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

FORM 10-Q

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

For the Quarterly Period Ended September 30, 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: 001-34666

MaxLinear Inc.

(Exact name of Registrant as specified in its charter)

Delaware	**14-1896129**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

5966 La Place Court, Suite 100,	**Carlsbad**	**California**	**92008**
(Address of principal executive offices)			**(Zip Code)**

(760) 692-0711
(Registrant's telephone number, including area code)

N/A
(Former name, former address and former fiscal year, if changed since last report)

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	MXL	New York Stock Exchange

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	☐	Emerging growth company	☐
Non-accelerated filer	☐	Smaller reporting 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 October 29, 2020, the registrant had 74,168,486 shares of common stock, par value $0.0001, outstanding.

MAXLINEAR, INC.
QUARTERLY REPORT ON FORM 10-Q

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PART I — FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

MAXLINEAR, INC.
CONSOLIDATED BALANCE SHEETS
(unaudited; in thousands, except par value amounts)

	September 30, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 96,570	$ 92,708
Short-term restricted cash	111	349
Accounts receivable, net	105,355	50,411
Inventory	104,471	31,510
Prepaid expenses and other current assets	43,546	6,792
Total current assets	350,053	181,770
Long-term restricted cash	61	60
Property and equipment, net	37,258	16,613
Leased right-of-use assets	11,876	10,978
Intangible assets, net	232,148	187,971
Goodwill	302,576	238,330
Deferred tax assets	72,537	67,284
Other long-term assets	1,270	2,785
Total assets	$ 1,007,779	$ 705,791
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 50,574	$ 13,442
Accrued price protection liability	18,034	12,557
Accrued expenses and other current liabilities	104,723	31,171
Accrued compensation	38,043	9,392
Total current liabilities	211,374	66,562
Long-term lease liabilities	9,406	9,335
Long-term debt	372,457	206,909
Other long-term liabilities	17,734	8,065
Total liabilities	610,971	290,871
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.0001 par value; 25,000 shares authorized, no shares issued or outstanding	—	—
Common stock, $0.0001 par value; 550,000 shares authorized; 74,153 shares issued and outstanding at September 30, 2020 and 71,931 shares issued and outstanding December 31, 2019	7	7
Additional paid-in capital	584,968	529,596
Accumulated other comprehensive loss	(450)	(887)
Accumulated deficit	(187,717)	(113,796)
Total stockholders' equity	396,808	414,920
Total liabilities and stockholders' equity	$ 1,007,779	$ 705,791

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(unaudited; in thousands, except per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net revenue	$ 156,633	$ 80,020	$ 283,880	$ 247,162
Cost of net revenue	90,427	38,116	154,169	116,101
Gross profit	66,206	41,904	129,711	131,061
Operating expenses:				
Research and development	55,816	23,174	109,489	74,877
Selling, general and administrative	41,685	21,920	93,787	67,838
Impairment losses	—	—	86	—
Restructuring charges	3,280	144	3,833	2,477
Total operating expenses	100,781	45,238	207,195	145,192
Loss from operations	(34,575)	(3,334)	(77,484)	(14,131)
Interest income	27	214	283	553
Interest expense	(3,569)	(2,718)	(8,228)	(8,546)
Other income (expense), net	(719)	1,098	(620)	429
Total interest and other income (expense), net	(4,261)	(1,406)	(8,565)	(7,564)
Loss before income taxes	(38,836)	(4,740)	(86,049)	(21,695)
Income tax benefit	(2,191)	(26)	(12,128)	(9,901)
Net loss	$ (36,645)	$ (4,714)	$ (73,921)	$ (11,794)
Net loss per share:				
Basic	$ (0.50)	$ (0.07)	$ (1.02)	$ (0.17)
Diluted	$ (0.50)	$ (0.07)	$ (1.02)	$ (0.17)
Shares used to compute net loss per share:				
Basic	73,402	71,366	72,729	70,755
Diluted	73,402	71,366	72,729	70,755

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(unaudited; in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net loss	$ (36,645)	$ (4,714)	$ (73,921)	$ (11,794)
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustments, net of tax expense of $0 and $23 for the three and nine months ended September 30, 2020, respectively, and net of tax benefit of $26 and $41 for the three and nine months ended September 30, 2019, respectively	700	(600)	415	(167)
Unrealized gain (loss) on interest rate swap, net of tax expense of $17 and $6 for the three and nine months ended September 30, 2020, respectively, and net of tax benefit of $44 and $338 for the three and nine months ended September 30, 2019, respectively	60	(162)	22	(1,273)
Other comprehensive income (loss)	760	(762)	437	(1,440)
Total comprehensive loss	$ (35,885)	$ (5,476)	$ (73,484)	$ (13,234)

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
FISCAL QUARTERS ENDED SEPTEMBER 30, 2020
(unaudited; in thousands)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2019	71,931	$ 7	$ 529,596	$ (887)	$ (113,796)	$ 414,920
Common stock issued pursuant to equity awards, net	414	—	2,612	—	—	2,612
Stock-based compensation	—	—	6,827	—	—	6,827
Other comprehensive loss	—	—	—	(733)	—	(733)
Net loss	—	—	—	—	(15,469)	(15,469)
Balance at March 31, 2020	72,345	7	539,035	(1,620)	(129,265)	408,157
Common stock issued pursuant to equity awards, net	597	—	989	—	—	989
Employee stock purchase plan	161	—	2,141	—	—	2,141
Stock-based compensation	—	—	12,085	—	—	12,085
Other comprehensive income	—	—	—	410	—	410
Net loss	—	—	—	—	(21,807)	(21,807)
Balance at June 30, 2020	73,103	7	554,250	(1,210)	(151,072)	401,975
Common stock issued pursuant to equity awards, net	246	—	(507)	—	—	(507)
Common stock issued for merger, net	804	—	17,080	—	—	17,080
Stock-based compensation	—	—	14,145	—	—	14,145
Other comprehensive income	—	—	—	760	—	760
Net loss	—	—	—	—	(36,645)	(36,645)
Balance at September 30, 2020	74,153	$ 7	$ 584,968	$ (450)	$ (187,717)	$ 396,808

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
FISCAL QUARTERS ENDED SEPTEMBER 30, 2019
(unaudited; in thousands)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2018	69,551	$ 7	$ 493,287	$ 272	$ (93,630)	$ 399,936
Common stock issued pursuant to equity awards, net	981	—	5,615	—	—	5,615
Stock-based compensation	—	—	7,747	—	—	7,747
Cumulative effect of adoption of new accounting principle	—	—	—	—	(268)	(268)
Other comprehensive income	—	—	—	25	—	25
Net loss	—	—	—	—	(4,851)	(4,851)
Balance at March 31, 2019	70,532	7	506,649	297	(98,749)	408,204
Common stock issued pursuant to equity awards, net	544	—	(4,405)	—	—	(4,405)
Employee stock purchase plan	142	—	2,302	—	—	2,302
Stock-based compensation	—	—	8,207	—	—	8,207
Other comprehensive loss	—	—	—	(703)	—	(703)
Net loss	—	—	—	—	(2,229)	(2,229)
Balance at June 30, 2019	71,218	7	512,753	(406)	(100,978)	411,376
Common stock issued pursuant to equity awards, net	331	—	(908)	—	—	(908)
Stock-based compensation	—	—	8,359	—	—	8,359
Other comprehensive loss	—	—	—	(762)	—	(762)
Net loss	—	—	—	—	(4,714)	(4,714)
Balance at September 30, 2019	71,549	$ 7	$ 520,204	$ (1,168)	$ (105,692)	$ 413,351

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited; in thousands)

	Nine Months Ended September 30,	
	2020	2019
Operating Activities		
Net loss	$ (73,921)	$ (11,794)
Adjustments to reconcile net loss to cash provided by (used in) operating activities:		
Amortization and depreciation	53,819	49,928
Impairment losses	86	—
Amortization of inventory step-up	14,445	—
Amortization of debt issuance costs and accretion of discount on debt and leases	1,386	1,173
Stock-based compensation	33,057	24,313
Deferred income taxes	(5,253)	(12,455)
Loss on disposal of property and equipment	—	46
Impairment of leasehold improvements	319	1,442
Impairment of leased right-of-use assets	1,508	2,182
Gain on extinguishment of lease liabilities	—	(2,880)
Loss on foreign currency	375	330
Excess tax benefits on stock-based awards	(530)	(3,872)
Changes in operating assets and liabilities, net of effects of acquisitions:		
Accounts receivable	(54,592)	3,160
Inventory	(20,180)	3,971
Prepaid expenses and other assets	(34,357)	916
Leased right-of-use assets	405	2,935
Accounts payable, accrued expenses and other current liabilities	67,193	(1,431)
Accrued compensation	23,121	1,414
Accrued price protection liability	5,439	(2,869)
Lease liabilities	(4,275)	(6,487)
Other long-term liabilities	(8,721)	219
Net cash provided by (used in) operating activities	(676)	50,241
Investing Activities		
Purchases of property and equipment	(10,132)	(3,898)
Purchase of intangibles	(388)	(86)
Cash used in acquisitions, net of cash acquired	(160,000)	—
Net cash used in investing activities	(170,520)	(3,984)
Financing Activities		
Proceeds from the issuance of debt	175,000	—
Payment of debt issuance cost	(2,696)	—
Repayment of debt	—	(50,000)
Net proceeds from issuance of common stock	5,270	6,221
Minimum tax withholding paid on behalf of employees for restricted stock units	(2,892)	(11,166)
Net cash provided by (used in) financing activities	174,682	(54,945)
Effect of exchange rate changes on cash and cash equivalents	139	1,021
Increase (decrease) in cash, cash equivalents and restricted cash	3,625	(7,667)
Cash, cash equivalents and restricted cash at beginning of period	93,117	74,191
Cash, cash equivalents and restricted cash at end of period	$ 96,742	$ 66,524
Supplemental disclosures of cash flow information:		
Cash paid for interest	$ 7,067	$ 8,901
Cash paid for income taxes	$ 2,003	$ 3,060
Supplemental disclosures of non-cash activities:		
Issuance of shares for payment of bonuses	$ 2,857	$ 7,549

See accompanying notes.

1. Organization and Summary of Significant Accounting Policies

Description of Business

MaxLinear, Inc. was incorporated in Delaware in September 2003. MaxLinear, Inc., together with its wholly owned subsidiaries, collectively referred to as MaxLinear, or the Company, is a provider of radio-frequency, or RF, analog, digital, and mixed-signal communications system-on-chip solutions for access and connectivity, wired and wireless infrastructure, and industrial and multi-market applications. MaxLinear's customers include electronics distributors, module makers, original equipment manufacturers, or OEMs, and original design manufacturers, or ODMs, who incorporate the Company's products in a wide range of electronic devices, including cable DOCSIS broadband modems and gateways, wireline connectivity devices for in-home networking applications, RF transceivers and modems for wireless carrier access and backhaul infrastructure, fiber-optic modules for data center, metro, and long-haul transport networks, video set-top boxes and gateways, hybrid analog and digital televisions, direct broadcast satellite outdoor and indoor units, and power management and interface products used in these and a range of other markets. The Company is a fabless integrated circuit design company whose products integrate all or a substantial portion of a broadband communication system.

Basis of Presentation and Principles of Consolidation

The accompanying unaudited consolidated financial statements include the accounts of MaxLinear, Inc. and its wholly owned subsidiaries and have been prepared in accordance with accounting principles generally accepted in the United States of America, or GAAP, for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, they do not include all of the information and disclosures required by GAAP for complete financial statements. All intercompany transactions and investments have been eliminated in consolidation.

In the opinion of management, the Company's unaudited consolidated interim financial statements contain adjustments, including normal recurring accruals necessary to present fairly the Company's consolidated financial position, results of operations, comprehensive income (loss), stockholders' equity, and cash flows.

The consolidated balance sheet as of December 31, 2019 was derived from the Company's audited consolidated financial statements at that date. The accompanying unaudited consolidated interim financial statements should be read in conjunction with the audited consolidated financial statements and related notes thereto for the year ended December 31, 2019 included in the Company's Annual Report on Form 10-K filed by the Company with the Securities and Exchange Commission, or the SEC, on February 5, 2020, or the Annual Report. Interim results for the nine months ended September 30, 2020 are not necessarily indicative of the results that may be expected for the fiscal year ending December 31, 2020.

Use of Estimates and Significant Risks and Uncertainties

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the unaudited consolidated financial statements and accompanying notes to unaudited consolidated financial statements.

In the nine months ended September 30, 2020, the Company's revenues were impacted by the novel coronavirus disease, or COVID-19, pandemic. In particular, the Company experienced some negative impact to its revenue and gross profits in the first half of 2020 due to several industry-wide dynamics related to COVID-19 including supply constraints as well as customer requests to temporarily delay shipments. Although we have benefited from increased demand for certain of our products from the work-from-home environment in the quarter ended September 30, 2020, heightened volatility and uncertainty in customer demand and the worldwide economy in general has continued, and the Company may experience increased volatility in its sales and revenues in the near future. However, the magnitude of such volatility on the Company's business and its duration is uncertain and cannot be reasonably estimated at this time.

The Company also believes that its $96.7 million of cash and cash equivalents at September 30, 2020 will be sufficient to fund its projected operating requirements for at least the next twelve months. A material adverse impact from COVID-19 could result in a need to raise additional capital or incur additional indebtedness to fund strategic initiatives or operating activities, particularly if the Company pursues additional acquisitions. The Company's future capital requirements will depend on many factors, including the Company's efforts to integrate the acquired WiFi and Broadband assets business and NanoSemi (Note 3), changes in revenue, the expansion of engineering, sales and marketing activities, the timing and extent of expansion into new territories, the timing of introductions of new products and enhancements to existing products, the continuing market acceptance of the Company’s products and potential material investments in, or acquisitions of, complementary businesses, services or technologies. Additional funds may not be available on terms favorable to the Company or at all. If the Company is unable to raise additional funds when needed, it may not be able to sustain its operations or execute its strategic plans.

The Company is not aware of any specific event or circumstance that would require an update to its estimates or adjustments to the carrying value of its assets and liabilities as of November 5, 2020, the issuance date of this Quarterly Report on Form 10-Q. Actual results could differ from those estimates, particularly if the Company experiences material impacts from COVID-19.

Summary of Significant Accounting Policies

Refer to the Company’s Annual Report for a summary of significant accounting policies. On January 1, 2020, the Company adopted ASC Topic 326, *Measurement of Credit Losses on Financial Instruments*, or ASC 326, and accordingly, modified its policy on accounting for allowance for doubtful accounts on trade accounts receivable as stated below. As described under “Recently Adopted Accounting Pronouncements,” section below, the impact of adopting ASC 326 for the Company was not material.

There have been no other significant changes to the Company’s significant accounting policies during the nine months ended September 30, 2020.

During the three months ended September 30, 2020, the Company acquired two businesses (Note 3) that are accounted for as business combinations. In connection with the July 31, 2020 acquisition of the WiFi and Broadband assets business (Note 3), the Company assumed an obligation of $7.9 million of the WiFi and Broadband assets business associated with certain defined benefit retirement plans, including a pension plan. Below are the Company’s accounting policies with respect to business combinations and pension and other defined benefit retirement obligations.

Accounts Receivable

The Company performs ongoing credit evaluations of its customers and assesses each customer’s credit worthiness. The Company monitors collections and payments from its customers and maintains an allowance for doubtful accounts based upon applying an expected credit loss rate to receivables based on the historical loss rate from similar high risk customers adjusted for current conditions, including any specific customer collection issues identified, and forecasts of economic conditions. Delinquent account balances are written off after management has determined that the likelihood of collection is remote. The allowance for credit losses as of September 30, 2020 and the activity in this account, including the current-period provision for expected credit losses for the nine months ended September 30, 2020, were not material.

Business Combinations

The Company applies the provisions of ASC 805, *Business Combinations*, in accounting for its acquisitions. It requires the Company to recognize separately from goodwill the assets acquired and the liabilities assumed, at the acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of consideration transferred over the acquisition date fair values of the net assets acquired and the liabilities assumed. While the Company uses its best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date as well as contingent consideration, where applicable, its estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, the Company records adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the consolidated statements of operations.

Costs to exit or restructure certain activities of an acquired company or the Company’s internal operations are accounted for as termination and exit costs pursuant to ASC 420, *Exit or Disposal Cost Obligations*, and are accounted for separately from the business combination. A liability for costs associated with an exit or disposal activity is recognized and measured at its fair value in the consolidated statements of operations in the period in which the liability is incurred. When estimating the fair value of facility restructuring activities, assumptions are applied regarding estimated sub-lease payments to be received, which can differ materially from actual results. This may require the Company to revise its initial estimates which may materially affect the results of operations and financial position in the period the revision is made.

For a given acquisition, the Company may identify certain pre-acquisition contingencies as of the acquisition date and may extend its review and evaluation of these pre-acquisition contingencies throughout the measurement period in order to obtain sufficient information to assess whether the Company includes these contingencies as a part of the fair value estimates of assets acquired and liabilities assumed and, if so, to determine their estimated amounts.

If the Company cannot reasonably determine the fair value of a pre-acquisition contingency (non-income tax related) by the end of the measurement period, which is generally the case given the nature of such matters, the Company will recognize an asset or a liability for such pre-acquisition contingency if: (i) it is probable that an asset existed or a liability had been incurred at the acquisition date and (ii) the amount of the asset or liability can be reasonably estimated. Subsequent to the measurement period, changes in estimates of such contingencies will affect earnings and could have a material effect on the Company's results of operations and financial position.

In addition, uncertain tax positions and tax-related valuation allowances assumed, if any, in connection with a business combination are initially estimated as of the acquisition date. The Company re-evaluates these items quarterly based upon facts and circumstances that existed as of the acquisition date with any adjustments to the preliminary estimates being recorded to goodwill if identified within the measurement period. Subsequent to the end of the measurement period or final determination of the estimated value of the tax allowance or contingency, whichever comes first, changes to these uncertain tax positions and tax related valuation allowances will affect the income tax provision (benefit) in the consolidated statements of operations and could have a material impact on the results of operations and financial position.

Pension and Other Defined Benefit Retirement Obligations

The costs of pension and certain other defined benefit employee retirement benefits are required to be recognized based upon actuarial valuations. The related net retirement benefit obligation is recognized as the excess of the projected benefit obligation over the fair value of the plan assets. In measuring the retirement benefit obligation, the discount rate and long-term rate of salary increase are the most significant assumptions. Retirement benefit costs primarily represent the increase in the actuarial present value of the retirement benefit obligation. The most significant assumptions in determining retirement benefit costs are the discount rate, expected long-term rate of return on plan assets, and long-term rate of salary increase.

Recently Adopted Accounting Pronouncements

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, to replace the incurred loss methodology with an expected credit loss model that requires consideration of a broader range of information to estimate credit losses over the lifetime of the asset, including current conditions and reasonable and supportable forecasts in addition to historical loss information, to determine expected credit losses. Pooling of assets with similar risk characteristics and the use of a loss model are also required. Also, in April 2019, the FASB issued ASU No. 2019-04, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments,* to clarify the inclusion of recoveries of trade receivables previously written off when estimating an allowance for credit losses. The amendments in this update are effective for the Company beginning with fiscal year 2020, including interim periods. The adoption of the amendments in this update as of January 1, 2020 did not have a material impact on the Company’s accounts receivable, net and accumulated deficit, as well as its results of operations for the three months ended March 31, 2020. The adoption is also not expected to have a material impact on the Company’s consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, to simplify the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. An entity no longer will determine goodwill impairment by calculating the implied fair value of goodwill by assigning the fair value of a reporting unit to all of its assets and liabilities as if the reporting unit had been acquired in a business combination. Instead, under the amendments in this update, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. The Board also eliminated the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and, if it fails that qualitative test, to perform Step 2 of the goodwill impairment test. The amendments in this update are effective for the Company beginning with fiscal year 2020, including interim periods. The Company performs its annual goodwill testing as of October 31, or more frequently if there are indicators of impairment. The application of the amendments in this update is not expected to have a material impact on the Company’s consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—*

Changes to the Disclosure Requirements for Fair Value Measurement, to improve the fair value measurement reporting of financial instruments. The amendments in this update require, among other things, added disclosure of the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. The amendments in this update eliminate, among other things, disclosure of the reasons for and amounts of transfers between Level 1 and Level 2 for assets and liabilities that are measured at fair value on a recurring basis and an entity's valuation processes for Level 3 fair value measurements. The amendments in this update are effective for the Company beginning with fiscal year 2020. Retrospective application is required for all amendments in this update except the added disclosures, which should be applied prospectively. The adoption of the amendments in this update in the quarter ended March 31, 2020 did not have a material impact on the Company’s consolidated financial position and results of operations as of and for the three months ended March 31, 2020 and is also not expected to have a material impact on the Company’s consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In August 2018, the FASB issued ASU No. 2018-15, *Intangibles–Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract*, to provide additional guidance on the accounting for costs of implementing cloud computing arrangements that are service contracts. The amendments in this update require the capitalization of implementation costs during the application development stage of such hosting arrangements and amortization of the expense over the term of the arrangement including any option to extend reasonably certain to be exercised or option to terminate reasonably certain not to be exercised. Capitalized implementation costs and amortization thereof are also required to be classified in the same line item in the statements of financial position, operations and cash flows associated with the hosting service fees. The amendments in this update are effective for the Company beginning with fiscal year 2020. The Company selected prospective application to all implementation costs incurred after the adoption date. The adoption of the amendments in this update did not have a material impact on the Company’s property and equipment, net and results of operations as of and for the three months ended March 31, 2020 and is also not expected to have a material impact on the Company’s consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In March 2020, the FASB issued ASU No. 2020-04 *Reference Rate Reform (Topic 848)—Facilitation of the Effects of Reference Rate Reform on Financial Reporting*, that provides optional relief to applying reference rate reform to contracts, hedging relationships, and other transactions that reference the London Interbank Offered Rate (LIBOR), which will be discontinued by the end of 2021. The amendments in this update are effective immediately and may be applied through December 31, 2022. The Company's LIBOR interest rate swap expires in October 2020 and will not be impacted by reference rate reform. Therefore, the adoption of the amendments in this update did not have a material impact on the Company’s accumulated other comprehensive loss or its results of operations as of and for the three months ended June 30, 2020, and is also not expected to have a material impact on the Company's consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In May 2020, the SEC issued a final rule that amends the financial statement requirements for business acquisitions and related pro forma financial information. The rule modifies the significance tests to replace total assets with aggregate worldwide market value of common equity in the investment test and to include a revenue component in the income test while requiring the use of absolute value to calculate average net income for the last five fiscal years. The rule improves the presentation of pro forma financial information by replacing pro forma adjustments with transaction accounting adjustments and adds the optional disclosure of management’s adjustments related to synergies and dis-synergies. The rule also reduces the number of acquiree annual financial statement periods required to a maximum of the two most recent fiscal years. The final rule is effective for the Company beginning with fiscal year 2021, with early application permitted; all applicable aspects of the rule are required to be applied upon adoption. The Company has early adopted the rule in its filings related to the acquisition of the WiFi and Broadband assets business. The adoption of the rule is not expected to have an impact on the Company’s consolidated financial position and results of operations as of and for the year ending December 31, 2020.

Recently Issued Accounting Pronouncements

In December 2019, the FASB issued ASU No. 2019-12 *Income Taxes (Topic 740)—Simplifying the Accounting for Income Taxes*, to remove certain exceptions and improve consistency of application, including, among other things, requiring that an entity reflect the effect of an enacted change in tax laws or rates in the annual effective tax rate computation in the interim period that includes the enactment date. The amendments in this update will be effective for the Company beginning with fiscal year 2021, with early adoption permitted. Most amendments within the standard are required to be applied on a prospective basis, while certain amendments must be applied on a retrospective or modified retrospective basis. The adoption of the amendments in this update is not expected to have a material impact on the Company's consolidated financial position and results of operations.

2. Net Income (Loss) Per Share

Basic earnings per share, or EPS, is calculated by dividing net income (loss) by the weighted-average number of common shares outstanding for the period, without consideration for common stock equivalents. Diluted EPS is computed by dividing net income (loss) by the weighted-average number of common shares outstanding for the period and the weighted-average number of dilutive common stock equivalents outstanding for the period determined using the treasury-stock method. For purposes of this calculation, common stock options, restricted stock units and restricted stock awards are considered to be common stock equivalents and are only included in the calculation of diluted EPS when their effect is dilutive. In periods in which the Company has a net loss, dilutive common stock equivalents are excluded from the calculation of diluted EPS.

The table below presents the computation of basic and diluted EPS:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands, except per share amounts)			
Numerator:				
Net loss	$ (36,645)	$ (4,714)	$ (73,921)	$ (11,794)
Denominator:				
Weighted average common shares outstanding—basic	73,402	71,366	72,729	70,755
Dilutive common stock equivalents	—	—	—	—
Weighted average common shares outstanding—diluted	73,402	71,366	72,729	70,755
Net loss per share:				
Basic	$ (0.50)	$ (0.07)	$ (1.02)	$ (0.17)
Diluted	$ (0.50)	$ (0.07)	$ (1.02)	$ (0.17)

For the three and nine months ended September 30, 2020 and 2019, the Company incurred net losses and accordingly excluded common stock equivalents for outstanding stock-based awards, which represented all potentially dilutive securities, of 3.5 million and 3.1 million for the 2020 periods, respectively, and 2.4 million and 2.6 million for the 2019 periods, respectively, from the calculation of diluted net loss per share due to their anti-dilutive nature.

3. Business Combinations

Acquisition of the WiFi and Broadband assets business

On July 31, 2020, the Company and certain of its designated subsidiaries completed their acquisition of the Home Gateway Platform Division, which the Company refers to as the WiFi and Broadband assets business, pursuant to an Asset Purchase Agreement with Intel Corporation, or Intel, dated April 5, 2020 (the "Asset Purchase Agreement"), and related agreements. The Company paid cash consideration of $150.0 million for the purchase of certain assets of the WiFi and Broadband assets business, and assumed certain liabilities related to specified employment matters. The transaction was funded with a portion of the net proceeds from a secured incremental term loan with an aggregate principal amount of $175.0 million (Note 8).

The WiFi and Broadband assets business develops a broad portfolio of connected home products, including WiFi, Ethernet and Broadband Gateway Processor SoCs, which enables the Company to strengthen its existing connected home portfolio by bringing together a complete, scalable, and complementary platform of connectivity and access solutions to address its customers' needs across target end-markets.

The acquired assets and assumed liabilities, together with the employees who joined the Company and its subsidiaries as a result of the transaction, represent a business as defined in ASC 805, *Business Combinations.* The Company is integrating the acquired assets and rehired employees into the Company's existing business.

The Asset Purchase Agreement also contains customary representations, warranties and covenants, including indemnification provisions set forth therein. Pursuant to the Purchase Agreement, Intel has retained, and will be obligated to indemnify MaxLinear for, certain liabilities, including but not limited to those relating to the Home Gateway Platform Division for pre-closing taxes and specified employment matters, and MaxLinear has assumed, and will indemnify Intel for, certain liabilities, including but not limited to those relating to the Home Gateway Platform Division and the Transferred Assets for certain pre-closing and post-closing actions, events and periods (including certain product-related liabilities for products sold prior to the Closing for up to a $25.0 million cap), and specified employment matters.

In connection with the transaction, the Company and Intel have entered into as of the closing certain other ancillary agreements, including (i) an intellectual property matters agreement, pursuant to which Intel will grant to the Company a license to certain intellectual property rights for use by the Company in connection with the acquired assets and the Company will grant back to Intel a license to the intellectual property rights in the acquired assets, (ii) a supply agreement, pursuant to which Intel will manufacture and fabricate certain products for the Company that are part of the acquired assets, (iii) an ethernet network controller services agreement, pursuant to which the Company will provide Intel with certain development services with respect to certain Intel ethernet network controller products, (iv) a transition services agreement, pursuant to which Intel will provide certain services on a transitional basis for up to a 12-month period after the closing, the scope of which includes services relating to real estate and facilities, information technology, and supply chain, procurement, sales operations, and engineering support, and (v) a side letter regarding the delayed transfer of certain inventory. Pursuant to the delayed inventory side letter, the Company has control and economic benefits of the inventory, but the title and possession of the inventory has been delayed until the last day that Intel provides services under the transition services agreement.

