is growing pressure in many jurisdictions (including the United States) and from multinational organizations such as the Organization for Economic Co-operation and Development, or OECD, and the European Union, or EU, to amend existing international tax rules in order to render them more responsive to current global business practices. For example, the OECD has published measures for reform of the international tax rules as a product of its Base Erosion and Profit Shifting, or BEPS, initiative, which aims to standardize and modernize global tax policy and was endorsed by the G20 finance ministers. Many of the initiatives in the BEPS package will require amendments to the domestic tax legislation of various jurisdictions. Separately, the EU is asserting that a number of country-specific favorable tax regimes and rulings in certain member states may violate, or have violated, EU law, and may require some or all of the associated tax benefits to be refunded to the various taxing authorities by benefited taxpayers. Depending on the final form of the BEPS guidance and the legislation ultimately enacted by the OECD members, BEPS could have material adverse consequences on our effective tax rate, the amount of tax we pay and on our financial position and results of operations. Certain changes to the U.S. corporate tax system resulting from the Tax Act, in particular the requirement to subject foreign earnings to U.S. income taxes on a current basis, have had, and are expected to continue to have, a negative effect on our financial, operational and effective tax rate efficiencies.

Other legislative and regulatory proposals, as well as case law, may also affect our tax position or our business practices and operations, depending on whether and in what form they may ultimately take effect. Although we monitor these developments, due to the unpredictability and interdependency of these potential changes, it is very difficult to assess to what extent these changes may be implemented in the United States and other jurisdictions in which we conduct our business or to what extent these changes may impact the way in which we conduct our business or our effective tax rate due to the unpredictability and interdependency of these potential changes. For example, we are monitoring the litigation in Altera Corp v. Commissioner for its potential impact on us, as described in Note 13, *Income Taxes*, of the “Notes to Consolidated Financial Statements” contained in Part I, Item 1 of this Quarterly Report on Form 10-Q. Changes in tax laws and related regulations and practices could have a material adverse effect on our business operations, effective tax rate and financial position and results of operations.

We are exposed to credit risk and fluctuations in the market values of our investment portfolio.

Credit ratings and pricing of our domestic and international investments can be negatively affected by liquidity, credit deterioration, financial results, economic risk, political risk, sovereign risk or other factors. As a result, the value and liquidity of our cash, cash equivalents and marketable securities may fluctuate substantially. Further, the COVID-19 pandemic has already caused significant disruptions in the financial markets, and may continue to cause such disruptions, which has adversely impacted, and could continue to adversely impact the return from our portfolio of cash equivalents and marketable securities. Ongoing and future fluctuations in credit ratings and market values could result in significant realized losses in our investment portfolio.

Risks Related to Our Intellectual Property

Our products may infringe the intellectual property rights of others, which could result in expensive litigation or require us to obtain a license to use the technology from third parties, or we may be prohibited from selling certain products in the future.

Companies in the industry in which we operate frequently are sued or receive informal claims of patent infringement or infringement of other intellectual property rights. We have, from time to time, received such claims from companies, including from competitors, suppliers and customers, some of whom have substantially more resources and have been developing relevant technologies for much longer than us.

Third parties may in the future assert claims against us concerning our existing products or with respect to future products under development, or with respect to products that we may acquire through acquisitions. We have entered into and may in the future enter into indemnification obligations in favor of our customers that could be triggered upon an allegation or finding that we are infringing other parties’ proprietary rights. If we do infringe a third party’s rights and are unable to provide a sufficient work around, we may need to negotiate with holders of those rights in order to obtain a license to those rights or otherwise settle any infringement claim. A party that makes a claim of infringement against us may obtain an injunction preventing us from shipping products containing the allegedly infringing technology. We have from time to time received notices from third parties alleging infringement of their intellectual property and, in some cases, have entered into license agreements with such third parties with respect to such intellectual property. Any license agreements that we wish to enter into the future with respect to intellectual property rights may not be available to us on commercially reasonable terms, or at all.

