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 March 31, 2022

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	The Nasdaq Stock Market LLC

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 April 20, 2022, the registrant had 77,355,084 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)

	March 31, 2022	December 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	$ 151,111	$ 130,572
Short-term restricted cash	105	105
Short-term investments	19,051	—
Accounts receivable, net	125,693	119,724
Inventory	139,041	131,703
Prepaid expenses and other current assets	19,575	22,000
Total current assets	454,576	404,104
Long-term restricted cash	1,037	1,061
Property and equipment, net	60,022	60,924
Leased right-of-use assets	32,919	27,269
Intangible assets, net	140,153	152,540
Goodwill	306,713	306,668
Deferred tax assets	82,326	89,168
Other long-term assets	21,381	8,650
Total assets	$ 1,099,127	$ 1,050,384
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 60,214	$ 52,976
Accrued price protection liability	68,349	40,509
Accrued expenses and other current liabilities	75,553	57,268
Accrued compensation	30,679	56,642
Total current liabilities	234,795	207,395
Long-term lease liabilities	30,208	24,640
Long-term debt	286,298	306,153
Other long-term liabilities	19,980	22,998
Total liabilities	571,281	561,186
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; 77,375 shares issued and outstanding at March 31, 2022 and 76,778 shares issued and outstanding December 31, 2021	8	8
Additional paid-in capital	663,622	657,485
Accumulated other comprehensive income	1,050	2,125
Accumulated deficit	(136,834)	(170,420)
Total stockholders' equity	527,846	489,198
Total liabilities and stockholders' equity	$ 1,099,127	$ 1,050,384

See accompanying notes.

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

	Three Months Ended March 31, 2022	Three Months Ended March 31, 2021
Net revenue	$ 263,927	$ 209,359
Cost of net revenue	109,337	97,640
Gross profit	154,590	111,719
Operating expenses:		
Research and development	65,886	63,166
Selling, general and administrative	40,577	36,469
Restructuring charges	—	2,166
Total operating expenses	106,463	101,801
Income from operations	48,127	9,918
Interest income	31	—
Interest expense	(2,349)	(4,206)
Other income (expense), net	(770)	(104)
Total other income (expense), net	(3,088)	(4,310)
Income before income taxes	45,039	5,608
Income tax provision	11,453	1,806
Net income	$ 33,586	$ 3,802
Net income per share:		
Basic	$ 0.44	$ 0.05
Diluted	$ 0.42	$ 0.05
Shares used to compute net income per share:		
Basic	77,192	74,852
Diluted	80,641	78,283

See accompanying notes.

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

	Three Months Ended March 31,	
	2022	**2021**
Net income	$ 33,586	$ 3,802
Other comprehensive loss, net of tax:		
Foreign currency translation adjustments, net of tax expense of $2 and $376 for the three months ended March 31, 2022 and 2021, respectively	(1,075)	(989)
Other comprehensive loss	(1,075)	(989)
Total comprehensive income	$ 32,511	$ 2,813

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
FISCAL QUARTER ENDED MARCH 31, 2022
(unaudited; in thousands)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2021	76,778	$ 8	$ 657,485	$ 2,125	$ (170,420)	$ 489,198
Common stock issued pursuant to equity awards, net	1,037		13,835	—	—	13,835
Repurchase of common stock	(440)	—	(26,297)	—	—	(26,297)
Stock-based compensation	—	—	18,599	—	—	18,599
Other comprehensive loss	—	—	—	(1,075)	—	(1,075)
Net income	—	—	—	—	33,586	33,586
Balance at March 31, 2022	77,375	$ 8	$ 663,622	$ 1,050	$ (136,834)	$ 527,846

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
FISCAL QUARTER ENDED MARCH 31, 2021
(unaudited; in thousands)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2020	74,536	$ 7	$ 602,064	$ 1,435	$ (212,389)	$ 391,117
Common stock issued pursuant to equity awards, net	917	1	16,565	—	—	16,566
Repurchase of common stock	(75)	—	(2,673)	—	—	(2,673)
Stock-based compensation	—	—	12,955	—	—	12,955
Other comprehensive loss	—	—	—	(989)	—	(989)
Net income	—	—	—	—	3,802	3,802
Balance at March 31, 2021	75,378	$ 8	$ 628,911	$ 446	$ (208,587)	$ 420,778

See accompanying notes.

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

	Three Months Ended March 31,	
	2022	2021
Operating Activities		
Net income	$ 33,586	$ 3,802
Adjustments to reconcile net income to cash provided by operating activities:		
Amortization and depreciation	23,880	22,325
Amortization of debt issuance costs and accretion of discounts	486	844
Stock-based compensation	18,554	12,955
Deferred income taxes	6,842	541
Loss on disposal of property and equipment	159	368
Unrealized holding loss on investments	954	—
Impairment of leasehold improvements	—	226
Impairment of leased right-of-use assets	—	429
(Gain) loss on foreign currency	(316)	21
Excess tax benefits on stock-based awards	(7,120)	(1,809)
Changes in operating assets and liabilities:		
Accounts receivable	(5,969)	(20,079)
Inventory	(7,338)	5,658
Prepaid expenses and other assets	3,503	29,860
Leased right-of-use assets	—	36
Accounts payable, accrued expenses and other current liabilities	32,952	(22,032)
Accrued compensation	12,237	1,376
Accrued price protection liability	27,975	7,299
Lease liabilities	(3,301)	(2,002)
Other long-term liabilities	(2,918)	454
Net cash provided by operating activities	134,166	40,272
Investing Activities		
Purchases of property and equipment	(4,800)	(6,152)
Purchases of intangible assets	(4,637)	(1,112)
Proceeds loaned under notes receivable	(10,000)	—
Purchases of investments	(23,325)	(5,000)
Net cash used in investing activities	(42,762)	(12,264)
Financing Activities		
Repayment of debt	(20,000)	(20,000)
Net proceeds from issuance of common stock	87	1,298
Minimum tax withholding paid on behalf of employees for restricted stock units	(24,449)	(7,442)
Repurchase of common stock	(26,297)	(2,673)
Net cash used in financing activities	(70,659)	(28,817)
Effect of exchange rate changes on cash and cash equivalents	(230)	(32)
Increase (decrease) in cash, cash equivalents and restricted cash	20,515	(841)
Cash, cash equivalents and restricted cash at beginning of period	131,738	150,034
Cash, cash equivalents and restricted cash at end of period	$ 152,253	$ 149,193
Supplemental disclosures of cash flow information:		
Cash paid for interest	$ 2,053	$ 3,309
Cash paid for income taxes	$ 1,698	$ 593
Supplemental disclosures of non-cash activities:		
Issuance of shares for payment of bonuses	$ 38,197	$ 22,710

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 communications systems-on-chip (SoC) solutions used in broadband, mobile and wireline infrastructure, data center, and industrial and multi-market applications. MaxLinear is a fabless integrated circuit design company whose products integrate all or substantial portions of a high-speed communication system, including radio frequency (RF), high-performance analog, mixed-signal, digital signal processing, security engines, data compression and networking layers, and power management. 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 Data Over Cable Service Interface Specifications (DOCSIS), fiber and DSL broadband modems and gateways; Wi-Fi and wireline routers for home networking; radio transceivers and modems for 4G/5G base-station and backhaul infrastructure; fiber-optic modules for data center, metro, and long-haul transport networks; as well as power management and interface products used in these and many other markets.

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, 2021 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, 2021 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 2, 2022, or the Annual Report. Interim results for the three months ended March 31, 2022 are not necessarily indicative of the results that may be expected for the fiscal year ending December 31, 2022.

The functional currency of certain foreign subsidiaries is the local currency. Accordingly, assets and liabilities of these foreign subsidiaries are translated at the current exchange rate at the balance sheet date and historical rates for equity. Revenue and expense components are translated at weighted average exchange rates in effect during the period. Gains and losses resulting from foreign currency translation are included as a component of stockholders' equity. Foreign currency transaction gains and losses are included in the results of operations, and to date, have not been material.

Use of Estimates and Significant Risks and Uncertainties

The preparation of consolidated 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 of the consolidated financial statements. Actual results could differ from those estimates.

During the COVID-19 global pandemic, which is still ongoing, various restrictions were put in place causing a temporary decline in demand for certain items such as automobiles. As restrictions began easing across the world, a sudden increase in demand for electronics containing semiconductor chips and stockpiling of chips by certain firms in China blacklisted by the U.S. has exacerbated bottlenecks in the supply chain, resulting in a global semiconductor supply shortage impacting the Company's industry. Some chip manufacturers are estimating this supply shortage may continue into 2023. While these chip manufacturers are working to increase capacity in the future, and the Company is continuing to work closely with its suppliers and customers to minimize the potential adverse impacts of the supply shortage, such shortage may have a near-term impact on the Company's ability to meet increased demand on certain products and have a negative impact on its operating results which may continue into 2023. Global supply shortages, and uncertainty in customer demand and the worldwide economy in general has continued as a result of the COVID-19 pandemic, and may be further exacerbated by the impacts of high inflation, 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 $152.3 million of cash and cash equivalents at March 31, 2022 will be sufficient to fund its projected operating requirements for at least the next twelve months. A material adverse impact from the global semiconductor supply shortage 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 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 April 27, 2022, 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 the global supply shortage.

Summary of Significant Accounting Policies

Refer to the Company's Annual Report for a summary of significant accounting policies. There have been no other significant changes to the Company's significant accounting policies during the three months ended March 31, 2022.

Recently Issued Accounting Pronouncements

In October 2021, the FASB issued ASU No. 2021-08,*Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers*, to provide specific guidance to eliminate diversity in practice on how to recognize and measure acquired contract assets and contract liabilities from revenue contracts from customers in a business combination consistent with revenue contracts with customers not acquired in an acquisition. The amendments in this update provide that the acquirer should consider the terms of the acquired contracts, such as timing of payment, identify each performance obligation in the contracts, and allocate the total transaction price to each identified performance obligation on a relative standalone selling price basis as of contract inception (that is, the date the acquiree entered into the contracts) or contract modification to determine what should be recorded at the acquisition date. These amendments are effective for the Company beginning with fiscal year 2023. The impact of the adoption of the amendments in this update will depend on the magnitude of any customer contracts assumed in a business combination in 2023 and beyond.