Acquisition Consideration

The following table summarizes the fair value of purchase price consideration to acquire the WiFi and Broadband assets business (in thousands):

Description		**Amount**
Fair value of purchase consideration:		
Cash	$	150,000

Preliminary Purchase Price Allocation

The following is an allocation of purchase price as of the July 31, 2020 acquisition closing date based upon a preliminary estimate of the fair value of the assets acquired and the liabilities assumed by the Company in the acquisition (in thousands):

Description		**Amount**
Preliminary purchase price allocation:		
Inventory	$	67,100
Property and equipment, net		17,641
Identifiable intangible assets		58,000
Accrued expenses		(68)
Accrued compensation		(7,916)
Other long-term liabilities		(8,197)
Identifiable net assets acquired		126,560
Goodwill		23,440
Total purchase price	$	150,000

The fair value of inventories acquired with the WiFi and Broadband assets business included an acquisition accounting fair market value step-up of $32.9 million. The Company recognized $14.4 million in amortization of inventory step-up in cost of sales in the consolidated statements of operations for the three and nine months ended September 30, 2020.

The following is a summary of identifiable intangible assets acquired and the related expected lives for the finite-lived intangible assets (in thousands):

Category	Estimated Life in Years	Fair Value	
Finite-lived intangible assets:			
Developed technology	7	$	43,200
Customer-related intangible	5		6,800
Product backlog	0.58		800
			50,800
Indefinite-lived intangible assets:			
IPR&D	N/A		7,200
Total identifiable intangible assets acquired		$	58,000

Acquisition of NanoSemi, Inc.

On September 9, 2020, the Company completed its acquisition of NanoSemi, Inc. or NanoSemi, pursuant to an Agreement and Plan of Merger (the "Merger Agreement") with NanoSemi, dated September 9, 2020. The initial closing transaction consideration consisted of $10.0 million in cash and 804,163 shares of MaxLinear's common stock. In addition, the NanoSemi securityholders will receive $35.0 million in deferred cash payments payable in 2021, and certain NanoSemi securityholders may also receive up to an additional $35.0 million in potential contingent consideration, subject to the acquired business's satisfying certain financial objectives from July 1, 2020 through December 31, 2022. The stock consideration was issued in reliance on exemptions from the registration requirements of the Securities Act of 1933, as amended. In connection with the acquisition, MaxLinear agreed to provide the NanoSemi stockholders with certain registration rights with respect to the shares of MaxLinear common stock they received in the acquisition.

NanoSemi is an industry-leading provider of intellectual property that utilizes patented machine learning techniques to improve signal integrity and power efficiency in systems-on-chip, or SoCs, application-specific integrated circuits, or ASICs, and field-programmable gate arrays, or FPGAs, used in next-generation communication and artificial intelligence systems. Its technology enables higher throughput connections for 5G, Wi-Fi, and WiGig smartphones and base stations while simultaneously reducing energy consumption.

Acquisition Consideration

The following table summarizes the fair value of purchase price consideration to acquire NanoSemi (in thousands):

Description	Amount	
Fair value of purchase consideration:		
Cash	$	10,000
Common stock issued[1]		17,080
Deferred payments[2]		34,100
Contingent consideration[3]		3,800
Total purchase price	$	64,980

[1] The fair value of common stock issued in the merger is based on 804,163 shares issued on the September 9, 2020 acquisition date at the closing price of the Company's common stock of $21.24 per share.
[2] The fair value of the deferred payments was determined by discounting to present value payments totaling $35.0 million expected to be made to NanoSemi securityholders throughout 2021.
[3] The fair value of contingent consideration is based on applying the Monte Carlo simulation method to forecast achievement under various contingent consideration events which may result in up to $35.0 million in payments subject to the acquired business's satisfying certain financial objectives from July 1, 2020 through December 31, 2022, under the Merger Agreement. Key inputs in the valuation include forecasted revenue, revenue volatility and discount rate. Underlying forecast mathematics were based on Geometric Brownian Motion in a risk-neutral framework and discounted back to the applicable period in which the accumulative thresholds were achieved at discount rates commensurate with the risk and expected payout term of the contingent consideration.

Preliminary Purchase Price Allocation

The following is an allocation of purchase price as of the September 9, 2020 acquisition closing date based upon a preliminary estimate of the fair value of the assets acquired and the liabilities assumed by the Company in the acquisition (in thousands):

Description		**Amount**
Preliminary purchase price allocation:		
Accounts receivable, net	$	175
Prepaid expenses and other current assets		774
Property and equipment, net		177
Leased right-of-use assets		1,805
Intangible assets, net		30,300
Accounts payable		(602)
Accrued expenses and other current liabilities		(323)
Accrued compensation		(223)
Long-term lease liabilities		(1,546)
Other long-term liabilities		(6,363)
Identifiable net assets acquired		24,174
Goodwill		40,806
Total purchase price	$	64,980

The following is a summary of identifiable intangible assets acquired and the related expected lives for the finite-lived intangible assets (in thousands):

Category	**Estimated Life in Years**		**Fair Value**
Finite-lived intangible assets:			
Developed technology	7	$	24,400
Trademarks and tradenames	7		1,200
Customer-related intangible	5		3,000
Product backlog	5.33		1,700
Total identifiable intangible assets acquired		$	30,300

Assumptions in the Allocations of Purchase Price

Management prepared the purchase price allocations for the WiFi and Broadband assets business and NanoSemi, and in doing so considered or relied in part upon reports of a third party valuation expert to calculate the fair value of certain acquired assets, which primarily included identifiable intangible assets, inventory, and property and equipment, and the portions of the purchase consideration for NanoSemi expected to be paid to NanoSemi securityholders in the future, as described above. Certain NanoSemi securityholders that are employees are not required to remain employed in order to receive the deferred payments and contingent consideration; accordingly, the fair value of the deferred payments and contingent consideration have been accounted for as a portion of the purchase consideration.

Estimates of fair value require management to make significant estimates and assumptions which are preliminary and subject to change upon finalization of the valuation analysis. The goodwill recognized is attributable primarily to the acquired workforce, expected synergies, and other benefits that MaxLinear believes will result from integrating the operations of the WiFi and Broadband assets business and NanoSemi with the operations of MaxLinear. Certain liabilities included in the purchase price allocations are based on management's best estimates of the amounts to be paid or settled and based on information available at the time the purchase price allocations were prepared. Updates to and/or completion of the valuations of certain assets acquired and liabilities assumed and our evaluation of certain income tax positions may result in changes to the recorded amounts of assets and liabilities, with corresponding adjustments to goodwill amounts in subsequent periods. We expect to complete the purchase price allocations within 12 months of the respective acquisition dates.

The fair value of the identified intangible assets acquired from the WiFi and Broadband assets business and NanoSemi was estimated using an income approach. Under the income approach, an intangible asset's fair value is equal to the present value of future economic benefits to be derived from ownership of the asset. Indications of value are developed by discounting future net cash flows to their present value at market-based rates of return. More specifically, the fair value of the developed technology, IPR&D and backlog assets was determined using the multi-period excess earnings method, or MPEEM. MPEEM is an income approach to fair value measurement attributable to a specific intangible asset being valued from the asset grouping's overall cash-flow stream. MPEEM isolates the expected future discounted cash-flow stream to its net present value. Significant factors considered in the calculation of the developed technology and IPR&D intangible assets were the risks inherent in the development process, including the likelihood of achieving technological success and market acceptance. Each project was analyzed to determine the unique technological innovations, the existence and reliance on core technology, the existence of any alternative future use or current technological feasibility and the complexity, cost, and time to complete the remaining development. Future cash flows for each project were estimated based on forecasted revenue and costs, taking into account the expected product life cycles, market penetration, and growth rates. Developed technology will begin amortization immediately and IPR&D will begin amortization upon the completion of each project. If any of the projects are abandoned, the Company will be required to impair the related IPR&D asset.

In connection with the acquisition of the WiFi and Broadband assets business, the Company has assumed liabilities which primarily consist of accrued employee compensation and benefits in jurisdictions where such transfer is required either by law or by work council agreement. In connection with the acquisition of NanoSemi, the Company assumed certain operating liabilities. The liabilities assumed in these acquisitions are included in the respective purchase price allocations above.

Goodwill recorded in connection with the WiFi and Broadband assets business and NanoSemi was $23.4 million and $40.8 million, respectively. The Company does not expect to deduct any of the acquired goodwill for tax purposes.

Proforma Combined Financial Information

The following table presents unaudited pro forma combined financial information for each of the periods presented, as if the acquisitions of the WiFi and Broadband assets business and NanoSemi had occurred at the beginning of fiscal year 2019:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands)			
Net revenue – proforma combined	$ 219,419	$ 181,438	$ 508,449	$ 541,067
Net income (loss) – proforma combined	$ (17,324)	$ (23,470)	$ (103,108)	$ (126,340)

The following adjustments were included in the unaudited pro forma combined net revenues:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands)			
Net revenue	$ 156,633	$ 80,020	$ 283,880	$ 247,162
Add: Net revenue – acquired businesses	62,786	101,418	224,569	293,905
Net revenues – proforma combined	$ 219,419	$ 181,438	$ 508,449	$ 541,067

The following adjustments were included in the unaudited pro forma combined net loss:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands)			
Net loss	$ (36,645)	$ (4,714)	$ (73,921)	$ (11,794)
Add: Results of operations – acquired businesses	(3,875)	(22,075)	(63,882)	(75,994)
Less: Proforma adjustments				
Depreciation of property and equipment	2,101	934	4,358	948
Amortization of intangible assets	1,615	3,923	10,119	11,369
Amortization of inventory step-up	14,445	—	14,445	(32,945)
Acquisition and integration expenses	7,471	—	12,803	(12,803)
Interest expense	(571)	(2,120)	(6,202)	(6,488)
Other expense	82	324	1,867	2,287
Income taxes	762	258	14	(920)
Net loss – proforma combined	$ (14,615)	$ (23,470)	$ (100,399)	$ (126,340)
Net loss per share – proforma combined:				
Basic	$ (0.20)	$ (0.33)	$ (1.37)	$ (1.77)
Diluted	$ (0.20)	$ (0.33)	$ (1.37)	$ (1.77)
Shares used to compute net loss per share – proforma combined:				
Basic	74,023	72,170	73,472	71,557
Diluted	74,023	72,170	73,472	71,557

The pro forma combined financial information for the three months ended September 30, 2020 includes aggregate non-recurring adjustments of $0.4 million consisting of amortization of intangible assets for which the related assets have useful lives of less than one year. The pro forma combined financial information for the nine months ended September 30, 2020 includes aggregate non-recurring adjustments of $34.5 million consisting of amortization of inventory step-up and intangible assets of $32.9 million and $1.6 million, respectively, for which the related assets have useful lives of less than one year.

The pro forma combined financial information is presented for illustrative purposes only and is not necessarily indicative of the consolidated results of operations of the consolidated business had the acquisitions actually occurred at the beginning of fiscal year 2019 or of the results of future operations of the consolidated business. The unaudited pro forma financial information does not reflect any operating efficiencies and cost saving that may be realized from the integration of the acquisitions in the Company's unaudited consolidated statements of operations.

For the three and nine months ended September 30, 2020, $82.5 million of revenue and $41.8 million of gross profit, excluding $15.8 million of amortization of acquired intangible assets and the inventory fair-value step-up of the WiFi and Broadband assets business and NanoSemi since the acquisition date, are included in the Company's consolidated statements of operations.

Acquisition and integration-related costs of $7.5 million and $12.8 million related to the acquisitions of the WiFi and Broadband assets business and NanoSemi were included in selling, general, and administrative expenses in the Company's statements of operations for the three and nine months ended September 30, 2020, respectively.

4. Restructuring Activity

From time to time, the Company approves and implements restructuring plans as a result of internal resource alignment and cost saving measures. Such restructuring plans include vacating certain leased facilities, terminating employees, and cancellation of contracts.

The following table presents the activity related to the restructuring plans, which is included in restructuring charges in the consolidated statements of operations:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands)			
Employee separation expenses	$ 1,523	$ 125	$ 1,620	$ 999
Lease related charges	1,723	—	1,998	1,301
Other	34	19	215	177
	$ 3,280	$ 144	$ 3,833	$ 2,477

Lease related charges for the three and nine months ended September 30, 2020 included the impairment of leased right-of-use assets of $1.5 million related to a reduction in expected cash inflows from subleases.

Lease-related charges for the nine months ended September 30, 2019 related to exiting certain facilities and included the impairment of right-of-use assets of $2.2 million and leasehold improvements of $1.4 million, partially offset by a gain on the extinguishment of lease liabilities of $2.9 million following the release from such liability by the landlord.

The following table presents a roll-forward of the Company's restructuring liability for the nine months ended September 30, 2020. The restructuring liability is included in accrued expenses and other current liabilities and other long-term liabilities in the consolidated balance sheets.

	Employee Separation Expenses	Lease Related Charges	Other	Total
	(in thousands)			
Liability as of December 31, 2019	$ —	$ 818	$ 19	$ 837
Restructuring charges	1,620	1,998	215	3,833
Cash payments	(188)	(238)	(39)	(465)
Non-cash charges and adjustments	3,819	(1,807)	(190)	1,822
Liability as of September 30, 2020	5,251	771	5	6,027
Less: current portion as of September 30, 2020	(5,251)	(340)	(5)	(5,596)
Long-term portion as of September 30, 2020	$ —	$ 431	$ —	$ 431

As of September 30, 2020, the remaining employee separation balance primarily consists of reduction in force costs that will be reimbursed by Intel and other severance payments, and remaining lease related charges primarily consist of common area maintenance obligations. The Company does not expect to incur additional material costs related to current restructuring plans.

5. Goodwill and Intangible Assets

Goodwill

Goodwill arises from the acquisition method of accounting for business combinations and represents the excess of the purchase price over the fair value of the net assets and other identifiable intangible assets acquired. The fair values of net tangible assets and intangible assets acquired are based upon preliminary valuations and the Company's estimates and assumptions are subject to change within the measurement period (potentially up to one year from the acquisition date).

The following table presents the changes in the carrying amount of goodwill for the periods indicated:

	Nine Months Ended September 30,	
	2020	2019
	(in thousands)	
Beginning balance	$ 238,330	$ 238,330
Acquisitions (Note 3)	64,246	—
Ending balance	$ 302,576	$ 238,330

The Company performs an annual goodwill impairment assessment on October 31st each year, which effective in 2020, compares the fair value of each reporting unit, which the Company has determined to be the entity itself, with its carrying amount, including goodwill. If the fair value of a reporting unit exceeds the carrying amount, the goodwill of the reporting unit is considered not impaired.

In addition to its annual review, the Company performs a test of impairment when indicators of impairment are present. During the three and nine months ended September 30, 2020 and 2019, no goodwill impairment was recognized.

Acquired Intangibles

Finite-lived Intangible Assets

The following table sets forth the Company's finite-lived intangible assets resulting from business acquisitions and other purchases:

	Weighted Average Useful Life (in Years)	September 30, 2020			December 31, 2019		
		Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Value	Accumulated Amortization	Net Carrying Amount
		(in thousands)					
Licensed technology	3.7	$ 2,458	$ (1,890)	$ 568	$ 2,156	$ (1,583)	$ 573
Developed technology	6.9	310,961	(135,585)	175,376	243,361	(108,522)	134,839
Trademarks and trade names	6.7	15,000	(8,220)	6,780	13,800	(6,511)	7,289
Customer relationships	4.6	130,900	(90,882)	40,018	121,100	(75,847)	45,253
Non-compete covenants	3.0	1,100	(1,100)	—	1,100	(1,083)	17
Backlog	3.8	2,500	(294)	2,206	—	—	—
	6.2	$ 462,919	$ (237,971)	$ 224,948	$ 381,517	$ (193,546)	$ 187,971

The following table sets forth amortization expense associated with finite-lived intangible assets, which is included in the consolidated statements of operations as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands)		(in thousands)	
Cost of net revenue	$ 9,910	$ 8,487	$ 27,093	$ 25,410
Research and development	2	1	4	47
Selling, general and administrative	6,056	5,723	17,328	17,312
	$ 15,968	$ 14,211	$ 44,425	$ 42,769

Amortization of finite-lived intangible assets in cost of net revenue in the consolidated statements of operations results primarily from acquired developed technology.

The following table sets forth the activity related to finite-lived intangible assets:

	Nine Months Ended September 30,	
	2020	2019
	(in thousands)	
Beginning balance	$ 187,971	$ 240,500
Acquisitions (Note 3)	81,100	—
Additions	388	86
Transfers to developed technology from IPR&D	—	1,500
Amortization	(44,425)	(42,769)
Impairment losses	(86)	—
Ending balance	$ 224,948	$ 199,317

The Company regularly reviews the carrying amount of its long-lived assets subject to depreciation and amortization, as well as the related useful lives, to determine whether indicators of impairment may exist that warrant adjustments to carrying values or estimated useful lives. An impairment loss is recognized when the sum of the expected future undiscounted net cash flows is less than the carrying amount of the asset. Should impairment exist, the impairment loss is measured based on the excess of the carrying amount of the asset over the asset's fair value. During the three and nine months ended September 30, 2020, the Company recognized impairment losses related to finite-lived intangible assets of $0 and $0.1 million, respectively. During the three and nine months ended September 30, 2019,no impairment losses related to finite-lived intangible assets were recognized.

The following table presents future amortization of the Company's finite-lived intangible assets at September 30, 2020:

	Amount
	(in thousands)
2020 (3 months)	$ 17,596
2021	68,918
2022	50,322
2023	37,879
2024	21,900
Thereafter	28,333
Total	$ 224,948

Indefinite-lived Intangible Assets

Indefinite-lived intangible assets consisted entirely of acquired in-process research and development technology, or IPR&D. The following table sets forth the Company’s activities related to the indefinite-lived intangible assets:

	Nine Months Ended September 30,	
	2020	2019
	(in thousands)	
Beginning balance	$ —	$ 4,400
Acquisitions (Note 3)	7,200	—
Transfers to developed technology from IPR&D	—	(1,500)
Ending balance	$ 7,200	$ 2,900

The Company performs its annual assessment of indefinite-lived intangible assets on October 31 each year or more frequently if events or changes in circumstances indicate that the asset might be impaired utilizing a qualitative test as a precursor to the quantitative test comparing the fair value of the assets with their carrying amount. Based on the qualitative test, if it is more likely than not that indicators of impairment exists, the Company proceeds to perform a quantitative analysis. During the three and nine months ended September 30, 2020 and 2019, no indicators of impairment were identified and, as a result, no IPR&D impairment losses were recorded.

6. Financial Instruments

The composition of financial instruments is as follows:

	September 30, 2020	December 31, 2019
	(in thousands)	
Liabilities		
Interest rate swap	$ 8	$ 37

The fair value of the Company’s financial instrument is the amount that would be received in an asset sale or paid to transfer a liability in an orderly transaction between unaffiliated market participants and is recorded using a hierarchical disclosure framework based upon the level of subjectivity of the inputs used in measuring assets and liabilities. The levels are described below:

Level 1: Quoted prices (unadjusted) in active markets that are accessible at the measurement date for assets or liabilities.

Level 2: Observable prices that are based on inputs not quoted on active markets, but corroborated by market data.

Level 3: Unobservable inputs are used when little or no market data is available.

The Company classifies its financial instrument within Level 2 of the fair value hierarchy on the basis of models utilizing market observable inputs. The interest rate swap has been valued on the basis of valuations provided by third-party pricing services, as derived from standard valuation or pricing models. Market-based observable inputs for the interest rate swap include one-month LIBOR-based yield curves over the term of the swap. The Company reviews third-party pricing provider models, key inputs and assumptions and understands the pricing processes at its third-party providers in determining the overall reasonableness of the fair value of its Level 2 financial instruments. The Company also considers the risk of nonperformance by assessing the swap counterparty’s credit risk in the estimate of fair value of the interest rate swap. As of September 30, 2020 and December 31, 2019, the Company has not made any adjustments to the valuations obtained from its third-party pricing providers.

The following table presents a summary of the Company's financial instruments that are measured on a recurring basis:

	Balance	Fair Value Measurements: Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in thousands)			
Liabilities				
Interest rate swap, September 30, 2020	$ 8	$ —	$ 8	$ —
Interest rate swap, December 31, 2019	$ 37	$ —	$ 37	$ —

The following table summarizes activity for the interest rate swap:

	Nine Months Ended	
	September 30, 2020	September 30, 2019
	(in thousands)	
Interest rate swap asset (liability)		
Beginning balance	$ (37)	$ 1,623
Unrealized gain (loss) recognized in other comprehensive income (loss)	29	(1,611)
Ending balance	$ (8)	$ 12

There were no transfers between Level 1, Level 2 or Level 3 financial instruments in the nine months ended September 30, 2020 and 2019.

Financial Instruments Not Recorded at Fair Value on a Recurring Basis

Some of the Company's financial instruments are not measured at fair value on a recurring basis but are recorded at amounts that approximate fair value due to their liquid or short-term nature. Such financial assets and financial liabilities include: cash and cash equivalents, restricted cash, net receivables, certain other assets, accounts payable, accrued price protection liability, accrued expenses, accrued compensation costs, and other current liabilities.

The Company's long-term debt is not recorded at fair value on a recurring basis, but is measured at fair value for disclosure purposes (Note 8).

7. Balance Sheet Details

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

	September 30, 2020	December 31, 2019
	(in thousands)	
Cash and cash equivalents	$ 96,570	$ 92,708
Short-term restricted cash	111	349
Long-term restricted cash	61	60
Total cash, cash equivalents and restricted cash	$ 96,742	$ 93,117

As of September 30, 2020 and December 31, 2019, cash and cash equivalents included money market funds of approximately $21.4 million and $20.4 million, respectively. As of September 30, 2020 and December 31, 2019, the Company has restricted cash of approximately $0.2 million and $0.4 million, respectively. The cash is restricted in connection with guarantees for certain import duties and office leases.

Inventory consists of the following:

	September 30, 2020	December 31, 2019
	(in thousands)	
Work-in-process	$ 48,023	$ 14,525
Finished goods	56,448	16,985
	$ 104,471	$ 31,510

Prepaid and other current assets consist of the following:

	September 30, 2020	December 31, 2019
	(in thousands)	
Prepaid expenses	$ 4,898	$ 3,366
Other receivables	28,960	—
Other current assets	9,688	3,426
	$ 43,546	$ 6,792

As of September 30, 2020, other receivables of $29.0 million consist of amounts due from Intel of $24.7 million for amounts collected on the Company's behalf from customers on sales of the Company's products under the transition services agreement and of $4.2 million for reimbursement of certain severance-related costs pursuant to the Asset Purchase Agreement (Note 3).

Property and equipment, net consists of the following:

	Useful Life (in Years)	September 30, 2020	December 31, 2019
		(in thousands)	
Furniture and fixtures	5	$ 2,517	$ 2,199
Machinery and equipment	3-5	54,194	35,660
Masks and production equipment	2-5	19,228	15,209
Software	3	6,867	5,956
Leasehold improvements	1-5	16,687	16,186
Construction in progress	N/A	3,136	746
		102,629	75,956
Less: accumulated depreciation and amortization		(65,371)	(59,343)
		$ 37,258	$ 16,613

Depreciation expense for the three months ended September 30, 2020 and 2019 was $3.6 million and $1.7 million, respectively. Depreciation expense for the nine months ended September 30, 2020 and 2019 was $6.9 million and $5.6 million, respectively.

Accrued price protection liability consists of the following activity:

	Nine Months Ended September 30,	
	2020	2019
	(in thousands)	
Beginning balance	$ 12,557	$ 16,454
Charged as a reduction of revenue	17,358	19,884
Reversal of unclaimed rebates	(159)	(719)
Payments	(11,722)	(21,998)
Ending balance	$ 18,034	$ 13,621

Accrued expenses and other current liabilities consist of the following:

	September 30, 2020	December 31, 2019
	(in thousands)	
Deferred purchase price payments	$ 34,100	$ —
Accrued technology license payments	5,969	4,500
Accrued professional fees	7,181	861
Accrued engineering and production costs	12,027	4,491
Accrued restructuring	5,596	294
Accrued royalty	1,003	923
Short-term lease liabilities	6,225	4,810
Current portion of debt	7,785	—
Accrued customer credits	2,590	832
Income tax liability	684	65
Customer contract liabilities	14	107
Accrued obligations to customers for price adjustments	12,137	8,382
Accrued obligations to customers for stock rotation rights	1,632	1,410
Other	7,780	4,496
	$ 104,723	$ 31,171

The following table summarizes the change in balances of accumulated other comprehensive income (loss) by component:

	Cumulative Translation Adjustments	Interest Rate Hedge	Total
		(in thousands)	
Balance at December 31, 2019	$ (747)	$ (140)	$ (887)
Current period other comprehensive income (loss)	415	22	437
Balance at September 30, 2020	$ (332)	$ (118)	$ (450)

8. Debt and Interest Rate Swap

Debt

The carrying amount of the Company's long-term debt consists of the following:

	September 30, 2020	December 31, 2019
	(in thousands)	
Principal balance:		
Initial term loan	$ 212,000	$ 212,000
Incremental term loan	175,000	—
Total principal balance	387,000	212,000
Less:		
Unamortized debt discount	(1,923)	(1,328)
Unamortized debt issuance costs	(4,835)	(3,763)
Net carrying amount of long-term debt	380,242	206,909
Less: current portion of long-term debt	(7,785)	—
Long-term debt, non-current portion	$ 372,457	$ 206,909

As of September 30, 2020 and December 31, 2019, the weighted average effective interest rate on the total debt was approximately 4.3% and 4.9%, respectively.

During each of the three months ended September 30, 2020 and 2019, the Company recognized total amortization of debt discount and debt issuance costs of $0.5 million and $0.3 million, respectively, to interest expense. During each of the nine months ended September 30, 2020 and 2019, the Company recognized total amortization of debt discount and debt issuance costs of $1.0 million and $0.9 million, respectively, to interest expense.

The approximate fair value of the term loans as of September 30, 2020 and December 31, 2019 was $390.6 million and $214.6 million, respectively, which was estimated on the basis of inputs that are observable in the market and which is considered a Level 2 measurement method in the fair value hierarchy.

As of September 30, 2020, future payments of principal are as follows:

	Amount
	(in thousands)
2020 (3 months)	$ 2,188
2021	10,937
2022	19,688
2023	142,187
2024	212,000
Total principal payments due	387,000
Less: current portion	(8,750)
Long-term debt principal, non-current portion	$ 378,250

Initial Term Loan

On May 12, 2017, the Company entered into a credit agreement with certain lenders and a collateral agent in connection with the acquisition of Exar Corporation. The credit agreement provided for an initial secured term B loan facility, or the “Initial Term Loan,” in an aggregate principal amount of $425.0 million. The credit agreement permits the Company to request incremental loans in an aggregate principal amount not to exceed the sum of $160.0 million (subject to adjustments for any voluntary prepayments), plus an unlimited amount that is subject to pro forma compliance with certain secured leverage ratio and total leverage ratio tests. Incremental loans are subject to certain additional conditions, including obtaining additional commitments from the lenders then party to the credit agreement or new lenders.

Loans under the Initial Term Loan bear interest, at the Company's option, at a rate equal to either (i) a base rate equal to the highest of (x) the federal funds rate, plus 0.50%, (y) the prime rate then in effect and (z) an adjusted LIBOR rate determined on the basis of a one- three- or six-month interest period, plus 1.0% or (ii) an adjusted LIBOR rate, subject to a floor of 0.75%, in each case, plus an applicable margin of 2.50% in the case of LIBOR rate loans and 1.50% in the case of base rate loans. Commencing on September 30, 2017, the Initial Term Loan amortizes in equal quarterly installments equal to 0.25% of the original principal amount of the Initial Term Loan, with the balance payable on the maturity date. The Initial Term Loan has a term of seven years and will mature on May 12, 2024, at which time all outstanding principal and accrued and unpaid interest on the Initial Term Loan is due. The Company is also required to pay fees customary for a credit facility of this size and type.