Generally, a license, if granted, would include payments of up-front fees, ongoing royalties or both. These payments or other terms, including any that restrict our ability to utilize the licensed technology in specified markets or geographic locations, could have a significant adverse effect on our operating results. In addition, in the event we are granted such a license, it is possible the license would be non-exclusive and other parties, including competitors, may be able to utilize such technology. Our larger competitors may be able to obtain licenses or cross-license their technology on better terms than we can, which could put us at a competitive disadvantage. In addition, our larger competitors may be able to buy such technology and preclude us from licensing or using such technology.

We may not in all cases be able to resolve allegations of infringement through licensing arrangements, settlement, alternative designs or otherwise. We may take legal action to determine the validity and scope of the third-party rights or to defend against any allegations of infringement. Holders of intellectual property rights could become more aggressive in alleging infringement of their intellectual property rights and we may be the subject of such claims asserted by a third party. For example, as described further in Part II, Item 1 “Legal Proceedings” in this Quarterly Report on Form 10-Q, on January 21, 2016, ViaSat, Inc. filed a suit against us alleging, among other things, breach of contract, breach of the implied covenant of good faith and fair dealing and misappropriation of trade secrets. In the course of pursuing any of these means or defending against any lawsuits filed against us, we have incurred, and in the future may continue to incur, significant costs and diversion of our resources and our management’s attention. Due to the competitive nature of our industry, it is unlikely that we could increase our prices to cover such costs. In addition, such claims could result in significant penalties or injunctions that could prevent us from selling some of our products in certain markets or result in settlements or judgments that require payment of significant royalties or damages.

Our intellectual property rights are valuable, and any inability to protect them could reduce the value of our products, services and brand.

Our future success will depend, in large part, upon our intellectual property rights, including patents, copyrights, design rights, trade secrets, trademarks and know-how. We maintain a program of identifying technology appropriate for patent and trade secret protection. Our practice is to require employees and consultants to execute non-disclosure and proprietary rights agreements upon commencement of employment or consulting arrangements. These agreements acknowledge our exclusive ownership of all intellectual property developed by the individuals during their work for us and require that all proprietary information disclosed will remain confidential. Such agreements may not be enforceable in full or in part in all jurisdictions and any breach could have a negative effect on our business and our remedy for such breach may be limited.

Despite our efforts, these measures can only provide limited protection. Unauthorized third parties may try to copy or reverse engineer portions of our products, may breach our cybersecurity defenses or may otherwise obtain and use our intellectual property. Patents owned by us may be invalidated, circumvented or challenged. Any of our pending or future patent applications, whether or not being currently challenged, may not be issued with the scope of the claims we seek, if at all. Legal standards relating to the validity, enforceability and scope of protection of intellectual property rights in other countries are uncertain and may afford little or no effective protection for our proprietary rights. Consequently, we may be unable to prevent our intellectual property rights from being exploited abroad. Policing the unauthorized use of our proprietary rights is expensive, difficult and, in some cases, impossible. Litigation may be necessary in the future to enforce or defend our intellectual property rights, to protect our trade secrets or to determine the validity and scope of the proprietary rights of others. Such litigation could result in substantial costs and diversion of management resources, either of which could harm our business. Accordingly, despite our efforts, we may not be able to prevent third parties from infringing upon or misappropriating our intellectual property. If we cannot protect our proprietary technology against unauthorized copying or use, we may not remain competitive.

Furthermore, many of our current and potential competitors have the ability to dedicate substantially greater resources to developing and protecting their technology or intellectual property rights than we do. In addition, our attempts to protect our proprietary technology and intellectual property rights may be further limited as our employees may be recruited by our current or future competitors and may take with them significant knowledge of our proprietary information. Consequently, others may develop services and methodologies that are similar or superior to our services and methodologies or may design around our intellectual property.

We may be subject to intellectual property litigation that could divert our resources.

In recent years, there has been significant litigation involving patents and other intellectual property rights in our industry. As we continue to gain greater market visibility, we face a higher risk of being the subject of intellectual property infringement claims. The risk of patent litigation has been amplified by the increase in the number of a type of patent holder, which we refer to as a non-practicing entity, whose sole business is to assert such claims. We could incur substantial costs in

prosecuting or defending any intellectual property litigation. If we sue to enforce our rights or are sued by a third party that claims that our products infringe its rights, the litigation could be expensive and could divert our management resources.

