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

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 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: 001-38324

Casa Systems, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**75-3108867**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
100 Old River Road Andover, Massachusetts	**01810**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (978) 688-6706

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.001 par value per share	CASA	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	☒
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☒

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

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

As of November 3, 2022, the registrant had 94,621,236 shares of common stock, $0.001 par value per share, outstanding.

Table of Contents

Cautionary Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements other than statements of historical fact contained in this Quarterly Report on Form 10-Q, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

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

- our inability to fulfill our customers’ orders due to supply chain delays, access to key commodities or technologies or events that impact our manufacturers or their suppliers;
- our ability to anticipate technological shifts;
- our ability to generate positive returns on our research and development;
- changes in the rate of communications service providers’ or CSPs, deployment of, and investment in, ultra-broadband network capabilities;
- the lack of predictability of revenue due to lengthy sales cycles and the volatility in capital expenditure budgets of CSPs;
- our ability to maintain and expand operating profit and net income or to return to operating profitability in the future;
- the sufficiency of our cash resources and needs for additional financing;
- our ability to further penetrate our existing customer base and obtain new customers;
- changes in our pricing policies, whether initiated by us or as a result of competition;
- the amount and timing of operating costs and capital expenditures related to the operation and expansion of our business;
- the potential impact of the ongoing COVID-19 pandemic, which is highly uncertain and will depend on future developments on our business, our suppliers, our logistics suppliers and our customers;
- the actual or rumored timing and success of new product and service introductions by us or our competitors or any other change in the competitive landscape of our industry, including consolidation among our competitors or customers;
- our ability to successfully expand our business domestically and internationally, including our ability to maintain the synergies we have realized from our acquisition of NetComm Wireless Limited, or NetComm;
- insolvency or credit difficulties confronting our customers, which could adversely affect their ability to purchase or pay for our products and services, or confronting our key suppliers, which could disrupt our supply chain;
- future accounting pronouncements or changes in our accounting policies;
- stock-based compensation expense;

- our overall effective tax rate, including impacts caused by the relative proportion of foreign to United States, or U.S. income, the amount and timing of certain employee stock-based compensation transactions, changes in the valuation of our deferred tax assets and any new legislation or regulatory developments;
- increases or decreases in our expenses caused by fluctuations in foreign currency exchange rates;
- increases or decreases in our expenses caused by fluctuations in interest rates;
- the costs and possible outcomes of any contingent liabilities, as well as legal actions or proceedings against us, including those described under "Part II, Item 1—Legal Proceedings";
- general economic conditions, both domestically and in foreign markets, including new macro-economic recession concerns;
- our ability to obtain and maintain intellectual property protection for our products; and
- our use of proceeds from our initial public offering.

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

PART I—FINANCIAL INFORMATION
Item 1. Financial Statements

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

	September 30, 2022	December 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	$ 193,494	$ 154,703
Accounts receivable, net of provision for doubtful accounts of $295 and $117 as of September 30, 2022 and December 31, 2021, respectively[(1)]	49,040	85,774
Inventory	82,189	84,828
Prepaid expenses and other current assets	4,013	5,746
Prepaid income taxes	2,929	23,963
Total current assets	331,665	355,014
Property and equipment, net	20,266	23,508
Accounts receivable, net of current portion	57	115
Deferred tax assets	63	101
Goodwill	50,177	50,177
Intangible assets, net	27,265	31,144
Other assets	8,475	8,648
Total assets	$ 437,968	$ 468,707
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 13,784	$ 28,087
Accrued expenses and other current liabilities	41,753	41,382
Accrued income taxes	6,598	4,991
Deferred revenue[(2)]	33,597	14,473
Current portion of long-term debt, net of unamortized debt issuance costs	1,933	1,924
Total current liabilities	97,665	90,857
Accrued income taxes, net of current portion	8,175	7,732
Deferred tax liabilities	2,812	5,293
Deferred revenue, net of current portion	5,799	7,012
Long-term debt, net of current portion and unamortized debt issuance costs	272,739	274,193
Other liabilities, net of current portion	8,214	1,701
Total liabilities	395,404	386,788
Commitments and contingencies (Note 16)		
Stockholders' equity:		
Preferred stock, $0.001 par value; 5,000 shares authorized as of September 30, 2022 and December 31, 2021; no shares issued and outstanding as of September 30, 2022 and December 31, 2021	—	—
Common stock, $0.001 par value; 500,000 shares authorized; 98,212 and 87,815 shares issued as of September 30, 2022 and December 31, 2021, respectively; 94,615 and 84,422 shares outstanding as of September 30, 2022 and December 31, 2021, respectively	98	88
Treasury stock, at cost; 3,597 and 3,393 shares as of September 30, 2022 and December 31, 2021, respectively	(14,837)	(13,645)
Additional paid-in capital	240,579	193,654
Accumulated other comprehensive (loss) income	(3,805)	878
Accumulated deficit	(179,471)	(99,056)
Total stockholders' equity	42,564	81,919
Total liabilities and stockholders' equity	$ 437,968	$ 468,707

(1) Includes accounts receivable due from a related party of $1,817 at September 30, 2022 (see Note 15)

(2) Includes deferred revenue associated with a related party of $16,775 at September 30, 2022 (see Note 15)

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

CASA SYSTEMS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE (LOSS) INCOME
(in thousands, except per share amounts)
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Revenue:				
Product	$ 55,435	$ 87,752	$ 167,121	$ 262,019
Service	11,464	11,467	35,013	34,207
Total revenue[1]	66,899	99,219	202,134	296,226
Cost of revenue:				
Product	38,421	57,372	117,531	150,515
Service	1,195	1,223	4,006	3,532
Warranty Settlement Provision	12,907	—	12,907	—
Total cost of revenue	52,523	58,595	134,444	154,047
Gross profit	14,376	40,624	67,690	142,179
Operating expenses:				
Research and development	22,059	21,578	67,545	63,479
Selling, general and administrative	22,442	21,029	66,741	64,492
Total operating expenses	44,501	42,607	134,286	127,971
(Loss) income from operations	(30,125)	(1,983)	(66,596)	14,208
Other income (expense):				
Interest income	810	80	1,118	297
Interest expense	(4,762)	(3,969)	(12,270)	(11,886)
Gain (loss) on foreign currency, net	1,546	(375)	2,089	(1,353)
Other income, net	106	83	285	634
Total other expense, net	(2,300)	(4,181)	(8,778)	(12,308)
(Loss) income before (benefit from) provision for income taxes	(32,425)	(6,164)	(75,374)	1,900
(Benefit from) provision for income taxes	(1,261)	(5,288)	5,071	220
Net (loss) income	(31,164)	(876)	(80,445)	1,680
Other comprehensive (loss) income —foreign currency translation adjustment, net of tax	(2,737)	(127)	(4,683)	130
Comprehensive (loss) income	$ (33,901)	$ (1,003)	$ (85,128)	$ 1,810
Net (loss) income per share attributable to common stockholders:				
Basic	$ (0.33)	$ (0.01)	$ (0.89)	$ 0.02
Diluted	$ (0.33)	$ (0.01)	$ (0.89)	$ 0.02
Weighted-average shares used to compute net (loss) income per share attributable to common stockholders:				
Basic	94,512	85,660	90,569	84,985
Diluted	94,512	85,660	90,569	88,948

[1] Includes revenue during which a related party relationship existed of $3,041 and $13,591 during the three and nine months ended September 30, 2022 (see Note 15)

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

CASA SYSTEMS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)
(Unaudited)

	Common Stock		Treasury Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balances at June 30, 2022	98,009	$ 98	3,597	$ (14,837)	$ 237,306	$ (1,068)	$ (148,337)	$ 73,162
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	203	—	—	—	(398)	—	—	(398)
Foreign currency translation adjustment	—	—	—	—	—	(2,737)	30	(2,707)
Stock-based compensation	—	—	—	—	3,671	—	—	3,671
Net loss	—	—	—	—	—	—	(31,164)	(31,164)
Balances at September 30, 2022	98,212	$ 98	3,597	$ (14,837)	$ 240,579	$ (3,805)	$ (179,471)	$ 42,564

	Common Stock		Treasury Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balances at January 1, 2022	87,815	$ 88	3,393	$ (13,645)	$ 193,654	$ 878	$ (99,056)	$ 81,919
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	1,074	1	—	—	(1,773)	—	—	(1,772)
Foreign currency translation adjustment	—	—	—	—	—	(4,683)	30	(4,653)
Repurchases of treasury shares	—	—	204	(1,192)	—	—	—	(1,192)
Sale of common stock, net of issuance costs	9,323	9	—	—	39,361	—	—	39,370
Stock-based compensation	—	—	—	—	9,337	—	—	9,337
Net loss	—	—	—	—	—	—	(80,445)	(80,445)
Balances at September 30, 2022	98,212	$ 98	3,597	$ (14,837)	$ 240,579	$ (3,805)	$ (179,471)	$ 42,564