The Company is required to make mandatory prepayments of the outstanding principal amount of term loans under the credit agreement with the net cash proceeds from the disposition of certain assets and the receipt of insurance proceeds upon certain casualty and condemnation events, in each case, to the extent not reinvested within a specified time period, from excess cash flow beyond stated threshold amounts, and from the incurrence of certain indebtedness. The Company has the right to prepay its term loans under the credit agreement, in whole or in part, at any time without premium or penalty, subject to certain limitations and a 1.0% soft call premium applicable during the first six months of the loan term. The Company exercised its right to prepay and made aggregate prepayments of principal of $213.0 million from origination of the Initial Term Loan through September 30, 2020.

The Company's obligations under the credit agreement are required to be guaranteed by certain of its domestic subsidiaries meeting materiality thresholds set forth in the credit agreement. Such obligations, including the guaranties, are secured by substantially all of the assets of the Company and the subsidiary guarantors pursuant to a security agreement with the collateral agent.

The credit agreement contains customary affirmative and negative covenants, including covenants limiting the ability of the Company and its restricted subsidiaries to, among other things, incur debt, grant liens, undergo certain fundamental changes, make investments, make certain restricted payments, and sell assets, in each case, subject to limitations and exceptions. As of September 30, 2020, the Company was in compliance with such covenants. The credit agreement also contains customary events of default that include, among other things, certain payment defaults, cross defaults to other indebtedness, covenant defaults, change in control defaults, judgment defaults, and bankruptcy and insolvency defaults. If an event of default exists, the lenders may require immediate payment of all obligations under the credit agreement, and may exercise certain other rights and remedies provided for under the credit agreement, the other loan documents and applicable law.

The debt is carried at its principal amount, net of unamortized debt discount and issuance costs, and is not adjusted to fair value each period. The issuance date fair value of the liability component of the debt in the amount of $398.5 million was determined using a discounted cash flow analysis, in which the projected interest and principal payments were discounted back to the issuance date of the term loan at a market interest rate for nonconvertible debt of 4.6%, which represents a Level 3 fair value measurement. The debt discount of $2.1 million and debt issuance costs of $6.0 million are being amortized to interest expense using the effective interest method from the issuance date through the contractual maturity date of the term loan of May 12, 2024.

Incremental Term Loan

In connection with the acquisition of the Wi-Fi and Broadband assets business, on July 31, 2020, the Company entered into an incremental term loan agreement with certain lenders that amends the credit agreement, dated as of May 12, 2017 and provides for a secured incremental term loan facility in an aggregate principal amount of $175.0 million (the "Incremental Term Loan").

The Incremental Term Loan bears interest, at the Company's option, at an Adjusted LIBOR plus a fixed applicable margin of 4.25% per annum or an Adjusted Base Rate plus a fixed applicable margin of 3.25% per annum. The Incremental Term Loan is subject to a financial covenant of an initial maximum total net leverage ratio of 3.5 to 1 which decreases to 3.0 to 1 beginning with the sixth full fiscal quarter ending after July 31, 2020. During any period during which the Company (i) fails to maintain a public corporate rating from S&P that is equal to or higher than BB- and a public corporate rating from Moody's that is equal to or higher than Ba3 or (ii) fails to maintain a total leverage ratio of 3.0 to 1 or less, the applicable margin will increase to 4.75% in the case of LIBOR Rate loans and 3.75% in the case of Base Rate loans.As of September 30, 2020, the Company was in compliance with such covenants.

Commencing on July 31, 2020, the Incremental Term Loan amortizes in quarterly installments of principal equal to (i)1.25% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the first through fourth full fiscal quarters of the Company after July 31, 2020, (ii) 2.50% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the fifth through eighth full fiscal quarters of the Company after July 31, 2020, and (iii) 3.75% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the ninth through the eleventh full fiscal quarters of the Company after July 31, 2020. The Incremental Term Loan has a term of three years and will mature on July 31, 2023, at which time all outstanding principal and accrued and unpaid interest on the Incremental Term Loan is due. The Company is also required to pay fees customary for a credit facility of this size and type.

The debt is carried at its principal amount, net of unamortized debt discount and issuance costs, and is not adjusted to fair value each period. The issuance date fair value of the liability component of the debt in the amount of $181.1 million was determined using a discounted cash flow analysis, in which the projected interest and principal payments were discounted back to the issuance date of the term loan at a market interest rate for nonconvertible debt of 3.2%, which represents a Level 3 fair value measurement. The debt discount of $0.9 million and debt issuance costs of $1.8 million are being amortized to interest expense using the effective interest method from the issuance date through the contractual maturity date of the term loan of July 31, 2023.

Interest Rate Swap

In November 2017, the Company entered into a fixed-for-floating interest rate swap with an amortizing notional amount to swap a substantial portion of variable rate LIBOR interest payments under its initial term loan for fixed interest payments bearing an interest rate of 1.74685%. The Company's outstanding initial term loan is still subject to a 2.5% fixed applicable margin during the term of the loan. The interest rate swap is designated as a cash flow hedge of a portion of floating rate interest payments on the initial term loan and effectively fixed the interest rate on a substantial portion of the Company’s long-term debt at approximately 4.25% until the expiration of the swap in October 2020. Accordingly, the Company applied cash flow hedge accounting to the interest rate swap and it is recorded at fair value as an asset or liability and the effective portion of changes in the fair value of the interest rate swap, as measured quarterly, are reported in other comprehensive income (loss). As of September 30, 2020 and December 31, 2019, the fair value of the interest rate swap was a $0.01 million and $0.04 million liability (Note 6), respectively, and is included in other current liabilities in the consolidated balance sheets. The increase in fair value related to the interest rate swap liability included in other comprehensive income (loss) for the three and nine months ended September 30, 2020 was $0.1 million and $0.03 million, respectively. The decrease in fair value related to the interest rate swap liability included in other comprehensive income (loss) for the three and nine months ended September 30, 2019 was $0.2 million and $1.6 million, respectively. The interest rate swap expires in October 2020 and the total $0.01 million of unrealized loss before taxes recorded in accumulated other comprehensive income at September 30, 2020 is expected to be recorded against interest expense in the fourth quarter of 2020, upon expiration of the interest rate swap.

9. Stock-Based Compensation

Employee Stock-Based Benefit Plans

At September 30, 2020, the Company had stock-based compensation awards outstanding under the following plans: the 2010 Equity Incentive Plan, as amended, or 2010 Plan, and the 2010 Employee Stock Purchase Plan, or ESPP. Refer to the Company’s Annual Report for a summary of the Company's stock-based compensation and equity plans as of December 31, 2019. There have been no material changes to the terms of the Company's equity incentive plans during the nine months ended September 30, 2020.

As of September 30, 2020, the number of shares of common stock available for future issuance under the 2010 Plan was15,096,411 shares. As of September 30, 2020, the number of shares of common stock available for future issuance under the ESPP was 3,490,155 shares.

Stock-Based Compensation

The Company recognizes stock-based compensation in the consolidated statements of operations, based on the department to which the related employee reports, as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands)		(in thousands)	
Cost of net revenue	$ 143	$ 151	$ 417	$ 428
Research and development	6,056	4,155	14,842	12,690
Selling, general and administrative	7,350	4,053	17,202	11,295
Restructuring	596	—	596	—
	$ 14,145	$ 8,359	$ 33,057	$ 24,413

The total unrecognized compensation cost related to unvested restricted stock units and restricted stock awards as of September 30, 2020 was $86.0 million, and the weighted average period over which these equity awards are expected to vest is 2.96 years. The total unrecognized compensation cost related to unvested performance-based restricted stock units as of September 30, 2020 was $14.9 million, and the weighted average period over which these equity awards are expected to vest is1.65 years. The total unrecognized compensation cost related to unvested stock options as of September 30, 2020 was $1.2 million, and the weighted average period over which these equity awards are expected to vest is 1.72 years.

Restricted Stock Units

A summary of the Company's restricted stock unit activity is as follows:

	Number of Shares (in thousands)	Weighted-Average Grant-Date Fair Value per Share
Outstanding at December 31, 2019	2,924	$ 21.72
Granted	4,350	18.50
Vested	(1,005)	20.09
Canceled	(373)	18.10
Outstanding at September 30, 2020	5,896	$ 19.85

Performance-Based Restricted Stock Units

Performance-based restricted stock units are eligible to vest at the end of each fiscal year in a three-year performance period based on the Company's annual growth rate in net sales and non-GAAP diluted earnings per share (subject to certain adjustments) over baseline results relative to the growth rates for a peer group of companies for the same metrics and periods.

For the performance-based restricted stock units granted to date,60% of each performance-based award is subject to the net sales metric for the performance period and 40% is subject to the non-GAAP diluted earnings per share metric for the performance period. The maximum percentage for a particular metric is250% of the target number of units subject to the award related to that metric, however, vesting of the performance stock units is capped at 30% and 100%, respectively, of the target number of units subject to the award in years one and two, respectively, of the three-year performance period.

As of September 30, 2020, the Company believes that it is probable that the Company will achieve certain performance metrics specified in the respective award agreements based on its expected revenue and non-GAAP diluted EPS results over the performance periods and calculated growth rates relative to its peers' expected results based on data available, as defined in the respective award agreements.

A summary of the Company's performance-based restricted stock unit activity is as follows:

	Number of Shares (in thousands)	Weighted-Average Grant-Date Fair Value per Share
Outstanding at December 31, 2019	445	$ 22.21
Granted[(1)]	1,416	11.67
Vested	(21)	22.21
Canceled	(118)	15.98
Outstanding at September 30, 2020	1,722	$ 13.97

(1) Number of shares granted is based on the maximum percentage achievable in the performance-based restricted stock unit award.

Employee Stock Purchase Rights and Stock Options

Employee Stock Purchase Rights

During the nine months ended September 30, 2020, there were 161,171 shares of common stock purchased under the ESPP at a weighted average price of $13.29.

The fair values of employee stock purchase rights were estimated using the Black-Scholes option pricing model at their respective grant date using the following assumptions:

	Nine Months Ended September 30,	
	2020	2019
Weighted-average grant date fair value per share	$ 6.41	$ 6.61
Risk-free interest rate	0.15 %	2.43 %
Dividend yield	— %	— %
Expected life (in years)	0.51	0.50
Volatility	93.25 %	40.47 %

The risk-free interest rate assumption was based on rates for United States (U.S.) Treasury zero-coupon bonds with maturities similar to those of the expected term of the award being valued. The assumed dividend yield was based on the Company's expectation of not paying dividends in the foreseeable future. The expected term is the duration of the offering period for each grant date. In addition, the estimated volatility incorporates the historical volatility over the expected term based on the Company's daily closing stock prices.

Stock Options

A summary of the Company's stock options activity is as follows:

	Number of Options (in thousands)	Weighted-Average Exercise Price	Weighted-Average Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2019	1,337	$ 13.05		
Exercised	(407)	9.08		
Canceled	(34)	18.89		
Outstanding at September 30, 2020	896	$ 14.64	2.78	$ 7,811
Vested and expected to vest at September 30, 2020	896	$ 14.64	2.75	$ 7,810
Exercisable at September 30, 2020	739	$ 13.82	2.34	$ 7,064

No stock options were granted by the Company during the nine months ended September 30, 2020.

The intrinsic value of stock options exercised was $0.2 million and $1.4 million in the three months ended September 30, 2020 and 2019, respectively. The intrinsic value of stock options exercised was $3.4 million and $21.5 million in the nine months ended September 30, 2020 and 2019, respectively.

Cash received from exercise of stock options was $0.6 million and $0.3 million during the three months ended September 30, 2020 and 2019, respectively. Cash received from exercise of stock options was $3.3 million and $4.0 million during the nine months ended September 30, 2020 and 2019, respectively.

The tax benefit from stock options exercised was $0.4 million and $0.2 million during the three months ended September 30, 2020 and 2019, respectively. The tax benefit from stock options exercised was $3.6 million and $19.5 million during the nine months ended September 30, 2020 and 2019, respectively.

Employee Incentive Bonus

The Company settles a majority of bonus awards for its employees, including executives, in shares of common stock under the 2010 Equity Incentive Plan. When bonus awards are settled in common stock issued under the 2010 Equity Incentive Plan, the number of shares issuable to plan participants is determined based on the closing price of the Company's common stock as determined in trading on the New York Stock Exchange on a date approved by the Board of Directors. In connection with the Company's bonus programs, in March 2020, the Company issued 0.2 million freely-tradable shares of the Company's common stock in settlement of bonus awards to employees, including executives, for the 2019 performance period. At September 30, 2020, the Company has an accrual of $16.5 million for bonus awards for employees for year-to-date achievement in the 2020 performance period. The Company's compensation committee retains discretion to effect payment in cash, stock, or a combination of cash and stock.

10. Income Taxes

The provision for income taxes primarily relates to projected federal, state, and foreign income taxes. To determine the quarterly provision for income taxes, the Company uses an estimated annual effective tax rate, which is generally based on expected annual income and statutory tax rates in the various jurisdictions in which the Company operates. In addition, the tax effects of certain significant or unusual items are recognized discretely in the quarter during which they occur and can be a source of variability in the effective tax rates from quarter to quarter.

The Company utilizes the asset and liability method of accounting for income taxes, under which deferred taxes are determined based on temporary differences between the financial statement and tax basis of assets and liabilities using tax rates expected to be in effect during the years in which the temporary differences reverse. The Company records a valuation allowance to reduce its deferred taxes to the amount it believes is more likely than not to be realized. In making such determination, the Company considers all available positive and negative evidence quarterly, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and recent financial performance. Forming a conclusion that a valuation allowance is not required is difficult when there is negative evidence such as cumulative losses in recent years. Based upon the Company's review of all positive and negative evidence, the Company continues to have a valuation allowance on its state deferred tax assets, certain of its federal deferred tax assets, and certain foreign deferred tax assets in jurisdictions where the Company has cumulative losses or otherwise is not expected to utilize certain tax attributes. The Company does not incur expense or benefit in certain tax free jurisdictions in which it operates.

The Company recorded an income tax benefit of $2.2 million in the three months ended September 30, 2020 and an income tax benefit of $0.03 million in the three months ended September 30, 2019. The Company recorded an income tax benefit of $12.1 million in the nine months ended September 30, 2020 and an income tax benefit of $9.9 million in the nine months ended September 30, 2019.

The income tax benefit in the three and nine months ended September 30, 2020 and 2019, each primarily related to the mix of pre-tax income among jurisdictions, excess tax benefits related to stock-based compensation, and release of certain reserves for uncertain tax positions under ASC 740-10. Also included in income tax benefit for the nine months ended September 30, 2020 was a tax benefit related to the Coronavirus Aid, Relief and Economic Security Act, or CARES Act, enacted effective March 27, 2020, and a tax provision related to a change in judgment regarding the final outcome of the Altera tax case discussed below. The CARES Act tax benefit relates to the Company's ability to carry back its 2019 net operating loss, originally valued at a 21% federal tax rate, to offset income taxes paid in prior periods at the35% federal tax rate in effect at that time.

Income tax positions must meet a more-likely-than-not threshold to be recognized. Income tax positions that previously failed to meet the more-likely-than-not threshold are recognized in the first subsequent financial reporting period in which that threshold is met. Previously recognized tax positions that no longer meet the more-likely-than-not threshold are derecognized in the first financial reporting period in which that threshold is no longer met. The Company records potential penalties and interest accrued related to unrecognized tax benefits within the consolidated statements of operations as income tax expense.

During the nine months ended September 30, 2020, the Company's unrecognized tax benefits increased by $0.1 million. The Company does not expect its unrecognized tax benefits to change significantly over the next 12 months. Accrued interest and penalties associated with uncertain tax positions as of September 30, 2020 were approximately $0.6 million and $0.1 million, respectively.

The Company is subject to federal and state income tax in the United States and is also subject to income tax in certain other foreign tax jurisdictions. At September 30, 2020, the statutes of limitations for the assessment of federal, state, and foreign income taxes are closed for the years before 2016, 2015, and 2014, respectively.

The Company's subsidiary in Singapore operates under certain tax incentives in Singapore, which are generally effective through March 2022 and may be extended through March 2027, and are conditional upon meeting certain employment and investment thresholds in Singapore. Under the incentives, qualifying income derived from certain sales of the Company's integrated circuits is taxed at a concessionary rate over the incentive period, and there are reduced Singapore withholding taxes on certain intercompany royalties during the incentive period. Primarily because of the Company's Singapore net operating losses and a full valuation allowance in Singapore, the incentives did not have a material impact on the Company's income tax benefit in the nine months ended September 30, 2020 and 2019.

On March 27, 2020, the U.S. government enacted the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, a $2 trillion relief package comprising a combination of tax provisions and other stimulus measures. The CARES Act broadly provides entities tax payment relief and significant business incentives and makes certain technical corrections to the 2017 Tax Cuts and Jobs Act, or the Tax Act. The tax relief measures for entities include a five-year net operating loss carry back, increases interest expense deduction limits, acceleration of alternative minimum tax credit refunds, payroll tax relief, and a technical correction to allow accelerated deductions for qualified improvement property. The Act also provides other non-income tax benefits, including federal funding for a range of stabilization measures and emergency funding to assist those impacted by the COVID-19 pandemic. Similar legislation is being enacted in other jurisdictions in which the Company operates. ASC Topic 740, *Income Taxes*, requires the effect of changes in tax rates and laws on deferred tax balances to be recognized in the period in which new legislation is enacted. The enactment of the CARES Act and similar legislation in other jurisdictions in which the Company operates was not material to the Company's income tax benefit for the nine months ended September 30, 2020 and is not expected to have a material impact on its consolidated financial position and results of operations as of and for the full year ending December 31, 2020.

On July 27, 2015, the US Tax Court decided on behalf of Altera Corporation, or Altera US, that certain 2003 Internal Revenue Service, or IRS regulations underpinning the transfer pricing between related parties for shared costs were invalid. The case involved the cost-sharing arrangement, or CSA entered into by Altera US with an international subsidiary. Pursuant to the terms of the CSA, the parties agreed to share the risks and costs of research and development, or R&D activities, including granted stock options and other stock-based compensation, or SBC, to certain of its employees responsible for conducting the R&D activities. In allocating the costs to be shared pursuant to that CSA, Altera US included the cash compensation of its employees engaged in R&D in the shared cost pool but excluded their SBC. The IRS had imposed transfer pricing adjustments in each of the tax years 2004 through 2007 on the basis of Altera US' failure to include SBC costs in its CSA cost pool. On June 7, 2019, in a 2-1 ruling, a panel of the Ninth Circuit Court of Appeals reversed the Tax Court's holding and upheld a 2003 IRS regulation that requires participants in a CSA to share SBC costs. After the Ninth Circuit Court's reversal, Altera filed a petition for en banc review of the decision by Ninth Circuit judges. The petition was denied, and the taxpayer decided to appeal to the Supreme Court. On June 22, 2020, the Supreme Court of the United States announced that it was denying the petition for certiorari and will not review an appeals court decision in the case of Altera Corporation & Subsidiaries v. Commissioner (Altera v. Comm). The announcement represented new information that the Company considered in its second quarter tax provision for the six months ended June 30, 2020. The evaluation of this ruling for all open tax periods was not material to the Company's income tax benefit for the nine months ended September 30, 2020 and is not expected to have a material impact on its consolidated financial position and results of operations as of and for the year ending December 31, 2020.

11. Concentration of Credit Risk, Significant Customers and Revenue by Geographic Region

Financial instruments, which potentially subject the Company to concentrations of credit risk, consist primarily of cash and cash equivalents and accounts receivable. Collateral is generally not required for customer receivables. The Company limits its exposure to credit loss by placing its cash with high credit quality financial institutions. At times, such deposits may be in excess of insured limits. The Company has not experienced any losses on its deposits of cash and cash equivalents.

Significant Customers

The Company markets its products and services to manufacturers of a wide range of electronic devices (Note 1). The Company sells its products both directly to customers and through third-party distributors, both of which are referred to as the Company's customers (Note 12). The Company makes periodic evaluations of the credit worthiness of its customers.

Customers comprising greater than 10% of net revenues for each of the periods presented are as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Percentage of total net revenue				
Customer A (direct)	19 %	15 %	15 %	13 %
Customer B (direct)	11 %	*	*	*
Customer C (distributor)	*	*	11 %	*
Customer D (distributor)	*	18 %	*	*

* Represents less than 10% of total net revenue for the respective period.

The following table presents balances that are 10% or greater of accounts receivable, based on the Company's billings to its customers.

	September 30, 2020	December 31, 2019
Percentage of gross accounts receivable		
Customer E (distributor)	13 %	*
Customer F (direct)	13 %	*
Customer G (distributor)	*	10 %

* Represents less than 10% of the gross accounts receivable as of the respective period end.

Significant Suppliers

Suppliers comprising greater than 10% of total inventory purchases are as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Vendor A	42 %	*	27 %	*
Vendor B	18 %	15 %	17 %	14 %
Vendor C	*	23 %	11 %	16 %
Vendor D	*	10 %	12 %	12 %
Vendor E	*	16 %	*	18 %

Geographic Information

The Company’s consolidated net revenues by geographic area based on ship-to location are as follows (in thousands):

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2020		2019		2020		2019	
	Amount	% of total net revenue	Amount	% of total net revenue	Amount	% of total net revenue	Amount	% of total net revenue
Asia	$ 128,566	82 %	$ 67,794	85 %	$ 234,046	82 %	$ 207,661	84 %
United States	4,750	3 %	2,724	3 %	9,976	4 %	10,851	4 %
Rest of world	23,317	15 %	9,502	12 %	39,858	14 %	28,650	12 %
Total	$ 156,633	100 %	$ 80,020	100 %	$ 283,880	100 %	$ 247,162	100 %

The products shipped to individual countries or territories representing greater than 10% of net revenue for each of the periods presented are as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Percentage of total net revenue				
Hong Kong	44 %	44 %	45 %	45 %
China	21 %	*	16 %	15 %
Taiwan	*	17 %	*	*

* Represents less than 10% of total revenue for the respective period.

The determination of which country a particular sale is allocated to is based on the destination of the product shipment. No other individual country accounted for more than 10% of net revenue during these periods. Although a large percentage of the Company’s products is shipped to Asia, and in particular, Hong Kong and China, the Company believes that a significant number of the systems designed by customers and incorporating the Company’s semiconductor products are subsequently sold outside Asia to Europe, Middle East, and Africa, or EMEA markets and North American markets.

Long-lived assets, which consists of property and equipment, net, leased right-of-use assets, intangible assets, net, and goodwill by geographic area are as follows (in thousands):

	September 30, 2020		December 31, 2019	
	Amount	% of total	Amount	% of total
United States	$ 427,183	73 %	$ 385,302	85 %
Singapore	138,525	24 %	63,556	14 %
Rest of world	18,150	3 %	5,034	1 %
Total	$ 583,858	100 %	$ 453,892	100 %

12. Revenue from Contracts with Customers

Revenue by Market

The table below presents disaggregated net revenues by market (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Connected home	$ 37,816	$ 40,443	$ 99,138	$ 122,468
% of net revenue	24 %	51 %	35 %	50 %
Broadband and WiFi	82,274	—	82,274	—
% of net revenue	53 %	— %	29 %	— %
Infrastructure	21,526	20,184	58,306	64,857
% of net revenue	13 %	25 %	20 %	26 %
Industrial and multi-market	15,017	19,393	44,162	59,837
% of net revenue	10 %	24 %	16 %	24 %
Total net revenue	$ 156,633	$ 80,020	$ 283,880	$ 247,162

Revenues from sales through the Company's distributors accounted for46% and 60% of net revenue for the three months ended September 30, 2020 and 2019, respectively.

Revenues from sales through the Company's distributors accounted for54% and 50% of net revenue for the nine months ended September 30, 2020 and 2019, respectively.

Contract Liabilities

As of September 30, 2020 and December 31, 2019, customer contract liabilities consist of estimates of obligations to deliver rebates to customers in the form of units of products and were approximately $0.01 million and $0.1 million. Revenue recognized in each of the three and nine months ended September 30, 2020 and 2019 that was included in the contract liability balance as of the beginning of each of those respective periods was immaterial.

There were no material changes in the contract liabilities balance during the three and nine months ended September 30, 2020 and 2019.

Obligations to Customers for Price Adjustments and Returns and Assets for Right-of-Returns

As of September 30, 2020 and December 31, 2019, obligations to customers consisting of estimates of price protection rights offered to the Company's end customers totaled $18.0 million and $12.6 million, respectively, and are included in accrued price protection liability in the consolidated balance sheets. For activity in this account, including amounts included in net revenue, refer to Note 7. Other obligations to customers representing estimates of price adjustments to be claimed by distributors upon sell-through of their inventory to their end customer and estimates of stock rotation returns to be claimed by distributors on products sold as of September 30, 2020 were $12.1 million and $1.6 million, respectively, and as of December 31, 2019 were $8.4 million and $1.4 million, respectively, and are included in accrued expenses and other current liabilities in the consolidated balance sheets (Note 7). The increase in revenue in the three and nine months ended September 30, 2020 and 2019 from net changes in transaction prices for amounts included in obligations to customers for price adjustments as of the beginning of those respective periods was not material.

As of September 30, 2020 and December 31, 2019, right of return assets under customer contracts representing the estimates of product inventory the Company expects to receive from customers in stock rotation returns were approximately $0.7 million and $0.3 million, respectively. Right of return assets are included in inventory in the consolidated balance sheets.

As of September 30, 2020 and December 31, 2019, there wereno impairment losses recorded on customer accounts receivable.

13. Leases

Operating Leases

Operating lease arrangements primarily consist of office leases expiring in various years through 2027. These leases have original terms of approximately 2 to 7 years and some contain options to extend the lease up to 5 years or terminate the lease, which are included in right-of-use assets and lease liabilities when the Company is reasonably certain it will renew the underlying leases. Since the implicit rate of such leases is unknown and the Company is not reasonably certain to renew its leases, the Company has elected to apply a collateralized incremental borrowing rate to facility leases on the original lease term in calculating the present value of future lease payments. As of September 30, 2020 and December 31, 2019, the weighted average discount rate for operating leases was 4.5% and 5.0%, respectively, and the weighted average remaining lease term for operating leases was 3.1 years and 2.9 years, respectively.

The table below presents aggregate future minimum payments due under leases, reconciled to total lease liabilities included in the consolidated balance sheet as of September 30, 2020:

	Operating Leases (in thousands)
2020 (3 months)	$ 1,668
2021	6,640
2022	4,536
2023	1,772
2024	625
Thereafter	1,622
Total minimum payments	16,863
Less: imputed interest	(1,080)
Less: unrealized translation loss	(152)
Total lease liabilities	15,631
Less: short-term lease liabilities	(6,225)
Long-term lease liabilities	$ 9,406

Operating lease cost was $1.4 million and $0.8 million for the three months ended September 30, 2020 and 2019, respectively. Operating lease cost was $3.2 million and $2.6 million for the nine months ended September 30, 2020 and 2019, respectively.

Short-term lease costs for the three and nine months ended September 30, 2020 and 2019 were not material. There were $5.2 million right-of-use assets obtained in exchange for new lease liabilities for each of the three and nine months ended September 30, 2020. There were $0 and $0.5 million right-of-use assets obtained in exchange for new lease liabilities for the three and nine months ended September 30, 2019, respectively.

Subleases

The Company has subleased a facility that it ceased using in connection with a restructuring plan (Note 4). Such sublease expires in 2021.

As of September 30, 2020, future minimum rental income under non-cancelable subleases is as follows:

	Amount (in thousands)
2020 (3 months)	$ 36
2021	72
Total minimum rental income	$ 108

Total sublease income related to leased facilities the Company ceased using in connection with a restructuring plan for the three months ended September 30, 2020 and 2019 was approximately $0.1 million and $1.1 million, respectively. Total sublease income related to leased facilities the Company ceased using in connection with a restructuring plan for the nine months ended September 30, 2020 and 2019 was approximately $0.4 million and $2.4 million, respectively (Note 4).

14. Employee Defined Benefit Retirement Plans

Pension and Other Defined Benefit Retirement Obligations

In connection with the July 31, 2020 acquisition of the WiFi and Broadband assets business (Note 3), the Company assumed an obligation of $7.9 million of the WiFi and Broadband assets business associated with certain defined benefit retirement plans, including a pension plan. The benefit is based on a formula applied to eligible employee earnings. Net periodic benefit costs were $0.1 million for the three and nine months ended September 30, 2020 and were recorded to research and development expenses in the consolidated statements of operations.