Confidentiality arrangements with employees and others may not adequately prevent disclosure of trade secrets and other proprietary information.

We have devoted substantial resources to the development of our technology, business operations and business plans. In order to protect our trade secrets and proprietary information, we rely in significant part on confidentiality arrangements with our employees, licensees, independent contractors, advisers, channel partners, resellers and customers. These arrangements may not be effective to prevent disclosure of confidential information, including trade secrets, and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. In addition, if others independently discover trade secrets and proprietary information, we would not be able to assert trade secret rights against such parties. Effective trade secret protection may not be available in every country in which our services are available or where we have employees or independent contractors. The loss of trade secret protection could make it easier for third parties to compete with our products by copying functionality. In addition, any changes in, or unexpected interpretations of, the trade secret and employment laws in any country in which we operate may compromise our ability to enforce our trade secret and intellectual property rights. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

We may be subject to damages resulting from claims that our employees or contractors have wrongfully used or disclosed alleged trade secrets of their former employees or other parties.

We could in the future be subject to claims that employees or contractors, or we, have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of our competitors or other parties. Litigation may be necessary to defend against these claims. If we fail in defending against such claims, a court could order us to pay substantial damages and prohibit us from using technologies or features that are essential to our products, if such technologies or features are found to incorporate or be derived from the trade secrets or other proprietary information of these parties. In addition, we may lose valuable intellectual property rights or personnel. A loss of key personnel or their work product could hamper or prevent our ability to develop, market and support potential products or enhancements, which could severely harm our business. Even if we are successful in defending against these claims, such litigation could result in substantial costs and be a distraction to management.

We license technology from third parties, and our inability to maintain those licenses could harm our business.

We incorporate technology, including software, which we license from third parties into our products. We cannot be certain that our licensors are not infringing the intellectual property rights of third parties or that our licensors have sufficient rights to the licensed intellectual property in all jurisdictions in which we may sell our products. Some of our agreements with our licensors may be terminated for convenience by them. If we are unable to continue to license any of this technology because of intellectual property infringement claims brought by third parties against our licensors or against us, or if we are unable to continue our license agreements or enter into new licenses on commercially reasonable terms, our ability to develop and sell products containing that technology would be severely limited, and our business could be harmed. Additionally, if we are unable to license necessary technology from third parties, we may be forced to acquire, at the same or higher cost, or expend additional resources to develop alternative technology of lower quality or performance standards. This would limit and delay our ability to offer new or competitive products and increase our costs of production. As a result, our margins, market share and operating results could be significantly harmed.

The use of open source software in our offerings may expose us to additional risks and harm our intellectual property.

Open source software is typically freely accessible, usable and modifiable. Certain open source software licenses require a user who intends to distribute the open source software as a component of the user’s software to disclose publicly part or all of the source code to the user’s software. In addition, certain open source software licenses require the user of such software to make any derivative works of the open source code available to others on unfavorable terms or at no cost. This can subject previously proprietary software to open source license terms.

We monitor and control our use of open source software that goes into or is used by our products in an effort to avoid unanticipated conditions or restrictions on our ability to successfully commercialize our products and believe that our compliance with the obligations under the various applicable licenses has mitigated the risks that we have triggered any such conditions or restrictions. However, such use may have inadvertently occurred in the development and offering of proprietary software on our products. Additionally, if a third-party software provider has incorporated certain types of open source software

into software that we have licensed from such third party, we could be subject to the obligations and requirements of the applicable open source software licenses. This could harm our intellectual property position and have a material adverse effect on our business, results of operations and financial condition.

The terms of many open source software licenses have not been interpreted by U.S. or foreign courts, and there is a risk that those licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to successfully commercialize our products. For example, certain open source software licenses may be interpreted to require that we offer the software on our products that include the open source software for no cost; that we make available the source code for modifications or derivative works we create based upon, incorporating or using the open source software (or that we grant third parties the right to decompile, disassemble, reverse engineer, or otherwise derive such source code); that we license such modifications or derivative works under the terms of the particular open source license; or that otherwise impose limitations, restrictions or conditions on our ability to use, license, host, or distribute our products in a manner that limits our ability to successfully commercialize our products.