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

CASA SYSTEMS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (continued)
(in thousands)
(Unaudited)

	Common Stock		Treasury Stock		Additional Paid-in	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Income (Loss)	Deficit	Equity
Balances at June 30, 2021	87,116	$ 87	1,722	$ (4,826)	$ 185,809	$ 594	$ (99,707)	$ 81,957
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	562	1	—	—	1,704	—	—	1,705
Foreign currency translation adjustment	—	—	—	—	—	(127)	—	(127)
Stock-based compensation	—	—	—	—	3,886	—	—	3,886
Net loss	—	—	—	—	—	—	(876)	(876)
Balances at September 30, 2021	87,678	$ 88	1,722	$ (4,826)	$ 191,399	$ 467	$ (100,583)	$ 86,545

	Common Stock		Treasury Stock		Additional Paid-in	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Income	Deficit	Equity
Balances at January 1, 2021	85,329	$ 85	1,722	$ (4,826)	$ 183,041	$ 337	$ (102,263)	$ 76,374
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	2,349	3	—	—	(2,787)	—	—	(2,784)
Foreign currency translation adjustment	—	—	—	—	—	130	—	130
Stock-based compensation	—	—	—	—	11,145	—	—	11,145
Net income	—	—	—	—	—	—	1,680	1,680
Balances at September 30, 2021	87,678	$ 88	1,722	$ (4,826)	$ 191,399	$ 467	$ (100,583)	$ 86,545

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

CASA SYSTEMS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(Unaudited)

	Nine Months Ended September 30,	
	2022	2021
Operating activities:		
Net (loss) income	$ (80,445)	$ 1,680
Adjustments to reconcile net (loss) income to net cash provided by operating activities:		
Depreciation and amortization	10,336	11,986
Stock-based compensation	9,178	11,245
Deferred income taxes	(2,435)	(1,322)
Change in provision for doubtful accounts	178	63
Change in provision for excess and obsolete inventory	5,934	(98)
Gain on disposal of assets	7	29
Changes in operating assets and liabilities:		
Accounts receivable	35,573	13,194
Inventory	(3,454)	9,302
Prepaid expenses and other assets	1,833	(1,648)
Prepaid income taxes	21,013	(5,873)
Accounts payable	(13,568)	(17,553)
Accrued expenses and other current liabilities	7,470	(6,074)
Accrued income taxes	2,053	(1,601)
Deferred revenue	17,990	1,867
Net cash provided by operating activities	11,663	15,197
Investing activities:		
Purchases of property and equipment	(2,611)	(2,979)
Purchases of software licenses	(714)	(1,425)
Net cash used in investing activities	(3,325)	(4,404)
Financing activities:		
Principal repayments of debt	(2,250)	(9,025)
Proceeds from exercise of stock options	304	3,532
Employee taxes paid related to net share settlement of equity awards	(2,074)	(6,315)
Proceeds from sale of common stock, net of issuance costs	39,370	—
Payments of dividends and equitable adjustments	(1)	(97)
Repurchases of common stock	(1,192)	—
Net cash provided by (used in) financing activities	34,157	(11,905)
Effect of exchange rate changes on cash and cash equivalents	(3,697)	111
Net increase in cash, cash equivalents and restricted cash	38,798	(1,001)
Cash, cash equivalents and restricted cash at beginning of period	157,804	158,461
Cash, cash equivalents and restricted cash at end of period [1]	$ 196,602	$ 157,460
Supplemental disclosures of cash flow information:		
Cash paid for interest	$ 11,419	$ 12,167
Cash paid for income taxes	$ 7,845	$ 8,288
Supplemental disclosures of non-cash operating, investing and financing activities:		
Purchases of property and equipment included in accounts payable	$ 313	$ 179

[1] See Note 2 of the accompanying notes for a reconciliation of the ending balance of cash, cash equivalents and restricted cash shown in these unaudited condensed consolidated statements of cash flows.

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

1. Nature of Business and Basis of Presentation

Casa Systems, Inc. (the "Company") was incorporated under the laws of the State of Delaware on February 28, 2003. The Company is a global communications technology company headquartered in Andover, Massachusetts and has wholly owned subsidiaries in China, France, Canada, Ireland, Spain, the Netherlands, Hong Kong, Australia, Germany, the United Kingdom and New Zealand.

The Company offers physical, virtual and cloud-native 5G infrastructure and customer premise networking equipment solutions to help CSPs transform and expand their public and private high-speed data and multi-service communications networks so they can meet the growing demand for bandwidth and new services. The Company's core and edge broadband technology enables CSPs and enterprises to cost-effectively and dynamically increase data network speed, add bandwidth capacity and new services, reduce network complexity and reduce operating and capital expenditures regardless of access technology.

The Company is subject to a number of risks similar to other companies of comparable size and other companies selling and providing services to the CSP industry. These risks include, but are not limited to, the level of capital spending by CSPs, a lengthy sales cycle, dependence on the development of new products and services, unfavorable economic and market conditions, competition from larger and more established companies, limited management resources, dependence on a limited number of contract manufacturers and suppliers, the rapidly changing nature of the technology used by CSPs and reliance on resellers and sales agents. Failure by the Company to anticipate or to respond adequately to technological developments in its industry, changes in customer or supplier requirements, changes in regulatory requirements or industry standards, or any significant delays in the development or introduction of products could have a material adverse effect on the Company's operating results, financial condition and cash flows.

Management believes the existing cash and cash equivalents and anticipated cash flows from future operations will be sufficient to meet its working capital and capital expenditure needs and debt service obligations for at least the next 12 months. As described in Note 9 "Debt", the Company's outstanding term loan facility is scheduled to mature in December 2023, and it has commenced the refinancing process. If the Company is unable to successfully complete a refinancing of a sufficient portion of the outstanding balance prior to maturity or otherwise satisfy its repayment obligations, there may be substantial doubt about its ability to continue as a going concern beyond the maturity date of the loan.

The Company is an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act") and may remain an emerging growth company until the last day of the fiscal year following the fifth anniversary of the Company's initial public offering, subject to specified conditions. The JOBS Act provides that an emerging growth company can take advantage of the extended transition period afforded by the JOBS Act for the implementation of new or revised accounting standards. The Company has elected not to "opt out" of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, the Company is required to adopt the new or revised standard at or prior to the time private companies are required to adopt the new or revised standard, provided that the Company continues to be an emerging growth company. The JOBS Act provides that the decision to take advantage of the extended transition period for complying with new or revised accounting standards is irrevocable. The Company will remain an emerging growth company until December 31, 2022.

The accompanying condensed consolidated balance sheet as of September 30, 2022, the condensed consolidated statements of operations and comprehensive (loss) income for the three and nine months ended September 30, 2022 and 2021, the condensed consolidated statements of cash flows for the nine months ended September 30, 2022 and 2021 and the condensed consolidated statements of stockholders' equity for the three and nine months ended September 30, 2022 and 2021 are unaudited. The financial data and other information disclosed in these notes related to the three and nine months ended September 30, 2022 and 2021 are also unaudited. The accompanying condensed consolidated balance sheet as of December 31, 2021 was derived from the Company's audited consolidated financial statements for the year ended December 31, 2021 included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission ("SEC") on February 25, 2022 (the "Annual Report on Form 10-K"). The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") regarding interim financial reporting. Certain information and note disclosures normally included in the consolidated financial statements prepared in accordance with GAAP have been condensed or omitted. Therefore, these condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes included in the Annual Report on Form 10-K. There have been no changes to the Company's accounting policies from those disclosed in the Annual Report on Form 10-K that would have a material impact on the Company's condensed consolidated financial statements.

The unaudited interim condensed consolidated financial statements have been prepared on a basis consistent with that used to prepare the audited annual consolidated financial statements and, in the opinion of management, include all adjustments, consisting of only normal recurring adjustments, necessary for a fair statement of the financial position, results of operations and cash flows for the interim periods, but are not necessarily indicative of the results of operations and cash flows to be anticipated for the full year ending December 31, 2022 or any future period.

The accompanying condensed consolidated financial statements include the accounts and results of operations of the Company and its wholly-owned subsidiaries. All intercompany transactions and balances have been eliminated in consolidation.

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting periods.