15. Commitments and Contingencies

Inventory Purchase and Other Contractual Obligations

As of September 30, 2020, future minimum payments under inventory purchase and other obligations are as follows:

	Inventory Purchase Obligations	Other Obligations	Total
2020 (3 months)	$ 49,111	$ 4,233	$ 53,344
2021	7,093	16,076	23,169
2022	—	14,378	14,378
2023	—	6,830	6,830
Total minimum payments	$ 56,204	$ 41,517	$ 97,721

Other obligations consist of deferred payments related to the NanoSemi merger (Note 3) and contractual payments due for software licenses.

Our inventory purchase obligations and other obligations increased by $75.1 million to $97.7 million as of September 30, 2020, from $22.6 million as of December 31, 2019 primarily as a result of increased orders of software licenses and inventory placed with our vendors during the period, which is due in part to our 2020 acquisitions (Note 3).

Other Matters

From time to time, the Company is subject to threats of litigation or actual litigation in the ordinary course of business, some of which may be material. The Company believes that there are no currently pending litigation matters that, if determined adversely to the Company’s interests, would have a material effect on the Company’s financial position, results of operations, or cash flows or that would not be covered by the Company’s existing liability insurance.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward-Looking Statements

The following discussion and analysis of the financial condition and results of our operations should be read in conjunction with the consolidated financial statements and related notes included elsewhere in this report. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed below. Factors that could cause or contribute to such differences include, but are not limited to, those identified below, and those discussed in the section titled “Risk Factors” included elsewhere in this report.

Overview

We are a provider of radio-frequency, or RF, analog, digital, and mixed-signal communications systems-on-chip solutions for access and connectivity, wired and wireless infrastructure, and industrial and multi-market applications. We are a fabless integrated circuit design company whose products integrate all or substantial portions of a broadband communication system. In most cases, these products are designed on a single silicon-die, using standard digital CMOS processes and conventional packaging technologies. We believe this enables our solutions to achieve superior power, performance, and cost advantages relative to our industry competition. Our customers include electronics distributors, module makers, original equipment manufacturers (OEMs), and original design manufacturers (ODMs), who incorporate our products in a wide range of electronic devices. Examples of such end market electronic devices incorporating our products include cable DOCSIS broadband modems and gateways; wireline connectivity devices for in-home networking applications; RF transceivers and modems for wireless carrier access and backhaul infrastructure; fiber-optic modules for data center, metro, and long-haul transport networks; video set-top boxes and gateways; hybrid analog and digital televisions, direct broadcast satellite outdoor and indoor units; and power management and interface products used in these and a range of other markets.

We combine our high-performance RF and mixed-signal semiconductor design skills with our expertise in digital communications systems, software, high-performance analog, and embedded systems to provide highly integrated semiconductor devices and platform-level solutions that are manufactured using a range of semiconductor manufacturing processes, including low-cost complementary metal oxide semiconductor, or CMOS, process technology, Silicon Germanium, Gallium Arsenide, BiCMOS and Indium Phosphide process technologies. Our ability to design analog and mixed-signal circuits in CMOS allows us to efficiently combine analog and digital signal processing functionality in the same integrated circuit. As a result, our solutions have high levels of functional integration and performance, small silicon die size, and low power consumption. Moreover, we are uniquely positioned to offer customers a combination of proprietary CMOS-based radio system architectures that provide the benefits of superior RF system performance, along with high-performance analog interface and power management solutions that enable shorter design cycles, significant design flexibility, and low system cost across a wide range of broadband communications, wired and wireless infrastructure, and industrial and multimarket applications.

In the nine months ended September 30, 2020, revenues were $283.9 million. In the nine months ended September 30, 2020, our net revenue was derived in part from sales of RF receivers and RF receiver systems-on-chip and connectivity solutions into broadband operator voice and data modems and gateways and connectivity adapters, global analog and digital RF receiver products, radio and modem solutions into wireless carrier access and backhaul infrastructure platforms, high-speed optical interconnect solutions sold into optical modules for data-center, metro and long-haul networks, and high-performance interface and power management solutions into a broad range of communications, industrial, automotive and multi-market applications, and in part from the partial quarter contribution of revenues attributable to our acquisition of the WiFi and Broadband assets business. Our ability to achieve revenue growth in the future will depend, among other factors, on our ability to further penetrate existing markets; our ability to expand our target addressable markets by developing new and innovative products; changes in government trade policies; and our ability to obtain design wins with device manufacturers, in particular manufacturers of set-top boxes, data modems, and gateways for the broadband service provider, storage networking market, cable infrastructure market, industrial and automotive markets, and optical module and telecommunications infrastructure markets.

Products shipped to Asia accounted for 82% and 85% of net revenue during the three months ended September 30, 2020 and 2019, respectively, including 44% from products shipped to Hong Kong and 21% from products shipped to mainland China during the three months ended September 30, 2020 and 44% from products shipped to Hong Kong during the three months ended September 30, 2019. Products shipped to Asia accounted for 82% and 84% of net revenue during the nine months ended September 30, 2020 and 2019, respectively, including 45% from products shipped to Hong Kong and 16% from products shipped to mainland China during the nine months ended September 30, 2020 and 45% from products shipped to Hong Kong and 15% to mainland China during the nine months ended September 30, 2019. Although a large percentage of our products is shipped to Asia, we believe that a significant number of the systems designed by these customers and incorporating our semiconductor products are then sold outside Asia. For example, revenue generated from sales of our products during the three and nine months ended September 30, 2020 and 2019 related principally to sales to Asian ODMs and contract manufacturers delivering products into European and North American markets. To date, all of our sales have been denominated in United States dollars.

A significant portion of our net revenue has historically been generated by a limited number of customers. Sales to customers comprise both direct sales to customers and indirect sales through distributors. In the three months ended September 30, 2020, our top two customers accounted for 29% of our net revenue, and our ten largest customers collectively accounted for 71% of our net revenue, of which distributor customers accounted for 31% of our net revenue. In the nine months ended September 30, 2020, our top two customers accounted for 25% of our net revenue, of which a distributor customer accounted for 11% of our net revenue, and our ten largest customers collectively accounted for 65% of our net revenue, of which distributor customers accounted for 36% of our net revenue. For certain customers, we sell multiple products into disparate end user applications such as cable modems, satellite set-top boxes and broadband gateways.

Our business depends on winning competitive bid selection processes, known as design wins, to develop semiconductors for use in our customers' products. These selection processes are typically lengthy, and as a result, our sales cycles will vary based on the specific market served, whether the design win is with an existing or a new customer and whether our product being designed in our customer's device is a first generation or subsequent generation product. Our customers' products can be complex and, if our engagement results in a design win, can require significant time to define, design and result in volume production. Because the sales cycle for our products is long, we can incur significant design and development expenditures in circumstances where we do not ultimately recognize any revenue. We do not have any long-term purchase commitments with any of our customers, all of whom purchase our products on a purchase order basis. Once one of our products is incorporated into a customer's design, however, we believe that our product is likely to remain a component of the customer's product for its life cycle because of the time and expense associated with redesigning the product or substituting an alternative chip. Product life cycles in our target markets will vary by application. For example, in the cable operator modem and gateway sectors, a design-in can have a product life cycle of 24 to 48 months. In the industrial and wired and wireless infrastructure markets, a design-in can have a product life cycle of 24 to 60 months and beyond.

Impact of COVID-19

In late January 2020 and early February 2020, in response to a severe outbreak of the novel coronavirus disease, or COVID-19, the government of China instituted mandatory quarantines in Wuhan, China, extended lunar new year holiday closures, and restricted shipments out of the country. This resulted in a temporary delay in our product shipments in the first quarter of 2020. On March 11, 2020, the World Health Organization declared a global pandemic regarding COVID-19. The COVID-19 pandemic has reached all of the countries and states in which we operate, including in California where our headquarters and central engineering team are located, as well as Spain, India, Singapore, Taiwan, Canada, France, Japan, South Korea, Hong Kong, Israel, Germany, and Austria, where additional engineering, sales, and administrative personnel are located. In many of these jurisdictions, local authorities have instituted stay-at-home or shelter-in-place orders. To protect the health and safety of our employees, we adopted social distancing policies including suspending employee travel and implementing remote work arrangements for substantially all of our workforce worldwide. As of September 30, 2020, some of our workforce has returned to the office at a reduced capacity adhering to local health authority guidelines. While we experienced some negative impact to our net revenue and gross profits in the first half of 2020 due to several industry-wide dynamics related to COVID-19, including the supply constraints described above, as well as certain customer order push-out requests, we are currently benefiting from the work-from-home environment that is driving an increase in demand for certain of our products. Further, global financial markets reacted negatively to the COVID-19 pandemic's impacts causing significant declines in the stock price and market capitalization of many companies across all industries, although some have recovered. Heightened volatility and uncertainty in customer demand and the worldwide economy has continued as a result of the COVID-19 pandemic, and we may experience increased volatility in our sales and revenues in the near future. However, the magnitude of such volatility on our business and its duration is uncertain and cannot be reasonably estimated at this time.

As described below, on July 31, 2020, we consummated transactions contemplated by a definitive agreement to acquire certain assets and assume certain liabilities from Intel Corporation, or Intel, related to its Home Gateway Platform Division, which we refer to as the WiFi and Broadband assets business, and on September 9, 2020, we completed our acquisition of NanoSemi, Inc., or NanoSemi, pursuant to an Agreement and Plan of Merger with NanoSemi, dated September 9, 2020 (the "Merger Agreement"). These businesses also operate in jurisdictions that have been and continue to be materially affected by the COVID-19 pandemic. In particular, our WiFi and Broadband assets business has major engineering, development, and other personnel in Germany, Austria, Israel, India, Singapore, Taiwan, Hong Kong, and China and NanoSemi has engineering and development personnel in Boston, Massachusetts. Attempting to complete and integrate an acquisition of assets and new personnel around the world has been and will continue to be substantially complicated by continuing restrictions on travel and social distancing. In addition, engagement with newly integrated employees from the acquisitions has been and will continue to be similarly complicated and presents potential employee retention risks. We are taking various steps to mitigate these risks, but we cannot predict whether or to what extent the pandemic may adversely affect our ability to retain employees and successfully integrate the acquired businesses. In addition, the operating results of the acquired businesses are subject to the same financial and operational risks posed to MaxLinear's current businesses, including potential declines in revenues, supply constraints, and other factors generally affecting businesses worldwide. For further discussion of potential risks arising from the acquisition, please see the discussion in Part II, Item 1A of this Quarterly Report on Form 10-Q captioned "Risk Factors."

Recent Developments

Acquisition of Home Gateway Platform Division of Intel Corporation

On July 31, 2020, we completed our acquisition of the Home Gateway Platform Division, which we refer to as the WiFi and Broadband assets business, pursuant to an Asset Purchase Agreement with Intel, dated April 5, 2020, and related agreements. We paid cash consideration of $150.0 million for the purchase of certain assets of the WiFi and Broadband assets business, and assumed certain liabilities related to specified employment matters. The transaction was funded with a portion of the proceeds from a secured incremental term loan with an aggregate principal amount of $175.0 million (Note 8).

Acquisition of NanoSemi, Inc.

On September 9, 2020, we completed our acquisition of NanoSemi pursuant to the Merger Agreement. The initial closing transaction consideration consisted of $10 million in cash and 804,163 shares of our common stock. In addition, the NanoSemi securityholders will receive $35 million in deferred cash payments payable in 2021, and certain NanoSemi securityholders may also receive up to an additional $35 million in potential contingent consideration, subject to the acquired business's satisfying certain financial objectives from July 1, 2020 through December 31, 2022. The stock consideration was issued in reliance on exemptions from the registration requirements of the Securities Act of 1933, as amended. In connection with the acquisition, we agreed to provide the NanoSemi stockholders with certain registration rights with respect to the shares of our common stock they received in the acquisition.

For more information, please refer to Note 3 of our unaudited consolidated financial statements.

Critical Accounting Policies and Estimates

Management's discussion and analysis of our financial condition and results of operations is based upon our consolidated financial statements which are prepared in accordance with accounting principles that are generally accepted in the United States. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities, related disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses during the reporting period. We continually evaluate our estimates and judgments, the most critical of which are those related to revenue recognition, allowance for doubtful accounts, inventory valuation, goodwill and other intangible assets valuation, income taxes and stock-based compensation. We base our estimates and judgments on historical experience and other factors that we believe to be reasonable under the circumstances. Materially different results can occur as circumstances change and additional information becomes known.

We believe that accounting policies we have identified as critical involve a greater degree of judgment and complexity than our other accounting policies. Accordingly, these are the policies we believe are the most critical to understanding and evaluating our consolidated financial condition and results of operations.

For a summary of our critical accounting policies and estimates, refer to Management's Discussion and Analysis section of our Annual Report on Form 10-K for the year ended December 31, 2019, which we filed with the Securities and Exchange Commission, or SEC, on February 5, 2020, or our Annual Report. There have been no material changes to our critical accounting policies and estimates during the nine months ended September 30, 2020.

Recently Adopted Accounting Pronouncements

In June 2016, the FASB issued ASU No. 2016-13,*Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, to replace the incurred loss methodology with an expected credit loss model that requires consideration of a broader range of information to estimate credit losses over the lifetime of the asset, including current conditions and reasonable and supportable forecasts in addition to historical loss information, to determine expected credit losses. Also, in April 2019, the FASB issued ASU No. 2019-04, *Codification Improvements to Topic 326, Financial*

Instruments—Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments, to clarify the inclusion of recoveries of trade receivables previously written off when estimating an allowance for credit losses. The amendments in this update are effective for us beginning with fiscal year 2020, including interim periods. The adoption of the amendments in this update as of January 1, 2020 did not have a material impact on our accounts receivable, net and accumulated deficit, as well as our results of operations for the three months ended March 31, 2020. The adoption is also not expected to have a material impact on our consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, to simplify the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. An entity no longer will determine goodwill impairment by calculating the implied fair value of goodwill by assigning the fair value of a reporting unit to all of its assets and liabilities as if the reporting unit had been acquired in a business combination. Instead, under the amendments in this update, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. The Board also eliminated the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and, if it fails that qualitative test, to perform Step 2 of the goodwill impairment test. The amendments in this update are effective for us beginning with fiscal year 2020, including interim periods. We perform our annual goodwill testing as of October 31, or more frequently if there are indicators of impairment. The application of the amendments in this update is not expected to have a material impact on our consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework— Changes to the Disclosure Requirements for Fair Value Measurement*, to improve the fair value measurement reporting of financial instruments. The amendments in this update require, among other things, added disclosure of the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. The amendments in this update eliminate, among other things, disclosure of the reasons for and amounts of transfers between Level 1 and Level 2 for assets and liabilities that are measured at fair value on a recurring basis and an entity's valuation processes for Level 3 fair value measurements. The amendments in this update are effective for us beginning with fiscal year 2020. Retrospective application is required for all amendments in this update except the added disclosures, which should be applied prospectively. The adoption of the amendments in this update did not have a material impact on our consolidated financial position and results of operations as of and for the three months ended March 31, 2020 and is also not expected to have a material impact on our consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In August 2018, the FASB issued ASU No. 2018-15, *Intangibles–Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract*, to provide additional guidance on the accounting for costs of implementing cloud computing arrangements that are service contracts. The amendments in this update require the capitalization of implementation costs during the application development stage of such hosting arrangements and amortization of the expense over the term of the arrangement including any option to extend reasonably certain to be exercised or option to terminate reasonably certain not to be exercised. Capitalized implementation costs and amortization thereof are also required to be classified in the same line item in the statements of financial position, operations and cash flows associated with the hosting service fees. The amendments in this update are effective for us beginning with fiscal year 2020. We selected prospective application to all implementation costs incurred after the adoption date. The adoption of the amendments in this update did not have a material impact on our property and equipment, net and results of operations as of and for the three months ended March 31, 2020 and is also not expected to have a material impact on our consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In March 2020, the FASB issued ASU No. 2020-04 *Reference Rate Reform (Topic 848)—Facilitation of the Effects of Reference Rate Reform on Financial Reporting*, that provides optional relief to applying reference rate reform to contracts, hedging relationships, and other transactions that reference the London Interbank Offered Rate (LIBOR), which will be discontinued by the end of 2021. The amendments in this update are effective for us immediately and may be applied through December 31, 2022. Our LIBOR interest rate swap expires in October 2020 and will not be impacted by reference rate reform. Therefore, the adoption of the amendments in this update did not have a material impact on our accumulated other comprehensive loss or our results of operations as of and for the three months ended June 30, 2020, and is also not expected to have a material impact on our consolidated financial position and results of operations as of and for the year ending December 31, 2020.

In May 2020, the SEC issued a final rule that amends the financial statement requirements for business acquisitions and related pro forma financial information. The rule modifies the significance tests to replace total assets with aggregate worldwide market value of common equity in the investment test and to include a revenue component in the income test while requiring the use of absolute value to calculate average net income for the last five fiscal years. The rule improves the presentation of pro forma financial information by replacing pro forma adjustments with transaction accounting adjustments and adds the optional disclosure of management's adjustments related to synergies and dis-synergies. The rule also reduces the number of acquiree annual financial statement periods required to a maximum of the two most recent fiscal years. The final rule is effective for us beginning with fiscal year 2021, with early application permitted; all applicable aspects of the rule are required to be applied upon adoption. We have early adopted the rule in our filings related to the acquisition of the WiFi and Broadband assets business. The adoption of the rule is not expected to have a material impact on our consolidated financial position and results of operations as of and for the year ending December 31, 2020.

Recently Issued Accounting Pronouncements

In December 2019, the FASB issued ASU No. 2019-12 *Income Taxes (Topic 740)—Simplifying the Accounting for Income Taxes*, to remove certain exceptions and improve consistency of application, including, among other things, requiring that an entity reflect the effect of an enacted change in tax laws or rates in the annual effective tax rate computation in the interim period that includes the enactment date. The amendments in this update will be effective for us beginning with fiscal year 2021, with early adoption permitted. Most amendments within the standard are required to be applied on a prospective basis, while certain amendments must be applied on a retrospective or modified retrospective basis. The adoption of the amendments in this update is not expected to have a material impact on our consolidated financial position and results of operations.

Results of Operations

The following describes the line items set forth in our unaudited consolidated statements of operations.

Net Revenue. Net revenue is generated from sales of radio-frequency, analog, digital, and mixed-signal integrated circuits for access and connectivity, wired and wireless infrastructure, and industrial and multi-market applications. A significant portion of our sales are to distributors, who then resell our products.

Cost of Net Revenue. Cost of net revenue includes the cost of finished silicon wafers processed by third-party foundries; costs associated with our outsourced packaging and assembly, test and shipping; costs of personnel, including stock-based compensation, and equipment associated with manufacturing support, logistics and quality assurance; amortization of acquired developed technology intangible assets; amortization of a step-up to fair value of acquired inventory; amortization of certain production mask costs; cost of production load boards and sockets; and an allocated portion of our occupancy costs.

Research and Development. Research and development expense includes personnel-related expenses, including stock-based compensation, new product engineering mask costs, prototype integrated circuit packaging and test costs, computer-aided design software license costs, intellectual property license costs, reference design development costs, development testing and evaluation costs, depreciation expense and allocated occupancy costs. Research and development activities include the design of new products, refinement of existing products and design of test methodologies to ensure compliance with required specifications. All research and development costs are expensed as incurred.

Selling, General and Administrative. Selling, general and administrative expense includes personnel-related expenses, including stock-based compensation, amortization of certain acquired intangible assets, merger, acquisition and integration costs, third-party sales commissions, field application engineering support, travel costs, professional and consulting fees, legal fees, depreciation expense and allocated occupancy costs.

Impairment Losses. Impairment losses consist of charges resulting from the impairment of intangible assets.

Restructuring Charges. Restructuring charges consist of severance, lease and leasehold impairment charges, and other charges related to restructuring plans.

Interest and Other Income (Expense), Net. Interest and other income (expense), net includes interest income, interest expense and other income (expense). Interest income consists of interest earned on our cash, cash equivalents and restricted cash balances. Interest expense consists of interest accrued on debt. Other income (expense) generally consists of income (expense) generated from non-operating transactions.

Income Tax Benefit. We make certain estimates and judgments in determining income taxes for financial statement purposes. These estimates and judgments occur in the calculation of certain tax assets and liabilities, which arise from differences in the timing of recognition of revenue and expenses for tax and financial statement purposes and the realizability of assets in future years.

The following table sets forth our consolidated statement of operations data as a percentage of net revenue for the periods indicated:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net revenue	100 %	100 %	100 %	100 %
Cost of net revenue	58	48	54	47
Gross profit	42	52	46	53
Operating expenses:				
Research and development	36	29	39	30
Selling, general and administrative	27	27	33	27
Impairment losses	—	—	—	—
Restructuring charges	2	—	1	1
Total operating expenses	64	57	73	59
Loss from operations	(22)	(4)	(27)	(6)
Total interest and other income (expense), net	(3)	(2)	(3)	(3)
Loss before income taxes	(25)	(6)	(30)	(9)
Income tax benefit	(1)	—	(4)	(4)
Net loss	(23)%	(6)%	(26)%	(5)%

Net Revenue

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2020	2019	$ Change	% Change	2020	2019	$ Change	% Change
	(dollars in thousands)				(dollars in thousands)			
Connected home	$ 37,816	$ 40,443	$ (2,627)	(6) %	$ 99,138	$ 122,468	$ (23,330)	(19) %
% of net revenue	24 %	51 %			35 %	50 %		
Broadband and WiFi	82,274	—	82,274	N/A	82,274	—	82,274	N/A
% of net revenue	53 %	— %			29 %	— %		
Infrastructure	21,526	20,184	1,342	7 %	58,306	64,857	(6,551)	(10) %
% of net revenue	13 %	25 %			20 %	26 %		
Industrial and multi-market	15,017	19,393	(4,376)	(23) %	44,162	59,837	(15,675)	(26) %
% of net revenue	10 %	24 %			16 %	24 %		
Total net revenue	$ 156,633	$ 80,020	$ 76,613	96 %	$ 283,880	$ 247,162	$ 36,718	15 %

Net revenue increased $76.6 million to $156.6 million for the three months ended September 30, 2020, as compared to $80.0 million for the three months ended September 30, 2019. The increase in Broadband and WiFi revenue of $82.3 million reflects a partial quarter contribution of revenues attributable to our acquisition of the WiFi and Broadband assets business. The decrease in connected home revenue of $2.6 million was primarily driven by continued deterioration in satellite demand and a decline in MoCA shipments following a surge in a new program at a large telecommunications customer in the year-ago quarter, partially offset by increases in cable data and G.hn shipments. The increase in infrastructure revenues of $1.3 million was primarily driven by an increase in wireless infrastructure shipments. The decrease in industrial and multi-market revenue of $4.4 million was related to decreased shipments of high performance analog products in this category, which we attribute primarily to the impact of COVID-19.

Net revenue increased $36.7 million to $283.9 million for the nine months ended September 30, 2020, as compared to $247.2 million for the nine months ended September 30, 2019. The increase in Broadband and WiFi revenue of $82.3 million reflects a partial quarter contribution of revenues attributable to our acquisition of the WiFi and Broadband assets business. The decrease in connected home net revenue of $23.3 million was primarily driven by continued deterioration in satellite demand and a slowdown in MoCA shipments following a surge in a new program at a large telecommunications customer in the year-ago period, partially offset by an increase in cable data shipments. The decrease in infrastructure revenues of $6.6 million was primarily driven by a slowdown in wireless backhaul deployments, which is partly attributable to the impact of COVID-19 in the first half of the year, as well as reduced demand for high-speed interconnect products. The decrease in industrial and multi-market revenue of $15.7 million was related to decreased shipments of high performance analog products in this category, which we attribute primarily to the impact of COVID-19.

We currently expect that revenue will fluctuate in the future, from period-to-period, based on evolving customer demand for existing products, the pace of adoption of newer products, and macroeconomic conditions. Further, due to heightened volatility and uncertainty in customer demand resulting from the COVID-19 pandemic, we may experience increased volatility in our sales and revenues.

Cost of Net Revenue and Gross Profit

	Three Months Ended September 30,		$ Change	% Change	Nine Months Ended September 30,		$ Change	% Change
	2020	2019			2020	2019		
	(dollars in thousands)				(dollars in thousands)			
Cost of net revenue	$ 90,427	$ 38,116	$ 52,311	137 %	$ 154,169	$ 116,101	$ 38,068	33 %
% of net revenue	58 %	48 %			54 %	47 %		
Gross profit	66,206	41,904	24,302	58 %	129,711	131,061	(1,350)	(1) %
% of net revenue	42 %	52 %			46 %	53 %		

Cost of net revenue increased $52.3 million to $90.4 million for the three months ended September 30, 2020, as compared to $38.1 million for the three months ended September 30, 2019. The increase was primarily driven by higher sales, an increase in amortization of intangibles and inventory step-up totaling $15.9 million, and incremental expenses, primarily driven by our acquisition of the WiFi and Broadband assets business on July 31, 2020. Gross profit percentage declined for the three months ended September 30, 2020, as compared to the three months ended September 30, 2019, due primarily to the impact of our acquisition of the WiFi and Broadband assets business.

Cost of net revenue increased $38.1 million to $154.2 million for the nine months ended September 30, 2020, as compared to $116.1 million for the nine months ended September 30, 2019. The increase was primarily driven by higher sales, an increase in amortization of intangibles and inventory step-up totaling $16.1 million, and incremental expenses, primarily driven by our acquisition of the WiFi and Broadband assets business.

We currently expect that gross profit percentage will fluctuate in the future, from period-to-period, based on changes in product mix, average selling prices, and average manufacturing costs. Further, due to heightened volatility and uncertainty in customer demand resulting from the COVID-19 pandemic, we may experience increased volatility in our cost of net revenues as a result.

Research and Development

	Three Months Ended September 30,		$ Change	% Change	Nine Months Ended September 30,		$ Change	% Change
	2020	2019			2020	2019		
	(dollars in thousands)				(dollars in thousands)			
Research and development	$ 55,816	$ 23,174	$ 32,642	141 %	$ 109,489	$ 74,877	$ 34,612	46 %
% of net revenue	36 %	29 %			39 %	30 %		

Research and development expense increased $32.6 million to $55.8 million for the three months ended September 30, 2020 from $23.2 million in the three months ended September 30, 2019. The increase was primarily due to our acquisitions of the WiFi and Broadband assets business on July 31, 2020 and NanoSemi on September 9, 2020, respectively, which resulted in added engineering headcount, facilities and related expenses, as well as an increase in bonuses and performance stock-based compensation expenses. There were increases in personnel-related expense of $22.2 million, of which $8.0 million is from performance-based bonus and stock-based compensation expense, consulting and other outside services of $4.7 million which includes acquisition transition service costs, computer-aided design fees of $2.3 million, prototype expense of $1.4 million, depreciation expense of $1.1 million, and occupancy expense of $0.4 million.

Research and development expense increased $34.6 million to $109.5 million for the nine months ended September 30, 2020 from $74.9 million in the nine months ended September 30, 2019. The increase was primarily due to our business acquisitions of the WiFi and Broadband assets business on July 31, 2020 and NanoSemi on September 9, 2020, which resulted in added engineering headcount, facilities, and related expenses, as well as an increase in bonuses and performance stock-based compensation expenses. There were increases in personnel-related expense of $24.7 million, of which $11.3 million is from performance-based bonus accruals and stock-based compensation expense, consulting and other outside services of $5.7 million which includes acquisition transition service costs, computer aided design and engineering fees of $3.5 million, depreciation expense of $0.9 million, and small tools and maintenance expenses of $0.6 million. These increases were partially offset by decreases in travel expense of $0.6 million and prototype expense of $0.3 million.

We expect our research and development expenses to increase in the future as we continue to focus on expanding our product portfolio and enhancing existing products.