We could, therefore, be subject to claims alleging that we have not complied with the restrictions or limitations of the applicable open source software license terms or that our use of open source software infringes the intellectual property rights of a third party. In that event, we could incur significant legal expenses, be subject to significant damages, be enjoined from further sale and distribution of the software on our products that uses the open source software, be required to pay a license fee, be forced to reengineer the software on our products, or be required to comply with the foregoing conditions of the open source software licenses (including the release of the source code to our proprietary software), any of which could adversely affect our business. Even if these claims do not result in litigation or are resolved in our favor or without significant cash settlements, the time and resources necessary to resolve them could harm our business, results of operations, financial condition and reputation.

Additionally, the use of open source software can lead to greater risks than the use of third-party commercial software, as open source software does not come with warranties or other contractual protections regarding indemnification, infringement claims or the quality of the code.

Risks Related to the Ownership of Our Common Stock

Our stock price has been and may continue to be volatile and investors in our common stock may be unable to sell their shares at or above the price at which they were purchased.

The trading prices of the securities of technology companies, including technology companies in the industry in which we operate, have been highly volatile. Some of the factors that may cause the market price of our common stock to fluctuate include:

- price and volume fluctuations in the overall stock market from time to time;
- volatility in the market price and trading volume of comparable companies, in particular optical industry peer companies;
- actual or anticipated changes in our earnings or fluctuations in our operating results or in the expectations of securities analysts covering our industry or issuing market projection reports;
- announcements regarding the pending Merger;
- announcements of technological innovations, new products, strategic alliances or other transactions, or significant agreements by us or by our competitors;
- announcements by our customers regarding significant increases or decreases in capital expenditures and their results of operations;
- failure to accurately predict and interpret market requirements or market demand for our products;
- departure of key personnel;
- litigation involving us or that may be perceived as having an impact on our business;
- changes in general economic, industry and market conditions and trends, including the economic slowdown and delayed deployment and network expansion in China and the uncertainty related to Brexit and COVID-19;
- investors’ general perception of us;
- significant short interest in our stock;

- sales of large blocks of our stock;
- loss of any of our key customers;
- a lack of guaranteed supply of manufactured wafers and other raw and finished components and incorporated products;
- announcements regarding further industry consolidation;
- changes in regulations or legislation in the United States and other jurisdictions in which we do business, including domestic and international tax reform, trade policy and tariffs and export controls that could impede our ability to sell our products to our customers in certain foreign jurisdictions, particularly in China, or that could impede sales by such customers in the United States;
- actions or announcements by activist shareholders or others; and
- other factors such as political unrest, terrorist attacks, other hostilities, natural disasters, and potential public health crises, such as the COVID-19 pandemic.

In the past, following periods of volatility in the market price of a company's securities, securities class action and shareholder derivative litigation has often been brought against that company. Class action and derivative litigation has been initiated against us and certain of our executive officers and directors in the past. Because of the volatility of our stock price, we may become the target of additional securities litigation in the future. Class action, derivative lawsuits and other securities litigation, whether successful or not, could result in substantial costs, damage, indemnification or settlement awards and divert management's attention and resources from running our business, which could materially harm our reputations, financial condition and results of operations.

Our quarterly operating results or other operating metrics have fluctuated significantly, and they are likely to continue to do so, which could cause the trading price of our common stock to decline.