Significant estimates and judgments relied upon by management in preparing these condensed consolidated financial statements include revenue recognition, reserves for excess and obsolete inventory, valuation of inventory and deferred inventory costs, the expensing and capitalization of software-related research and development costs, amortization and depreciation periods, the recoverability of net deferred tax assets, valuations of uncertain tax positions, warranty allowances, the valuation of equity instruments and stock-based compensation expense.

Although the Company regularly reassesses the assumptions underlying these estimates, actual results could differ materially from these estimates. Changes in estimates are recorded in the period in which they become known. The Company bases its estimates on historical experience and various other assumptions that it believes to be reasonable under the circumstances existing at the time such estimates are made.

The COVID-19 pandemic presents various risks to the Company, which could continue to have a material effect upon the estimates and judgments relied upon by management in preparing these condensed consolidated financial statements. While the Company remains fully operational, during the three and nine months ended September 30, 2022, the effects of the COVID-19 pandemic on the global supply chain had a significant adverse effect on the Company's financial results. In particular, certain of the Company's products utilize components, whose availability was significantly exceeded by global demand. As a result, during the three and nine months ended September 30, 2022, the Company continued to see shortages of supply that resulted in the Company's inability to fulfill certain customer orders within normal lead times. This adversely impacted the Company's revenue and operating results for the three and nine months ended September 30, 2022. Additionally, shipping bottlenecks and delays negatively affected the Company's ability to timely fulfill customer orders, thereby delaying its ability to consummate sales and recognize revenue. The Company also experienced, in some cases, significant increases in shipping costs. While the Company continues to work with its supply chain, contract manufacturers, logistics partners, and customers to minimize the extent of such impacts, the Company expects the effects of global supply chain issues to continue and cannot predict when such effects will subside. This may prevent the Company from being able to fulfill its customers' orders in a timely manner or at all, which could lead to one or more of its customers cancelling their orders.

In addition, the regions in which the Company operates have experienced a significant increase in inflation, which has adversely impacted the cost to manufacture the Company's products with limited ability to pass such increases on to its customers under previously established fixed price agreements. Inflation has further resulted in increased operating costs, and interest rate increases, which will result in increased debt service costs. If interest rates continue to rise the Company anticipates further adverse effects from inflation and increased interest rates.

At this time the Company is neither able to estimate the extent of these impacts nor predict whether its efforts to minimize or contain them will be successful. The Company intends to continue to monitor its business very closely for any effects of COVID-19, inflation and interest rate increases for as long as necessary.

Subsequent Event Considerations

The Company considers events or transactions that occur after the balance sheet date but prior to the issuance of the financial statements to provide additional evidence for certain estimates or to identify matters that require additional disclosure. Subsequent events have been evaluated as required, and other than the debt repurchase discussed in Note 17, "Subsequent Events", the Company has determined that there are no other material recognized or unrecognized subsequent events requiring disclosure in these condensed consolidated financial statements.

Cash, Cash Equivalents and Restricted Cash

Cash and cash equivalents include all highly liquid investments maturing within three months from the date of purchase. As of September 30, 2022 and December 31, 2021, the Company's cash and cash equivalents consisted of investments in money market mutual funds.

Restricted cash as of September 30, 2022 and December 31, 2021 consisted of a certificate of deposit of $1,008, pledged as collateral for a stand-by letter of credit required to support a contractual obligation. Restricted cash also included cash of $2,100 pledged as collateral in connection with five and two letters of credit to support contractual obligations at September 30, 2022 and December 31, 2021, respectively.

The following table is a reconciliation of cash, cash equivalents and restricted cash included in the accompanying condensed consolidated balance sheets that sum to the total cash, cash equivalents and restricted cash included in the accompanying condensed consolidated statements of cash flows:

	September 30, 2022	September 30, 2021
Cash and cash equivalents	$ 193,494	$ 156,460
Restricted cash included in other assets	3,108	1,000
	$ 196,602	$ 157,460

Accounts Receivable

Accounts receivable are presented net of a provision for doubtful accounts, which is an estimate of amounts that may not be collectible. Accounts receivable for customer contracts with customary payment terms, which are one year or less, are recorded at invoiced amounts and do not bear interest. The Company may, in limited circumstances, grant payment terms longer than one year. Payments due beyond 12 months from the balance sheet date are recorded as non-current assets. The Company generally does not require collateral, but the Company may, in certain instances based on its credit assessment, require full or partial prepayment prior to shipment.

Accounts receivable as of September 30, 2022 and December 31, 2021 consisted of the following:

	September 30, 2022	December 31, 2021
Current portion of accounts receivable, net:		
Accounts receivable, net	$ 49,021	$ 85,689
Accounts receivable, extended payment terms	19	85
	49,040	85,774
Accounts receivable, net of current portion:		
Accounts receivable, extended payment terms	57	115
	$ 49,097	$ 85,889

The Company performs ongoing credit evaluations of its customers and, if necessary, provides a provision for doubtful accounts and expected losses. When assessing and recording its provision for doubtful accounts, the Company evaluates the age of its accounts receivable, current economic trends, creditworthiness of the customer, customer payment history, and other specific customer and transaction information. The Company writes off accounts receivable against the provision when it determines a balance is uncollectible and no longer actively pursues collection of the receivable. Adjustments to the provision for doubtful accounts are recorded as selling, general and administrative expenses in the condensed consolidated statements of operations and comprehensive (loss) income.

As of September 30, 2022 and December 31, 2021, the Company concluded that all amounts due under extended payment terms were collectible and recorded no reserve for credit losses. During the nine months ended September 30, 2022 and 2021, the Company did not provide a reserve for credit losses and did not write off any uncollectible receivables due under extended payment terms.

Concentration of Risks

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash and cash equivalents and accounts receivable. Cash and cash equivalents consist of demand deposits, savings accounts, money market mutual funds, and certificates of deposit with financial institutions, which may exceed Federal Deposit Insurance Corporation limits. The Company has not experienced any losses related to its cash and cash equivalents and does not believe that it is subject to unusual credit risk beyond the normal credit risk associated with commercial banking relationships.

The Company grants credit to customers in the ordinary course of business. Credit evaluations are performed on an ongoing basis to reduce credit risk, and no collateral is required from the Company's customers. An allowance for uncollectible accounts is provided for those accounts receivable considered to be uncollectible based upon historical experience and credit evaluation. Due to these factors, no additional losses beyond the amounts provided for collection losses is believed by management to be probable in the Company's accounts receivable.

Significant customers are those that represent 10% or more of revenue or accounts receivable and are set forth in the following tables:

	Revenue Three Months Ended September 30,		Revenue Nine Months Ended September 30,	
	2022	2021	2022	2021
Customer A	17%	*	13%	*
Customer B	*	24%	*	20%
Customer C	*	*	*	11%

	Accounts Receivable, Net	
	As of September 30, 2022	As of December 31, 2021
Customer B	*	21%
Customer D	*	19%
Customer E	*	10%

* Less than 10% of total

Certain of the components and subassemblies included in the Company's products are obtained and manufactured from a single source or a limited group of suppliers. Although the Company seeks to reduce dependence on those single or limited source suppliers, the partial or complete loss of certain of these sources could have a material adverse effect on the Company's operating results, financial condition and cash flows and damage its customer relationships.

Inventories

The Company values inventories at the lower of cost or net realizable value. The Company computes cost using the first-in first-out convention. Inventories are composed of hardware and related component parts of finished goods. The Company establishes provisions for excess and obsolete inventories after evaluating historical sales, future demand, market conditions, expected product life cycles, and current inventory levels to reduce such inventories to their estimated net realizable value. The Company makes such provisions in the normal course of business and charges them to cost of revenue in its consolidated statements of operations and comprehensive (loss) income.

Impact of Recently Adopted Accounting Standards

In October 2021, the Financial Accounting Standards Board, ("FASB"), issued Accounting Standards Codification Update ("ASU") 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers*, ("ASU 2021-08"). Under ASU 2021-08, an acquirer must recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with Topic 606. Effective January 1, 2022, the Company early adopted ASU 2021-08 on a prospective basis. The impact of adoption of this standard on the Company's condensed consolidated financial statements was not material.