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 March 31,	
	2022	2021
	(in thousands, except per share amounts)	
Numerator:		
Net income	$ 33,586	$ 3,802
Denominator:		
Weighted average common shares outstanding—basic	77,192	74,852
Dilutive common stock equivalents	3,449	3,431
Weighted average common shares outstanding—diluted	80,641	78,283
Net income per share:		
Basic	$ 0.44	$ 0.05
Diluted	$ 0.42	$ 0.05

For the three months ended March 31, 2022 and 2021, the Company excluded common stock equivalents for outstanding stock-based awards, which represented potentially dilutive securities of 0.9 million and 0.1 million, respectively, from the calculation of diluted net income per share due to their anti-dilutive nature.

3. Business Combinations

Acquisition of Company X

On December 8, 2021, the Company completed its acquisition of a business, or Company X, pursuant to a Purchase and Sale Agreement (the "Purchase Agreement"). The initial closing transaction consideration consisted of $5.0 million in cash. In addition, their stockholders may receive up to an additional $3.0 million in potential contingent consideration, subject to the acquired business satisfying certain financial and personnel objectives by March 31, 2023.

Company X is headquartered in Chennai, India and operates as a Wi-Fi solutions and service provider.

Acquisition Consideration

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

Description	Amount
Fair value of purchase consideration:	
Cash	$ 5,000
Contingent consideration[1]	2,700
Total purchase price	7,700

[1] 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 $3.0 million in payments subject to the acquired business's satisfying certain financial and personnel objectives by March 31, 2023 under the Purchase 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.

Purchase Price Allocation

An allocation of purchase price as of the December 8, 2021 acquisition closing date based upon an estimate of the fair value of the assets acquired and the liabilities assumed by the Company in the acquisition primarily includes $4.4 million in identifiable intangible assets and $0.6 million in net operating liabilities, with $3.9 million in goodwill.

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:			
Licensed technology	3	$	4,400
Total identifiable intangible assets acquired		$	4,400

Assumptions in the Allocations of Purchase Price

Management prepared the purchase price allocations for Company X 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 and contingent consideration. Certain stockholders that are employees of Company X were not required to remain employed in order to receive the contingent consideration; accordingly, the fair value of the contingent consideration was accounted for as a portion of the purchase consideration.

Estimates of fair value require management to make significant estimates and assumptions. 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 Company X 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. There were minor adjustments to amounts of property and equipment that resulted in a change in the preliminary purchase price allocation reflected as of March 31, 2022 compared to the preliminary purchase price allocation as of December 31, 2021 for Company X. These adjustments resulted in a decrease of $0.05 million in net operating liabilities and corresponding increase in goodwill.

The fair value of the identified intangible assets acquired from Company X 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 licensed technology 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. Future cash flows were estimated based on forecasted revenue and costs, taking into account expected future contracts and remaining contract terms. The licensed technology began amortization immediately upon the closing of the transaction.

In connection with the acquisition of Company X, 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 Company X was $3.9 million as of March 31, 2022. The Company does not expect to deduct any of the acquired goodwill for tax purposes.

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 terminating employees, vacating certain leased facilities, 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 income:

	Three Months Ended March 31,	
	2022	2021
	(in thousands)	
Employee separation expenses	$ —	$ 1,253
Lease related charges	—	608
Other	—	305
	$ —	$ 2,166

Lease related charges for the three months ended March 31, 2021 included the impairment of leased right-of-use assets and leasehold improvements of $0.4 million and $0.2 million, respectively, related to exiting a redundant facility.

The following table presents a roll-forward of the Company's restructuring liability for the three months ended March 31, 2022. 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, 2021	$ —	$ 444	$ —	$ 444
Cash payments	—	(78)	—	(78)
Liability as of March 31, 2022	—	366	—	366
Less: current portion as of March 31, 2022	—	(295)	—	(295)
Long-term portion as of March 31, 2022	$ —	$ 71	$ —	$ 71

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).

During the three months ended March 31, 2022, there was an increase in the carrying value of goodwill of $0.05 million related to minor adjustments to amounts of property and equipment in the purchase price allocation for Company X.

The Company performs an annual goodwill impairment assessment on October 31st each year, using a quantitative assessment comparing 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 carrying amount of a reporting unit exceeds its fair value, an impairment loss is recorded.

In addition to its annual review, the Company performs a test of impairment when indicators of impairment are present. During the three months ended March 31, 2022 and 2021, there were no indications of impairment of the Company's goodwill balances.

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, which are amortized over their estimated useful lives:

	Weighted Average Useful Life (in Years)	March 31, 2022 Gross Carrying Amount	March 31, 2022 Accumulated Amortization	March 31, 2022 Net Carrying Amount	December 31, 2021 Gross Carrying Value	December 31, 2021 Accumulated Amortization	December 31, 2021 Net Carrying Amount
		(in thousands)					
Licensed technology	6.2	$ 21,487	$ (2,623)	$ 18,864	$ 16,850	$ (2,218)	$ 14,632
Developed technology	7.0	308,661	(200,055)	108,606	308,661	(189,244)	119,417
Trademarks and trade names	6.2	14,800	(11,821)	2,979	14,800	(11,221)	3,579
Customer relationships	5.0	128,800	(122,047)	6,753	128,800	(116,847)	11,953
Backlog	2.4	1,300	(949)	351	1,300	(941)	359
	6.2	$ 475,048	$ (337,495)	$ 137,553	$ 470,411	$ (320,471)	$ 149,940

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

	Three Months Ended March 31, 2022	Three Months Ended March 31, 2021
	(in thousands)	
Cost of net revenue	$ 10,847	$ 10,765
Research and development	1	1
Selling, general and administrative	6,176	6,070
	$ 17,024	$ 16,836

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

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

	Three Months Ended March 31, 2022	Three Months Ended March 31, 2021
	(in thousands)	
Beginning balance	$ 149,940	$ 200,066
Additions	4,637	1,112
Amortization	(17,024)	(16,836)
Ending balance	$ 137,553	$ 184,342

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 each of the three months ended March 31, 2022 and 2021, 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 March 31, 2022:

		Amount
		(in thousands)
2022 (9 months)	$	34,480
2023		39,934
2024		24,655
2025		13,320
2026		12,209
Thereafter		12,955
Total	$	137,553

Indefinite-lived Intangible Assets

Indefinite-lived intangible assets consisted entirely of acquired in-process research and development technology, or IPR&D. As of each of March 31, 2022 and December 31, 2021, IPR&D was $2.6 million. There were no changes in the balance of indefinite-lived intangible assets in the three months ended March 31, 2022 and 2021.

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 months ended March 31, 2022 and 2021, 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:

	March 31, 2022							
			Gross Unrealized					
	Cost		Gains		Losses		Fair Value	
	(in thousands)							
Assets								
Marketable equity investments	$	20,005	$	—	$	(954)	$	19,051

		March 31, 2022
		Fair Value
		(in thousands)
Liabilities		
Contingent consideration (Note 3)	$	2,768

	December 31, 2021
	Fair Value
	(in thousands)
Liabilities	
Contingent consideration (Note 3)	2,700

At March 31, 2022, the Company held marketable equity investments with an aggregate fair value of $19.1 million that were in an unrealized loss position for less than 12 months. The gross unrealized losses of $1.0 million as of March 31, 2022 represents stock price fluctuations in the underlying securities held, and were recorded to other income (expense), net in the consolidated statement of income.

The Company evaluates securities for other-than-temporary impairment on a quarterly basis. Impairment is evaluated considering numerous factors, and their relative significance varies depending on the situation. Factors considered include the length of time and extent to which fair value has been less than the cost basis, the financial condition and near-term prospects of the issuer; including changes in the financial condition of any underlying collateral of the security; any downgrades of the security by analysts or rating agencies; nonpayment of any scheduled interest, or the reduction or elimination of dividends; as well as our intent and ability to hold the security in order to allow for an anticipated recovery in fair value.

The fair values 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 instruments within Level 1 or Level 2 of the fair value hierarchy on the basis of valuations using quoted market prices or alternate pricing sources and models utilizing market observable inputs, respectively The marketable equity investment held by the Company has been valued on the basis of quoted market prices and is therefore classified as Level 1. The contingent consideration liability is associated with the Company's acquisition of Company X (Note 3) and is classified as a Level 3 financial instrument that is subject to the acquired business's satisfaction of certain financial and personnel objectives by March 31, 2023, under the Purchase Agreement. The fair value of the contingent consideration is based on (1) applying the Monte Carlo simulation method, with underlying forecast mathematics based on Geometric Brownian motion in a risk-neutral framework, to forecast achievement of the acquired business' financial objectives under various possible contingent consideration events and (2) a probability based methodology using management's inputs and assumptions to forecast achievement of the acquired business' personnel objectives which combined may result in up to $3.0 million in total payments to the acquired business. Key inputs in the valuation include forecasted revenue, revenue volatility, discount rate and discount term as it relates to the financial objectives and probability of achievement, discount term and discount rate as it relates to the personnel objectives.

		Fair Value Measurements at March 31, 2022		
	Balance at March 31, 2022	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in thousands)			
Assets				
Marketable equity securities	$ 19,051	$ 19,051	$ —	$ —
Liabilities				
Contingent consideration	$ 2,768	$ —	$ —	$ 2,768

		Fair Value Measurements at December 31, 2021		
	Balance at December 31, 2021	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in thousands)			
Liabilities				
Contingent consideration	2,700	—	—	2,700
	$ 2,700	$ —	$ —	$ 2,700

The following summarizes the activity in Level 3 financial instruments:

	Three Months Ended March 31,	
	2022	2021
Contingent Consideration		
Beginning balance	$ 2,700	$ —
Accretion of discount [(1)]	68	—
Ending balance	$ 2,768	$ —

[(1)] Changes to the balance associated with the estimated fair value of contingent consideration for the three months ended March 31, 2022 were primarily due to accretion of the related discount.