Our quarterly operating results and other operating metrics have fluctuated in the past and are likely to continue to do so in the future. We expect that this trend will continue as a result of a number of factors, many of which are outside of our control and may be difficult to predict, including:

- the level of demand for our products and our ability to maintain and increase our customer base;
- the timing and success of new product introductions by us or our competitors or any other change in the competitive landscape of our market;
- the mix of products sold in a quarter;
- export control laws, tariffs, developments in trade policy or regulations that could impede our ability to sell our products to certain customers or other customers in certain foreign jurisdictions;
- pricing pressure as a result of competition or otherwise or price discounts negotiated by our customers;
- our ability to ramp production of new products with our contract manufacturers;
- delays or disruptions in our supply or manufacturing chain, including any delays or distributions related to the ongoing COVID-19 pandemic;
- our ability to reduce manufacturing costs;
- errors in our forecasting of the demand for our products, which could lead to lower revenue or increased costs;
- seasonal and period-over-period buying patterns of some of our customers;
- introduction of new products, with initial sales at relatively small volumes with resulting higher product costs;
- increases in and timing of sales and marketing, research and development and other operating expenses that we may incur to grow and expand our operations and to remain competitive;
- insolvency, credit consolidation or other difficulties faced by our customers, affecting their ability to purchase or pay for our products;
- insolvency, credit consolidation or other difficulties confronting our suppliers and contract manufacturers leading to disruptions in our supply or distribution chain;

- levels of product order rescheduling, cancellations, returns and contractual price protection rights, including the impact of product quality problems on our reputation;
- adverse litigation judgments, settlements or other litigation-related costs;
- the pending Merger;
- product recalls, regulatory proceedings or other adverse publicity about our products;
- fluctuations in foreign exchange rates;
- the impact of the Tax Act and other legislative and regulatory proposals to reform U.S. taxation of international business activities;
- costs related to the acquisition of businesses, talent, technologies or intellectual property, including potentially significant amortization costs and possible write-downs; and
- general economic conditions in either domestic or international markets, particularly as a result of the impact of COVID-19 and any resulting short-term and potential longer term economic slowdown.

Any one of the factors above or the cumulative effect of some of the factors above may result in significant fluctuations in our operating results.

The variability and unpredictability of our quarterly operating results or other operating metrics could result in our failure to meet our expectations or those of any analysts that cover us or investors in our common stock with respect to revenue or other operating results for a particular period. If we fail to meet or exceed such expectations for these or any other reasons, the market price of our common stock could fall substantially, and we could face costly lawsuits, including securities class action suits.

Because we do not expect to pay any dividends on our common stock for the foreseeable future, returns to investors in our common stock will be limited to any increase in the value of our common stock.

We have never paid cash dividends on our common stock and do not anticipate that we will pay any cash dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our existing operations. Accordingly, investors in our common stock must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any return on their investment.

Anti-takeover provisions in our restated certificate of incorporation and our amended and restated by-laws, as well as provisions of Delaware law, might discourage, delay or prevent a change in control of our company or changes in our management and, therefore, depress the trading price of our common stock.

Our restated certificate of incorporation and amended and restated by-laws and Delaware law contain provisions that may discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which an investor in our common stock might otherwise receive a premium for their shares of our common stock. These provisions may also prevent or delay attempts by our stockholders to replace or remove our management. Our corporate governance documents include provisions:

- establishing a classified board of directors with staggered three-year terms so that not all members of our board are elected at one time;
- providing that directors may be removed by stockholders only for cause and only with a vote of the holders of at least 75% of the issued and outstanding shares of voting stock;
- limiting the ability of our stockholders to call and bring business before special meetings and to take action by written consent in lieu of a meeting;
- requiring advance notice of stockholder proposals for business to be conducted at meetings of our stockholders and for nominations of candidates for election to our board of directors;
- authorizing blank check preferred stock, which could be issued with voting, liquidation, dividend and other rights superior to our common stock; and
- limiting the liability of, and providing indemnification to, our directors and officers.

As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders holding more than 15% of our outstanding voting stock from engaging in certain business combinations with us. Any provision of our amended and restated certificate of incorporation or amended and restated by-laws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors in our common stock are willing to pay for our common stock.

The existence of the foregoing provisions and anti-takeover measures could limit the price that investors in our common stock might be willing to pay in the future for shares of our common stock. They could also deter potential acquirers of our company, thereby reducing the likelihood that an investor in our common stock could receive a premium for their common stock in an acquisition.