Selling, General and Administrative

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2020	2019	$ Change	% Change	2020	2019	$ Change	% Change
	(dollars in thousands)				(dollars in thousands)			
Selling, general and administrative	$ 41,685	$ 21,920	$ 19,765	90 %	$ 93,787	$ 67,838	$ 25,949	38 %
% of net revenue	27 %	27 %			33 %	27 %		

Selling, general and administrative expense increased $19.8 million to $41.7 million for the three months ended September 30, 2020, as compared to $21.9 million for the three months ended September 30, 2019. The increase was primarily due to our acquisitions of the WiFi and Broadband assets business on July 31, 2020 and NanoSemi on September 9, 2020, which resulted in added personnel, facilities, and related expenses and one-time transaction costs, as well as an increase in bonuses and performance stock-based compensation expenses. There were increases of personnel-related expense of $9.1 million, including $6.0 million in performance-based bonus accruals and stock-based compensation expense, acquisition transaction costs of $7.8 million, outside services of $1.3 million which primarily includes acquisition transition service costs, depreciation expense of $0.8 million, amortization of intangible assets of $0.6 million, and occupancy expense of $0.5 million. These increases were partially offset by a decrease in travel-related expenses of $0.4 million.

Selling, general and administrative expense increased $25.9 million to $93.8 million for the nine months ended September 30, 2020, as compared to $67.8 million for the nine months ended September 30, 2019. The increase was primarily due to our acquisitions of the WiFi and Broadband assets business on July 31, 2020 and NanoSemi on September 9, 2020, which resulted in added personnel, facilities, and related expenses and one-time transaction costs, as well as an increase in bonuses and performance stock-based compensation expenses. Included in the 2020 period were one-time transaction costs of $13.1 million. There were also increases in personnel expense of $13.1 million, including $10.0 million from performance-based bonus accruals and stock-based compensation expenses, outside services of $0.8 million primarily consisting of acquisition transition service costs, amortization of intangible assets of $0.9 million, and occupancy expenses of $0.7 million. These increases were partially offset by decreases in professional fees of $1.5 million and travel-related expenses of $1.2 million.

We expect selling, general and administrative expenses to increase in the future as we grow our sales and marketing organization to expand into existing and new markets.

Restructuring Charges

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2020	2019	$ Change	% Change	2020	2019	$ Change	% Change
	(dollars in thousands)				(dollars in thousands)			
Restructuring charges	$ 3,280	$ 144	$ 3,136	2,178 %	$ 3,833	$ 2,477	$ 1,356	55%
% of net revenue	2 %	— %			1 %	1 %		

Restructuring charges increased $3.1 million to $3.3 million for the three months ended September 30, 2020, compared to $0.1 million for the three months ended September 30, 2019. Restructuring charges in the three months ended September 30, 2020 primarily consisted of $1.7 million of lease-related charges, which included impairment of leased right-of-use assets of $1.5 million related to a reduction in expected cash inflows from subleases, and $1.5 million in employee severance-related charges. Restructuring charges in the three months ended September 30, 2019 primarily consisted of severance-related charges of $0.1 million.

Restructuring charges increased $1.4 million to $3.8 million for the nine months ended September 30, 2020, compared to $2.5 million for the nine months ended September 30, 2019. Restructuring charges for the nine months ended September 30, 2020 primarily consisted of $2.0 million of lease-related charges, which included impairment of leased right-of-use assets of $1.5 million as described above, and $1.6 million in employee severance-related charges. Restructuring charges in the nine months ended September 30, 2019 primarily consisted of lease restructuring charges of $1.3 million related to exiting certain redundant facilities and employee severance-related charges of $1.0 million.

Interest and Other Income (Expense)

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2020	2019	$ Change	% Change	2020	2019	$ Change	% Change
	(dollars in thousands)				(dollars in thousands)			
Interest and other income (expense), net	$ (4,261)	$ (1,406)	$ (2,855)	203 %	$ (8,565)	$ (7,564)	$ (1,001)	13 %
% of net revenue	(3)%	(2)%			(3)%	(3)%		

Interest and other income (expense), net changed by $2.9 million from a net expense of $1.4 million in the three months ended September 30, 2019 to a net expense of $4.3 million for the three months ended September 30, 2020. The change in interest and other income (expense), net was primarily due to the impacts of $1.8 million from a change in other income (expense), net from income of $1.1 million in the 2019 period to expense of $0.7 million related to foreign currency fluctuations and a $0.9 million increase in interest expense on outstanding debt, which included additional interest expense of $1.3 million related to an incremental term loan debt of $175.0 million, which was primarily used to fund our $150.0 million acquisition of the WiFi and Broadband assets business, partially offset by decreased interest expense of $0.4 million related to a lower average balance of outstanding initial term loan debt in the 2020 period compared to the 2019 period.

Interest and other income (expense), net changed by $1.0 million from a net expense of $7.6 million in the nine months ended September 30, 2019 to a net expense of $8.6 million for the nine months ended September 30, 2020. The change in interest and other income (expense), net was primarily due to the impact of $1.0 million from a change in other income (expense), net, from income of $0.4 million in the 2019 period to expense of $0.6 million related to foreign currency fluctuations.

Income Tax Benefit

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2020	2019	$ Change	% Change	2020	2019	$ Change	% Change
	(dollars in thousands)				(dollars in thousands)			
Income tax benefit	$ (2,191)	$ (26)	$ (2,165)	8,327 %	$ (12,128)	$ (9,901)	$ (2,227)	22 %

The income tax benefit for the three months ended September 30, 2020 was $2.2 million compared to an income tax benefit of $0.03 million for the three months ended September 30, 2019.

The income tax benefit for the nine months ended September 30, 2020 was $12.1 million compared to an income tax benefit of $9.9 million for the nine months ended September 30, 2019.

The income tax benefit for the three and nine months ended September 30, 2020 and 2019 each primarily related to the mix of pre-tax income among jurisdictions, excess tax benefits related to stock-based compensation, and release of certain reserves for uncertain tax positions under ASC 740-10. Also included in income tax benefit for the nine months ended September 30, 2020 was a tax benefit related to the Coronavirus Aid, Relief and Economic Security Act, or CARES Act, enacted effective March 27, 2020, and a tax provision related to a change in judgment regarding the final outcome of the Altera tax case as described below. Such tax benefit relates to our ability to carry back our 2019 net operating loss, originally valued at a 21% federal tax rate, to offset income taxes paid in prior periods at the 35% federal tax rate in effect at that time.

We continue to maintain a valuation allowance to offset state and certain federal and foreign deferred tax assets, as realization of such assets does not meet the more-likely-than-not threshold required under accounting guidelines. In making such determination, we consider all available positive and negative evidence quarterly, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and recent financial performance. Based upon our review of all positive and negative evidence, we continue to have a valuation allowance on state deferred tax assets, certain federal deferred tax assets, and certain foreign deferred tax assets in jurisdictions where we have cumulative losses or otherwise are not expected to utilize certain tax attributes. We do not incur income tax expense or benefit in certain tax-free jurisdictions in which we operate.

Our subsidiary in Singapore operates under certain tax incentives in Singapore, which are generally effective through March 2022 and may be extended through March 2027. Under these incentives, qualifying income derived from certain sales of our integrated circuits is taxed at a concessionary rate over the incentive period. We also receive a reduced withholding tax rate on certain intercompany royalty payments made by our Singapore subsidiary during the incentive period. Such incentives are conditional upon our meeting certain minimum employment and investment thresholds within Singapore over time, and we may be required to return certain tax benefits in the event we do not achieve compliance related to that incentive period. We currently believe that we will be able to satisfy these conditions without material risk. Primarily because of our Singapore net operating losses and our full valuation allowance in Singapore, we do not believe the incentives will have a material impact on our income tax position in the year ending December 31, 2020.

On March 27, 2020, the U.S. government enacted the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, a $2 trillion relief package comprising a combination of tax provisions and other stimulus measures. The CARES Act broadly provides entities tax payment relief and significant business incentives and makes certain technical corrections to the 2017 Tax Cuts and Jobs Act, or the Tax Act. The tax relief measures for entities include a five-year net operating loss carry back, increases interest expense deduction limits, acceleration of alternative minimum tax credit refunds, payroll tax relief, and a technical correction to allow accelerated deductions for qualified improvement property. The Act also provides other non-income tax benefits, including federal funding for a range of stabilization measures and emergency funding to assist those impacted by the COVID-19 pandemic. Similar legislation is being enacted in other jurisdictions in which the Company operates. ASC Topic 740, *Income Taxes*, requires the effect of changes in tax rates and laws on deferred tax balances to be recognized in the period in which new legislation is enacted. The enactment of the CARES Act and similar legislation in other jurisdictions in which we operate was not material to our income tax benefit for the nine months ended September 30, 2020 and is not expected to have a material impact on our consolidated financial position and results of operations as of and for the full year ending December 31, 2020.

On July 27, 2015, the US Tax Court decided on behalf of Altera Corporation, or Altera US, that certain 2003 Internal Revenue Service, or IRS regulations underpinning the transfer pricing between related parties for shared costs were invalid. The case involved the cost-sharing arrangement, or CSA entered into by Altera US with an international subsidiary. Pursuant to the terms of the CSA, the parties agreed to share the risks and costs of research and development, or R&D activities, including granted stock options and other stock-based compensation, or SBC, to certain of its employees responsible for conducting the R&D activities. In allocating the costs to be shared pursuant to that CSA, Altera US included the cash compensation of its employees engaged in R&D in the shared cost pool but excluded their SBC. The IRS had imposed transfer pricing adjustments in each of the tax years 2004 through 2007 on the basis of Altera US' failure to include SBC costs in its CSA cost pool. On June 7, 2019, in a 2-1 ruling, a panel of the Ninth Circuit Court of Appeals reversed the Tax Court's holding and upheld a 2003 IRS regulation that requires participants in a CSA to share SBC costs. After the Ninth Circuit Court's reversal, Altera filed a petition for en banc review of the decision by Ninth Circuit judges. The petition was denied, and the taxpayer decided to appeal to the Supreme Court. On June 22, 2020, the Supreme Court of the United States announced that it was denying the petition for certiorari and will not review an appeals court decision in the case of Altera Corporation & Subsidiaries v. Commissioner (Altera v. Comm). The announcement represented new information that we considered in our second quarter tax provision for the six months ended June 30, 2020. The evaluation of this ruling for all open tax periods was not material to our income tax benefit for the nine months ended September 30, 2020 and is not expected to have a material impact on our consolidated financial position and results of operations as of and for the year ending December 31, 2020.

Liquidity and Capital Resources

As of September 30, 2020, we had cash and cash equivalents of $96.6 million, restricted cash of $0.2 million and net accounts receivable of $105.4 million. Additionally, as of September 30, 2020, our working capital was $138.7 million.

Our primary uses of cash are to fund operating expenses and purchases of inventory, property and equipment, and from time to time, the acquisition of businesses. We will also use cash to pay down outstanding debt. In July 2020, we funded our $150.0 million acquisition of the WiFi and Broadband assets business with a portion of the net proceeds of our $175.0 million incremental term loan. In September 2020, we paid $10 million in cash to acquire NanoSemi and the NanoSemi securityholders will receive $35 million in deferred cash payments payable in 2021. In addition, certain NanoSemi stockholders may receive up to an additional $35 million in potential contingent consideration, subject to the acquired business satisfying certain financial objectives from July 1, 2020 through December 31, 2022.

Commencing on July 31, 2020, the incremental term loan of $175.0 million amortizes in quarterly installments of principal equal to (i) 1.25% of the original aggregate principal amount of the incremental term loan on the last day of each of the first through fourth full fiscal quarters of the Company after July 31, 2020, (ii) 2.50% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the fifth through eighth full fiscal quarters of the Company after July 31, 2020, and (iii) 3.75% of the original aggregate principal amount of the incremental term loan on the last day of each of the ninth through the eleventh full fiscal quarters of the Company after July 31, 2020. The incremental term loan has a term of three years and will mature on July 31, 2023, at which time all outstanding principal and accrued and unpaid interest on the incremental term loan is due. The Company also has an existing initial term loan with outstanding principal of $212.0 million due at maturity on May 12, 2024.

Heightened volatility and uncertainty in customer demand and the worldwide economy in general continues to impact business and financial markets as a result of the COVID-19 pandemic, and we may experience decreased sales and revenues in the near future. A material adverse impact from COVID-19 could result in a need to raise additional capital or incur additional indebtedness to fund strategic initiatives or operating activities, particularly if we pursue additional acquisitions. Our future capital requirements will depend on many factors, including impacts from the WiFi and Broadband assets business and NanoSemi and our efforts to integrate these businesses, changes in revenue, the expansion of our engineering, sales and marketing activities, the timing and extent of our expansion into new territories, the timing of introductions of new products and enhancements to existing products, the continuing market acceptance of our products and potential material investments in, or acquisitions of, complementary businesses, services or technologies. Additional funds may not be available on terms favorable to us or at all. If we are unable to raise additional funds when needed, we may not be able to sustain our operations or execute our strategic plans.

Our cash and cash equivalents are impacted by the timing of when we pay expenses as reflected in the change in our outstanding accounts payable and accrued expenses. Cash used to fund operating expenses in our consolidated statements of cash flows excludes the impact of non-cash items such as amortization and depreciation of acquired intangible assets, leased right-of-use assets and property and equipment, amortization of inventory step-up, stock-based compensation, and impairment of leased right-of-use assets and related leasehold improvements. Cash used to fund capital purchases and acquisitions of businesses is included in investing activities in our consolidated statements of cash flows. Cash proceeds from debt and cash used to pay down outstanding debt is included in financing activities in our consolidated statements of cash flows.

Our primary sources of cash are cash receipts on accounts receivable from our shipment of products to distributors and direct customers, and from billings made on our behalf to customers for products sold by Intel under a transition services agreement. Aside from the amounts billed to our customers, net cash collections of accounts receivable are impacted by the efficiency of our cash collections process, which can vary from period to period depending on the payment cycles of our major distributor customers, and relative linearity of shipments period-to-period. Our credit agreement, as amended, under which we entered into a term loan to partially fund our acquisition of Exar, permits us to request incremental loans in an aggregate principal amount not to exceed the sum of $160.0 million (subject to adjustments for any voluntary prepayments), plus an unlimited amount that is subject to pro forma compliance with certain secured leverage ratio and total leverage ratio tests. We incurred an incremental loan of $175.0 million under this credit agreement with new initial lenders and used a portion of the net proceeds to fund our $150.0 million acquisition of the WiFi and Broadband assets business.

Following is a summary of our working capital, cash and cash equivalents, and restricted cash for the periods indicated:

	September 30, 2020	December 31, 2019
	(in thousands)	
Working capital	$ 138,679	$ 115,208
Cash and cash equivalents	$ 96,570	$ 92,708
Short-term restricted cash	111	349
Long-term restricted cash	61	60
Total cash, cash equivalents and restricted cash	$ 96,742	$ 93,117

Following is a summary of our cash flows provided by (used in) operating activities, investing activities and financing activities for the periods indicated:

	Nine Months Ended September 30,	
	2020	2019
	(in thousands)	
Net cash provided by (used in) operating activities	$ (676)	$ 50,241
Net cash used in investing activities	(170,520)	(3,984)
Net cash provided by (used in) financing activities	174,682	(54,945)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	139	1,021
Increase (decrease) in cash, cash equivalents and restricted cash	$ 3,625	$ (7,667)

Cash Flows from Operating Activities

Net cash used in operating activities was $0.7 million for the nine months ended September 30, 2020. Net cash used in operating activities consisted of negative impact of net loss of $73.9 million, $26.0 million in changes in operating assets and liabilities, and deferred income taxes and excess tax benefits totaling $5.8 million, partially offset by positive impact from $105.0 million in non-cash items. Non-cash items included in net loss for the nine months ended September 30, 2020 primarily consisted of depreciation and amortization of property, equipment, acquired intangible assets and leased right-of-use assets of $53.8 million, stock-based compensation of $33.1 million, and amortization of inventory step-up of $14.4 million.

Net cash provided by operating activities was $50.2 million for the nine months ended September 30, 2019. Net cash provided by operating activities consisted of positive cash flow from $76.5 million in non-cash items and $1.8 million in changes in operating assets and liabilities, partially offset by net loss of $11.8 million and deferred income taxes and excess tax benefits from stock-based compensation of $16.3 million. Non-cash items included in net loss for the nine months ended September 30, 2019 primarily included depreciation and amortization of property, equipment, acquired intangible assets and leased right-of-use assets of $49.9 million and stock-based compensation of $24.3 million. During the nine months ended September 30, 2019, we also exited certain leased facilities, which resulted in impairments of leased right-of-use assets of $2.2 million and leasehold improvements of $1.4 million, which was partially offset by a gain on extinguishment of related lease liabilities of $2.9 million.

Cash Flows from Investing Activities

Net cash used in investing activities was $170.5 million for the nine months ended September 30, 2020 and consisted primarily of $160.0 million in cash used in the acquisitions, comprising $150.0 million for the WiFi and Broadband assets business and $10 million in initial cash for NanoSemi, and $10.1 million in purchases of property and equipment.

Net cash used in investing activities was $4.0 million for the nine months ended September 30, 2019. Net cash used in investing activities for this period consisted primarily of purchases of property and equipment.

Cash Flows from Financing Activities

Net cash provided by financing activities was $174.7 million for the nine months ended September 30, 2020. Net cash provided by financing activities consisted primarily of $175.0 million in proceeds from borrowings under an incremental term loan we entered in July 2020 in part in connection with the acquisition of the WiFi and Broadband assets business, and cash inflows from net proceeds from issuance of common stock upon exercise of stock options of $5.3 million, partially offset by payments of debt issuance costs of $2.7 million and minimum tax withholding paid on behalf of employees for restricted stock units of $2.9 million.

Net cash used in financing activities was $54.9 million for the nine months ended September 30, 2019. Net cash used in financing activities consisted primarily of cash outflows from aggregate principal prepayments of debt of $50.0 million and $11.2 million in minimum tax withholding paid on behalf of employees for restricted stock units, partially offset by cash inflows of $6.2 million in net proceeds from issuance of common stock upon exercise of stock options.

We believe that our $96.6 million of cash and cash equivalents at September 30, 2020 will be sufficient to fund our projected operating requirements for at least the next twelve months. As of September 30, 2020, our indebtedness totaled $387.0 million, which consists of $212.0 million outstanding principal under an initial term loan and $175.0 million under an incremental term loan. We have repaid $213.0 million of debt through September 30, 2020. The credit agreement, as amended, permits the Company to request incremental loans in an aggregate principal amount not to exceed the sum of $160.0 million (subject to adjustments for any voluntary prepayments), plus an unlimited amount that is subject to pro forma compliance with certain secured leverage ratio and total leverage ratio tests. Incremental loans are subject to certain additional conditions, including obtaining additional commitments from the lenders then party to the credit agreement or new lenders. The initial term loan facility has a seven-year term expiring in May 2024 and bears interest at either an Adjusted LIBOR or an Adjusted Base Rate, at our option, plus a fixed applicable margin. The outstanding principal on the initial term loan is due at maturity on May 12, 2024. The incremental term loan facility has a three-year term expiring in July 2023 and bears interest, at our option, at either an Adjusted LIBOR plus a fixed applicable margin of 4.25% per annum or an Adjusted Base Rate plus a fixed applicable margin of 3.25% per annum. The incremental term loan of $175.0 million amortizes in quarterly installments of principal equal to (i) 1.25% of the original aggregate principal amount of the incremental term loan on the last day of each of the first through fourth full fiscal quarters of the Company following the date of the incremental term loan, (ii) 2.50% of the original aggregate principal amount of the incremental term loan on the last day of each of the fifth through eighth full fiscal quarters of the Company, and (iii) 3.75% of the original aggregate principal amount of the incremental term loan on the last day of each of the ninth through the eleventh full fiscal quarters of the Company.

Our cash and cash equivalents in recent years have been favorably affected by our implementation of an equity-based bonus program for our employees, including executives. In connection with that bonus program, in March 2020, we issued 0.2 million freely-tradable shares of our common stock in settlement of bonus awards for the 2019 performance period. We expect to implement a similar equity-based plan for fiscal 2020, but our compensation committee retains discretion to effect payment in cash, stock, or a combination of cash and stock.

Warranties and Indemnifications

In connection with the sale of products in the ordinary course of business, we often make representations affirming, among other things, that our products do not infringe on the intellectual property rights of others, and agree to indemnify customers against third-party claims for such infringement. Further, our certificate of incorporation and bylaws require us to indemnify our officers and directors against any action that may arise out of their services in that capacity, and we have also entered into indemnification agreements with respect to all of our directors and certain controlling persons.

Off-Balance Sheet Arrangements

As part of our ongoing business, we do not participate in transactions that generate relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, or SPEs, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As of September 30, 2020, we were not involved in any unconsolidated SPE transactions.

Contractual Obligations

As of September 30, 2020, future minimum payments under long-term debt, non-cancelable operating leases, inventory purchase obligations and other obligations were as follows:

	Payments due				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
			(in thousands)		
Long-term debt obligations	$ 387,000	$ 8,750	$ 166,250	$ 212,000	
Operating lease obligations	16,863	1,668	11,176	2,397	1,622
Inventory purchase obligations	56,204	49,111	7,093	—	—
Other obligations	41,517	4,233	30,454	6,830	—
Total	$ 501,584	$ 63,762	$ 214,973	$ 221,227	$ 1,622

Other obligations consist of contractual payments due for software licenses.

Our consolidated balance sheet at September 30, 2020 included $5.6 million in other long-term liabilities for uncertain tax positions, some of which may result in cash payment. The future payments related to uncertain tax positions recorded as other long-term liabilities have not been presented in the table above due to the uncertainty of the amounts and timing of cash settlement with the taxing authorities.

Our contractual obligations including long-term debt, leases, inventory purchase obligations and other obligations, increased by $251.7 million to $501.6 million as of September 30, 2020, from $249.8 million as of December 31, 2019 primarily as a result of an incremental term loan of $175.0 million, which we primarily used to fund our $150.0 million acquisition of the WiFi and Broadband assets business, as well as increased orders of inventory placed with our vendors and with Intel under the transition services agreement, and increased orders of software licenses during the period.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily a result of fluctuations in foreign currency exchange rates and interest rates. We do not hold or issue financial instruments for trading purposes.

Foreign Currency Risk

To date, our international customer and vendor agreements have been denominated mostly in United States dollars. Accordingly, we have limited exposure to foreign currency exchange rates and do not enter into foreign currency hedging transactions. The functional currency of certain foreign subsidiaries is the local currency. Accordingly, the effects of exchange rate fluctuations on the net assets of these foreign subsidiaries' operations are accounted for as translation gains or losses in accumulated other comprehensive income within stockholders' equity. A hypothetical change of 100 basis points in such foreign currency exchange rates would result in a change to translation gain/loss in accumulated other comprehensive income of approximately $0.4 million.

Interest Rate Risk

On May 12, 2017, we entered into a credit agreement with certain lenders and a collateral agent in connection with the acquisition of Exar Corporation. The credit agreement provides for an initial secured term loan facility (the "Initial Term Loan") in an aggregate principal amount of $425.0 million. As of September 30, 2020, outstanding borrowings under the Initial Term Loan were $212 million. The credit agreement permits the Company to request incremental loans in an aggregate principal amount not to exceed the sum of $160.0 million (subject to adjustments for any voluntary prepayments), plus an unlimited amount that is subject to pro forma compliance with certain secured leverage ratio and total leverage ratio tests. Incremental loans are subject to certain additional conditions, including obtaining additional commitments from the lenders then party to the credit agreement or new lenders. The term loan facility has a seven-year term and bears interest at either an Adjusted LIBOR or an Adjusted Base Rate, at our option, and, in each case, plus a fixed applicable margin. In November 2017, to hedge a substantial portion of our existing interest rate risk with respect to the term loans, we entered into a fixed-for-floating interest rate swap agreement with an amortizing notional amount to swap some of our variable rate interest payments under our term loans for fixed interest payments bearing an interest rate of 1.74685% through October 2020. As a result of entering the swap, the interest rate on a substantial portion of our long-term debt was effectively fixed at approximately 4.25% until the swap expired in October 2020. Our outstanding debt is still subject to Adjusted LIBOR Rate plus a 2.5% fixed applicable margin during the remaining term of the loan.

In connection with the acquisition of the Wi-Fi and Broadband assets business, on July 31, 2020, we entered into an incremental term loan with certain lenders that amends the credit agreement dated as of May 12, 2017. The incremental term loan agreement provided for a secured incremental term loan facility in an aggregate principal amount of $175.0 million (the “Incremental Term Loan”). The Incremental Term Loan bears interest, at our option, at an Adjusted LIBOR plus a fixed applicable margin of 4.25% per annum or an Adjusted Base Rate plus a fixed applicable margin of 3.25% per annum.

We are subject to a variable amount of interest on the principal balance of the loans and could be adversely impacted by rising interest rates in the future. If LIBOR interest rates had increased by 10%, or 1000 basis points, during the periods presented, the rate increase would have resulted in an immaterial increase to interest expense.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our periodic reports filed with the SEC is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and no evaluation of controls and procedures can provide absolute assurance that all control issues and instances of fraud, if any, within a company have been detected. Management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

As required by Rule 13a-15(b) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, prior to filing this Quarterly Report, we carried out an evaluation, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of the end of the period covered by this Quarterly Report. Based on their evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this Quarterly Report.

Changes in Internal Control over Financial Reporting

An evaluation was performed under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, to determine whether any change in our internal control over financial reporting occurred during the fiscal quarter ended September 30, 2020 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. On July 31, 2020, we completed the acquisition of the WiFi and Broadband assets business and on September 9, 2020, we acquired Nanosemi, and we have commenced the integration of these businesses into our internal control over financial reporting. There have been no other changes in our internal control over financial reporting that occurred during the fiscal quarter ended September 30, 2020 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II — OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

From time to time, we are subject to threats of litigation or actual litigation in the ordinary course of business, some of which may be material. We believe that there are no currently pending litigation matters that, if determined adversely to our interests, would have a material effect on our financial position, results of operations, or cash flows or that would not be covered by our existing liability insurance.

ITEM 1A. RISK FACTORS

This Quarterly Report on Form 10-Q, or Form 10-Q, including any information incorporated by reference herein, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, referred to as the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, referred to as the Exchange Act. In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "expect," "plan," "intend," "forecast," "anticipate," "believe," "estimate," "predict," "potential," "continue" or the negative of these terms or other comparable terminology. The forward-looking statements contained in this Form 10-Q involve known and unknown risks, uncertainties and situations that may cause our or our industry's actual results, level of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these statements. These factors include those listed below in this Item 1A and those discussed elsewhere in this Form 10-Q. We encourage investors to review these factors carefully. We may from time to time make additional written and oral forward-looking statements, including statements contained in our filings with the SEC. However, we do not undertake to update any forward-looking statement that may be made from time to time by or on behalf of us, whether as a result of new information, future events, or otherwise, except as required by law.

Before you invest in our securities, you should be aware that our business faces numerous financial and market risks, including those described below, as well as general economic and business risks. The following discussion provides information concerning the material risks and uncertainties that we have identified and believe may adversely affect our business, our financial condition and our results of operations. Before you decide whether to invest in our securities, you should carefully consider the risk factors discussed in our Annual Report on Form 10-K, which we filed with the SEC on February 5, 2020, or the Annual Report, together with all of the other information included in this Quarterly Report on Form 10-Q, and in our other public filings, which could materially affect our business, financial condition or future results.

Risks Relating to our Acquisitions

Our actual financial and operating results could differ materially from any expectations or guidance provided by us concerning future results, including (without limitation) expectations or guidance with respect to the financial impact of any cost savings and other potential synergies.