For the three months ended March 31, 2022, there were no transfers between Level 1, Level 2, or Level 3 financial instruments.

Financial Instruments Not Recorded at Fair Value on a Recurring Basis

Some of the Company’s financial instruments are recorded at amounts that approximate fair value due to their liquid or short-term nature or by election on investments in privately-held entities as described below. Such financial assets and financial liabilities include: cash and cash equivalents, restricted cash, net receivables, investments in privately-held entities, 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).

Included in other long-term assets are investments in privately held entities of $8.3 million and $5.0 million as of March 31, 2022 and December 31, 2021, respectively. The Company does not have the ability to exercise significant influence or control over such entity and has accounted for the investments as financial instruments. Given that fair values for such investments are not readily determinable, the Company is electing to measure these investments at cost, less any impairment, and adjust the carrying value to fair value if any observable price changes for similar investments in the same entity are identified.

8. Debt

Debt

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

	March 31, 2022	December 31, 2021
	(in thousands)	
Principal balance:		
Initial term loan under June 23, 2021 credit agreement	$ 290,000	$ 310,000
Total principal balance	290,000	310,000
Less:		
Unamortized debt discount	(787)	(816)
Unamortized debt issuance costs	(2,915)	(3,031)
Net carrying amount of long-term debt	286,298	306,153
Less: current portion of long-term debt	—	—
Long-term debt, non-current portion	$ 286,298	$ 306,153

As of March 31, 2022 and December 31, 2021, the weighted average effective interest rate on debt was approximately 2.8% and 3.2%, respectively.

During each of the three months ended March 31, 2022 and 2021, the Company recognized total amortization of debt discount and debt issuance costs of $0.1 million and $0.5 million, respectively, to interest expense.

The approximate aggregate fair value of the term loans outstanding as of March 31, 2022 and December 31, 2021 was $291.4 million and $311.0 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 March 31, 2022, the outstanding principal balance of $290.0 million is due in full on June 23, 2028, upon maturity of the loan.

Initial Term Loan and Revolving Facility under June 23, 2021 Credit Agreement

On June 23, 2021, the Company entered into a Credit Agreement (the “June 23, 2021 Credit Agreement”), by and among the Company, the lenders from time to time party thereto, and Wells Fargo Bank, National Association, as administrative agent and collateral agent, that provides for a senior secured term B loan facility, or the “Initial Term Loan under the June 23, 2021 Credit Agreement,” in an aggregate principal amount of $350.0 million and a senior secured revolving credit facility, or the “Revolving Facility,” in an aggregate principal amount of up to $100.0 million. The proceeds of the Initial Term Loan under the June 23, 2021 Credit Agreement were used (i) to repay in full all outstanding indebtedness under that certain Credit Agreement dated May 12, 2017, by and among the Company, MUFG Bank Ltd., as administrative agent and MUFG Union Bank, N.A., as collateral agent and the lenders from time to time party thereto (as amended by Amendment No. 1, dated July 31, 2020 and as further amended, amended and restated, waived, supplemented or otherwise modified from time to time, the “May 12, 2017 Credit Agreement”) and (ii) to pay fees and expenses incurred in connection therewith. The remaining proceeds of the Initial Term Loan under the June 23, 2021 Credit Agreement are available for general corporate purposes and the proceeds of the Revolving Facility may be used to finance the working capital needs and other general corporate purposes of the Company and its subsidiaries. As of March 31, 2022, the Revolving Facility was undrawn.

The June 23, 2021 Credit Agreement permits the Company to request incremental loans in an aggregate principal amount not to exceed the sum of an amount equal to the greater of (x) $175.0 million and (y) 100% of consolidated EBITDA, plus the amount of certain voluntary prepayments, plus an unlimited amount that is subject to pro forma compliance with certain first lien net leverage ratio, secured net leverage ratio and total net leverage ratio tests. Incremental loans are subject to certain additional conditions, including obtaining additional commitments from the lenders then party to the June 23, 2021 Credit Agreement or new lenders.

Under the June 23, 2021 Credit Agreement, the Initial Term Loan bears interest, at the Company’s option, at a per annum 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-month interest period plus 1.00%, in each case, plus an applicable margin of 1.25% or (ii) an adjusted LIBOR rate, subject to a floor of 0.50%, plus an applicable margin of 2.25%. Loans under the Revolving Facility initially bear interest, at a per annum rate equal to either (i) a base rate (as calculated above) plus an applicable margin of 0.00%, or (ii) an adjusted LIBOR rate (as calculated above) plus an applicable margin of 1.00%. Following delivery of financial statements for the Company's fiscal quarter ending June 30, 2021, the applicable margin for loans under the Revolving Facility will range from 0.00% to 0.75% in the case of base rate loans and 1.00% to 1.75% in the case of LIBOR rate loans, in each case, depending on the Company's secured net leverage ratio as of the most recently ended fiscal quarter. The Company is required to pay commitment fees ranging from 0.175% to 0.25% per annum on the daily undrawn commitments under the Revolving Facility, depending on the Company's secured net leverage ratio as of the most recently ended fiscal quarter. Commencing on September 30, 2021, the Initial Term Loan under the June 23, 2021 Credit Agreement will amortize in equal quarterly installments equal to 0.25% of the original principal amount of the Initial Term Loan under the June 23, 2021 Credit Agreement, with the balance payable on the maturity date. The June 23, 2021 Credit Agreement contains customary provisions specifying alternative interest rate calculations to be employed at such time as LIBOR ceases to be available as a benchmark for establishing the interest rate on floating interest rate borrowings.

The Company is required to make mandatory prepayments of the outstanding principal amount of term loans under the June 23, 2021 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 June 23, 2021 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 following the closing date of the June 23, 2021 Credit Agreement. The Initial Term Loan under the June 23, 2021 Credit Agreement will mature on June 23, 2028, at which time all outstanding principal and accrued and unpaid interest on the Initial Term Loan under the June 23, 2021 Credit Agreement must be repaid. The Revolving Facility will mature on June 23, 2026, at which time all outstanding principal and accrued and unpaid interest under the Revolving Facility must be repaid. The Company is also obligated to pay fees customary for a credit facility of this size and type.

The Company's obligations under the June 23, 2021 Credit Agreement are required to be guaranteed by certain of its domestic subsidiaries meeting materiality thresholds set forth in the June 23, 2021 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, dated as of June 23, 2021, by and among the Company, the subsidiary guarantors from time to time party thereto, and Wells Fargo Bank, National Association, as collateral agent.

The June 23, 2021 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 set forth in the June 23, 2021 Credit Agreement. The Revolving Facility also prohibits the Company from having a secured net leverage ratio in excess of 3.50:1.00 (subject to a temporary increase to 3.75:1.00 following the consummation of certain material permitted acquisitions) as of the last day of any fiscal quarter of the Company (commencing with the fiscal quarter ending September 30, 2021) if the aggregate borrowings under the Revolving Facility exceed 1% of the aggregate commitments thereunder (subject to certain exceptions set forth in the June 23, 2021 Credit Agreement) as of such date. As of March 31, 2022, the Company was in compliance with such covenants. The June 23, 2021 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 June 23, 2021 Credit Agreement and may exercise certain other rights and remedies provided for under the June 23, 2021 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 $350.2 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 3.4%, which represents a Level 2 fair value measurement. The debt discount of $0.9 million and debt issuance costs of $2.9 million associated with the Initial Term Loan under the June 23, 2021 Credit Agreement are being amortized to interest expense using the effective interest method over its seven-year term. Debt issuance costs of $0.4 million associated with the Revolving Facility are being amortized to interest expense over its five-year term.

7. Balance Sheet Details

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

	March 31, 2022	December 31, 2021
	(in thousands)	
Cash and cash equivalents	$ 151,111	$ 130,572
Short-term restricted cash	105	105
Long-term restricted cash	1,037	1,061
Total cash, cash equivalents and restricted cash	$ 152,253	$ 131,738

As of March 31, 2022 and December 31, 2021, cash and cash equivalents included money market funds of approximately $0 and $20.4 million, respectively. As of March 31, 2022 and December 31, 2021, the Company had restricted cash of approximately $1.1 million and $1.2 million, respectively. The cash is restricted in connection with guarantees for certain import duties and office leases.

Inventory consists of the following:

	March 31, 2022	December 31, 2021
	(in thousands)	
Work-in-process	$ 74,191	$ 72,369
Finished goods	64,850	59,334
	$ 139,041	$ 131,703

Property and equipment, net consists of the following:

	Useful Life (in Years)	March 31, 2022	December 31, 2021
		(in thousands)	
Furniture and fixtures	5	$ 3,956	$ 3,917
Machinery and equipment	3-5	66,524	65,004
Masks and production equipment	2-5	32,284	32,099
Software	3	8,921	8,763
Leasehold improvements	1-5	31,239	30,889
Construction in progress	N/A	5,891	4,647
		148,815	145,319
Less: accumulated depreciation and amortization		(88,793)	(84,395)
		$ 60,022	$ 60,924

Depreciation expense for the three months ended March 31, 2022 and 2021 was $4.8 million and $3.7 million, respectively.

In March 2022, the Company entered into a note receivable with a supplier for $10.0 million, which is included in other long-term assets on the consolidated balance sheet. Repayments of $2.0 million per year is due annually by March 31, in years 2024 through 2027; provided that certain production utilization targets for the prior year are met.