Impact of Recently Issued Accounting Standards

In February 2016, the FASB issued ASU 2016-02, *Leases* (Topic 842): *Amendments to FASB Accounting Standards Codification* ("ASU 2016-02"), which replaces the existing guidance for leases. ASU 2016-02 requires the identification of arrangements that should be accounted for as leases by lessees. In general, for lease arrangements exceeding a twelve-month term, the arrangements must now be recognized as assets and liabilities on the balance sheet of the lessee. Under ASU 2016-02, a right-of-use asset and lease obligation will be recorded for all leases, whether operating or financing, while the income statement will reflect lease expense for operating leases and amortization/interest expense for financing leases. The balance sheet amount recorded for existing leases at the date of adoption of ASU 2016-02 must be calculated using the applicable incremental borrowing rate at the date of adoption. This guidance will become effective for private companies, and emerging growth companies that choose to take advantage of the extended transition periods, for annual reporting periods beginning after December 15, 2021, and interim periods within fiscal years beginning after December 15, 2022. The Company will begin reporting on topics required by ASU 2016-02 during the fourth quarter of 2022. The Company will use a modified retrospective approach with comparatives under ASC 840, where entities would recognize a cumulative effect to retained earnings at the date of adoption without restating prior period balances or disclosure. The Company is in the process of finalizing certain aspects of the adoption and anticipates such guidance will materially impact its balance sheet given the Company’s leasing commitments as of December 31, 2021, as disclosed in Note 8 included in the Annual Report on Form 10-K. The Company does not expect a material impact on its condensed consolidated statement of operations.

In June 2016, the FASB issued ASU 2016-13, *Measurement of Credit Losses on Financial Instruments*, or ASU 2016-13. This guidance is intended to provide more decision-useful information about expected credit losses on financial instruments and other commitments to extend credit held by a reporting entity at each reporting date. The main provisions include presenting financial assets measured at amortized cost at the amount expected to be collected, which is net of an allowance for expected credit losses and recording credit losses related to available-for-sale securities through an allowance for credit losses. The effective dates for the amendments in ASU 2016-13 were updated in ASU 2019-10, *Financial Instruments – Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842)*, and as such ASU 2016-13 will become effective for private companies, and emerging growth companies that choose to take advantage of the extended transition periods, for fiscal years beginning after December 15, 2022, including interim periods within those fiscal periods, and must be applied using a modified retrospective approach. The Company does not expect a material impact on its condensed consolidated financial statements.

Other

Other than the disclosures above, there have been no changes to the significant accounting policies disclosed in Note 2 “Summary of Significant Accounting Policies” to the Company’s consolidated financial statements included in its Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

3. Goodwill and Intangible Assets

Intangible assets, net consisted of intangible assets resulting from the acquisition of NetComm and purchased software to be used in the Company’s products. Intangible assets, net consisted of the following at September 30, 2022 and December 31, 2021, respectively:

	Cost	Accumulated Amortization	Net Balance
Developed Technology	$ 25,000	$ (11,609)	$ 13,391
Customer Relationships	18,000	(5,850)	12,150
Trade Name	1,000	(1,000)	—
Purchased software	2,545	(821)	1,724
Totals as of September 30, 2022	$ 46,545	$ (19,280)	$ 27,265

	Cost	Accumulated Amortization	Net Balance
Developed Technology	$ 25,000	$ (8,930)	$ 16,070
Customer Relationships	18,000	(4,500)	13,500
Trade Name	1,000	(830)	170
Purchased software	1,832	(428)	1,404
Totals as of December 31, 2021	$ 45,832	$ (14,688)	$ 31,144

As of September 30, 2022, amortization expense on existing intangible assets for the next five years and beyond is as follows:

Year Ending December 31,		
Remainder of 2022	$	1,506
2023		6,002
2024		5,899
2025		5,751
2026		3,607
Thereafter		4,500
	$	27,265

A summary of amortization expense recorded during the three and nine months ended September 30, 2022 and 2021 is as follows:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2022		2021		2022		2021	
Product cost of revenue	$	893	$	893	$	2,679	$	2,679
Research and development		149		105		393		290
Selling, general and administrative		450		533		1,520		1,599
Totals	$	1,492	$	1,531	$	4,592	$	4,568

The Company’s goodwill is the result of its acquisition of NetComm on July 1, 2019 and represents the excess of purchase price over the estimated fair value of net assets acquired. There has been no change to the $50,177 carrying amount of goodwill since December 31, 2021.

4. Inventory

Inventory as of September 30, 2022 and December 31, 2021 consisted of the following:

	September 30, 2022		December 31, 2021	
Raw materials	$	45,599	$	53,934
Finished goods:				
Manufactured finished goods		33,548		29,597
Deferred inventory costs		3,042		1,297
	$	82,189	$	84,828

The decrease in inventory is due to $5,934 of additional reserves recognized during the nine months ended September 30, 2022 against certain of the Company's products and components that management has designated to be discontinued and as a result were adjusted to their estimated net realizable values. This was partially offset by additional purchases of inventory during the year.

5. Property and Equipment

Property and equipment as of September 30, 2022 and December 31, 2021 consisted of the following:

	September 30, 2022	December 31, 2021
Computers and purchased software	$ 25,183	$ 25,775
Leasehold improvements	4,225	4,198
Furniture and fixtures	2,678	2,672
Machinery and equipment	35,681	37,325
Land	3,091	3,091
Building	4,765	4,765
Building improvements	7,337	7,291
Trial systems at customers' sites	2,768	3,848
	85,728	88,965
Less: Accumulated depreciation and amortization	(65,462)	(65,457)
	$ 20,266	$ 23,508

During the nine months ended September 30, 2022 and 2021, the Company transferred trial systems into inventory from property and equipment with values of $1,081 and $1,145, respectively, net of transfers of trial systems to cost of revenue. In addition, the Company transferred $1,629 and $325 of equipment into inventory from property and equipment during the nine months ended September 30, 2022 and 2021, respectively.

Depreciation and amortization expense on property and equipment totaled $1,704 and $2,258 for the three months ended September 30, 2022 and 2021, respectively, and $5,744 and $7,418 for the nine months ended September 30, 2022 and 2021, respectively.

6. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities as of September 30, 2022 and December 31, 2021 consisted of the following:

	September 30, 2022	December 31, 2021
Current liabilities		
Accrued compensation and related taxes	$ 15,759	$ 21,751
Accrued warranty	3,367	2,392
Inventory-related accruals	5,357	8,391
Warranty Settlement Provision (see Note 16)	6,453	—
Other accrued expenses	10,817	8,848
Accrued expenses and other current liabilities	$ 41,753	$ 41,382
Non-current liabilities		
Warranty Settlement Provision, net of current portion (see Note 16)	$ 6,454	$ —
Other accrued expenses, net of current portion	1,760	1,701
Other liabilities, net of current portion	$ 8,214	$ 1,701

Warranty Settlement Provision

As discussed in further detail in Note 16, "Commitments and Contingencies", the Company previously received written notification from a significant customer of one of its international subsidiaries, of alleged costs incurred and expected to be incurred by that customer with respect to an ongoing warranty matter relating to field replacements of failed units for one particular product, which failure was attributable to an unauthorized part substitution in 2019 by a supplier to the subsidiary. As of September 30, 2022, the Company recorded a warranty settlement provision for the estimated expected loss in the amount of 20,000 Australian dollars, or $12,907 USD, based on the exchange rate of USD $0.645 per AUD $1.00 on September 30, 2022, based on the status of ongoing negotiations. If our settlement offer were to be accepted, consideration is expected to be paid in future annual installments over 5 years.

Accrued Warranty

Substantially all of the Company's products are covered by warranties for software and hardware for periods ranging from 90 days to one year. In addition, in conjunction with customers' renewals of maintenance and support contracts, the Company offers an extended warranty for periods typically of one to three years for agreed-upon fees. In the event of a failure of a hardware product or software covered by these warranties, the Company must repair or replace the software or hardware or, if those remedies are insufficient, and at the discretion of the Company, provide a refund. The Company's warranty reserve, which is included in accrued expenses and other current liabilities in the condensed consolidated balance sheets, reflects estimated material, labor and other costs related to potential or actual software and hardware warranty claims for which the Company expects to incur an obligation. The Company's estimates of anticipated rates of warranty claims and the costs associated therewith are primarily based on historical information and future forecasts. The Company periodically assesses the adequacy of the warranty reserve and adjusts the amount as necessary. If the historical data used to calculate the adequacy of the warranty reserve are not indicative of future requirements, additional or reduced warranty reserves may be required.