We currently expect to realize material synergies as a result of our acquisitions of the Home Gateway Platform Division of Intel Corporation, or Intel, which we refer to as the WiFi and Broadband assets business and NanoSemi, Inc., or NanoSemi, and as a result, we currently believe that the acquisitions will, in aggregate, be accretive to our free cash-flow and non-GAAP earnings per share, excluding upfront non-recurring charges, transaction related expenses, and the amortization of purchased intangible assets and step-up to fair value of inventory. The expectations and guidance we have provided with respect to the potential financial impact of the acquisitions are subject to numerous assumptions, however, including assumptions derived from our diligence efforts concerning the status of and prospects for the acquired businesses and assumptions relating to the near-term prospects for the semiconductor industry generally and the markets for the products of the acquired businesses in particular. The integration of the acquired businesses may present substantial incremental challenges that could materially and adversely affect our ability to realize the currently anticipated financial, operational, and strategic benefits of the acquisitions. Additional assumptions that could affect currently anticipated results relate to numerous matters, including (without limitation) the following:

- projections of the acquired businesses' future revenues;
- the anticipated financial performance of products of the acquired businesses and products currently in development;
- anticipated cost savings and other synergies associated with the acquisitions, including potential revenue synergies;

- our capital structure after the acquisitions;
- the amount of goodwill and intangibles that resulted from the acquisitions;
- certain other purchase accounting adjustments that we recorded in our financial statements in connection with the acquisitions;
- acquisition costs, including restructuring charges and transactions costs to our financial, legal, and accounting advisors;
- our ability to maintain, develop, and deepen relationships with customers of the acquired businesses; and
- other financial and strategic risks of the acquisitions, including the possible impact of reduced liquidity of MaxLinear resulting from deal-related cash outlays, the credit risk associated from the potential debt facility described below, and continued uncertainty arising from the COVID-19 pandemic.

We cannot provide any assurances with respect to the accuracy of our assumptions, including our assumptions with respect to future revenues or revenue growth rates, if any, of the acquired businesses, and we cannot provide assurances with respect to our ability to realize the cost savings that we currently anticipate. Risks and uncertainties that could cause our actual results to differ materially from currently anticipated results include, but are not limited to, risks relating to our ability to successfully complete the integration of the acquired businesses; currently unanticipated incremental costs that we may incur in connection with completing the integration of the acquired businesses into MaxLinear's; risks relating to our ability to realize incremental revenues from the acquisitions in the amounts that we currently anticipate; risks relating to the willingness of the customers and other partners of the acquired businesses to continue to conduct business with MaxLinear; and numerous risks and uncertainties that affect the semiconductor industry generally and the markets for our products and those of the acquired businesses specifically. We believe the continuing pandemic enhances certain of these risks and presents additional uncertainty in our ability to achieve the financial and strategic objectives of the acquisitions. Any failure to integrate the acquired businesses successfully and to realize the financial benefits we currently anticipate from the acquisitions would have a material adverse impact on our future operating results and financial condition and could materially and adversely affect the trading price or trading volume of our common stock.

Failure to integrate the acquired businesses with our business and operations successfully in the expected time-frame or otherwise may adversely affect MaxLinear's operating results and financial condition.

The success of the acquisitions of the WiFi and Broadband assets business and NanoSemi will depend, in substantial part, on our ability to integrate the acquired businesses with MaxLinear and to realize fully the anticipated benefits and potential synergies from the integration, including, among others, currently expected cost savings from duplicative functions; potential operational efficiencies in our respective supply chains and in research and development investments; and potential revenue growth resulting from the addition of the product portfolio of the acquired businesses. Certain of the acquired products of the WiFi and Broadband assets business are supplied to us under the terms of a supply agreement with Intel. While we believe this supply agreement mitigates certain near-term integration risks, we also rely on Intel as a source of supply for these products. Accordingly, this relationship presents similar supply risks as exist with respect to our other products as a fabless semiconductor company dependent on specific foundry relationships. See the Risk Factor entitled "*We rely on a limited number of third parties to manufacture, assemble, and test our products, and the failure to manage our relationships with our third-party contractors successfully, or impacts from natural disasters, public health crises, or other labor stoppages in the regions where such contractors operate, could adversely affect our ability to market and sell our products.*" We expect that the completion of the integration of two acquired businesses will be complex and time consuming and will require substantial management time and attention, which may divert attention and resources from other important areas, including our existing businesses. We may face significant challenges in consolidating our operations with the acquired businesses and addressing the different corporate cultures of MaxLinear and the acquired businesses. Furthermore, the acquired businesses also operate in jurisdictions materially affected by the COVID-19 pandemic, which enhances integration risks, in particular risks relating to our ability to retain key employees at a time when engagement is difficult, as described in more detail under the Risk Factor entitled "*We may have difficulty motivating and retaining key personnel in light of the acquisitions*." Additional unanticipated costs may be incurred in the course of integrating our respective businesses. If the businesses are not successfully integrated, the anticipated benefits of the acquisitions may not be realized fully or at all or may take longer to realize than expected. In such a case, we would expect our operating results and financial condition to be materially and adversely affected, which could also have a material and adverse effect on the trading price or trading volume of our common stock.

Our business relationships, including customer relationships, and those of the acquired businesses may be subject to disruption due to uncertainty associated with the acquisitions.

In response to the announcement of the acquisitions, customers, vendors, licensors, and other third parties with whom we or the acquired businesses do business or otherwise have relationships may experience uncertainty associated with the acquisitions, and this uncertainty could materially affect their decisions with respect to existing or future business relationships with MaxLinear. As a result, we are in many instances unable to evaluate the impact of the acquisitions on certain assumed contract rights and obligations, including intellectual property rights.

These business relationships may be subject to disruption as customers and others may elect to delay or defer purchase or design-win decisions or switch to other suppliers due to the uncertainty about the direction of our offerings, any perceived unwillingness on our part to support existing products of the acquired businesses, or any general perceptions by customers or other third parties that impute operational or business challenges to us arising from the acquisitions. In addition, customers or other third parties may attempt to negotiate changes in existing business relationships, which may result in additional obligations imposed on us. These disruptions could have a material adverse effect on our business, operating results, and financial condition. Any loss of customers, customer products, design win opportunities, or other important strategic relationships could have a material adverse effect on our business, operating results, and financial condition and could have a material and adverse effect on the trading price or trading volume of our common stock.

We may have difficulty motivating and retaining key personnel in light of the acquisitions.

Uncertainty about the effect of the acquisitions on key employees may have an adverse effect on MaxLinear or the acquired businesses. Employee retention may be particularly challenging as our employees may experience frustrations during the integration process and uncertainty about their future roles with us following completion of integration of the acquired businesses, which also operate in jurisdictions materially affected by the COVID-19 pandemic. In particular, the WiFi and Broadband assets business has major engineering, development, and other personnel in Germany, Austria, Israel, India, Singapore, Taiwan, Hong Kong, and China and NanoSemi has engineering and development personnel in Boston, Massachusetts. Attempting to complete the integration of these acquired businesses and new personnel around the world has been and will continue to be substantially complicated by continuing restrictions on travel and social distancing. We are taking various steps to mitigate these risks, but we cannot predict whether or to what extent the pandemic may adversely affect our ability to retain employees and successfully integrate the acquired businesses. MaxLinear must be successful at retaining and motivating key employees in order for the benefits of the transactions to be fully realized. If key employees depart, we may incur significant costs in identifying, hiring, and retaining replacements, which could substantially reduce or delay our ability to realize the anticipated benefits of the acquisitions, which could have a material adverse effect on our business, operating results, and financial condition.

We have incurred approximately $175.0 million of incremental secured term loan indebtedness, primarily to fund our $150.0 million acquisition of the WiFi and Broadband assets business, bringing our aggregate indebtedness to $387.0 million at September 30, 2020. Such indebtedness adversely affects our operating results and cash-flows as we satisfy our underlying interest and principal payment obligations and contains financial and operational covenants that could adversely affect our operational freedom or ability to pursue strategic transactions that we would otherwise consider to be in the best interests of stockholders, including obtaining additional indebtedness to finance such transactions.

MaxLinear financed the $150.0 million acquisition of the WiFi and Broadband assets business in part with an incremental secured term loan facility in an aggregate principal amount of approximately $175.0 million, bringing our aggregate indebtedness to $387.0 million at September 30, 2020. The incremental term loan has a three-year term expiring in July 2023 and bears interest, at our option, at either an Adjusted LIBOR plus a fixed applicable margin of 4.25% per annum or an Adjusted Base Rate plus a fixed applicable margin of 3.25% per annum. The incremental term loan of $175.0 million amortizes in quarterly installments of principal equal to (i) 1.25% of the original aggregate principal amount of the incremental term loan on the last day of each of the first through fourth full fiscal quarters of the Company after July 31, 2020, (ii) 2.50% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the fifth through eighth full fiscal quarters of the Company after July 31, 2020, and (iii) 3.75% of the original aggregate principal amount of the incremental term loan on the last day of each of the ninth through the eleventh full fiscal quarters of the Company after July 31, 2020. The incremental term loan facility is secured by a first priority security interest in MaxLinear's assets, subject to certain customary exceptions, as well as pledges of our equity interests in certain subsidiaries.

We have previously only carried long term debt on our balance sheet from one acquisition. We have prepaid a substantial portion of the total principal of debt from the prior acquisition and have financed the remainder of our operations principally through working capital generated from operations as well as sales and issuances of our equity securities.MaxLinear previously financed the acquisition of Exar in part with a secured initial term loan facility in an aggregate principal amount of approximately $425.0 million, of which $212.0 million remained outstanding as of September 30, 2020. The outstanding principal on the initial term loan is due at maturity on May 12, 2024. Our outstanding initial term loan debt is subject to a Adjusted LIBOR plus a 2.5% fixed applicable margin during the remainder of the term of the loan. The existing term loan facility is secured by a first priority security interest in MaxLinear's assets, subject to certain customary exceptions, as well as pledges of our equity interests in certain subsidiaries.

Our material incremental indebtedness adversely affects our operating expenses through increased interest payment obligations and adversely affects our ability to use cash generated from operations as we repay interest and principal under the term loans. In addition, the incremental term loan provisions include financial covenants such as an initial maximum total net leverage ratio of 3.5 to 1 which decreases to 3.0 to 1 beginning with the sixth full fiscal quarter after July 31, 2020, a requirement to maintain certain public corporate debt ratings, and operational covenants that may adversely affect our ability to engage in certain activities, including certain financing and acquisition transactions, stock repurchases, guarantees, and similar transactions, without obtaining the consent of the lenders, which may or may not be forthcoming. The initial secured term loan is only subject to operational covenants. Lastly, our borrowing costs can be affected by periodic credit ratings from independent rating agencies. Such ratings are largely based on our performance, which may be measured by credit metrics such as leverage and interest coverage ratios. Accordingly, outstanding indebtedness could adversely affect our operational freedom or ability to pursue strategic transactions that we would otherwise consider to be in the best interests of stockholders, including obtaining additional indebtedness to finance such transactions.

Specifically, our combined indebtedness has important consequences to investors in our common stock, including the following:

- we are subject to substantial variable interest rate risk because our interest rate under the incremental term loan varies based on a fixed margin of 4.25% per annum over an adjusted LIBOR rate or 3.25% per annum over an adjusted base rate and our interest rate under the initial term loan varies based on a fixed margin of 2.5% over an adjusted LIBOR rate. If interest rates were to increase substantially, it would adversely affect our operating results and could affect our ability to service the term loan indebtedness;

- a portion of our cash flows is dedicated to the payment of interest and when applicable, principal, on our indebtedness and other obligations and will not be available for use in our business;

- our level of indebtedness could limit our flexibility in planning for, or reacting to, changes in our business and the markets in which we operate; and

- our high degree of indebtedness may make us more vulnerable to changes in general economic conditions and/or a downturn in our business, thereby making it more difficult for us to satisfy our obligations.

If we fail to make required debt payments, or if we fail to comply with financial or other covenants in our debt service agreements, which include a maximum leverage ratio, we would be in default under the terms of these agreements. Subject to customary cure rights, any default would permit the holders of the indebtedness to accelerate repayment of this debt and could cause defaults under other indebtedness that we have, any of which could have a material adverse effect on the trading price of our common stock.

We expect to incur substantial expenses related to the integration of MaxLinear and the acquired businesses.

We expect to incur substantial expenses in connection with completion of the integration of the operations of MaxLinear and the acquired businesses. We expect operational integration to require substantial management attention. Numerous factors, many of which are beyond our control, could affect the total cost or the timing of expected integration expenses. Moreover, many of the expenses that will be incurred are by their nature difficult to estimate accurately at the present time. These expenses could, particularly in the near term, reduce the savings that we expect to achieve from the elimination of duplicative expenses and the realization of economies of scale and cost savings related to the integration of the businesses. These integration expenses may result in MaxLinear's taking significant charges against earnings.

We have recorded additional goodwill and other intangible assets in connection with the acquired businesses. Goodwill and other acquired intangible assets could become impaired and adversely affect our future operating results.

The acquisitions of the WiFi and Broadband assets business and NanoSemi are accounted for as business combinations under the acquisition method of accounting by MaxLinear in accordance with accounting principles generally accepted in the United States. Under the acquisition method of accounting, the assets and liabilities of acquired businesses are recorded, as of completion, at their respective fair values and added to our assets and liabilities. Our reported financial condition and results of operations reflect the balances and results of the acquired businesses but are not restated retroactively to reflect the historical financial position or results of operations of acquired businesses for periods prior to the acquisitions. As a result, comparisons of future results against prior period results will be more difficult for investors.

Under the acquisition method of accounting, the total purchase price is allocated to net tangible assets and identifiable intangible assets of acquired businesses based on their fair values as of the date of completion of the acquisition. The excess of the purchase price over those fair values is recorded as goodwill. Our acquisitions have resulted in the creation of goodwill and recording of a large amount of intangible assets based upon the application of the acquisition method of accounting. To the extent the value of goodwill or other intangible assets become impaired, we may be required to incur material charges relating to such impairment. We conduct our annual goodwill and indefinite-lived intangible asset impairment analysis on October 31 each year, or more frequently if we believe indicators of impairment exist. In addition, there can be no guarantee that acquired intangible assets, particularly in-process research and development, will generate revenues or profits that we include in our forecast that is the basis for their fair values as of the acquisition date. Any such impairment charges relating to goodwill or other intangible assets could have a material impact on our operating results in future periods, and the announcement of a material impairment could have an adverse effect on the trading price and trading volume of our common stock. As of September 30, 2020, our balance sheet reflected goodwill of $302.6 million and other intangible assets of $232.1 million. Consequently, we could recognize material impairment charges in the future.

In addition to our acquisitions of the WiFi and Broadband assets business and NanoSemi, we may, from time to time, make additional business acquisitions or investments, which involve significant risks.

We have completed multiple acquisitions in the past three years. We may also enter into alliances or make investments in other businesses to complement our existing product offerings, augment our market coverage or enhance our technological capabilities. Any such transactions could result in:

- issuances of equity securities dilutive to our existing stockholders;
- substantial cash payments;
- the incurrence of substantial debt and assumption of unknown liabilities;
- large one-time write-offs;
- amortization expenses related to intangible assets;
- a limitation on our ability to use our net operating loss carryforwards;
- the diversion of management's time and attention from operating our business to acquisition integration challenges;
- stockholder or other litigation relating to the transaction;
- adverse tax consequences; and
- the potential loss of key employees, customers and suppliers of the acquired businesses.

Integrating acquired organizations and their products and services, including the integration of completed acquisitions, may be expensive, time-consuming and a strain on our resources and our relationships with employees, customers, distributors and suppliers, and ultimately may not be successful. The benefits or synergies we may expect from the acquisition of complementary or supplementary businesses may not be realized to the extent or in the time frame we initially anticipate. Some of the risks that may affect our ability to successfully integrate acquired businesses include those associated with:

- failure to successfully further develop the acquired products or technology;
- conforming the acquired company’s standards, policies, processes, procedures and controls with our operations;

- coordinating new product and process development, especially with respect to highly complex technologies;
- loss of key employees or customers of the acquired business;
- hiring additional management and other critical personnel;
- in the case of foreign acquisitions, the need to integrate operations across different cultures and languages and to address the particular economic, currency, political and regulatory risks associated with specific countries;
- increasing the scope, geographic diversity and complexity of our operations;
- consolidation of facilities, integration of the acquired businesses' accounting, human resource and other administrative functions and coordination of product, engineering and sales and marketing functions;
- the geographic distance between the businesses;
- liability for activities of the acquired businesses before the acquisition, including patent and trademark infringement claims, violations of laws, commercial disputes, tax liabilities and other known and unknown liabilities; and
- litigation or other claims in connection with the acquired businesses, including claims for terminated employees, customers, former stockholders or other third parties.

We have in the past been and may in the future be party to ligation related to acquisitions. Any adverse determination in litigation resulting from acquisitions could have a material adverse effect on our business and operating results.

Risks Related to Our Business

Impacts of the COVID-19 pandemic could adversely affect our business, financial condition, and results of operations.

In late January 2020 and early February 2020, in response to a severe outbreak of the novel coronavirus disease, or COVID-19, the government of China instituted mandatory quarantines in Wuhan, China, extended lunar new year holiday closures, and restricted shipments out of the country. This resulted in a temporary delay in our product shipments in the first quarter of 2020. On March 11, 2020, the World Health Organization declared a global pandemic regarding COVID-19. The COVID-19 pandemic has reached all of the countries and states in which we operate, including in California where our headquarters and central engineering team are located, as well as Spain, India, Singapore, Taiwan, Canada, France, Japan, South Korea, Hong Kong, Israel, Germany and Austria, where additional engineering, sales, and administrative personnel are located. In many of these jurisdictions, local authorities have instituted stay-at-home or shelter-in-place orders. To protect the health and safety of our employees, we adopted social distancing policies including suspending employee travel and implementing remote work arrangements for substantially all of our workforce worldwide. As of September 30, 2020, some of our workforce have returned to the office at reduced capacity adhering to local health authority guidelines. While we have experienced some negative impact to our net revenue and gross profits in the first half of 2020 due to several industry-wide dynamics related to COVID-19, including supply constraints described above, as well as certain customer push-out requests, we are currently benefiting from the work-from-home environment that is driving an increase in demand for certain of our products. Further, global financial markets reacted negatively to the COVID-19 pandemic’s impacts causing significant declines in the stock price and market capitalization of many companies across all industries, although some have recovered. Heightened volatility and uncertainty in customer demand and the worldwide economy in general has continued as a result of the COVID-19 pandemic, and we may experience increased volatility in sales and revenues in the near future. However, the magnitude of such volatility on our business and its duration is uncertain and cannot be reasonably estimated at this time.

Other areas of our business which could be disrupted or subject to negative impacts may include, but may not be limited to, the following:

- Decreased demand in geographic locations more severely impacted by the outbreak, particularly in the U.S. and Europe;
- Further supply constraints, including delays in production from temporary facility closures, supply shortages, and foundry, assembly or test capacity limitations;
- Disruptions in product shipments from travel and shipping restrictions imposed in response to local outbreaks;

- Slow down in the pace of integration of our acquisitions resulting from remote work arrangements and/or governmental closures beyond our control;
- Reduced ability to accurately predict our future revenue and budget future expenses;
- Inefficiencies, delays and additional costs in design win, product development, production and fulfillment which may be exacerbated by remote work arrangements;
- Accounts receivable collection issues should any of our limited and significant customers experience liquidity concerns;
- Material impacts to the value of our common stock, which may result in impairment of our goodwill;
- Material impairment of our assets, if recoverability thereof becomes a concern;
- Decreased availability of capital or access thereto in the United States and from other jurisdictions in which we operate; and
- Increased data security risks from remote working arrangements of our employees and those of our customers and vendors.

Although we currently expect that our present cash and cash equivalent balances and cash flows that are generated from operations will be sufficient to meet our operating requirements for at least the next twelve months, a material adverse impact from COVID-19 could result in a need to raise additional capital or incur additional indebtedness to fund strategic initiatives or operating activities, particularly if we pursue additional acquisitions. Additional funds may not be available on terms favorable to us or at all. If we are unable to raise additional funds when needed, we may not be able to sustain our operations or execute our strategic plans.

We face intense competition and expect competition to increase in the future, which could have an adverse effect on our revenue, revenue growth rate, if any, and market share.

The global semiconductor market in general, and the connected home, wired and wireless infrastructure, and broader industrial and communications analog and mixed-signal markets in particular, are highly competitive. We compete in different target markets to various degrees on the basis of a number of principal competitive factors, including our products' performance, features and functionality, energy efficiency, size, ease of system design, customer support, product roadmap, reputation, reliability and price. We expect competition to increase and intensify as a result of industry consolidation and the resulting creation of larger semiconductor companies. Large semiconductor companies resulting from industry consolidation could enjoy substantial market power, which they could exert through, among other things, aggressive pricing that could adversely affect our customer relationships and revenues. In addition, we expect the internal resources of large, integrated original equipment manufacturers, or OEMs, may continue to enter our markets. Increased competition could result in price pressure, reduced profitability and loss of market share, any of which could materially and adversely affect our business, revenue, revenue growth rates, if any, and operating results.

As our products are integrated into a variety of communications and industrial platforms, our competitors range from large, international merchant semiconductor companies offering a wide range of semiconductor products to smaller companies specializing in narrow markets, to internal or vertically integrated engineering groups within certain of our customers. Our primary merchant semiconductor competitors include Silicon Labs, NXP Semiconductors N.V., MediaTek, Inc., Broadcom Ltd, Rafael Microelectronics, Inc., Inphi Corporation, M/A-COM Technology Solutions Holdings, Inc., Semtech Corporation, Qorvo Inc., Texas Instruments, HiSilicon Technologies Co., Ltd., Analog Devices, Renesas Electronics Corporation, Maxim Integrated Products, Inc. (which recently entered into a definitive agreement to be acquired by Analog Devices), Monolithic Power Systems, Microchip Technology, Inc., Ambarella, Inc., and Infineon Technologies AG. It is quite likely that competition in the markets in which we participate will increase in the future as existing competitors improve or expand their product offerings. In addition, it is quite likely that a number of other public and private companies are in the process of developing competing products for our current and target markets. Because our products often are building block semiconductors which provide functions that in some cases can be integrated into more complex integrated circuits, we also face competition from manufacturers of integrated circuits, some of which may be existing customers or platform partners that develop their own integrated circuit products. If we cannot offer an attractive solution for applications where our competitors offer more fully integrated products, we may lose significant market share to our competitors. Certain of our competitors have fully-integrated tuner/demodulator/video processing solutions targeting high-performance cable, satellite, or DTV applications, and thereby potentially provide customers with smaller and cheaper solutions. Some of our targeted customers for our optical interconnect solutions are module makers who are vertically integrated, where we compete with internally supplied components, and we compete with much larger analog and mixed-signal catalog competitors in the multi-market high-performance analog markets.

Our ability to compete successfully depends on factors both within and outside of our control, including industry and general economic trends. During past periods of downturns in our industry, competition in the markets in which we operate intensified as manufacturers of semiconductors reduced prices in order to combat production overcapacity and high inventory levels. Many of our competitors have substantially greater financial and other resources with which to withstand similar adverse economic or market conditions in the future. Moreover, the competitive landscape is changing as a result of intense consolidation within our industry as some of our competitors have merged with or been acquired by other competitors, and other competitors have begun to collaborate with each other. In addition, changes in government trade policies, including the imposition of tariffs and export restrictions, could limit our ability to sell our products to certain customers and adversely affect our ability to compete successfully. These developments may materially and adversely affect our current and future target markets and our ability to compete successfully in those markets.

We depend on a limited number of customers, that have undergone or are undergoing consolidation and who themselves are dependent on a consolidating set of service provider customers, for a substantial portion of our revenue, and the loss of, or a significant reduction in orders from one or more of our major customers could have a material adverse effect on our revenue and operating results.

In the three months ended September 30, 2020, our top two customers, accounted for 29% of our net revenue, and our ten largest customers collectively accounted for 71% of our net revenue, of which distributor customers accounted for 31% of our net revenue. In the nine months ended September 30, 2020, our top two customers, accounted for 25% of our net revenue, of which a distributor customer accounted for 11% of our net revenue, and our ten largest customers collectively accounted for 65% of our net revenue, of which distributor customers accounted for 36% of our net revenue. We expect that our operating results for the foreseeable future will continue to show a substantial but declining percentage of sales dependent on a relatively small number of customers and on the ability of these customers to sell products that incorporate our RF receivers or RF receiver SoCs, digital STB video SoCs, DBS ODU receiver SOCs, and MoCA®, G.hn connectivity solutions and high-performance analog solutions. In the future, these customers may decide not to purchase our products at all, may purchase fewer products than they did in the past, or may defer or cancel purchases or otherwise alter their purchasing patterns. Factors that could affect our revenue from these large customers include the following:

- substantially all of our sales to date have been made on a purchase order basis, which permits our customers to cancel, change or delay product purchase commitments with little or no notice to us and without penalty;
- some of our customers have sought or are seeking relationships with current or potential competitors which may affect their purchasing decisions;
- service provider and OEM consolidation across cable, satellite, and fiber markets could result in significant changes to our customers' technology development and deployment priorities and roadmaps, which could affect our ability to forecast demand accurately and could lead to increased volatility in our business; and
- technological changes in our markets could lead to substantial volatility in our revenues based on product transitions, and particularly in our broadband markets, we face risks based on changes in the way consumers are accessing and using broadband and cable services, which could affect operator demand for our products.

In addition, delays in development could impair our relationships with our strategic customers and negatively impact sales of the products under development. Moreover, it is possible that our customers may develop their own products or adopt a competitor's solution for products that they currently buy from us. If that happens, our sales would decline and our business, financial condition and results of operations could be materially and adversely affected.

Our relationships with some customers may deter other potential customers who compete with these customers from buying our products. To attract new customers or retain existing customers, we may offer these customers favorable prices on our products. In that event, our average selling prices and gross margins would decline. The loss of a key customer, a reduction in sales to any key customer or our inability to attract new significant customers could seriously impact our revenue and materially and adversely affect our results of operations.

A significant portion of our revenues are from sales of product to distributors, who then resell our product. Our agreements with certain of these distributors provide protection against price reduction on their inventories of our products. The loss of certain distributors could have a material adverse effect on our business and results of operations, and price reductions associated with their inventories of our products could have a substantial adverse effect on our operating results in the event of a dramatic decline in selling prices for these products.

In addition, the current situation relating to trade with China and governmental and regulatory concerns relating to specific Chinese companies remain fluid and unpredictable. Our current and future operating results could be materially and adversely affected by limitations on our ability to sell to one or more Chinese customers and by tariffs and other trade barriers that may be implemented by governmental authorities.

A significant, but declining portion of our revenue is attributable to demand for our products in markets for connected home solutions, and development delays and consolidation trends among cable and satellite Pay-TV and broadband operators could adversely affect our future revenues and operating results.

For the three months ended September 30, 2020 and 2019, revenue directly attributable to connected home applications accounted for approximately 24% and 51% of our net revenue, respectively. For the nine months ended September 30, 2020 and 2019, revenue directly attributable to connected home applications accounted for approximately 35% and 50% of our net revenue, respectively. Delays in the development of, or unexpected developments in the connected home markets could have an adverse effect on order activity by original equipment manufacturers in these markets and, as a result, on our business, revenue, operating results and financial condition. In addition, consolidation trends among Pay-TV and broadband operators may continue, which could have a material adverse effect on our future operating results and financial condition.

If we fail to penetrate new applications and markets, our revenue, revenue growth rate, if any, and financial condition could be materially and adversely affected.

We sell a significant portion of our products to manufacturers of cable broadband voice and data modems and gateways, pay-TV set-top boxes and gateways into cable and satellite operator markets, satellite outdoor units or LNB's, optical modules for long-haul and metro telecommunications markets, and RF transceivers and modem solutions for wireless infrastructure markets. We have expanded our product offerings to include broadband data access, power management and interface technologies which are ubiquitous functions in new and existing markets such as wireless and wireline communications infrastructure, broadband access, industrial, enterprise network, and automotive applications. Our future revenue growth, if any, will depend in part on our ability to further penetrate into, and expand beyond, these markets with analog, digital and mixed-signal solutions targeting the markets for high-speed optical interconnects for data center, metro, and long-haul optical modules, telecommunications wireless infrastructure, and cable DOCSIS 3.1 network infrastructure products. Each of these markets presents distinct and substantial risks. If any of these markets do not develop as we currently anticipate, or if we are unable to penetrate them successfully, it could materially and adversely affect our revenue and revenue growth rate, if any.