Accrued price protection liability consists of the following activity:

	Three Months Ended March 31, 2022	2021
	(in thousands)	
Beginning balance	$ 40,509	$ 47,766
Charged as a reduction of revenue	41,473	24,423
Payments	(13,633)	(17,160)
Ending balance	$ 68,349	$ 55,029

Accrued expenses and other current liabilities consist of the following:

	March 31, 2022	December 31, 2021
	(in thousands)	
Accrued technology license payments	$ 5,988	$ 7,337
Accrued professional fees	3,565	3,651
Accrued engineering and production costs	4,076	2,934
Accrued restructuring	295	320
Accrued royalty	1,911	2,080
Short-term lease liabilities	8,588	8,888
Accrued customer credits	1,932	5,136
Income tax liability	7,931	7,105
Customer contract liabilities	1,089	1,044
Accrued obligations to customers for price adjustments	29,226	6,721
Accrued obligations to customers for stock rotation rights	2,498	2,847
Other	8,454	9,205
	$ 75,553	$ 57,268

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

	Cumulative Translation Adjustments	Pension and Other Defined Benefit Plan Obligation	Total
		(in thousands)	
Balance at December 31, 2021	$ 21	$ 2,104	$ 2,125
Other comprehensive income (loss) before reclassifications, net of tax	(1,075)	—	(1,075)
Balance at March 31, 2022	$ (1,054)	$ 2,104	$ 1,050

9. Stock-Based Compensation

Employee Stock-Based Compensation Plans

At March 31, 2022, 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 its stock-based compensation and equity plans as of December 31, 2021. There have been no material changes to the terms of the Company's equity incentive plans during the three months ended March 31, 2022.

As of March 31, 2022, the number of shares of common stock available for future issuance under the 2010 Plan was 16,641,362 shares. As of March 31, 2022, the number of shares of common stock available for future issuance under the ESPP was 5,061,372 shares.

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 applicable stock exchange, on a date approved by the Board of Directors. In connection with the Company's bonus programs, in February 2022, the Company issued 0.5 million freely-tradable shares of the Company's common stock in settlement of bonus awards to employees, including executives, for the 2021 performance period. At March 31, 2022, the Company has an accrual of $9.0 million for bonus awards for employees for year-to-date achievement in the 2022 performance period. The Company's compensation committee retains discretion to effect payment in cash, stock, or a combination of cash and stock.

Stock-Based Compensation

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

	Three Months Ended March 31,			
	2022		2021	
	(in thousands)			
Cost of net revenue	$	163	$	169
Research and development		9,676		7,162
Selling, general and administrative		8,715		5,624
	$	18,554	$	12,955

The total unrecognized compensation cost related to unvested restricted stock units as of March 31, 2022 was $117.0 million, and the weighted average period over which these equity awards are expected to vest is 2.50 years.

The total unrecognized compensation cost related to unvested performance-based restricted stock units as of March 31, 2022 was $32.4 million, and the weighted average period over which these equity awards are expected to vest is 1.37 years.

The total unrecognized compensation cost related to unvested stock options as of March 31, 2022 was $0.2 million, and the weighted average period over which these equity awards are expected to vest is 0.26 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, 2021	5,233	$	25.14
Granted	1,502		63.44
Vested	(730)		56.13
Canceled	(108)		25.66
Outstanding at March 31, 2022	5,897	$	31.05

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 is 250% 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 March 31, 2022, the Company believes that it is probable that it 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, 2021	2,005	$ 19.80
Granted[1]	376	75.40
Vested	(701)	17.85
Canceled	(1)	35.57
Outstanding at March 31, 2022	1,679	$ 33.05

[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 three months ended March 31, 2022 and 2021 there wereno shares of common stock purchased under the ESPP.

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:

	Three Months Ended March 31,	
	2022	2021
Weighted-average grant date fair value per share	$ 18.82	$ 8.66
Risk-free interest rate	0.06 %	0.12 %
Dividend yield	— %	— %
Expected life (in years)	0.50	0.50
Volatility	43.83 %	59.72 %

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, 2021	417	$ 17.05		
Exercised	(6)	13.42		
Outstanding at March 31, 2022	411	$ 17.10	3.07	$ 16,947
Vested and expected to vest at March 31, 2022	411	$ 17.10	3.07	$ 16,947
Exercisable at March 31, 2022	383	$ 17.00	3.04	$ 15,831

No stock options were granted by the Company during the three months ended March 31, 2022.

The intrinsic value of stock options exercised was $0.3 million and $2.3 million in the three months ended March 31, 2022 and 2021, respectively.

Cash received from exercise of stock options was $0.1 million and $1.3 million during the three months ended March 31, 2022 and 2021, respectively.

The tax benefit from stock options exercised was $0.4 million and $2.7 million during the three months ended March 31, 2022 and 2021, respectively.

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 provision of $11.5 million in the three months ended March 31, 2022 and an income tax provision of $1.8 million in the three months ended March 31, 2021.

The difference between the Company's effective tax rate and the 21.0% U.S. federal statutory rate for the three months ended March 31, 2022 primarily related to the mix of pre-tax income among jurisdictions, permanent tax items including a tax on global intangible low-taxed income, stock based compensation, excess tax benefits related to stock-based compensation, release of uncertain tax positions under ASC 740-10, and release of the valuation allowance on certain federal R&D credits. The permanent tax item related to global intangible low-taxed income also reflects recent legislative changes requiring the capitalization of research and experimentation costs, as well as limitations on the creditability of certain foreign income taxes.

The difference between the Company's effective tax rate and the 21.0% U.S. federal statutory rate for the three months ended March 31, 2021 primarily related to the mix of pre-tax income among jurisdictions, permanent tax items including the tax on global intangible low-taxed income, stock based compensation, excess tax benefits related to stock-based compensation, and release of certain reserves for uncertain tax positions under ASC 740-10.

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 income as income tax expense.

During the three months ended March 31, 2022, the Company's unrecognized tax benefits increased by $2.2 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 March 31, 2022 were approximately $0.5 million and $0.03 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 March 31, 2022, the statutes of limitations for the assessment of federal, state, and foreign income taxes are closed for the years before 2018, 2017, and 2016, respectively.

The Company's subsidiary in Singapore operates under certain tax incentives in Singapore, which are generally effective 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. The Company recorded a tax provision in the three months ended March 31, 2022 at the incentive rate. In the three months ended March 31, 2021, due to 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 provision.

11. Concentration of Credit Risk, Significant Customers and Geographic Information

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 end-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 March 31,	
	2022	2021
Percentage of total net revenue		
Customer A (direct)	16 %	15 %
Customer B (direct)	11 %	12 %
Customer C (distributor)	10 %	11 %

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

	March 31, 2022	December 31, 2021
Percentage of gross accounts receivable		
Customer B (direct)	12 %	14 %
Customer C (distributor)	16 %	*
Customer D (direct)	10 %	17 %

* 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 March 31,	
	2022	2021
Vendor A	27 %	45 %
Vendor B	26 %	20 %
Vendor C	12 %	11 %

Geographic Information

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

	Three Months Ended March 31,			
	2022		2021	
	Amount	% of total net revenue	Amount	% of total net revenue
Asia	$ 211,665	80 %	$ 171,160	82 %
United States	8,868	3 %	10,300	5 %
Rest of world	43,394	17 %	27,899	13 %
Total	$ 263,927	100 %	$ 209,359	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 March 31,	
	2022	2021
Percentage of total net revenue		
Hong Kong	38 %	37 %
China	11 %	14 %
Vietnam	13 %	12 %

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, China and Vietnam, 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):

	March 31, 2022		December 31, 2021	
	Amount	% of total	Amount	% of total
United States	$ 372,671	69 %	$ 382,650	70 %
Singapore	121,117	22 %	122,474	22 %
Rest of world	46,019	9 %	42,277	8 %
Total	$ 539,807	100 %	$ 547,401	100 %

12. Revenue from Contracts with Customers

Revenue by Market

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

	Three Months Ended March 31,					
	2022			2021		
Broadband	$	134,556		$	124,190	
% of net revenue		51	%		59	%
Connectivity		60,179			27,449	
% of net revenue		23	%		13	%
Infrastructure		33,181			28,792	
% of net revenue		12	%		14	%
Industrial and multi-market		36,011			28,928	
% of net revenue		14	%		14	%
Total net revenue	$	263,927		$	209,359	

Revenues from sales through the Company's distributors accounted for 47% and 44% of net revenue for the three months ended March 31, 2022 and 2021, respectively.

Contract Liabilities

As of March 31, 2022 and December 31, 2021, customer contract liabilities were approximately $1.1 million and $1.0 million, respectively, and consisted primarily of advanced payments received for which performance obligations have not been completed. Revenue recognized in each of the three months ended March 31, 2022 and 2021 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 months ended March 31, 2022 and 2021.

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

As of March 31, 2022 and December 31, 2021, obligations to customers consisting of estimates of price protection rights offered to the Company's end customers totaled $68.3 million and $40.5 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 March 31, 2022 were $29.2 million and $2.5 million, respectively, and as of December 31, 2021 were $6.7 million and $2.8 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 months ended March 31, 2022 and 2021 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 March 31, 2022 and December 31, 2021, 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 $0.9 million and $1.1 million, respectively. Right of return assets are included in inventory in the consolidated balance sheets.

As of March 31, 2022 and December 31, 2021, there were no impairment losses recorded on customer accounts receivable.

13. Leases

Operating Leases

Operating lease arrangements primarily consist of office leases expiring in various years through 2028. These leases have original terms of approximately 2 to 8 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 March 31, 2022 and December 31, 2021, the weighted average discount rate for operating leases was 3.5% and 3.6%, respectively, and the weighted average remaining lease term for operating leases was 4.5 years and 4.6 years, respectively, as of the end of each of these periods.

The table below presents aggregate future minimum payments due under leases, reconciled to total lease liabilities included in the consolidated balance sheet as of March 31, 2022:

	Operating Leases (in thousands)
2022 (9 months)	$ 7,243
2023	9,416
2024	8,415
2025	7,550
2026	5,434
Thereafter	4,330
Total minimum payments	42,388
Less: imputed interest	(3,207)
Less: unrealized translation loss	(385)
Total lease liabilities	38,796
Less: short-term lease liabilities	(8,588)
Long-term lease liabilities	$ 30,208

Operating lease cost was $2.5 million for each of the three months ended March 31, 2022 and 2021, respectively.

Short-term lease costs for the three months ended March 31, 2022 and 2021 were not material. There were $1.0 million right-of-use assets obtained in exchange for new lease liabilities for the three months ended March 31, 2022. There were $5.2 million right-of-use assets obtained in exchange for new lease liabilities for the three months ended March 31, 2021.