The following table presents a summary of changes in the amount reserved for warranty costs for the nine months ended September 30, 2022 and 2021:

	Nine Months Ended September 30, 2022	Nine Months Ended September 30, 2021
Warranty reserve at beginning of period	$ 2,392	$ 2,354
Provisions	2,371	2,015
Charges	(1,396)	(1,886)
Warranty reserve at end of period	$ 3,367	$ 2,483

7. Fair Value Measurements

The following tables present information about the fair value of the Company's financial assets and liabilities as of September 30, 2022 and December 31, 2021 and indicate the level of the fair value hierarchy utilized to determine such fair values:

	Fair Value Measurements as of September 30, 2022 Using: Level 1	Level 2	Level 3	Total
Assets:				
Certificates of deposit—restricted cash	$ —	$ 3,108	$ —	$ 3,108
Money market mutual funds	165,205	—	—	165,205
	$ 165,205	$ 3,108	$ —	$ 168,313

	Fair Value Measurements as of December 31, 2021 Using: Level 1	Level 2	Level 3	Total
Assets:				
Certificates of deposit—restricted cash	$ —	$ 1,001	$ —	$ 1,001
Money market mutual funds	93,792	—	—	93,792
Foreign currency forward contract	$ —	5	—	5
	$ 93,792	$ 1,006	$ —	$ 94,798
Liabilities:				
SARs	$ —	$ —	$ 358	$ 358
	$ —	$ —	$ 358	$ 358

During the nine months ended September 30, 2022 and 2021, there were no transfers between Level 1, Level 2 and Level 3.

There were no changes to the valuation techniques used to measure asset and liability fair values on a recurring basis during the nine months ended September 30, 2022 from those included in the Company's consolidated financial statements for the year ended December 31, 2021. The following table provides a summary of changes in the fair values of the Company's SARs liability, for which fair value is determined by Level 3 inputs:

	Nine Months Ended September 30,	
	2022	2021
Fair value at beginning of period	$ 358	$ 493
Change in fair value	(159)	100
Exercises	(199)	(135)
Fair value at end of period	$ —	$ 458

8. Income Taxes

The Company's effective income tax rate was 3.9% and 85.8% for the three months ended September 30, 2022 and 2021, respectively. The benefit from income taxes was $1,261 and $5,288 for the three months ended September 30, 2022 and 2021, respectively. The change in the benefit from income taxes was primarily due to a discrete benefit of $(7,097) recorded in the three months ended September 30, 2021 related to finalization of loss carrybacks associated with the CARES Act. The change in the benefit from income taxes was also impacted by changes in the jurisdictional mix of earnings.

The Company's effective income tax rate was (6.7%) and 11.6% for the nine months ended September 30, 2022 and 2021, respectively. The provision for income taxes was $5,071 and $220 for the nine months ended September 30, 2022 and 2021, respectively. The change in the provision from income taxes was impacted by a discrete benefit of $(7,097) recorded in the nine months ended September 30, 2021 related to loss carrybacks associated with the CARES Act. The change in the provision for income taxes was also impacted by the new requirement to capitalize and amortize all research and experimentation expenditures for U.S. tax purposes, pursuant to the Tax Cuts and Jobs Act ("TCJA") as of January 1, 2022. This new requirement results in significant forecasted U.S. current income tax for 2022 and the corresponding deferred tax asset created is offset by a full valuation allowance. The change in the provision for income taxes was also impacted by changes in the jurisdictional mix of earnings and the valuation allowance maintained against our deferred tax assets.

The (benefit from) provision for income taxes for the three and nine months ended September 30, 2022 and 2021 differed from the federal statutory rate primarily due to the geographical mix of earnings and related foreign tax rate differential, permanent differences, research and development credits, foreign tax credits, the valuation allowance maintained against the Company's deferred tax assets and withholding taxes.

9. Debt

Term Loan and Revolving Credit Facilities

On December 20, 2016, the Company entered into a credit agreement with JPMorgan Chase Bank, N.A., as administrative agent, various lenders and JPMorgan Chase Bank, N.A. and Barclays Bank PLC providing for (i) a term loan facility of $300,000 (the "Term Loan") and (ii) a revolving credit facility of up to $25,000 in revolving credit loans and letters of credit, which matured on December 20, 2021.

Current and non-current debt obligations reflected in the condensed consolidated balance sheets as of September 30, 2022 and December 31, 2021 consisted of the following:

	September 30, 2022	December 31, 2021
Current liabilities:		
Term loan	$ 3,000	$ 3,000
Current portion of principal payment obligations	3,000	3,000
Unamortized debt issuance costs, current portion	(1,067)	(1,076)
Current portion of long-term debt, net of unamortized debt issuance costs	$ 1,933	$ 1,924
Non-current liabilities:		
Term loan	$ 272,975	$ 275,225
Unamortized debt issuance costs, non-current portion	(236)	(1,032)
Long-term debt, net of current portion and unamortized debt issuance costs	$ 272,739	$ 274,193

As of September 30, 2022, aggregate minimum future principal payments of the Company's debt are summarized as follows:

Year Ending December 31,	
Remainder of 2022	$ 750
2023	275,225
Thereafter	—
	$ 275,975

As of September 30, 2022 and December 31, 2021, $275,975 and $278,225 in principal amount, respectively, were outstanding under the Term Loan.

Borrowings under the Term Loan bear interest at a floating rate, which can be either a Eurodollar rate plus an applicable margin or, at the Company's option, a base rate (defined as the highest of (x) the JPMorgan Chase, N.A. prime rate, (y) the federal funds effective rate, plus one-half percent (0.50%) per annum and (z) a one-month Eurodollar rate plus 1.00% per annum) plus an applicable margin. The applicable margin for borrowings under the Term Loan is 4.00% per annum for Eurodollar rate loans (subject to a 1.00% per annum interest rate floor) and 3.00% per annum for base rate loans. The interest rate payable under the Term Loan is subject to an increase of 2.00% per annum during the continuance of any payment default.

For Eurodollar rate loans, the Company may select interest periods of one, three or six months or, with the consent of all relevant affected lenders, twelve months. Interest will be payable at the end of the selected interest period, but no less frequently than every three months within the selected interest period. Interest on any base rate loan is not set for any specified period and is payable quarterly. The Company has the right to convert Eurodollar rate loans into base rate loans and the right to convert base rate loans into Eurodollar rate loans at its option, subject, in the case of Eurodollar rate loans, to breakage costs if the conversion is effected prior to the end of the applicable interest period. As of September 30, 2022, the interest rate on the Term Loan was 7.12% per annum, which was based on a one-month Eurodollar rate of 3.12% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans. As of December 31, 2021, the interest rate on the Term Loan was 5.00% per annum, which was based on a one-month Eurodollar rate, at the applicable floor of 1.00% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans.

Upon entering into the Term Loan, the Company incurred debt issuance costs of $7,811, which were initially recorded as a reduction of the debt liability and are amortized to interest expense using the effective interest method from the issuance date of the Term Loan until the maturity date. Under the Term Loan, the Company made principal payments of $750 during each of the three months ended September 30, 2022 and 2021, and made principal payments of $2,250 and $9,025 during the nine months ended September 30, 2022 and 2021, respectively. Interest expense for the Term Loan, including the amortization of debt issuance costs, totaled $4,696 and $3,870 for the three months ended September 30, 2022 and 2021, respectively, and totaled $12,270 and $11,672 for the nine months ended September 30, 2022 and 2021, respectively.

The Term Loan matures on December 20, 2023 and is subject to amortization in equal quarterly installments, which commenced on March 31, 2017, of principal in an annual aggregate amount equal to 1.0% of the original principal amount of the Term Loan of $300,000, with the remaining outstanding balance payable at the date of maturity. As the maturity date approaches, the Company has begun the refinancing process. However, if we are unable to successfully complete a refinancing of a sufficient portion of the outstanding balance prior to maturity or otherwise satisfy our repayment obligations, there may be substantial doubt about our ability to continue as a going concern beyond the maturity date of the loan.

Voluntary prepayments of principal amounts outstanding under the Term Loan are permitted at any time; however, if a prepayment of principal is made with respect to a Eurodollar loan on a date other than the last day of the applicable interest period, the Company is required to compensate the lenders for any funding losses and expenses incurred as a result of the prepayment.

In addition, the Company is required to make mandatory prepayments under the Term Loan with respect to (i) 100% of the net cash proceeds from certain asset dispositions (including casualty and condemnation events) by the Company or certain of its subsidiaries, subject to certain exceptions and reinvestment provisions, (ii) 100% of the net cash proceeds from the issuance or incurrence of any additional debt by the Company or certain of its subsidiaries, subject to certain exceptions, and (iii) 50% of the Company's excess cash flow, as defined in the credit agreement, subject to reduction upon its achievement of specified performance targets. In accordance with these provisions, a mandatory early prepayment of $6,775 was paid by the Company during the nine months ended September 30, 2021.

The Term Loan is secured by, among other things, a first priority security interest, subject to permitted liens, in substantially all of the Company's assets and all of the assets of certain of its subsidiaries and a pledge of certain of the stock of certain of its subsidiaries, in each case subject to specified exceptions. The Term Loan contains customary affirmative and negative covenants, including certain restrictions which are currently in effect based upon the Company's total net leverage ratio, such as the Company's ability to pay dividends and repurchase outstanding shares. The Company was in compliance with all covenants as of September 30, 2022 and December 31, 2021.