Broadband data modems and gateways and pay-TV and satellite set-top boxes and video gateways continue to represent a significant North American and European revenue generator. The North American and European pay-TV market is dominated by only a few OEMs, including Technicolor, Commscope Holding Company, Inc., Hitron Technologies, Inc., Compal Broadband Networks, Humax Co., Ltd., and Samsung Electronics Co., Ltd. These OEMs are large multinational corporations with substantial negotiating power relative to us and are undergoing significant consolidation. Securing design wins with any of these companies requires a substantial investment of our time and resources. Even if we succeed, additional testing and operational certifications will be required by the OEMs' customers, which include large pay-TV television companies such as Comcast Corporation, Liberty Global plc, Spectrum, Sky, AT&T and EchoStar Corporation. In addition, our products will need to be compatible with other components in our customers' designs, including components produced by our competitors or potential competitors. There can be no assurance that these other companies will support or continue to support our products.

If we fail to penetrate these or other new markets upon which we target our resources, our revenue and revenue growth rate, if any, likely will decrease over time and our financial condition could suffer.

We may be unable to make the substantial and productive research and development investments that are required to remain competitive in our business.

The semiconductor industry requires substantial investment in research and development in order to develop and bring to market new and enhanced technologies and products. Many of our products originated with our research and development efforts, which we believe have provided us with a significant competitive advantage. For the three months ended September 30, 2020 and 2019, our research and development expense was $55.8 million and $23.2 million, respectively. For the nine months ended September 30, 2020 and 2019, our research and development expense was $109.5 million and $74.9 million, respectively. We monitor such expenditures as part of our strategy of devoting focused research and development efforts on the development of innovative and sustainable product platforms. We are committed to investing in new product development internally in order to stay competitive in our markets and plan to maintain research and development and design capabilities for new solutions in advanced semiconductor process nodes such as 28nm and 16nm and beyond. However, we do not know whether we will have sufficient resources to maintain the level of investment in research and development required to remain competitive as semiconductor process nodes continue to shrink and become increasingly complex. In addition, we cannot assure you that the technologies that are the focus of our research and development expenditures will become commercially successful.

We experienced a decline in net revenues in our recent past but are currently benefiting from an uptick in demand for certain products due to the work-from-home environment caused by the COVID-19 pandemic. A significant variance in our operating results or rates of growth, if any, could lead to substantial volatility in our stock price. We may not sustain our current growth rate, and we may not be able to manage future growth effectively.

We experienced a decline in net revenues due to anticipated declines from legacy product shipments used in satellite, terrestrial, and video SoC applications, as well as a slowdown in the cable market owing to the market transition from DOCSIS 3.0 to DOCSIS 3.1 and related customer inventory reductions, and macro environment and trade issues, including industry-wide dynamics pertaining to the COVID-19 pandemic. Our net revenue decreased from approximately $385.0 million in 2018 to $317.2 million in 2019. However, our net revenue increased from $247.2 million in the nine months ended September 30, 2019 to $283.9 million in the nine months ended September 30, 2020, as we are currently benefiting from the work-from-home environment that is driving an increase in demand for certain of our products, particularly those from our acquisition of the WiFi and Broadband assets business. The COVID-19 pandemic could result in increased volatility in our sales and revenues. You should not rely on our operating results for any prior quarterly or annual periods as an indication of our future operating performance. Please refer to the Risk Factor entitled "*Our operating results are subject to substantial quarterly and annual fluctuations and may fluctuate significantly due to a number of factors that could adversely affect our business and our stock price*" for a discussion of factors contributing to variances in our operating results or rates of growth. If we are unable to sustain adequate revenue growth, our financial results could suffer and our stock price could decline.

To sustain and manage any future growth successfully, we believe we must effectively, among other things:

- successfully develop new products and penetrate new applications and markets;
- recruit, hire, train and manage additional qualified engineers for our research and development activities, especially in the positions of design engineering, product and test engineering and applications engineering;
- add sales personnel and expand customer engineering support offices;
- implement and improve our administrative, financial and operational systems, procedures and controls; and
- enhance our information technology support for enterprise resource planning and design engineering by adapting and expanding our systems and tool capabilities, and properly training new hires as to their use.

If we are unable to sustain and manage our growth effectively, we may not be able to take advantage of market opportunities or develop new products and we may fail to satisfy customer requirements, maintain product quality, execute our business plan, or respond to competitive pressures.

The complexity of our products could result in unforeseen delays or expenses caused by undetected defects or bugs, which could reduce the market acceptance of our new products, damage our reputation with current or prospective customers and adversely affect our operating costs.

Highly complex products like our broadband RF receivers and RF receiver SoCs, physical medium devices for optical modules, RF transceiver and modem solutions for wireless infrastructure markets, and high-performance analog solutions may contain defects and bugs when they are first introduced or as new versions are released. Where any of our products, including legacy acquired products, contain defects or bugs, or have reliability, quality or compatibility problems, we may not be able to successfully correct these problems. Consequently, our reputation may be damaged and customers may be reluctant to buy our products, which could materially and adversely affect our ability to retain existing customers and attract new customers, and our financial results. In addition, these defects or bugs could interrupt or delay sales to our customers. If any of these problems are not found until after we have commenced commercial production of a new product, we may be required to incur additional development costs and product recall, repair or replacement costs, and our operating costs could be adversely affected. These problems may also result in warranty or product liability claims against us by our customers or others that may require us to make significant expenditures to defend these claims or pay damage awards. In the event of a warranty claim, we may also incur costs if we compensate the affected customer. We maintain product liability insurance, but this insurance is limited in amount and subject to significant deductibles. There is no guarantee that our insurance will be available or adequate to protect against all claims. We also may incur costs and expenses relating to a recall of one of our customers' products containing one of our devices. The process of identifying a recalled product in devices that have been widely distributed may be lengthy and require significant resources, and we may incur significant replacement costs, contract damage claims from our customers and reputational harm. Costs or payments made in connection with warranty and product liability claims and product recalls could materially affect our financial condition and results of operations.

Average selling prices of our products could decrease rapidly, which would have a material adverse effect on our revenue and gross margins.

We may experience substantial period-to-period fluctuations in future operating results due to the erosion of our average selling prices. From time to time, we have reduced the average unit price of our products due to competitive pricing pressures, new product introductions by us or our competitors, and for other reasons, and we expect that we will have to do so again in the future. In particular, we believe that industry consolidation has provided a number of larger semiconductor companies with substantial market power, which has had an adverse impact on selling prices in some of our markets. If we are unable to offset any reductions in our average selling prices by increasing our sales volumes or introducing new products with higher margins, our revenue and gross margins will suffer. To support our gross margins, we must develop and introduce new products and product enhancements on a timely basis and continually reduce our and our customers' costs. Our inability to do so would cause our revenue and gross margins to decline. In addition, under certain of our agreements with key distributors, we provide protection for reductions in selling prices of the distributors' inventory, which could have a significant adverse effect on our operating results if the selling prices for those products fell dramatically.

If we fail to develop and introduce new or enhanced products on a timely basis, our ability to attract and retain customers could be impaired and our competitive position could be harmed.

We operate in a dynamic environment characterized by rapidly changing technologies and industry standards and technological obsolescence. To compete successfully, we must design, develop, market and sell new or enhanced products that provide increasingly higher levels of performance and reliability and meet the cost expectations of our customers. The introduction of new products by our competitors, the market acceptance of products based on new or alternative technologies, or the emergence of new industry standards could render our existing or future products obsolete. Our failure to anticipate or timely develop new or enhanced products or technologies in response to technological shifts could result in decreased revenue and our competitors winning more competitive bid processes, known as "design wins." In particular, we may experience difficulties with product design, manufacturing, marketing or certification that could delay or prevent our development, introduction or marketing of new or enhanced products. If we fail to introduce new or enhanced products that meet the needs of our customers or penetrate new markets in a timely fashion, we will lose market share and our operating results will be adversely affected.

In particular, we believe that we will need to develop new products in part to respond to changing dynamics and trends in our end user markets, including (among other trends) consolidation among cable and satellite operators, potential industry shifts away from the hardware devices and other technologies that incorporate our products, and changes in consumer television viewing habits and how consumers access and receive broadcast content and digital broadband services. We cannot predict how these trends will continue to develop or how or to what extent they may affect our future revenues and operating results. We believe that we will need to continue to make substantial investments in research and development in an attempt to ensure a product roadmap that anticipates these types of changes; however, we cannot provide any assurances that we will accurately predict the direction in which our markets will evolve or that we will be able to develop, market, or sell new products that respond to such changes successfully or in a timely manner, if at all.

We have settled in the past intellectual property litigation and may face additional claims of intellectual property infringement. Any future litigation could be time-consuming, costly to defend or settle and result in the loss of significant rights.

The semiconductor industry is characterized by companies that hold large numbers of patents and other intellectual property rights and that vigorously pursue, protect and enforce intellectual property rights. Third parties have in the past and may in the future assert against us and our customers and distributors their patent and other intellectual property rights to technologies that are important to our business. In particular, from time to time, we receive correspondence from competitors seeking to engage us in discussions concerning potential claims against us, and we receive correspondence from customers seeking indemnification for potential claims related to infringement claims asserted against down-stream users of our products.

We investigate these requests as received and could be required to enter license agreements with respect to third party intellectual property rights or indemnify third parties, either of which could have an adverse effect on our future operating results.

Claims that our products, processes or technology infringe third-party intellectual property rights, regardless of their merit or resolution are costly to defend or settle and could divert the efforts and attention of our management and technical personnel. In addition, many of our customer and distributor agreements require us to indemnify and defend our customers or distributors from third-party infringement claims and pay damages in the case of adverse rulings. Claims of this sort also could harm our relationships with our customers or distributors and might deter future customers from doing business with us. In order to maintain our relationships with existing customers and secure business from new customers, we have been required from time to time to provide additional assurances beyond our standard terms. If any future proceedings result in an adverse outcome, we could be required to:

- cease the manufacture, use or sale of the infringing products, processes or technology;
- pay substantial damages for infringement;
- expend significant resources to develop non-infringing products, processes or technology;
- license technology from the third-party claiming infringement, which license may not be available on commercially reasonable terms, or at all;
- cross-license our technology to a competitor to resolve an infringement claim, which could weaken our ability to compete with that competitor; or
- pay substantial damages to our customers or end users to discontinue their use of or to replace infringing technology sold to them with non-infringing technology.

Any of the foregoing results could have a material adverse effect on our business, financial condition, and results of operations.

We rely on a limited number of third parties to manufacture, assemble, and test our products, and the failure to manage our relationships with our third-party contractors successfully, or impacts from natural disasters, public health crises, or other labor stoppages in the regions where such contractors operate, could adversely affect our ability to market and sell our products.

We do not have our own manufacturing facilities. We operate an outsourced manufacturing business model that utilizes third-party foundry and assembly and test capabilities. As a result, we rely on third-party foundry wafer fabrication, including sole sourcing for many components or products. Currently, the majority of our products are manufactured by Global Foundries, Semiconductor Manufacturing International Corporation, or SMIC, Taiwan Semiconductor Manufacturing Corp, or TSMC, and United Microelectronics Corporation, or UMC, at foundries located in Taiwan, Singapore, and China. We also use third-party contractors for all of our assembly and test operations.

Relying on third party manufacturing, assembly and testing presents significant risks to us, including the following:

- failure by us, our customers, or their end customers to qualify a selected supplier;
- capacity shortages during periods of high demand or from events beyond our control;
- reduced control over delivery schedules and quality;
- shortages of materials;
- misappropriation of our intellectual property;
- limited warranties on wafers or products supplied to us; and
- potential increases in prices.

The ability and willingness of our third-party contractors to perform is largely outside our control. If one or more of our contract manufacturers or other outsourcers fails to perform its obligations in a timely manner or at satisfactory quality levels, our ability to bring products to market and our reputation could suffer. For example, in the event that manufacturing capacity is reduced or eliminated at one or more facilities, including as a response to the recent worldwide decline in the semiconductor industry, manufacturing could be disrupted, we could have difficulties fulfilling our customer orders and our net revenue could decline. In addition, if these third parties fail to deliver quality products and components on time and at reasonable prices, we could have difficulties fulfilling our customer orders, our net revenue could decline and our business, financial condition and results of operations would be adversely affected.

Additionally, our product shipment and manufacturing capacity may be similarly reduced or eliminated at one or more facilities due to the fact that the majority of our fabrication and assembly and test contractors are all located in the Pacific Rim region, principally in China, Taiwan, and Singapore. The risk of earthquakes in these geographies is significant due to the proximity of major earthquake fault lines, and Taiwan in particular is also subject to typhoons and other Pacific storms. Earthquakes, fire, flooding, or other natural disasters in Taiwan or the Pacific Rim region, or political unrest, war, labor strikes, work stoppages or public health crises, such as the outbreak of COVID-19, in countries where our contractors' facilities are located could result in the disruption of our product shipments, foundry, assembly, or test capacity. For example, as a result of the extension of the lunar new year holidays due to the outbreak of COVID-19, certain of our product shipments from China were temporarily delayed earlier in the first quarter of 2020. Although we continue to monitor the situation, it is currently unknown whether any resurgence of the outbreak will occur and disrupt our product shipments or impact manufacturing in the region over future periods. If such disruption were to recur over a prolonged period, it could have a material impact on our revenues and our business. Any disruption resulting from similar events on a larger scale or over a prolonged period could cause significant delays in shipments of our products until we are able to resume such shipments, or shift our manufacturing, assembly, or test from the affected contractor to another third-party vendor, if needed. There can be no assurance that alternative capacity could be obtained on favorable terms, if at all.

We utilize a significant amount of intellectual property in our business. If we are unable to protect our intellectual property, our business could be adversely affected.

Our success depends in part upon our ability to protect our intellectual property. To accomplish this, we rely on a combination of intellectual property rights, including patents, copyrights, trademarks and trade secrets in the United States and in selected foreign countries where we believe filing for such protection is appropriate. Effective patent, copyright, trademark and trade secret protection may be unavailable, limited or not applied for in some countries. Some of our products and technologies are not covered by any patent or patent application. We cannot guarantee that:

- any of our present or future patents or patent claims will not lapse or be invalidated, circumvented, challenged or abandoned;
- our intellectual property rights will provide competitive advantages to us;
- our ability to assert our intellectual property rights against potential competitors or to settle current or future disputes will not be limited by our agreements with third parties;
- any of our pending or future patent applications will be issued or have the coverage originally sought;
- our intellectual property rights will be enforced in jurisdictions where competition may be intense or where legal protection may be weak;
- any of the trademarks, copyrights, trade secrets or other intellectual property rights that we presently employ in our business will not lapse or be invalidated, circumvented, challenged or abandoned; or
- we will not lose the ability to assert our intellectual property rights against or to license our technology to others and collect royalties or other payments.

In addition, our competitors or others may design around our protected patents or technologies. Effective intellectual property protection may be unavailable or more limited in one or more relevant jurisdictions relative to those protections available in the United States, or may not be applied for in one or more relevant jurisdictions. If we pursue litigation to assert our intellectual property rights, an adverse decision in any of these legal actions could limit our ability to assert our intellectual property rights, limit the value of our technology or otherwise negatively impact our business, financial condition and results of operations.

Monitoring unauthorized use of our intellectual property is difficult and costly. Unauthorized use of our intellectual property may have occurred or may occur in the future. Although we have taken steps to minimize the risk of this occurring, any such failure to identify unauthorized use and otherwise adequately protect our intellectual property would adversely affect our business. Moreover, if we are required to commence litigation, whether as a plaintiff or defendant as has occurred in the past, not only will this be time-consuming, but we will also be forced to incur significant costs and divert our attention and efforts of our employees, which could, in turn, result in lower revenue and higher expenses.

We also rely on customary contractual protections with our customers, suppliers, distributors, employees and consultants, and we implement security measures to protect our trade secrets. We cannot assure you that these contractual protections and security measures will not be breached, that we will have adequate remedies for any such breach or that our suppliers, employees or consultants will not assert rights to intellectual property arising out of such contracts.

In addition, we have a number of third-party patent and intellectual property license agreements. Some of these license agreements require us to make one-time payments or ongoing royalty payments. Also, a few of our license agreements contain most-favored nation clauses or other price restriction clauses which may affect the amount we may charge for our products, processes or technology. We cannot guarantee that the third-party patents and technology we license will not be licensed to our competitors or others in the semiconductor industry. In the future, we may need to obtain additional licenses, renew existing license agreements or otherwise replace existing technology. We are unable to predict whether these license agreements can be obtained or renewed or the technology can be replaced on acceptable terms, or at all.

When we settled a trademark dispute with Linear Technology Corporation, we agreed not to register the “MAXLINEAR” mark or any other marks containing the term “LINEAR”. We may continue to use “MAXLINEAR” as a corporate identifier, including to advertise our products and services, but may not use that mark on our products. The agreement does not affect our ability to use our registered trademark “MxL”, which we use on our products. Due to our agreement not to register the “MAXLINEAR” mark, our ability to effectively prevent third parties from using the “MAXLINEAR” mark in connection with similar products or technology may be affected. If we are unable to protect our trademarks, we may experience difficulties in achieving and maintaining brand recognition and customer loyalty.

We are subject to risks associated with our distributors’ product inventories and product sell-through. Should any of our distributors cease or be forced to stop distributing our products, our business would suffer.

We currently sell a large portion of our products to customers through our distributors, who maintain their own inventories of our products. Sales to distributors accounted for approximately 46% and 60% of our net revenue in the three months ended September 30, 2020 and 2019, respectively. Sales to distributors accounted for approximately 54% and 50% of our net revenue in the nine months ended September 30, 2020 and 2019, respectively. Upon shipment of product to these distributors, title to the inventory transfers to the distributor and the distributor is invoiced, generally with 30 to 60 day terms. Distributor sales are also recognized upon shipment to the distributor and estimates of future pricing credits and/or stock rotation rights reduce revenue recognized to the net amount before the actual amounts are known. If our estimates of such credits and rights are materially understated it could cause subsequent adjustments that negatively impact our revenues and gross profits in a future period.

If our distributors are unable to sell an adequate amount of their inventories of our products in a given quarter to manufacturers and end users or if they decide to decrease their inventories of our products for any reason, our sales through these distributors and our revenue may decline. In addition, if some distributors decide to purchase more of our products than are required to satisfy end customer demand in any particular quarter, inventories at these distributors would grow in that quarter. These distributors could then reduce future orders until inventory levels realign with end customer demand, which could adversely affect our product revenue.

Our reserve estimates with respect to the products stocked by our distributors are based principally on reports provided to us by our distributors, typically on a weekly basis. To the extent that this resale and channel inventory data is inaccurate or not received in a timely manner, we may not be able to make reserve estimates accurately or at all.

We are subject to order and shipment uncertainties, and differences between our estimates of customer demand and product mix and our actual results could negatively affect our inventory levels, sales and operating results.

Our revenue is generated on the basis of shipments of products under purchase orders with our customers rather than long-term purchase commitments. In addition, our customers can cancel purchase orders or defer the shipments of our products under certain circumstances. Our products are manufactured using a silicon foundry according to our estimates of customer demand, which requires us to make separate demand forecast assumptions for every customer, each of which may introduce significant variability into our aggregate estimate. We have limited visibility into future customer demand and the product mix that our customers will require, which could adversely affect our revenue forecasts and operating margins. Moreover, because our target markets are relatively new, many of our customers have difficulty accurately forecasting their product requirements and estimating the timing of their new product introductions, which ultimately affects their demand for our products. Historically, because of this limited visibility, actual results have been different from our forecasts of customer demand. Some of these differences have been material, leading to excess inventory or product shortages and revenue and margin forecasts above those we were actually able to achieve. These differences may occur in the future, and the adverse impact of these differences between forecasts and actual results could grow if we are successful in selling in and expanding the customer base for our products. In addition, the rapid pace of innovation in our industry could render significant portions of our inventory obsolete. Excess or obsolete inventory levels could result in unexpected expenses or increases in our reserves that could adversely affect our business, operating results and financial condition. Conversely, if we were to underestimate customer demand or if sufficient manufacturing capacity were unavailable, we could forego revenue opportunities, potentially lose market share and damage our customer relationships. In addition, any significant future cancellations or deferrals of product orders or the return of previously sold products due to manufacturing defects could materially and adversely impact our profit margins, increase our write-offs due to product obsolescence and restrict our ability to fund our operations.

We have been and may in the future be subject to information technology failures, including data protection breaches and cyber-attacks, that could disrupt our operations, damage our reputation and adversely affect our business, operations, and financial results.

We rely on our information technology systems for the effective operation of our business and for the secure maintenance and storage of confidential data relating to our business and third-party businesses. In June 2020, we announced a security incident resulting from a Maze ransomware attack affecting certain but not all operational systems within our information technology infrastructure. Because we did not satisfy the attacker's monetary demands, on June 15, 2020, the attacker released online certain proprietary information obtained from our network. Although our internal information technology team, supplemented by a leading cyber defense firm, has been actively taking steps to contain and assess this incident, including implementing enhanced security controls to protect our information technology systems, experienced programmers or hackers may further be able to penetrate our security controls, and develop and deploy viruses, worms and other malicious software programs that compromise our confidential information or that of third parties and cause another disruption or failure of our information technology systems. In addition, we have in the past and may in the future be subject to "phishing" attacks in which third parties send emails purporting to be from reputable companies in order to obtain personal information and infiltrate our systems to initiate wire transfers or otherwise obtain proprietary or confidential information. A number of large, public companies have recently experienced losses based on phishing attacks and other cyber-attacks. The recent security incident and any future compromise of our information technology systems could result in the further unauthorized publication of our confidential business or proprietary information, result in the further unauthorized release of customer, supplier or employee data, result in violations of privacy or other laws, expose us to a risk of litigation, cause us to incur direct losses if attackers access our bank or investment accounts, or damage our reputation. The cost and operational consequences of implementing further data protection measures either as a response to specific breaches or as a result of evolving risks could be significant. In addition, our inability to use or access our information systems at critical points in time could adversely affect the timely and efficient operation of our business. Any delayed sales, significant costs or lost customers resulting from these technology failures could adversely affect our business, operations and financial results.

Third parties with which we conduct business, such as foundries, assembly and test contractors, and distributors, have access to certain portions of our sensitive data. In the event that these third parties do not properly safeguard our data that they hold, security breaches could result and negatively impact our business, operations and financial results.

We do not have any long-term supply contracts with our contract manufacturers or suppliers, and any disruption in our supply of products or materials could have a material adverse effect on our business, revenue and operating results.

We currently do not have long-term supply contracts with any of our third-party vendors, including but, not limited to Global Foundries, SMIC, TSMC, and UMC. We make substantially all of our purchases on a purchase order basis, and our contract manufacturers are not required to supply us products for any specific period or in any specific quantity. Foundry capacity may not be available when we need it or at reasonable prices. Availability of foundry capacity has in the past been reduced from time to time due to strong demand. Foundries can allocate capacity to the production of other companies' products and reduce deliveries to us on short notice. It is possible that foundry customers that are larger and better financed than we are, or that have long-term agreements with our foundry, may induce our foundry to reallocate capacity to them. This reallocation could impair our ability to secure the supply of components that we need. We generally place orders for products with some of our suppliers approximately four to five months prior to the anticipated delivery date, with order volumes based on our forecasts of demand from our customers. Accordingly, if we inaccurately forecast demand for our products, we may be unable to obtain adequate and cost-effective foundry or assembly capacity from our third-party contractors to meet our customers' delivery requirements, or we may accumulate excess inventories. On occasion, we have been unable to adequately respond to unexpected increases in customer purchase orders and therefore were unable to benefit from this incremental demand. None of our third-party contractors has provided any assurance to us that adequate capacity will be available to us within the time required to meet additional demand for our products.

We may have difficulty accurately predicting our future revenue and appropriately budgeting our expenses particularly as we seek to enter new markets where we may not have prior experience.

Our operating history had previously focused on developing integrated circuits for specific terrestrial, cable and satellite television, and broadband voice and data applications, and as part of our strategy, we seek to expand our addressable market into new product categories. For example, we expanded into the markets for satellite set-top and gateway boxes and outdoor units and physical medium devices for the optical interconnect markets. We have also expanded into the wired whole-home broadband connectivity market and entered the markets for wireless telecommunications infrastructure and power management and interface technologies which are ubiquitous functions in wireless and wireline communications infrastructure, broadband access, industrial, enterprise network, and automotive applications. Our limited operating experience in these new markets or potential markets we may enter, combined with the rapidly evolving nature of our markets in general, substantial uncertainty concerning how these markets may develop and other factors beyond our control reduces our ability to accurately forecast quarterly or annual revenue. If our revenue does not increase as anticipated, we could incur significant losses due to our higher expense levels if we are not able to decrease our expenses in a timely manner to offset any shortfall in future revenue.

If we are unable to attract, train and retain qualified personnel, especially our design and technical personnel, we may not be able to execute our business strategy effectively.

Our future success depends on our ability to retain, attract and motivate qualified personnel, including our management, sales and marketing and finance, and especially our design and technical personnel. We do not know whether we will be able to attract and retain all of these personnel as we continue to pursue our business strategy. Historically, we have encountered difficulties in hiring and retaining qualified engineers because there is a limited pool of engineers with the expertise required in our field. Competition for these personnel is intense in the semiconductor industry. As the source of our technological and product innovations, our design and technical personnel represent a significant asset. The loss of the services of one or more of our key employees, especially our key design and technical personnel, or our inability to retain, attract and motivate qualified design and technical personnel, could have a material adverse effect on our business, financial condition and results of operations.

Our business would be adversely affected by the departure of existing members of our senior management team.

Our success depends, in large part, on the continued contributions of our senior management team. None of our senior management team is bound by written employment contracts to remain with us for a specified period. In addition, we have not entered into non-compete agreements with members of our senior management team. We are fortunate that many members of our executive management team have long tenures with us, but from time to time we also have been required to recruit new executive officers. With respect to executive officer recruitment and retention, we need to ensure that our executive compensation programs provide sufficient recruitment and retention incentives as well as incentives to achieve our long-term strategic business and financial objectives. We expect competition for individuals with our required skill sets, particularly technical and engineering skills, to remain intense even in weak global macroeconomic environments. The loss of any member of our senior management team could harm our ability to implement our business strategy and respond to the rapidly changing market conditions in which we operate.

Our customers require our products and our third-party contractors to undergo a lengthy and expensive qualification process which does not assure product sales.

Prior to purchasing our products, our customers require that both our products and our third-party contractors undergo extensive qualification processes, which involve testing of the products in the customer's system and rigorous reliability testing. This qualification process may continue for six months or more. However, qualification of a product by a customer does not assure any sales of the product to that customer. Even after successful qualification and sales of a product to a customer, a subsequent revision to our solutions, or changes in our customer's manufacturing process or our selection of a new supplier may require a new qualification process, which may result in delays and in us holding excess or obsolete inventory. After our products are qualified, it can take six months or more before the customer commences volume production of components or devices that incorporate our products. Despite these uncertainties, we devote substantial resources, including design, engineering, sales, marketing and management efforts, to qualifying our products with customers in anticipation of sales. If we are unsuccessful or delayed in qualifying any of our products with a customer, sales of this product to the customer may be precluded or delayed, which may result in a decrease in our revenue and cause our business to suffer.

Winning business is subject to lengthy competitive selection processes that require us to incur significant expenditures. Even if we begin a product design, customers may decide to cancel or change their product plans, which could cause us to generate no revenue from a product and adversely affect our results of operations.

We are focused on securing design wins to develop RF receivers and RF receiver SoCs, MoCA and G.hn SoCs, DBS-ODU SoCs, physical medium devices for optical modules, interface and power management devices, and SoC solutions targeting infrastructure opportunities within the telecommunications, wireless, industrial and multimarket and broadband operator markets for use in our customers' products. These selection processes typically are lengthy and can require us to incur significant design and development expenditures and dedicate scarce engineering resources in pursuit of a single customer opportunity. We may not win the competitive selection process and may never generate any revenue despite incurring significant design and development expenditures. These risks are exacerbated by the fact that some of our customers' products likely will have short life cycles. Failure to obtain a design win could prevent us from offering an entire generation of a product, even though this has not occurred to date. This could cause us to lose revenue and require us to write off obsolete inventory, and could weaken our position in future competitive selection processes. After securing a design win, we may experience delays in generating revenue from our products as a result of the lengthy development cycle typically required. Our customers generally take a considerable amount of time to evaluate our products. The typical time from early engagement by our sales force to actual product introduction runs from nine to twelve months for the consumer market, to as much as 18 to 24 months for the satellite markets, and 36 months or longer for industrial, wired and wireless infrastructure markets. The delays inherent in these lengthy sales cycles increase the risk that a customer will decide to cancel, curtail, reduce or delay its product plans, causing us to lose anticipated sales. In addition, any delay or cancellation of a customer's plans could materially and adversely affect our financial results, as we may have incurred significant expense and generated no revenue. Finally, our customers' failure to successfully market and sell their products could reduce demand for our products and materially and adversely affect our business, financial condition and results of operations. If we were unable to generate revenue after incurring substantial expenses to develop any of our products, our business would suffer.