14. Employee Defined Benefit Retirement Plans

Pension and Other Defined Benefit Retirement Obligations

In connection with a 2020 acquisition, the Company assumed an obligation of $7.9 million associated with certain defined benefit retirement plans, including a pension plan. As of March 31, 2022 and December 31, 2021, the defined benefit obligation was $4.5 million and $4.5 million, respectively. The benefit is based on a formula applied to eligible employee earnings. Net periodic benefit costs were $0.1 million and $0.1 million for the three months ended March 31, 2022 and 2021 and were recorded to research and development expenses in the consolidated statements of income.

15. Commitments and Contingencies

Inventory Purchase and Other Contractual Obligations

As of March 31, 2022, future minimum payments under inventory purchase and other obligations are as follows:

	Inventory Purchase Obligations	Other Obligations	Total
2022 (9 months)	$ 176,447	$ 17,858	$ 194,305
2023	6,853	15,410	22,263
2024	—	705	705
2025	—	111	111
Total minimum payments	$ 183,300	$ 34,084	$ 217,384

Other obligations consist of contractual payments due for software licenses.

Jointly Funded Research and Development

From time to time, the Company enters into contracts for jointly funded research and development projects to develop technology that may be commercialized into a product in the future. As the Company may be required to repay all or a portion of the funds provided by the other parties under certain conditions, certain funds received from the other parties of $3.0 million have been deferred in other long-term liabilities. Additional amounts under the contracts are tied to certain milestones and will also be recorded as a long-term liability as payment due under such milestones are received. The Company de-recognizes the liabilities when the contingencies associated with the repayment conditions have been resolved. During the three months ended March 31, 2022, the Company recognized $3.8 million in previously deferred amounts from other parties due to resolution of such repayment conditions.

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.

16. Stock Repurchases

On February 23, 2021, the Company's board of directors authorized a plan to repurchase up to $100 million of the Company's common stock over a period ending February 16, 2024. The amount and timing of repurchases are subject to a variety of factors including liquidity, share price, market conditions, and legal requirements. Any purchases will be funded from available working capital and may be effected through open market purchases, block transactions, and privately negotiated transactions. The share repurchase program does not obligate the Company to make any repurchases and may be modified, suspended, or terminated by the Company at any time without prior notice.

During the three months ended March 31, 2022, the Company repurchased 440,449 shares of its common stock at a weighted average price of $59.6755 per share at an aggregate value of approximately $26.3 million under the repurchase program. At March 31, 2022, the aggregate value of common stock repurchased under the program was approximately $49.8 million and approximately $50.2 million remained available for repurchase under the program.

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 in Part II, Item1A in this report.

Overview

We are a provider of communications systems-on-chip solutions used in broadband, mobile and wireline infrastructure, data center, and industrial and multi-market applications. We are a fabless integrated circuit design company whose products integrate all or substantial portions of a high-speed communication system, including radio frequency (RF), high-performance analog, mixed-signal, digital signal processing, security engines, data compression and networking layers, and power management. In most cases, these products are designed on a single silicon-die, using standard digital complementary metal oxide semiconductor (CMOS) processes and conventional packaging technologies. We believe this approach enables our solutions to achieve superior power, performance, and cost 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 devices include cable Data Over Cable Service Interface Specifications (DOCSIS), fiber and DSL broadband modems and gateways; Wi-Fi and wireline routers for home networking; radio transceivers and modems for 4G/5G base-station and backhaul infrastructure; fiber-optic modules for data center, metro, and long-haul transport networks; as well as power management and interface products used in these and many other markets.

Our highly integrated semiconductor devices and platform-level solutions are primarily manufactured using low-cost CMOS process technology. CMOS processes are ideally suited for large digital logic implementations targeting high-volume and low-cost consumer applications. Importantly, our ability to design analog and mixed-signal circuits in CMOS allows us to efficiently combine analog functionality and complex digital signal processing logic in the same integrated circuit. As a result, our solutions have exceptional levels of functional integration and performance, low manufacturing cost, and reduced power consumption. In addition, our proprietary CMOS-based radio and digital system architectures also enable shorter design cycles, significant design flexibility and low system-level cost across a wide range of broadband communications, wired and wireless infrastructure, and industrial and multi-market customer applications.

In the three months ended March 31, 2022, revenues were $263.9 million derived 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. 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 80% and 82% of net revenue during the three months ended March 31, 2022 and 2021, respectively, including 38% from products shipped to Hong Kong, 11% from products shipped to mainland China, and 13% from products shipped to Vietnam during the three months ended March 31, 2022 and 37% from products shipped to Hong Kong, 14% from products shipped to mainland China, and 12% from products shipped to Vietnam during the three months ended March 31, 2021. 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 months ended March 31, 2022 and 2021 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 March 31, 2022, our top three customers accounted for 37% of our net revenue, and our ten largest customers collectively accounted for 71% of our net revenue, of which distributor customers accounted for 32% 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 integrated circuits 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 and the Global Semiconductor Supply Shortage

During the COVID-19 global pandemic, which is still ongoing, various restrictions were put in place causing a temporary decline in demand for certain items such as automobiles. As restrictions began easing across the world, a sudden increase in demand for electronics containing semiconductor chips and stockpiling of chips by certain firms in China blacklisted by the U.S. has exacerbated bottlenecks in the supply chain, resulting in a global semiconductor supply shortage impacting our industry. Some chip manufacturers are estimating this supply shortage may continue into 2023. While these chip manufacturers are working to increase capacity in the future, and we are continuing to work closely with our suppliers and customers to minimize the potential adverse impacts of the supply shortage, such shortage may have a near-term impact on our ability to meet increased demand on certain products which may continue into 2023.

Global supply shortages, and uncertainty in customer demand and the worldwide economy has continued as a result of the COVID-19 pandemic and may be further exacerbated by the impacts of high inflation, 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.

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 of America. 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 business combinations, revenue recognition, inventory valuation, production masks, goodwill and other intangible assets valuation, and income taxes. 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, those 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, 2021, which we filed with the Securities and Exchange

Commission, or SEC, on February 2, 2022, or our Annual Report. There have been no material changes to our critical accounting policies and estimates during the three months ended March 31, 2022.

Recently Issued Accounting Pronouncements

In October 2021, the FASB issued ASU No. 2021-08,*Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilties from Contracts with Customers*, to provide specific guidance to eliminate diversity in practice on how to recognize and measure acquired contract assets and contract liabilities from revenue contracts from customers in a business combination consistent with revenue contracts with customers not acquired in an acquisition. The amendments in this update provide that the acquirer should consider the terms of the acquired contracts, such as timing of payment, identify each performance obligation in the contracts, and allocate the total transaction price to each identified performance obligation on a relative standalone selling price basis as of contract inception (that is, the date the acquiree entered into the contracts) or contract modification to determine what should be recorded at the acquisition date. These amendments are effective for us beginning with fiscal year 2023. The impact of the adoption of the amendments in this update will depend on the magnitude of any customer contracts assumed in a business combination in 2023 and beyond.

Results of Operations

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

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 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.

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 and amortization of discounts on debt and other liabilities. Other income (expense) generally consists of income (expense) generated from non-operating transactions and unrealized holding gains (losses) from certain investments required to be marked to market value.

Income Tax Provision. 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 income data as a percentage of net revenue for the periods indicated:

	Three Months Ended March 31,	
	2022	2021
Net revenue	100 %	100 %
Cost of net revenue	41	47
Gross profit	59	53
Operating expenses:		
Research and development	25	30
Selling, general and administrative	15	17
Restructuring charges	—	1
Total operating expenses	40	49
Income from operations	18	5
Interest income	—	—
Interest expense	(1)	(3)
Other income (expense), net	—	—
Total other income (expense), net	(1)	(2)
Income before income taxes	17	3
Income tax provision	4	1
Net income	13 %	2 %

Net Revenue

	Three Months Ended March 31,			
	2022	2021	$ Change	% Change
	(dollars in thousands)			
Broadband	$ 134,556	$ 124,190	$ 10,366	8 %
% of net revenue	51 %	59 %		
Connectivity	60,179	27,449	32,730	119 %
% of net revenue	23 %	13 %		
Infrastructure	33,181	28,792	4,389	15 %
% of net revenue	12 %	14 %		
Industrial and multi-market	36,011	28,928	7,083	24 %
% of net revenue	14 %	14 %		
Total net revenue	$ 263,927	$ 209,359	$ 54,568	26 %

Net revenue increased $54.6 million to $263.9 million for the three months ended March 31, 2022, as compared to $209.4 million for the three months ended March 31, 2021, due to improvement in supply and market strength attributed to the work-from-home environment. The increase in broadband net revenue of $10.4 million was primarily from gateway revenues and, to a lesser extent, improvements in satellite and tuner shipments. The increase in connectivity revenue of $32.7 million was primarily driven by higher Wi-Fi and ethernet revenues as our supply improved and an increase in MoCA product shipments. The increase in infrastructure revenues of $4.4 million was primarily driven by an increase in 5G wireless access product shipments and, to a lesser extent, increased shipments of wireless backhaul, high-performance analog, and G.hn and MoCA last-mile access products in this category. The increase in industrial and multi-market revenue of $7.1 million was related to increased shipments of component and high-performance analog products.

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, as well as uncertainty in supply from the global semiconductor chip shortage, we may experience increased volatility in our sales and revenues.

Cost of Net Revenue and Gross Profit

	Three Months Ended March 31,			
	2022	2021	$ Change	% Change
	(dollars in thousands)			
Cost of net revenue	$ 109,337	$ 97,640	$ 11,697	12 %
% of net revenue	41 %	47 %		
Gross profit	154,590	111,719	42,871	38 %
% of net revenue	59 %	53 %		

Cost of net revenue increased $11.7 million to $109.3 million for the three months ended March 31, 2022, as compared to $97.6 million for the three months ended March 31, 2021. The increase was primarily driven by higher sales and incremental expenses. Gross profit percentage improved for the three months ended March 31, 2022, as compared to the three months ended March 31, 2021, due primarily to improved absorption of amortization of intangible assets.

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 and global semiconductor supply shortages, we may experience increased volatility in our cost of net revenues as a result.