Our restated certificate and our amended and restated by-laws provide that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our restated certificate and our amended and restated by-laws provide that the Court of Chancery of the State of Delaware (or, in the case of our by-laws, if the Court of Chancery does not have jurisdiction, the United States District Court for the District of Delaware) is the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our by-laws; or any action asserting a claim against us that is governed by the internal affairs doctrine; and our by-laws provide that such court is the exclusive forum for any action against us or any director or officer or other employee of ours to interpret, apply, enforce or determine the validity of our certificate of incorporation or our by-laws. The choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. Alternatively, if a court were to find the choice of forum provision contained in our certificate of incorporation or our by-laws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

We have incurred and expect that we will continue to incur increased costs and demands upon management as a result of complying with the laws and regulations affecting public companies. These increased costs and demands could adversely affect our business, operating results and financial condition.

As a public company, we will continue to incur significant legal, accounting and other expenses. We are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, and the rules and regulations of the Nasdaq Global Select Market, or Nasdaq, and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. These requirements have increased and will continue to increase our legal, accounting and financial compliance costs and have made and will continue to make some activities more time consuming and costly.

The Sarbanes-Oxley Act requires, among other things, that we assess the effectiveness of our internal control over financial reporting annually and the effectiveness of our disclosure controls and procedures quarterly. Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, or Section 404, we are required to furnish a report by our management on the effectiveness of our internal control over financial reporting and an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. Compliance with Section 404, including documentation and evaluation of our internal control over financial reporting is both costly and challenging. If we are not able to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by the SEC or other regulatory authorities, which would require additional financial and management resources and could adversely affect the market price of our common stock.

Furthermore, investor perceptions of our company may suffer if deficiencies are found, and this could cause a decline in the market price of our stock. Irrespective of compliance with Section 404, any failure of our internal control over financial reporting could have a material adverse effect on our stated operating results and harm our reputation.

In addition, changing laws, regulations and standards relating to corporate governance and public disclosure are creating uncertainty for public companies, increasing legal and financial compliance costs and making some activities more

time consuming. These laws, regulations, and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We have and will continue to invest resources to comply with evolving laws, regulations and standards, and this investment has and may result in increased general and administrative expense and a diversion of management's time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new laws, regulations and standards differ from the activities intended by regulatory or governing bodies, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

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

None.

ITEM 3. Defaults Upon Senior Securities.

None.

ITEM 4. Mine Safety Disclosures.

Not applicable.

ITEM 5. Other Information.

None.

ITEM 6. Exhibits.

The exhibits listed below are filed or incorporated by reference into this Quarterly Report on Form 10-Q.

Exhibit Number	Description
31.1*	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS*	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH*	Inline XBRL Taxonomy Extension Schema Document.
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104*	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101).

* Filed herewith.
** Furnished herewith.

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.

Acacia Communications, Inc.

Date: May 4, 2020

By: /s/ Murugesan Shanmugaraj

Murugesan Shanmugaraj
President and Chief Executive Officer

Exhibit 31.1

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Murugesan Shanmugaraj, certify that:

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

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

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

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

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

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

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

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

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

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

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

Acacia Communications, Inc.

Date: May 4, 2020

By: /s/ Murugesan Shanmugaraj

Murugesan Shanmugaraj
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, John F. Gavin, certify that:

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

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

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

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

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

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

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

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

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

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

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

Acacia Communications, Inc.

Date: May 4, 2020

By: /s/ John F. Gavin

John F. Gavin
Chief Financial Officer

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 Acacia Communications, Inc. (the “Company”) for the period ended March 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), Murugesan Shanmugaraj, as President and Chief Executive Officer of the Company, hereby certifies, as of the date hereof, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Acacia Communications, Inc.

Date: May 4, 2020

By: /s/ Murugesan Shanmugaraj

Murugesan Shanmugaraj
President and Chief Executive Officer

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 Acacia Communications, Inc. (the “Company”) for the period ended March 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), John F. Gavin, as Chief Financial Officer of the Company, hereby certifies, as of the date hereof, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Acacia Communications, Inc.

Date: May 4, 2020

By: /s/ John F. Gavin

John F. Gavin
Chief Financial Officer