10. Stockholders' Equity

Stock Repurchase Program

On February 21, 2019, the Company announced a stock repurchase program authorizing it to repurchase up to $75,000 of the Company's common stock. The Company repurchased 204 shares, at a cost of $1,192, including commissions, during the nine months ended September 30, 2022. There were no repurchases made during the three months ended September 30, 2022 or during the three and nine months ended September 30, 2021. As of September 30, 2022, $60,234 remained authorized for repurchases of the Company's common stock under the stock repurchase program. However, based on the Company's net leverage ratio at September 30, 2022, as described in Note 9, "Debt", the Company's ability to repurchase shares is currently restricted. The stock repurchase program has no expiration date and does not require the Company to purchase a minimum number of shares, and the Company may suspend, modify or discontinue the stock repurchase program at any time without prior notice.

Securities Purchase Agreement with Verizon Ventures LLC

On April 18, 2022, the Company entered into a Securities Purchase Agreement (the "SPA") with Verizon Ventures LLC providing for the private placement of an aggregate of 9,323 shares (the "Shares") of the Company's common stock, par value $0.001 per share, at a price of $4.24 per share, for an aggregate purchase price of approximately $39,530. The Company filed a resale registration statement for the Shares with the SEC on May 17, 2022.

11. Stock-based Compensation

2017 Stock Incentive Plan

The Company's 2017 Stock Incentive Plan (the "2017 Plan") provides for the Company to sell or issue common stock or restricted common stock, or to grant qualified incentive stock options, nonqualified stock options, SARs, performance-based restricted stock units ("PSUs"), RSUs or other stock-based awards to the Company's employees, officers, directors, advisors and outside consultants. The total number of shares authorized for issuance under the 2017 Plan was 19,404 shares as of September 30, 2022, of which 5,916 shares remained available for future grant.

Stock Options

A summary of stock option activity for the nine months ended September 30, 2022 is as follows:

	Number of Shares		Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)		Aggregate Intrinsic Value
Outstanding at January 1, 2022	5,919	$	8.82	4.36	$	4,205
Granted	1,578		3.87			
Exercised	(156)		1.95			
Forfeited	(684)		11.03			
Outstanding at September 30, 2022	6,657	$	7.58	4.86	$	260
Options exercisable at September 30, 2022	4,997	$	8.75	3.35	$	256
Vested or expected to vest at September 30, 2022	6,563	$	7.63	4.79	$	260

The fair value of each option is estimated on the date of grant using the Black-Scholes option-pricing model using the following assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Risk-free interest rate	3.7%	1.0%	1.7%–3.7%	1.0%
Expected term (in years)	6.1	6.1	5.6–6.3	6.1
Expected volatility	41.5%	38.6%	38.5%–41.5%	38.2%-38.6%
Expected dividend yield	0.0%	0.0%	0.0%	0.0%

The weighted-average grant-date fair value of options granted during the nine months ended September 30, 2022 and 2021 was $1.62 and $3.15 per share, respectively. Cash proceeds received upon the exercise of options were $304 and $3,532 during the nine months ended September 30, 2022 and 2021, respectively. The intrinsic value of stock options exercised during the nine months ended September 30, 2022 and 2021 was $342 and $5,182, respectively. The aggregate intrinsic value is calculated as the difference between the exercise price of the stock options and the fair value of the Company's common stock for those stock options that had exercise prices lower than the fair value of the Company's common stock.

Restricted Stock Units

A summary of RSU activity for the nine months ended September 30, 2022 is as follows:

	Number of Shares		Weighted-Average Grant Date Fair Value		Aggregate Fair Value
Unvested balance at January 1, 2022	4,309	$	6.34		
Granted	3,027		3.61		
Vested	(1,376)		6.89	$	6,227
Forfeited	(392)		6.30		
Unvested balance at September 30, 2022	5,568	$	4.72		

The Company withheld 456 and 779 shares of common stock in settlement of employee tax withholding obligations due upon the vesting of RSUs and PSUs during the nine months ended September 30, 2022 and 2021, respectively.

Performance-Based Stock Units

During the nine months ended September 30, 2022 and 2021, the Company granted PSUs to certain employees that vest over a three-year period based on the achievement of performance goals and continued performance of services. The performance goals for all PSUs granted during the nine months ended September 30, 2021 and a portion of PSUs granted during the nine months ended September 30, 2022 consist solely of market-based vesting conditions, determined by the Company’s level of achievement of pre-established parameters relating to the performance of the Company’s stock price as set by the Board of Directors. Vesting for these market-based PSUs may occur at any time during the three-year period. The remainder of PSUs granted during the nine months ended September 30, 2022 consist of performance-based vesting conditions determined by the Company's achievement of performance targets with respect to a certain customer agreement. Vesting for these performance-based PSUs may occur in varying percentages on January 1, 2023, 2024, and 2025.

A summary of PSU activity for the nine months ended September 30, 2022 is as follows:

	Number of Shares	Weighted-Average Grant Date Fair Value	Aggregate Fair Value
Unvested balance at January 1, 2022	442	$ 7.89	
Granted	846	2.79	
Vested	—	—	$ —
Forfeited	(26)	7.89	
Unvested balance at September 30, 2022	1,262	$ 4.47	

Compensation expense is based on the estimated value of the awards on the grant date, and is recognized over the period from the grant date through the expected vest dates of each vesting condition, both of which were estimated based on a Monte Carlo simulation model applying the following key assumptions:

	*Nine months ended September 30,	
	2022	2021
Risk-free interest rate	2.8%	0.2%
Volatility	79.1%	78.6%
Dividend yield	0.0%	0.0%
Cost of equity	13.2%	12.0%

* No PSUs were granted during the three months ended September 30, 2022 and 2021.

Stock Appreciation Rights

Over time, the Company has granted SARs that allow the holder the right, upon exercise, to receive in cash the amount of the difference between the fair value of the Company’s common stock at the date of exercise and the price of the underlying common stock at the date of grant of each SAR. The SARs vested over a four-year period from the date of grant and expire ten years from the date of grant.

A summary of SAR activity for the nine months ended September 30, 2022 is as follows:

	Number of Shares	Weighted-Average Exercise Price
Outstanding at January 1, 2022	200	$ 7.28
Granted	—	—
Exercised	(90)	1.69
Forfeited	—	—
Outstanding at September 30, 2022	110	$ 11.86

The fair value of the SAR liability as of December 31, 2021 was $358 (see Note 7), and was included in accrued expenses and other current liabilities in the accompanying condensed consolidated balance sheets. There was no SAR liability as of

September 30, 2022 as the exercise price of all outstanding SARs exceeded the fair value of the Company's common stock as of September 30, 2022.

Stock-Based Compensation Expense

Stock-based compensation expense related to stock options, RSUs, SARs and PSUs for the three and nine months ended September 30, 2022 and 2021 was classified in the condensed consolidated statements of operations and comprehensive (loss) income as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Cost of revenue	$ 31	$ 29	$ 92	$ 95
Research and development expenses	824	557	2,113	1,971
Selling, general and administrative expenses	2,816	3,112	6,973	9,179
Total stock-based compensation	$ 3,671	$ 3,698	$ 9,178	$ 11,245

The Company recognized stock-based compensation expense for the three and nine months ended September 30, 2022 and 2021 in the condensed consolidated balance sheet as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Change in fair value of SAR Liability	$ —	$ (188)	$ (159)	$ 100
Recognized as additional paid-in capital	3,671	3,886	9,337	11,145
Total stock-based compensation	$ 3,671	$ 3,698	$ 9,178	$ 11,245

As of September 30, 2022, there was $24,928 of unrecognized compensation cost related to outstanding stock options, RSUs, SARs and PSUs, which is expected to be recognized over a weighted-average period of 2.45 years.