Research and Development

	Three Months Ended March 31,			
	2022	2021	$ Change	% Change
	(dollars in thousands)			
Research and development	$ 65,886	$ 63,166	$ 2,720	4 %
% of net revenue	25 %	30 %		

Research and development expense increased $2.7 million to $65.9 million for the three months ended March 31, 2022 from $63.2 million in the three months ended March 31, 2021.There were increases in computer aided design expense of $0.9 million, equipment and tools expense of $0.8 million, and occupancy expense of $0.4 million.

We expect our research and development expenses to increase in future years as we continue to expand our product portfolio and enhance existing products.

Selling, General and Administrative

	Three Months Ended March 31,			
	2022	2021	$ Change	% Change
	(dollars in thousands)			
Selling, general and administrative	$ 40,577	$ 36,469	$ 4,108	11 %
% of net revenue	15 %	17 %		

Selling, general and administrative expense increased $4.1 million to $40.6 million for the three months ended March 31, 2022, as compared to $36.5 million for the three months ended March 31, 2021. The increase was primarily due to increases in headcount. There were increases in personnel expense of $4.6 million, including $3.3 million from performance-based bonus accruals and stock-based compensation.

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

Restructuring Charges

	Three Months Ended March 31, 2022	Three Months Ended March 31, 2021	$ Change	% Change
	(dollars in thousands)			
Restructuring charges	$ —	$ 2,166	$ (2,166)	(100) %
% of net revenue	— %	1 %		

Restructuring charges decreased $2.2 million to $0 for the three months ended March 31, 2022, compared to $2.2 million for the three months ended March 31, 2021. Restructuring charges in the three months ended March 31, 2021 primarily consisted of $1.3 million in employee severance-related charges and $0.6 million of lease-related charges, which primarily consisted of impairment of leased right-of-use assets and leasehold improvements.

Interest and Other Income (Expense)

	Three Months Ended March 31, 2022	Three Months Ended March 31, 2021	$ Change	% Change
	(dollars in thousands)			
Interest and other income (expense), net	$ (3,088)	$ (4,310)	$ 1,222	(28) %
% of net revenue	(1)%	(2)%		

Interest and other income (expense), net changed by $1.2 million from a net expense of $4.3 million in the three months ended March 31, 2021 to a net expense of $3.1 million for the three months ended March 31, 2022. The change in interest and other income (expense), net was primarily due to the impact of a $1.6 million decrease in interest expense on outstanding debt, mostly related to a lower average balance of term loan debt outstanding. The remaining change included a $0.7 million increase in other income (expense), net, from expense of $0.1 million in the 2021 period to expense of $0.8 million in the 2022 period primarily related to $1.0 million in unrealized holding losses on equity securities that are marked to market value on the balance sheet, partially offset by the impact of foreign currency fluctuations.

Income Tax Provision

	Three Months Ended March 31, 2022	Three Months Ended March 31, 2021	$ Change	% Change
	(dollars in thousands)			
Income tax provision	$ 11,453	$ 1,806	$ 9,647	534 %

The income tax provision for the three months ended March 31, 2022 was $11.5 million compared to an income tax provision of $1.8 million for the three months ended March 31, 2021.

The difference between our effective tax rate and the 21.0% U.S. federal statutory rate for the three months ended March 31, 2022 primarily related to the mix of pre-tax income among jurisdictions, permanent tax items including a tax on global intangible low-taxed income, stock based compensation, excess tax benefits related to stock-based compensation, release of uncertain tax positions under ASC 740-10, and release of the valuation allowance on certain federal R&D credits. The permanent tax item related to global intangible low-taxed income also reflects recent legislative changes requiring the capitalization of research and experimentation costs, as well as limitations on the creditability of certain foreign income taxes.

The difference between our effective tax rate and the 21.0% U.S. federal statutory rate for the three months ended March 31, 2021 primarily related to the mix of pre-tax income among jurisdictions, permanent tax items including the tax on global intangible low-taxed income, stock based compensation, excess tax benefits related to stock-based compensation, and release of certain reserves for uncertain tax positions under ASC 740-10.

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 effective 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. We recorded a tax provision in the three months ended March 31, 2022 at the incentive rate. In the three months ended March 31, 2021, due to our Singapore net operating losses and a full valuation allowance in Singapore, the incentives did not have a material impact on our income tax provision. The 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.

Liquidity and Capital Resources

As of March 31, 2022, we had cash and cash equivalents of $151.1 million, restricted cash of $1.1 million and net accounts receivable of $125.7 million. Additionally, as of March 31, 2022, our working capital was $219.8 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 also use cash to pay down outstanding debt, repurchase our common stock under our stock repurchase plan, and from time to time, make investments. As of March 31, 2022, $290.0 million of principal was outstanding under a senior secured term B loan facility or the “Initial Term Loan under the June 23, 2021 Credit Agreement.” The Company also has available a senior secured revolving credit facility, in an aggregate principal amount of up to $100.0 million which remained undrawn as of March 31, 2022. The proceeds of the revolving facility may be used to finance the working capital needs and other general corporate purposes of the Company and its subsidiaries.

Commencing on September 30, 2021, the Initial Term Loan under the June 23, 2021 Credit Agreement has amortized in equal quarterly installments equal to 0.25% of the original principal amount of the Initial Term Loan under the June 23, 2021 Credit Agreement, with the balance payable on June 23, 2028.

Heightened volatility, global semiconductor supply shortages, 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 may be further exacerbated by the impacts of high inflation, and we may experience decreased sales and revenues in the near future. A material adverse impact from COVID-19 and the global semiconductor supply shortage 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 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 and leased right-of-use assets and property and equipment, stock-based compensation, impairment of leased right-of-use assets and related leasehold improvements and unrealized holding gains or losses on marketable equity securities. Cash used to fund capital purchases and acquisitions of businesses and investments are included in investing activities in our consolidated statements of cash flows. Cash proceeds from issuance of common stock and cash used to pay down outstanding debt or repurchase common stock is included in financing activities in our consolidated statements of cash flows.

As of March 31, 2022, our material cash requirements include long-term debt, non-cancelable operating leases, inventory purchase obligations and other obligations, which primarily consist of contractual payments due for computer-aided design software, 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	$ 290,000	$ —	$ —	$ —	$ 290,000
Operating lease obligations	42,388	7,243	17,831	12,984	4,330
Inventory purchase obligations	183,300	176,447	6,853	—	—
Other obligations	34,084	17,858	16,115	111	—
Total	$ 549,772	$ 201,548	$ 40,799	$ 13,095	$ 294,330

Our planned capital expenditures as of March 31, 2022 were not material. Our consolidated balance sheet at March 31, 2022 included $7.7 millioı 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 primary sources of cash are cash receipts on accounts receivable from our shipment of products to distributors and direct customers. 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. The June 23, 2021 Credit Agreement, under which we entered into a senior secured term B loan facility and a revolving credit facility, permits us to request incremental loans in an aggregate principal amount not to exceed the sum of an amount equal to the greater of (x) $175.0 million and (y) 100% of “Consolidated EBITDA” (as defined in such agreement), plus the amount of certain voluntary prepayments, plus an unlimited amount that is subject to pro forma compliance with certain first lien net leverage ratio, secured net leverage ratio and total net leverage ratio tests.

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

	March 31, 2022	December 31, 2021
	(in thousands)	
Working capital	$ 219,781	$ 196,709
Cash and cash equivalents	$ 151,111	$ 130,572
Short-term restricted cash	105	105
Long-term restricted cash	1,037	1,061
Total cash, cash equivalents, and restricted cash	$ 152,253	$ 131,738

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

	Three Months Ended March 31,	
	2022	2021
	(in thousands)	
Net cash provided by operating activities	$ 134,166	$ 40,272
Net cash used in investing activities	(42,762)	(12,264)
Net cash used in financing activities	(70,659)	(28,817)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(230)	(32)
Increase (decrease) in cash, cash equivalents and restricted cash	$ 20,515	$ (841)

Cash Flows from Operating Activities

Net cash provided by operating activities was $134.2 million for the three months ended March 31, 2022. Net cash provided by operating activities consisted of positive impact of net income of $33.6 million, non-cash items of $43.7 million, and changes in operating assets and liabilities of $57.1 million, partially offset by excess tax benefits and deferred income taxes totaling $0.3 million. Non-cash items included in net income for the three months ended March 31, 2022 primarily consisted of depreciation and amortization of property, equipment, acquired intangible assets and leased right-of-use assets of $23.9 million and stock-based compensation of $18.6 million.

Net cash provided by operating activities was $40.3 million for the three months ended March 31, 2021. Net cash used in operating activities consisted of the positive impact of non-cash items of $37.2 million and net income of $3.8 million, partially offset by the negative impact of deferred income taxes and excess tax benefits totaling $1.3 million and changes in operating assets and liabilities of $0.6 million. Non-cash items included in net income for the three months ended March 31, 2021 primarily consisted of depreciation and amortization of property, equipment, acquired intangible assets and leased right-of-use assets of $22.3 million and stock-based compensation of $13.0 million.

Cash Flows from Investing Activities

Net cash used in investing activities was $42.8 million for the three months ended March 31, 2022 and consisted of purchases of investments of $23.3 million, proceeds loaned under notes receivable of $10.0 million, purchases of property and equipment of $4.8 million and purchases of intangible assets of $4.6 million.

Net cash used in investing activities was $12.3 million for the three months ended March 31, 2021 and consisted primarily of purchases of property and equipment of $6.2 million, purchases of investments of $5.0 million, and purchases of intangible assets of $1.1 million.

Cash Flows from Financing Activities

Net cash used in financing activities was $70.7 million for the three months ended March 31, 2022. Net cash used in financing activities consisted primarily of common stock repurchases of $26.3 million, minimum tax withholding paid on behalf of employees for restricted stock units of $24.4 million, and repayments of debt of $20.0 million.

Net cash used in financing activities was $28.8 million for the three months ended March 31, 2021. Net cash used in financing activities consisted primarily of repayments of debt of $20.0 million, minimum tax withholding paid on behalf of employees for restricted stock units of $7.4 million, and common stock repurchases of $2.7 million, partially offset by net proceeds from issuance of common stock upon exercise of stock options of $1.3 million.