Our operating results are subject to substantial quarterly and annual fluctuations and may fluctuate significantly due to a number of factors that could adversely affect our business and our stock price.

Our revenue and operating results have fluctuated in the past and are likely to fluctuate in the future. These fluctuations may occur on a quarterly and on an annual basis and are due to a number of factors, many of which are beyond our control. These factors include, among others:

- changes in end-user demand for the products manufactured and sold by our customers;
- the receipt, reduction or cancellation of significant orders by customers;
- fluctuations in the levels of component inventories held by our customers;
- the gain or loss of significant customers;
- market acceptance of our products and our customers' products;
- our ability to develop, introduce, and market new products and technologies on a timely basis;
- the timing and extent of product development costs;
- new product announcements and introductions by us or our competitors;
- incurrence of research and development and related new product expenditures;
- seasonality or cyclical fluctuations in our markets;
- government actions, by the United States, China or other countries, that impose barriers or restrictions that would impact our ability to sell or ship products to customers;
- currency fluctuations;
- fluctuations in IC manufacturing yields;

- significant warranty claims, including those not covered by our suppliers;
- changes in our product mix or customer mix;
- intellectual property disputes;
- loss of key personnel or the shortage of available skilled workers;
- impairment of long-lived assets, including masks and production equipment;
- the effects of competitive pricing pressures, including decreases in average selling prices of our products; and
- uncertainties arising from the impact of the COVID-19 pandemic on the market and our business operations.

These factors are difficult to forecast, and these, as well as other factors, could materially adversely affect our quarterly or annual operating results. We typically are required to incur substantial development costs in advance of a prospective sale with no certainty that we will ever recover these costs. A substantial amount of time may pass between a design win and the generation of revenue related to the expenses previously incurred, which can potentially cause our operating results to fluctuate significantly from period to period. In addition, a significant amount of our operating expenses are relatively fixed in nature due to our significant sales, research and development costs. Any failure to adjust spending or our operations quickly enough to compensate for a revenue shortfall could magnify its adverse impact on our results of operations.

We are subject to the cyclical nature of the semiconductor industry.

The semiconductor industry is highly cyclical and is characterized by constant and rapid technological change, rapid product obsolescence and price erosion, evolving standards, short product life cycles and wide fluctuations in product supply and demand. Any future downturns may result in diminished product demand, production overcapacity, high inventory levels and accelerated erosion of average selling prices. Furthermore, any upturn in the semiconductor industry could result in increased competition for access to third-party foundry and assembly capacity. We are dependent on the availability of this capacity to manufacture and assemble all of our products. None of our third-party foundry or assembly contractors has provided assurances that adequate capacity will be available to us in the future. A significant downturn or upturn could have a material adverse effect on our business and operating results.

The use of open source software in our products, processes and technology may expose us to additional risks and harm our intellectual property.

Our products, processes and technology sometimes utilize and incorporate software that is subject to an open source license. 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.

While we monitor the use of all open source software in our products, processes and technology and try to ensure that no open source software is used in such a way as to require us to disclose the source code to the related product, processes or technology when we do not wish to do so, such use could inadvertently occur. Additionally, if a third party software provider has incorporated certain types of open source software into software we license from such third party for our products, processes or technology, we could, under certain circumstances, be required to disclose the source code to our products, processes or technology. This could harm our intellectual property position and have a material adverse effect on our business, results of operations and financial condition.

We rely on third parties to provide services and technology necessary for the operation of our business. Any failure of one or more of our partners, vendors, suppliers or licensors to provide these services or technology could have a material adverse effect on our business.

We rely on third-party vendors to provide critical services, including, among other things, services related to accounting, billing, human resources, information technology, network development, network monitoring, in-licensing and intellectual property that we cannot or do not create or provide ourselves. We depend on these vendors to ensure that our corporate infrastructure will consistently meet our business requirements. The ability of these third-party vendors to successfully provide reliable and high quality services is subject to technical and operational uncertainties that are beyond our control. While we may be entitled to damages if our vendors fail to perform under their agreements with us, our agreements with these vendors limit the amount of damages we may receive. In addition, we do not know whether we will be able to collect on any award of damages or that these damages would be sufficient to cover the actual costs we would incur as a result of any vendor's failure to perform under its agreement with us. Any failure of our corporate infrastructure could have a material adverse effect on our business, financial condition and results of operations. Upon expiration or termination of any of our agreements with third-party vendors, we may not be able to replace the services provided to us in a timely manner or on terms and conditions, including service levels and cost, that are favorable to us and a transition from one vendor to another vendor could subject us to operational delays and inefficiencies until the transition is complete.

Additionally, we incorporate third-party technology into and with some of our products, and we may do so in future products. The operation of our products could be impaired if errors occur in the third-party technology we use. It may be more difficult for us to correct any errors in a timely manner if at all because the development and maintenance of the technology is not within our control. There can be no assurance that these third parties will continue to make their technology, or improvements to the technology, available to us, or that they will continue to support and maintain their technology. Further, due to the limited number of vendors of some types of technology, it may be difficult to obtain new licenses or replace existing technology. Any impairment of the technology or our relationship with these third parties could have a material adverse effect on our business.

Unanticipated changes in our tax rates or unanticipated tax obligations could affect our future results.

We are subject to income taxes in the United States, Singapore and various other foreign jurisdictions. The amount of income taxes we pay is subject to our interpretation and application of tax laws in jurisdictions in which we file. Changes in current or future laws or regulations, the imposition of new or changed tax laws or regulations or new interpretations by taxing authorities or courts could affect our results of operations and lead to volatility with respect tax expenses and liabilities from period to period. The application of tax laws and related regulations is subject to legal and factual interpretation, judgment and uncertainty. We cannot determine whether any legislative proposals may be enacted into law or what, if any, changes may be made to such proposals prior to their being enacted into law. If U.S. or international tax laws change in a manner that increases our tax obligation, it could result in a material adverse impact on our results of operations and our financial position.

We are subject to examinations and tax audits. There can be no assurance that the outcome from these audits will not have an adverse effect on our operating results or financial position.

Excess tax benefits associated with employee stock-based compensation are included in income tax expense. However, since the amount of such excess tax benefits and deficiencies depend on the fair market value of our common stock, our income tax provision is subject to volatility in our stock price and in the future, could unfavorably affect our future effective tax rate.

Our future effective tax rate could be unfavorably affected by unanticipated changes in the valuation of our deferred tax assets and liabilities, and the ultimate use and depletion of these various tax credits and net operating loss carryforwards. Changes in our effective tax rate could have a material adverse impact on our results of operations. We record a valuation allowance to reduce our net deferred tax assets to the amount that we believe is more likely than not to be realized. In making such determination, we consider all available positive and negative evidence quarterly, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and recent financial performance. To the extent we believe it is more likely than not that some portion of our deferred tax assets will not be realized, we record a valuation allowance against the deferred tax asset. Realization of our deferred tax assets is dependent primarily upon future taxable income in the applicable jurisdiction. Based upon our review of all positive and negative evidence, we concluded that a full valuation allowance should continue to be recorded against our state and certain federal and foreign net deferred tax assets at September 30, 2020. On a periodic basis we evaluate our deferred tax assets for realizability. The impact of releasing some or all of such valuation allowance in a future period could be material in the period in which such release occurs.

Our corporate income tax liability could materially increase if tax incentives we have negotiated in Singapore cease to be effective or applicable or if we are challenged on our use of such incentives.

We operate under certain favorable tax incentives in Singapore which are effective through March 2022 and may be extended through March 2027, and generally are dependent on our meeting certain headcount and investment thresholds. Such incentives allow certain qualifying income earned in Singapore to be taxed at reduced rates and are conditional upon our meeting certain employment and investment thresholds over time. If we fail to satisfy the conditions for receipt of these tax incentives, or to the extent U.S. or other tax authorities challenge our operation under these favorable tax incentive programs or our intercompany transfer pricing agreements, our taxable income could be taxed at higher federal or foreign statutory rates and our income tax liability and expense could materially increase beyond our projections. Each of our Singapore tax incentives is separate and distinct from the others, and may be granted, withheld, extended, modified, truncated, complied with or terminated independently without any effect on the other incentives. Absent these tax incentives, our corporate income tax rate in Singapore would generally be the 17% statutory tax rate. We are also subject to operating and other compliance requirements to maintain our favorable tax incentives. If we fail to comply with such requirements, we could lose the tax benefits and could possibly be required to refund previously realized material tax benefits. Additionally, in the future, we may fail to qualify for renewal of our favorable tax incentives or such incentives may not be available to us, which could also cause our future taxable income to increase and be taxed at higher statutory rates. Loss of one more of our tax incentives could cause us to modify our tax strategies and our operational structure, which could cause disruption in our business and have a material adverse impact on our results of operations. Further, there can be no guarantee that such modification in our tax strategy will yield tax incentives as favorable as those we have negotiated with Singapore. Our interpretations and conclusions regarding the tax incentives are not binding on any taxing authority, and if our assumptions about tax and other laws are incorrect or if these tax incentives are substantially modified or rescinded we could suffer material adverse tax and other financial consequences, which would increase our expenses, reduce our profitability and adversely affect our cash flows.

Global economic conditions, including factors that adversely affect consumer spending for the products that incorporate our integrated circuits, could adversely affect our revenues, margins, and operating results.

Our products are incorporated in numerous consumer devices, and demand for such products will ultimately be driven by consumer demand for products such as televisions, personal computers, automobiles, cable modems, and set-top boxes. Many of these purchases are discretionary. Global economic volatility and economic volatility in the specific markets in which the devices that incorporate our products are ultimately sold can cause extreme difficulties for our customers and third-party vendors in accurately forecasting and planning future business activities. This unpredictability could cause our customers to reduce spending on our products, which would delay and lengthen sales cycles. Furthermore, during challenging economic times our customers may face challenges in gaining timely access to sufficient credit, which could impact their ability to make timely payments to us. These events, together with economic volatility that may face the broader economy and, in particular, the semiconductor and communications industries, may adversely affect, our business, particularly to the extent that consumers decrease their discretionary spending for devices deploying our products.

Our business, financial condition and results of operations could be adversely affected by the political and economic conditions of the countries in which we conduct business and other factors related to our international operations.

We sell our products throughout the world. Products shipped to Asia accounted for 82% and 85% of net revenue during the three months ended September 30, 2020 and 2019, respectively. Products shipped to Asia accounted for 82% and 84% of our net revenue in the nine months ended September 30, 2020 and 2019, respectively. In addition, as of September 30, 2020, approximately 73% of our employees are located outside of the United States. The majority of our products are manufactured, assembled and tested in Asia, and all of our major distributors are located in Asia. Multiple factors relating to our international operations and to particular countries in which we operate could have a material adverse effect on our business, financial condition and results of operations. These factors include:

- changes in political, regulatory, legal or economic conditions;
- restrictive governmental actions, such as restrictions on the transfer or repatriation of funds and foreign investments and trade protection measures, including export duties and quotas and customs duties and tariffs;
- disruptions of capital and trading markets;
- changes in import or export licensing requirements;
- transportation delays;
- civil disturbances or political instability;
- geopolitical turmoil, including terrorism, war or political or military coups;
- public health emergencies, including the COVID-19 pandemic;
- differing employment practices and labor standards;

- limitations on our ability under local laws to protect our intellectual property;
- local business and cultural factors that differ from our customary standards and practices;
- nationalization and expropriation;
- changes in tax laws;
- currency fluctuations relating to our international operating activities; and
- difficulty in obtaining distribution and support.

In addition to a significant portion of our wafer supply coming from Taiwan, Singapore, and China, substantially all of our products undergo packaging and final testing in Taiwan, Singapore, China, South Korea, and Thailand. Any conflict or uncertainty in these countries, including due to natural disaster or public health or safety concerns, could have a material adverse effect on our business, financial condition and results of operations. In addition, if the government of any country in which our products are manufactured or sold sets technical standards for products manufactured in or imported into their country that are not widely shared, it may lead some of our customers to suspend imports of their products into that country, require manufacturers in that country to manufacture products with different technical standards and disrupt cross-border manufacturing relationships which, in each case, could have a material adverse effect on our business, financial condition and results of operations. We also are subject to risks associated with international political conflicts involving the U.S. and potentially other governments. In recent years, diplomatic and trade relationships between the U.S. government and China have been frayed. Recent events in Hong Kong have also prompted other governments such as that of the United Kingdom to reconsider its trade and business relationships with China and with certain Chinese companies. Difficulties in these relationships have in a number of cases required us to take actions adverse to our business to comply with governmental restrictions on business and trade with China. In May 2019 and subsequently, we ceased business operations that were prohibited with entities affiliated with Huawei Technologies Co., Ltd., or Huawei and certain other entities, when the Bureau of Industry and Security at the U.S. Department of Commerce, or BIS, amended the Export Administration Regulations, or EAR, to add such entities to the Restricted Entity List for acting contrary to the national security or foreign policy interests of the United States. In September 2020, we further ceased business operations that were prohibited with additional entities affiliated with Huawei when the BIS again amended the EAR to add such entities to the Restricted Entity List. Similarly, we ceased business operations with entities affiliated with ZTE Corp. when the BIS imposed an export licensing requirement, which was subsequently suspended through March 28, 2017. Such suspension was lifted as of March 29, 2017, however on April 17, 2018 the U.S. Department of Commerce imposed a seven-year export ban on ZTE, which was subsequently lifted as of July 13, 2018. Although we have not had significant sales to ZTE and certain other entities, we did have increasing sales to Huawei in the past year, and we believe the imposition of governmental prohibitions on selling our products to Huawei will adversely affect our revenues and operating results in the near term. We cannot provide assurances that similar disruptions of distribution arrangements in the future or the imposition of governmental prohibitions on selling our products to particular customers will not also adversely affect our revenues and operating results. Loss of a key distributor or customer under similar circumstances could have an adverse effect on our business, revenues and operating results.

Changes in trade policies among the United States and other countries, in particular the imposition of new or higher tariffs, could place pressure on our average selling prices as our customers seek to offset the impact of increased tariffs on their own products. Increased tariffs or the imposition of other barriers to international trade could have a material adverse effect on our revenues and operating results.

The United States has imposed or proposed new or higher tariffs on certain products exported by a number of U.S. trading partners, including China, Europe, Canada, and Mexico. In response, many of those trading partners, including China, have imposed or proposed new or higher tariffs on American products. Continuing changes in government trade policies create a heightened risk of further increased tariffs that impose barriers to international trade. Our business and operating results are substantially dependent on international trade. Many of our manufacturers sell products incorporating our semiconductors into international markets.

Tariffs on our customers' products may adversely affect our gross profit margins in the future due to the potential for increased pressure on our selling prices by customers seeking to offset the impact of tariffs on their own products. In addition, tariffs could make our OEM and ODM customers' products less attractive relative to products offered by their competitors, which may not be subject to similar tariffs. Some OEM and ODMs in our industry have already implemented short-term price adjustments to offset such tariffs and transitioned their production and supply chain to locations outside of China. We believe that increases in tariffs on imported goods or the failure to resolve current international trade disputes could have a material adverse effect on our business and operating results.

Our business is subject to various governmental regulations, and compliance with these regulations may cause us to incur significant expenses. If we fail to maintain compliance with applicable regulations, we may be forced to recall products and cease their manufacture and distribution, and we could be subject to civil or criminal penalties.

Our business is subject to various international and U.S. laws and other legal requirements, including packaging, product content, labor, import/export control regulations, the Foreign Corrupt Practices Act, and other anticorruption laws. These regulations are complex, change frequently and have generally become more stringent over time. We may be required to incur significant costs to comply with these regulations or to remedy violations. Any failure by us to comply with applicable government regulations could result in cessation of our operations or portions of our operations, product recalls or impositions of fines and restrictions on our ability to conduct our operations. In addition, because many of our products are regulated or sold into regulated industries, we must comply with additional regulations in marketing our products.

Our products and operations are also subject to the rules of industrial standards bodies, like the International Standards Organization, as well as regulation by other agencies, such as the U.S. Federal Communications Commission. If we fail to adequately address any of these rules or regulations, our business could be harmed.

For example, as indicated elsewhere in this report, we do a substantial portion of our business in Asia and particularly in China. In recent years, there has been a substantial focus by regulators in the United States and Europe on the business practices of major Chinese technology companies such as Huawei and ZTE. ZTE is our current customer, but in May 2019 and subsequent months, and again in September 2020 with additional affiliated entities, we ceased prohibited business operations with Huawei and its affiliates and certain other restricted entities. While we intend to continue to conduct our businesses in compliance with all applicable laws, including laws relating to export controls and anti-corruption, it is possible that the nature of our business and customers could result in a review of our relationships and practices by regulatory authorities. We could incur increased administrative and legal costs in order to respond to any inquiries, and any failure to comply with applicable laws could adversely affect our business and operating results. We have implemented policies and procedures, including adoption of an anti-corruption policy and procedures to ensure compliance with applicable export control laws, but there can be no assurance that these policies and procedures will prove effective.

We must conform the manufacture and distribution of our semiconductors to various laws and adapt to regulatory requirements in all countries as these requirements change. If we fail to comply with these requirements in the manufacture or distribution of our products, we could be required to pay civil penalties, face criminal prosecution and, in some cases, be prohibited from distributing our products in commerce until the products or component substances are brought into compliance.

If we suffer losses to our facilities or distribution system due to catastrophe, our operations could be seriously harmed.

Our facilities and distribution system, and those of our third-party contractors, are subject to risk of catastrophic loss due to fire, flood or other natural or man-made disasters. A number of our facilities and those of our contract manufacturers are located in areas with above average seismic activity. The risk of an earthquake in the Pacific Rim region or Southern California is significant due to the proximity of major earthquake fault lines. Any catastrophic loss to any of these facilities would likely disrupt our operations, delay production, shipments and revenue and result in significant expenses to repair or replace the facility. The majority of the factories we use for foundry, assembly and test, and warehousing services, are located in Asia, principally in China, Taiwan, and Singapore. Our corporate headquarters is located in Southern California. Our operations and financial condition could be seriously harmed in the event of a major earthquake, fire, or other natural or man-made disaster.

Investor confidence may be adversely impacted if we are unable to comply with Section 404 of the Sarbanes-Oxley Act of 2002, and as a result, our stock price could decline.

We are subject to rules adopted by the Securities Exchange Commission, or SEC, pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, or Sarbanes-Oxley Act, which require us to include in our Annual Report on Form 10-K our management’s report on, and assessment of the effectiveness of, our internal controls over financial reporting.

If we fail to maintain the adequacy of our internal controls, there is a risk that we will not comply with all of the requirements imposed by Section 404. Moreover, effective internal controls, particularly those related to revenue recognition, are necessary for us to produce reliable financial reports and are important to helping prevent financial fraud. Any of these possible outcomes could result in an adverse reaction in the financial marketplace due to a loss of investor confidence in the reliability of our consolidated financial statements and could result in investigations or sanctions by the SEC, the New York

Stock Exchange, or NYSE, or other regulatory authorities or in stockholder litigation. Any of these factors ultimately could harm our business and could negatively impact the market price of our securities. Ineffective control over financial reporting could also cause investors to lose confidence in our reported financial information, which could adversely affect the trading price of our common stock.

Our disclosure controls and procedures are designed to provide reasonable assurance of achieving their objectives. However, our management, including our principal executive officer and principal financial officer, does not expect that our disclosure controls and procedures will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected.

Our products must conform to industry standards in order to be accepted by end users in our markets.

Generally, our products comprise only a part or parts of a communications device. All components of these devices must uniformly comply with industry standards in order to operate efficiently together. We depend on companies that provide other components of the devices to support prevailing industry standards. Many of these companies are significantly larger and more influential in driving industry standards than we are. Some industry standards may not be widely adopted or implemented uniformly, and competing standards may emerge that may be preferred by our customers or end users. If larger companies do not support the same industry standards that we do, or if competing standards emerge, market acceptance of our products could be adversely affected, which would harm our business.

Products for communications applications are based on industry standards that are continually evolving. Our ability to compete in the future will depend on our ability to identify and ensure compliance with these evolving industry standards. The emergence of new industry standards could render our products incompatible with products developed by other suppliers. As a result, we could be required to invest significant time and effort and to incur significant expense to redesign our products to ensure compliance with relevant standards. If our products are not in compliance with prevailing industry standards for a significant period of time, we could miss opportunities to achieve crucial design wins. We may not be successful in developing or using new technologies or in developing new products or product enhancements that achieve market acceptance. Our pursuit of necessary technological advances may require substantial time and expense.

Risks Relating to Our Common Stock

Our management team may use our available cash and cash equivalents in ways with which you may not agree or in ways which may not yield a return.

We use our cash and cash equivalents for general corporate purposes, including working capital and for repayment of outstanding long-term debt. We used a portion of these assets to acquire the WiFi and Broadband assets business and NanoSemi in the third quarter of 2020. We may also, in the future, use a portion of our assets to acquire other complementary businesses, products, services or technologies. Our management has considerable discretion in the application of our cash and cash equivalents, and resources, and you will not have the opportunity to assess whether these liquid assets are being used in a manner that you deem best to maximize your return. We may use our available cash and cash equivalents and resources for corporate purposes that do not increase our operating results or market value. In addition, in the future our cash and cash equivalents, and resources may be placed in investments that do not produce significant income or that may lose value.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us more difficult, limit attempts by our stockholders to replace or remove our current management and limit the market price of our common stock.

Provisions in our certificate of incorporation and bylaws, as amended and restated, may have the effect of delaying or preventing a change of control or changes in our management. These provisions provide for the following:

- authorize our Board of Directors to issue, without further action by the stockholders, up to 25,000,000 shares of undesignated preferred stock;
- require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;

- specify that special meetings of our stockholders can be called only by our Board of Directors, our Chairman of the Board of Directors, or our President;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our Board of Directors;
- establish that our Board of Directors is divided into three classes, Class I, Class II and Class III, with each class serving staggered terms;
- provide that our directors may be removed only for cause;
- provide that vacancies on our Board of Directors may be filled only by a majority of directors then in office, even though less than a quorum;
- specify that no stockholder is permitted to cumulate votes at any election of directors; and
- require supermajority votes of the holders of our common stock to amend specified provisions of our charter documents.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our Board of Directors, which is responsible for appointing the members of our management. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with any “interested” stockholder for a period of three years following the date on which the stockholder became an “interested” stockholder.

Our share price may be volatile as a result of various factors.

The trading price of our common stock is highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. These factors include those discussed in this “Risk Factors” section of the Quarterly Report on Form 10-Q and others such as:

- actual or anticipated fluctuations in our financial condition and operating results;
- overall conditions in the semiconductor market;
- addition or loss of significant customers;
- changes in laws or regulations applicable to our products;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements of technological innovations by us or our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, or capital commitments;
- additions or departures of key personnel;
- competition from existing products or new products that may emerge;
- issuance of new or updated research or reports by securities analysts;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- disputes or other developments related to proprietary rights, including patents, litigation matters, and our ability to obtain intellectual property protection for our technologies;
- acquisitions may not be accretive and may cause dilution to our earnings per shares;
- announcement or expectation of additional financing efforts;

- sales of our common stock by us or our stockholders; and
- general economic and market conditions, including the global COVID-19 pandemic.

Furthermore, the stock markets recently have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political, and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our common stock. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We have been and may continue to be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our share price and trading volume could decline.

The trading market for our common stock depends in part on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. If one or more of the analysts who cover us downgrade our shares or change their opinion of our shares, our share price would likely decline. If one or more of these analysts cease coverage of our Company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

Future sales of our common stock in the public market could cause our share price to decline.

Sales of a substantial number of shares of our common stock in the public market, or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. As of September 30, 2020, we had approximately 74.2 million shares of common stock outstanding.

All shares of common stock are freely tradable without restrictions or further registration under the Securities Act of 1933, as amended, or the Securities Act, unless held by our "affiliates," as that term is defined under Rule 144 of the Securities Act.

Our Executive Incentive Bonus Plan permits the settlement of awards under the plan in the form of shares of our common stock. We have issued shares of our common stock to settle such bonus awards for our employees, including executives, for the 2014 to 2019 performance periods, and we intend to continue this practice in the foreseeable future. We issued 0.2 million shares of our common stock for the 2019 performance period in March 2020. If we issue additional shares of our common stock to settle bonus awards in the future, such shares may be freely sold in the public market immediately following the issuance of such shares, subject to the applicable conditions of Rule 144 and our insider trading policy, and the issuance of such shares may have an adverse effect on our share price once they are issued.

We do not intend to pay dividends for the foreseeable future.

We have never declared or paid any cash dividends on our common stock and do not intend to pay any cash dividends in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the development of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our Board of Directors. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

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

Recent Sales of Unregistered Securities

None.

Recent Repurchases of Equity Securities

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

Exhibit Number	Exhibit Title
2.1	Asset Purchase Agreement, dated as of April 5, 2020, by and among Intel Corporation, MaxLinear, Inc., and MaxLinear Asia Singapore Private Limited
10.1	Incremental Amendment No. 1, dated as of July 31, 2020, by and among MaxLinear, the guarantors party thereto, the lenders party thereto, MUFG Bank, Ltd., as administrative agent, and MUFG as collateral agent.
31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1(*)	Certification 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	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

(*) In accordance with Item 601(b)(32)(ii) of Regulation S-K and SEC Release No. 33-8238 and 34-47986, Final Rule: Management's Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports, the certifications furnished pursuant to this item will not be deemed "filed" for purposes of Section 18 of the Exchange Act (15 U.S.C. 78r), or otherwise subject to the liability of that section. Such certification will not be deemed to be incorporated by reference into any filing under the Securities Act or the Exchange Act, except to the extent that the registrant specifically incorporates it by reference.

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.

MAXLINEAR, INC.

(Registrant)

Date:	November 5, 2020	By:	/s/ Steven G. Litchfield
			Steven G. Litchfield Chief Financial Officer and Chief Corporate Strategy Officer (Principal Financial Officer and Duly Authorized Officer)

EXHIBIT 31.1

Certification of Principal Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Kishore Seendripu, Ph.D., certify that:

1. I have reviewed this Form 10-Q of MaxLinear, Inc.;

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

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

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

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

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

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

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

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

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

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

Date:	November 5, 2020	/s/ Kishore Seendripu, Ph.D.
		Kishore Seendripu, Ph.D. President and Chief Executive Officer (Principal Executive Officer)

EXHIBIT 31.2

Certification of Principal Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Steven G. Litchfield, certify that:

1. I have reviewed this Form 10-Q of MaxLinear, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: November 5, 2020

/s/ Steven G. Litchfield

Steven G. Litchfield
Chief Financial Officer and Chief Corporate Strategy Officer
(Principal 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**

I, Kishore Seendripu, Ph.D., certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Quarterly Report of MaxLinear, Inc. on Form 10-Q for the fiscal quarter ended September 30, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Quarterly Report on Form 10-Q fairly presents in all material respects the financial condition and results of operations of MaxLinear, Inc.

Date:	November 5, 2020	By:	/s/ Kishore Seendripu, Ph.D.
		Name:	Kishore Seendripu, Ph.D.
		Title:	President and Chief Executive Officer

I, Steven G. Litchfield, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Quarterly Report of MaxLinear, Inc. on Form 10-Q for the fiscal quarter ended September 30, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Quarterly Report on Form 10-Q fairly presents in all material respects the financial condition and results of operations of MaxLinear, Inc.

Date:	November 5, 2020	By:	/s/ Steven G. Litchfield
		Name:	Steven G. Litchfield
		Title:	Chief Financial Officer and Chief Corporate Strategy Officer