12. Net (Loss) Income per Share

Basic and diluted net (loss) income per share attributable to common stockholders was calculated as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Numerator:				
Net (loss) income attributable to common stockholders, basic and diluted	$ (31,164)	$ (876)	$ (80,445)	$ 1,680
Denominator:				
Weighted-average shares used to compute net (loss) income per share attributable to common stockholders, basic	94,512	85,660	90,569	84,985
Dilutive effect of stock options	—	—	—	1,765
Dilutive effect of restricted stock units	—	—	—	2,198
Weighted-average shares used to compute net (loss) income per share attributable to common stockholders, diluted	94,512	85,660	90,569	88,948
Net (loss) income per share attributable to common stockholders:				
Basic	$ (0.33)	$ (0.01)	$ (0.89)	$ 0.02
Diluted	$ (0.33)	$ (0.01)	$ (0.89)	$ 0.02

The following potential common shares were excluded from the computation of diluted net (loss) income per share attributable to common stockholders for the periods presented because including them would have been anti-dilutive:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Options to purchase common stock	6,657	6,040	6,657	3,459
Unvested restricted stock units	5,568	4,380	5,568	723
Unvested performance-based stock units	1,262	442	1,262	—

13. Revenue from Contracts with Customers

Disaggregation of revenue

The Company disaggregates its revenue by product and service in the condensed consolidated statements of operations and comprehensive (loss) income. Performance obligations related to product revenue are recognized at a point in time, while performance obligations related to service revenue are recognized over time. The Company also disaggregates its revenue based on geographic locations of its customers, as determined by the customer's shipping address, summarized as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
North America:				
U.S.	$ 16,988	$ 40,671	$ 53,220	$ 101,534
Canada	14,556	11,087	39,655	61,875
Total North America	31,544	51,758	92,875	163,409
Europe, Middle East and Africa:	10,936	6,547	22,102	19,478
Asia-Pacific:				
Australia	14,448	24,329	51,740	68,527
Other	5,467	8,832	21,058	24,526
Total Asia-Pacific	19,915	33,161	72,798	93,053
Latin America	4,504	7,753	14,359	20,286
Total revenue(1)	$ 66,899	$ 99,219	$ 202,134	$ 296,226

(1) Other than the U.S., Canada and Australia, no individual countries represented 10% or more of the Company's total revenue for any of the periods presented.

The Company also disaggregates its revenue based on product line summarized as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Product revenue:				
Wireless	$ 19,891	$ 43,070	$ 68,047	$ 116,081
Fixed telco	14,971	20,187	42,625	51,209
Cable	20,573	24,495	56,449	94,729
Total product revenue	55,435	87,752	167,121	262,019
Service revenue:				
Wireless	1,478	1,141	4,363	3,416
Fixed telco	316	825	3,027	3,474
Cable	9,670	9,501	27,623	27,317
Total service revenue	11,464	11,467	35,013	34,207
Total revenue	$ 66,899	$ 99,219	$ 202,134	$ 296,226

Contract Balances

Contract liabilities consist of deferred revenue and include payments received in advance of performance under the contract. Such amounts are recognized as revenue when the Company satisfies its performance obligations, consistent with the above methodology. During the three and nine months ended September 30, 2022, the Company recognized $3,139 and $11,630, respectively, of revenue that was included in deferred revenue in the condensed consolidated balance sheet as of December 31, 2021. During the three and nine months ended September 30, 2021, the Company recognized $1,726 and $13,706, respectively, of revenue that was included in deferred revenue in the condensed consolidated balance sheet as of December 31, 2020.

The Company receives payments from customers based upon contractual billing terms. Accounts receivable are recorded when the right to consideration becomes unconditional. Contract assets include amounts related to the Company's contractual right to consideration for both completed and partially completed performance obligations that may not have been invoiced. As of September 30, 2022 and December 31, 2021, the Company included contract assets of $2,594 and $95, respectively, in accounts receivable, net in the condensed consolidated balance sheets.

Transaction Price Allocated to the Remaining Performance Obligations

As of September 30, 2022, the aggregate remaining amount of revenue expected to be recognized related to unsatisfied or partially unsatisfied performance obligations was $39,396, which consists of deferred revenue. The Company expects approximately 85% of this amount to be recognized in the next twelve months with the remaining amount to be recognized over the next two to five years.

14. Segment Information

The Company operates as one operating segment. Operating segments are defined as components of an enterprise for which separate financial information is regularly evaluated by the Company's chief operating decision maker, or decision-making group, in deciding how to allocate resources and assess performance. The Company has determined that its chief operating decision maker is its President and Chief Executive Officer. The Company's chief operating decision maker reviews the Company's financial information on a consolidated basis for purposes of allocating resources and assessing financial performance. Since the Company operates as one operating segment, all required financial segment information can be found in these condensed consolidated financial statements.

The Company's property and equipment, net by location was as follows:

	September 30, 2022	December 31, 2021
U.S.	$ 15,095	$ 17,089
China	3,018	3,118
Australia	1,323	2,027
Other	830	1,274
Total property and equipment, net	$ 20,266	$ 23,508

15. Related Parties

Employment of Rongke Xie

Rongke Xie, who serves as General Manager of Guangzhou Casa Communication Technology LTD ("Casa China"), a subsidiary of the Company, is the sister of Lucy Xie, the Company's Senior Vice President of Operations and a member of the Company's Board of Directors. Casa China paid Rongke Xie $181 and $187 in total compensation during the nine months ended September 30, 2022 and 2021, respectively, for her services as an employee.

To date, the Company has granted to Rongke Xie 145 RSUs which vest over four-year periods. The grant-date fair value of the awards totaled $600, which is recorded as stock-based compensation expense over the vesting period of the awards. During the three months ended September 30, 2022 and 2021, the Company recognized selling, general and administrative expenses of $26 and $28 related to these awards, and during the nine months ended September 30, 2022 and 2021, the Company recognized selling, general and administrative expenses of $87 and $78 related to these awards.

Transactions Involving Verizon Communications Inc. and its Affiliates

As a result of the Company's SPA with Verizon Ventures LLC on April 18, 2022 (see Note 10, "Stockholders Equity"), Verizon Communications Inc. and its subsidiaries ("Verizon and Affiliates") collectively became a principal stockholder of the Company through its ownership of common stock. Verizon and Affiliates are customers of the Company.

During the three and nine months ended September 30, 2022, the Company recognized revenue of $3,041 and $13,591 from transactions with Verizon and Affiliates, and amounts received in cash resulting from revenue transactions with Verizon and Affiliates during the nine months ended September 30, 2022 totaled $27,203. As of September 30, 2022, amounts due from Verizon and Affiliates totaled $1,817 and were included in accounts receivable, net in the condensed consolidated balance sheet. As of September 30, 2022, revenue from transactions that did not meet the criteria for recognition totaling $16,775 with Verizon and Affiliates were included in deferred revenue in the condensed consolidated balance sheet.

16. Commitments and Contingencies

Indemnification

The Company has, in the ordinary course of business, agreed to defend and indemnify certain customers against third-party claims asserting (i) infringement of certain intellectual property rights, which may include patents, copyrights, trademarks or trade secrets, and (ii) certain other harms caused by the acts or omissions of the Company.

As permitted under Delaware law, the Company indemnifies its officers, directors and employees for certain events or occurrences that happen by reason of their relationship with or position held at the Company.

As of September 30, 2022, the Company accrued $230 as a minimum estimated liability related to an ongoing indemnification claim. As of December 31, 2021, the Company had not experienced any material losses related to these indemnification obligations. As of September 30, 2022 and December 31, 2021, no additional material claims were outstanding where a contingent loss was considered to be probable or reasonably estimable. The Company does not expect additional significant claims related to these indemnification obligations and, consequently, concluded that the fair value of any additional obligations is negligible.

Litigation

The complete response to this section regarding legal proceedings is incorporated by reference herein to Part II Item I in this 10-Q.

Other

As described in Note 6, "Accrued Expenses and Other Current Liabilities", the Company provides industry-standard product warranties to its customers, and is thus inherently subject to loss contingencies that include warranty claims which may arise in the ordinary course of business.

On July 21, 2022, the Company received written notification from a significant customer of one of its international subsidiaries, of alleged costs incurred and expected to be incurred by that customer with respect to an ongoing warranty matter relating to field replacements of failed units for one particular product, which failure was attributable to an unauthorized part substitution in 2019 by a supplier to the subsidiary.

Although the customer has not initiated any legal proceeding against the subsidiary or the Company to date, the customer has communicated its estimated costs for which it is seeking reimbursement. This communication was in the form of a suggested amicable settlement in the amount of approximately $31,000 for alleged costs incurred to date, plus approximately $25,000 for estimated future costs, which may be incurred over the next 5 years for a total cash settlement proposal of approximately $56,000. In addition, the settlement proposal also includes various non-monetary concessions, some of which, if agreed to, could result in significant additional costs to the Company.

Management has entered into negotiations with the customer while concurrently evaluating the settlement proposal relative to the subsidiary’s contractual warranty obligations to the customer, as well as all details of the proposed settlement, including evaluating the basis of estimated costs incurred and to be incurred and all other relevant matters regarding this settlement proposal, including contractual terms in place with this customer regarding rights, remedies, limitations of liability, and other potential mitigating factors. The Company is also evaluating contractual obligations, responsibilities, and liabilities of the subsidiary's part supplier in this matter.