We believe that our $151.1 million of cash and cash equivalents at March 31, 2022 will be sufficient to fund our projected operating requirements for at least the next twelve months. As of March 31, 2022, our indebtedness totaled $290.0 million, which consists of outstanding principal under the Initial Term Loan under the June 23, 2021 Credit Agreement. The June 23, 2021 Credit Agreement also provides the Company with the Revolving Facility in an aggregate principal amount of up to $100.0 million. The Initial Term Loan under the June 23, 2021 Credit Agreement has a seven-year term expiring in June 2028 and bears interest, at the Company's option, at a per annum 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-month interest period plus 1.00%, in each case, plus an applicable margin of 1.25% or (ii) an adjusted LIBOR rate, subject to a floor of 0.50%, plus an applicable margin of 2.25%. Loans under the Revolving Facility initially bear interest, at a per annum rate equal to either (i) a base rate (as calculated above) plus an applicable margin of 0.00%, or (ii) an adjusted LIBOR rate (as calculated above) plus an applicable margin of 1.00%. Following delivery of financial statements for the Company's fiscal quarter ending June 30, 2021, the applicable margin for loans under the Revolving Facility will range from 0.00% to 0.75% in the case of base rate loans and 1.00% to 1.75% in the case of LIBOR rate loans, in each case, depending on the Company's secured net leverage ratio as of the most recently ended fiscal quarter. The Company is required to pay commitment fees ranging from 0.175% to 0.25% per annum on the daily undrawn commitments under the Revolving Facility, depending on the Company's secured net leverage ratio as of the most recently ended fiscal quarter. Commencing on September 30, 2021, the Initial Term Loan under the June 23, 2021 Credit Agreement amortizes in equal quarterly installments equal to 0.25% of the original principal amount, with the balance payable at maturity on June 23, 2028. The June 23, 2021 Credit Agreement contains customary provisions specifying alternative interest rate calculations to be employed at such time as LIBOR ceases to be available as a benchmark for establishing the interest rate on floating interest rate borrowings.

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 February 2022, we issued 0.5 million freely-tradable shares of our common stock in settlement of bonus awards for the 2021 performance period. We expect to implement a similar equity-based plan for fiscal 2022, 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 March 31, 2022, we were not involved in any unconsolidated SPE transactions.

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.

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 during the three months ended March 31, 2022 would result in a change to translation gain in accumulated other comprehensive income of approximately $0.9 million.

Interest Rate Risk

We are subject to a variable amount of interest on the principal balance of our credit agreements described above and could be adversely impacted by rising interest rates in the future. If LIBOR interest rates had increased by 10% 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 March 31, 2022 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. There were no changes in our internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of Rule 13a-15 or Rule 15d-15 of the Securities Exchange Act of 1934, as amended, that occurred during the fiscal quarter ended March 31, 2022 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 that may be 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 these risk factors 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.

Risk Factor Summary

Risks Related to Our Business

- We face intense competition expected to increase in the future, which could have an adverse effect on our revenue, revenue growth rate, if any, and market share.
- Impacts of the global semiconductor supply shortage and high inflation could adversely affect our business, financial condition, and results of operations.
- Our business, financial condition and results of operations could be adversely affected by geopolitical conflicts and economic conditions and other factors related to our international operations.
- We depend on a limited number of customers for a substantial portion of our revenue, and the loss of, or a significant reduction in orders from our major customers could have a material adverse effect on our revenue and operating results.
- Average selling prices of our products could decrease rapidly, which would have a material adverse effect on our revenue and gross margins.
- 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.
- A significant portion of our revenue is attributable to demand for our products in markets for broadband 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.

- We may be unable to make the substantial and productive research and development investments that are required to remain competitive in our business.
- 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.
- 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 and adversely affect our operating costs.
- If we are unable to attract, train and retain qualified design and technical personnel, we may not be able to execute our business strategy effectively.
- 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 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.
- 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 business would be adversely affected by the departure of existing members of our senior management team.
- Our customers require our products and our third-party contractors to undergo a lengthy and expensive qualification process which does not assure product sales.
- Winning business is subject to lengthy competitive selection processes that require us to incur significant expenditures and 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.
- Our operating results are subject to substantial quarterly and annual fluctuations due to a number of factors that could adversely affect our business and our stock price.
- We are subject to the cyclical nature of the semiconductor industry.
- Our business is subject to various governmental regulations, and if we fail to maintain compliance, we may be forced to recall products and cease their manufacture and distribution, and we could be subject to civil or criminal penalties.
- We have incurred material secured term loan indebtedness which adversely affects our operating results and cash-flows and contains covenants that could adversely affect our operational freedom and ability to pursue strategic transactions.

Risks Relating to Intellectual Property

- We may face future claims of intellectual property infringement, which could be time-consuming, costly to defend or settle and result in the loss of significant rights.
- If we are unable to protect our significant amount of intellectual property, our business could be adversely affected.
- We have been and may be subject to future 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.

Risks Relating to Reliance on Third Parties

- 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.
- Should any of our distributors cease or be forced to stop distributing our products, our business would suffer.
- 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 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.

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

Risks Related to Our Business

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 broadband, 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 Laboratories, Inc., NXP Semiconductors N.V., MediaTek, Inc., Broadcom Ltd, Rafael Microelectronics, Inc., Marvell Technology Group Ltd., M/A-COM Technology Solutions Holdings, Inc., Semtech Corporation, Qorvo Inc., Texas Instruments Incorporated, HiSilicon Technologies Co., Ltd., Analog Devices, Inc., Renesas Electronics Corporation, Monolithic Power Systems, Inc., 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. 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.

Impacts of the global semiconductor supply shortage and high inflation could adversely affect our business, financial condition, and results of operations.

During the COVID-19 global pandemic, which is still ongoing, various restrictions were put in place causing a temporary decline in demand for certain items such as automobiles. As restrictions began easing across the world, a sudden increase in demand for electronics containing semiconductor chips and stockpiling of chips by certain firms in China blacklisted by the U.S. has exacerbated bottlenecks in the supply chain, resulting in a global semiconductor supply shortage impacting our industry. Some chip manufacturers are estimating this supply shortage may continue into 2023. While these chip manufacturers are working to increase capacity in the future, and we are continuing to work closely with our suppliers and customers to minimize the potential adverse impacts of the supply shortage, such shortage may have a near-term impact on our ability to meet increased demand on certain products and have a negative impact on our operating results, which may continue into 2023. The global supply shortages and uncertainty in customer demand and the worldwide economy in general has continued as a result of the COVID-19 pandemic and may be exacerbated by the impacts of high inflation, and we may experience increased volatility in sales and revenues in the near future, including those from local outbreaks which may cause customers to delay our order fulfillment in response to disrupted shipments. 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:

- Further supply constraints, including prolonged global semiconductor supply shortages, foundry, assembly or test capacity limitations, and delays in production from temporary facility closures;
- Disruptions in product shipments from travel and shipping restrictions imposed in response to local outbreaks, or from customer push out requests;
- 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 measures against the spread of COVID-19;
- 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 and system security risks from remote working arrangements 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 the global semiconductor supply shortages 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.

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 80% of our net revenue in the three months ended March 31, 2022. In addition, as of March 31, 2022, approximately 75% of our employees are located outside of the United States. The majority of our products are manufactured, assembled and tested in Asia, and 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, 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 geopolitical conflicts involving the U.S. and other governments such as China and Russia.

In recent years, diplomatic and trade relationships between the U.S. government and China have been frayed. Events in Hong Kong and the threat of a takeover of Taiwan by China 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. We are required to obtain special licenses to conduct business with Restricted Entities, and the BIS continues to add entities which may be potential customers on the Restricted Entity List.

We believe direct impacts of the economic sanctions against Russia and the military conflict in Ukraine are currently limited to volatility in the prices of metals used by our outsourced semiconductor assembly and test, or OSAT, supply chain, in particular around the supply of palladium, for which Russia is the top producer in the world, as well as increased fuel costs, which has global impact on transportation costs, including the shipping and delivery of our products. However, the magnitude of such price volatility on the Company's business and its duration is uncertain and cannot be reasonably estimated at this time.

We cannot provide assurances that similar disruptions of distribution arrangements in the future, the imposition of governmental prohibitions on selling our products to particular customers, and/or increases in costs of certain raw materials and transportation 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.

We depend on a limited number of 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 March 31, 2022, our top three customers accounted for 37% of our net revenue, and our ten largest customers collectively accounted for 71% of our net revenue, of which distributor customers accounted for 32% of our net revenue. We expect that our operating results for the foreseeable future will continue to show a substantial percentage of sales dependent on a relatively small number of customers. 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 continue to 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.

Despite a relatively short-term positive pricing environment, 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, despite a relatively short-term positive pricing environment. 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 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. Our product offerings also 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. We have further expanded our product offerings to include Wi-Fi, ethernet and broadband gateway processor systems-on-chip, or SoCs, and intellectual property that utilizes patented machine learning techniques to improve signal integrity and power efficiency in SoCs, application-specific integrated circuits, or ASICs, and field-programmable gate arrays, or FPGAs, used in next-generation communication and artificial intelligence systems. 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 Wi-Fi and broadband, 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.

A significant portion of our revenue is attributable to demand for our products in markets for broadband 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 March 31, 2022 and 2021, revenue directly attributable to broadband applications accounted for approximately 51% and 59% of our net revenue, respectively. Delays in the development of, or unexpected developments in the broadband 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.

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 March 31, 2022 and 2021, our research and development expense was $65.9 million and $63.2 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 16nm and 5nm 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 are currently benefiting from an uptick in demand for certain products due in part 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.

Our net revenue increased from $209.4 million in the three months ended March 31, 2021 to $263.9 million in the three months ended March 31, 2022 due to market strength attributed to the work-from-home environment that is driving an increase in demand for certain of our products, particularly those in our broadband market. Impacts from the COVID-19 pandemic, such as global supply shortages, uncertainty in customer demand, as well as the global economy 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 Wi-Fi and 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.

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 teams, and especially our design and technical staff. 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.

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 certain of 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 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 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 has historically focused on developing integrated circuits for specific terrestrial, cable and satellite television, and broadband voice and data applications, satellite set-top and gateway boxes and outdoor units and physical medium devices for the optical interconnect markets. However, as part of our growth strategy, we seek to expand our addressable market into new product categories. For example, we expanded into the markets for 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. We have also expanded into the markets for Wi-Fi, Ethernet and Broadband Gateway Processor SoCs and intellectual property that utilizes patented machine learning techniques to improve signal integrity and power efficiency in SoCs, ASICs, and FPGAs used in next-generation communication and artificial intelligence systems. Our limited operating experience in 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.

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 Wi-Fi 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. Although this has not occurred to date, failure to obtain a design win could prevent us from offering an entire generation of a product. 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.

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.

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.

As of March 31, 2022, our aggregate indebtedness was $290.0 million. 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.

As of March 31, 2022, our aggregate indebtedness was $290.0 million from an initial term loan under the June 23, 2021 Credit Agreement. The June 23, 2021 Credit Agreement also provides for the Revolving Facility of up to $100.0 million, which remains undrawn as of March 31, 2022. The credit agreement also permits the Company to request incremental loans in an aggregate principal amount not to exceed the sum of an amount equal to the greater of (x) $175.0 million and (y) 100% of “Consolidated EBITDA” (as defined in such agreement), plus the amount of certain voluntary prepayments, plus an unlimited amount that is subject to pro forma compliance with certain first lien net leverage ratio, secured net leverage ratio and total net leverage ratio tests.

The Initial Term Loan under the June 23, 2021 Credit Agreement has a seven-year term expiring in June 2028 and bears interest at either an Adjusted LIBOR plus a fixed applicable margin of 2.25% or an Adjusted Base Rate plus a fixed applicable margin of 1.25%, at our option. Commencing on September 30, 2021, the Initial Term Loan under the June 23, 2021 Credit Agreement will amortize in equal quarterly installments equal to 0.25% of the original principal amount, with the balance payable on June 23, 2028. The Company is subject to commitment fees ranging from 0.175% to 0.25% on the undrawn portion of the revolving facility, and any outstanding loans under the revolving facility will bear interest at either an Adjusted LIBOR plus a margin of 1.00% to 1.75% or an Adjusted Base Rate plus a margin of 0% to 0.75%. The Company's obligations under the June 23, 2021 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.

Our material 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 revolving credit facility provisions under the June 23, 2021 Credit Agreement include financial covenants such as an initial maximum secured net leverage ratio of 3.5 to 1, which temporarily increases to 3.75 to 1 following the consummation of certain material permitted acquisitions, and operational covenants that may adversely affect our ability to engage in certain activities, including obtaining additional financing, granting liens, undergoing certain fundamental changes, or making investments or certain restricted payments, and selling assets, and similar transactions, without obtaining the consent of the lenders, which may or may not be forthcoming. The initial secured term loan under the June 23, 2021 Credit Agreement 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 indebtedness has important consequences to investors in our common stock, including the following:

- we are subject to variable interest rate risk because our interest rate under Initial Term Loan under the June 23, 2021 Credit Agreement varies based on a fixed margin of 2.25% per annum over an adjusted LIBOR rate or 1.25% per annum over an adjusted base rate and our interest rate for any outstanding principal under the revolving credit facility varies based a margin of 0% to 0.75% over adjusted base rate or a margin of 1.00% to 1.75% over an adjusted LIBOR rate, and we are also subject to commitment fees ranging from 0.175% to 0.25% on the undrawn portion of the revolving facility. If interest rates were to increase substantially, it would adversely affect our operating results and could affect our ability to service our 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.

Risks Relating to Intellectual Property

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 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 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. Any future security incident or compromise of our information technology systems could result in unauthorized publication of our confidential business or proprietary information, result in the 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.

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.

Risks Relating to Reliance on Third-Parties

We do not have our own manufacturing facilities and rely on a limited number of third parties to manufacture, assemble, and test our products. The failure to manage our relationships with our third-party contractors successfully, or impacts from global supply shortages, 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 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 rely on Intel Corporation, or Intel, for certain products on a turnkey basis under a supply agreement with an initial term of five years. Foundries and other third-parties we rely upon are currently experiencing bottlenecks caused by a sudden increase in demand for electronics containing semiconductor chips and stockpiling of chips by certain firms in China blacklisted by the U.S., resulting in a global semiconductor supply shortage impacting our industry. 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:

- capacity shortages during periods of high demand or from events beyond our control, including from the current global semiconductor supply shortage;
- failure by us, our customers, or their end customers to qualify a selected supplier;
- 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, 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, and more recently, a drought impacting the water supply which chip manufacturers rely upon to fabricate chip products. Earthquakes, fire, flooding, drought, 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 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 47% and 44% of our net revenue in the three months ended March 31, 2022 and 2021, 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 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.

While certain products are supplied to us by Intel on a turnkey basis under the terms of a supply agreement with an initial term of five years, currently we do not have long-term supply contracts with any other 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 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.

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 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 restricts 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. For example, in 2021, the trading price of our common stock ranged from a low of $30.47 to a high of $77.89. 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 share;
- 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 impacts from sanctions against Russia and the military conflict in Ukraine, increased inflationary pressures and the global COVID-19 pandemic.

Furthermore, the stock markets have experienced extreme price and volume fluctuations that have affected 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 March 31, 2022, we had approximately 77.4 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 2021 performance periods, and we intend to continue this practice in the foreseeable future. We issued 0.5 million shares of our common stock for the 2021 performance period in February 2022. 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.

General Risk Factors

Global economic conditions, including factors such as high inflation 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, including the impacts of current high rates of inflation, 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.

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 integrated circuits 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.

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, drought 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.

We may, from time to time, make additional business acquisitions or investments, which involve significant risks.

We have completed multiple acquisitions in the past five 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;
- costs and expenses associated with any undisclosed or potential liabilities; and
- the potential loss of key employees, customers and suppliers of the acquired businesses.

To the extent we pay the purchase price of any acquisition or investment in cash or through borrowings under our Revolving Facility, it would reduce our cash balances and/or result in indebtedness we must service, which may have a material and adverse effect on our business and financial condition. If the purchase price is paid with our stock, it would be dilutive to our stockholders. In addition, we may assume liabilities associated with a business acquisition or investment, including unrecorded liabilities that are not discovered at the time of the transaction, and the repayment of those liabilities may have a material and adverse effect on our financial condition.

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 may not be able to identify suitable acquisition or investment candidates, or even if we do identify suitable candidates, they may be difficult to finance, expensive to fund and there is no guarantee that we can obtain any necessary regulatory approvals or complete such transactions on terms that are favorable to us.

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.

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

We account for business acquisitions as business combinations under the acquisition method of accounting in accordance with accounting principles generally accepted in the United States. 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. 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. 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 March 31, 2022, our balance sheet reflected goodwill of $306.7 million and other intangible assets of $140.2 million. Consequently, we could recognize material impairment charges in the future.

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 to 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. On a periodic basis we evaluate our deferred tax assets for realizability. Based upon our review of all positive and negative evidence, as of March 31, 2022, 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. 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 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.

We have assumed certain unfunded defined benefit retirement plan obligations in an acquisition. Such obligations may require a significant amount of cash to fund in the future, and changes in assumptions underlying the obligation and return on plan assets may adversely affect our earnings, equity and contributions in future.

We assumed an obligation associated with certain defined benefit retirement plans, including a pension plan, which cover certain employees of an acquired business and generally provide benefits based on negotiated amounts for each year of service. These plans were underfunded by $4.5 million as of March 31, 2022 based on current projections and plan assets. We had previously never managed defined benefit plans in our operating history. We are required to make contributions to the pension plan. Additionally, with respect to certain other defined benefit plans, if the unfunded status reaches certain levels, we could be required to make contributions to cover the shortfall. Our obligation to make contributions may be impacted by a number of factors, many of which are beyond our control, including but not limited to, performance of plan assets and legislative changes. The net benefit obligation and cost is materially affected by the discount rate used to measure pension obligations, level of plan assets available to fund such obligations and long-term rate of return on plan assets. While such plans have not had a material impact on our results of operations, future changes in the discount rate used to measure the defined benefit obligation could result in a significant increase or decrease in the valuation of such obligations, affecting the reported funded status of our defined benefit plans as well as the net periodic pension cost in the following years. Similarly, changes in the expected return on plan assets, which may be significantly impacted by changes in investment performance or a change in portfolio mix, can result in significant changes in the net periodic pension cost in the subsequent years.

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 Nasdaq Stock Market LLC, or Nasdaq, 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.

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

Recent Sales of Unregistered Securities

None.

Recent Repurchases of Equity Securities

Period	Total Number of Shares Repurchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Program	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Program[1]
Fiscal 2022				
January 1, 2022 through January 31, 2022	128,500	$ 61.67	128,500	$ 68,539,400
February 1, 2022 through February 28, 2022	116,864	$ 60.81	116,864	$ 61,433,421
March 1, 2022 through March 31, 2022	195,085	$ 57.69	195,085	$ 50,179,597
Total	440,449		440,449	

[1] On February 24, 2021, the Company publicly announced that its board of directors authorized a plan to repurchase up to $100 million of the Company's common stock over a period ending February 16, 2024. The amount and timing of repurchases are subject to a variety of factors including liquidity, share price, market conditions, and legal requirements. Any purchases will be funded from available working capital and may be effected through open market purchases, block transactions, and privately negotiated transactions. The share repurchase program does not obligate the Company to make any repurchases and may be modified, suspended, or terminated by the Company at any time without prior notice.

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
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:	April 27, 2022	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: April 27, 2022

/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: April 27, 2022

/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 March 31, 2022 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:	April 27, 2022	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 March 31, 2022 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:	April 27, 2022	By:	/s/ Steven G. Litchfield
		Name:	Steven G. Litchfield
		Title:	Chief Financial Officer and Chief Corporate Strategy Officer