Based on the ongoing settlement negotiations to date, as of September 30, 2022, Management has concluded that the likelihood of an unfavorable outcome is probable, and thus the Company established a reserve for the estimated expected loss in the amount of 20,000 Australian dollars, or $12,907 USD based on the exchange rate of USD $0.645 per AUD $1.00 on September 30, 2022, based on the status of ongoing negotiations. If our settlement offer were to be accepted, consideration is expected to be paid in future annual installments over 5 years.

17. Subsequent Events

Debt Repurchase

On October 27, 2022, the Company's Board of Directors authorized the use of cash to repurchase up to $50,000 of the Term Loan. On November 2, 2022, the Company repurchased a portion of its outstanding Term Loan from certain of its debt holders. The aggregate payments totaled $39,041, paid using funds included in cash and cash equivalents in the condensed consolidated balance sheets as of September 30, 2022. Based on the applicable fair value of debt repurchased, the amount of outstanding principal of the Term Loan that was retired was $41,703. The Company is in ongoing active discussions with other debt holders about repurchasing additional portions of the Term Loan and the Company may enter into additional agreements to repurchase portions of the outstanding Term Loan, up to the level approved by the Company's Board of Directors, if favorable repurchase terms and economics are available to the Company.

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

The following discussion of our financial condition and results of operations should be read together with our condensed consolidated financial statements and related notes and other financial information included elsewhere in this Quarterly Report on Form 10-Q. The following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Quarterly Report on Form 10-Q, particularly in the section titled "Risk Factors." For discussion comparing the periods ended September 30, 2021 and September 30, 2020, please refer to our Quarterly Report on Form 10-Q filed with the SEC on November 2, 2021.

Overview

With our physical, virtual and cloud-native 5G infrastructure and customer premise networking equipment solutions, we help our CSP customers transform and expand their public and private high-speed data and multi-service communications networks so they can meet the growing demand for bandwidth and new services. Our core and edge convergence technology enables CSPs and enterprises to cost-effectively and dynamically increase network speed, add bandwidth capacity and new services, reduce network complexity, and reduce operating and capital expenditures regardless of access technology.

We offer scalable solutions that can meet the evolving bandwidth needs of our customers and their subscribers. Our first installation in a service provider's network frequently involves deploying our broadband products in only a portion of the provider's network and, for our cable products, with only a fraction of the capacity of our products enabled at the time of initial installation. Over time, our customers have generally expanded the use of our solutions to other areas of their networks to extend network coverage or increase network capacity.

Our solutions are commercially deployed in over 70 countries by more than 475 customers, including regional service providers as well as some of the world's largest Tier 1 CSPs, serving millions of subscribers.

Global and Macroeconomic Considerations

COVID-19 Pandemic

The ongoing COVID-19 pandemic presents various risks to us, which could continue to have a material effect upon the estimates and judgments relied upon by management in preparing these condensed consolidated financial statements. While we remain fully operational, during the three and nine months ended September 30, 2022, the effects of the COVID-19 pandemic on the global supply chain had a significant adverse effect on our financial results. In particular, certain of our products utilize components whose availability was significantly exceeded by global demand. As a result, during the three months ended September 30, 2022, we continued to see shortages of supply that resulted in our inability to fulfill certain customer orders within normal lead times. This adversely impacted our revenue and operating results for the three and nine months ended September 30, 2022. Additionally, shipping bottlenecks and delays further negatively affected our ability to timely fulfill customer orders, thereby delaying our ability to consummate sales and recognize revenue. We have also seen, in some cases, significant increases in shipping costs. While we continue to work with our supply chain, contract manufacturers, logistics partners and customers to minimize the extent of such impacts, we expect the effects of global supply chain issues to continue and cannot predict if or when such effects will subside. This may prevent us from being able to fulfill our customers' orders in a timely manner or at all, which could lead to one or more of our customers cancelling their orders.

For the nine months ended September 30, 2021, we were able to benefit from the CARES Act that was signed into law on March 27, 2020. The CARES Act, among other things, includes tax provisions relating to refundable payroll tax credits, deferment of employer's Social Security payments, net operating loss utilization and carryback periods, modifications to the net interest deduction limitations and technical corrections to tax depreciation methods for qualified improvement property (QIP). For the nine months ended September 30, 2021, we recognized a reduction to cost of goods sold of $0.6 million and a reduction in operating expenses of $4.3 million in connection with a payroll tax credit under the CARES Act. We will continue to evaluate the impact of the CARES Act on our financial position, results of operations, and cash flows.

Rising Inflation and Interest Rates

Supply chain disruption and other economic conditions have led to a recent rise in inflation, which has caused increases in the costs to produce our products, much of which we were not immediately able to pass on to our customers due to fixed price agreements. Increased inflation may result in decreased demand for our products and services, increased operating costs (including our labor costs), reduced liquidity and limitations on our ability to access credit or otherwise raise debt and equity capital. In addition, the U.S. Federal Reserve has raised, and may again raise interest rates in response to concerns about inflation. Increases in interest rates, especially if coupled with reduced government spending and volatility in financial markets, may have the effect of further increasing economic uncertainty and heightening these risks. In an inflationary environment, due to our fixed price agreements, we may be unable to raise the prices of our products and services commensurate with or above the rate at which our costs increase. We also may experience lower than expected sales and potential adverse impacts on our competitive position if there is a decrease in consumer spending or a negative reaction to our pricing for new customers.

In addition, because our outstanding debt bears interest at variable interest rates, the recent increases in interest rates will result in increased future debt service costs. Continued increases in interest rates will further increase the cost of servicing our outstanding indebtedness and may make refinancing our outstanding indebtedness not economically viable.

At this time, we are neither able to estimate the extent of these impacts nor predict whether our efforts to minimize or contain them will be successful. We intend to continue to monitor our business very closely for any effects of COVID-19, inflation and interest rates for as long as necessary.

Due to the above circumstances and as described generally in this Quarterly Report on Form 10-Q, our results of operations for the three and nine months ended September 30, 2022 are not necessarily indicative of the results to be expected in future periods. Management cannot predict the full impact of the ongoing COVID-19 pandemic on our sales channels, supply chain, manufacturing and distribution, or on economic conditions generally, including the effects on our current and potential customers, who may temporarily accelerate or curtail spending on investments in current and/or new technologies, delay new equipment evaluations and trials and possibly delay payments based on liquidity concerns, all of which could have a material impact on our business in the future. Similarly, our supply chain and our contract manufacturers could continue to be affected, which could cause further disruptions to our ability to meet customer demand or delivery schedules and continued cost increases. For the three and nine months ended September 30, 2022, we experienced certain delays in our supply chain that adversely impacted delivery schedules to our customers and cost increases that adversely impacted our gross margins. If COVID-19 were to have such effects in the future, there would likely be further material adverse impacts on our financial results, liquidity and capital resource needs. This uncertainty makes it challenging for management to estimate the future performance of our business, particularly in the near to medium term. The impact of COVID-19, rising inflation, increased interest rates and general economic uncertainty could have a material adverse impact on our results of operations in the near to medium term.

Results of Operations

The following tables set forth our consolidated results of operations in dollar amounts and as percentages of total revenue for the periods shown:

	Three Months Ended September 30, 2022	Three Months Ended September 30, 2021	Nine Months Ended September 30, 2022	Nine Months Ended September 30, 2021
	(in thousands)		(in thousands)	
Revenue:				
Product	$ 55,435	$ 87,752	$ 167,121	$ 262,019
Service	11,464	11,467	35,013	34,207
Total revenue	66,899	99,219	202,134	296,226
Cost of revenue[1]:				
Product	38,421	57,372	117,531	150,515
Service	1,195	1,223	4,006	3,532
Warranty Settlement Provision	12,907	—	12,907	—
Total cost of revenue	52,523	58,595	134,444	154,047
Gross profit	14,376	40,624	67,690	142,179
Operating expenses:				
Research and development[1]	22,059	21,578	67,545	63,479
Selling, general and administrative[1]	22,442	21,029	66,741	64,492
Total operating expenses	44,501	42,607	134,286	127,971
(Loss) income from operations	(30,125)	(1,983)	(66,596)	14,208
Other expense, net	(2,300)	(4,181)	(8,778)	(12,308)
(Loss) income before (benefit from) provision for income taxes	(32,425)	(6,164)	(75,374)	1,900
(Benefit from) provision for income taxes	(1,261)	(5,288)	5,071	220
Net (loss) income	$ (31,164)	$ (876)	$ (80,445)	$ 1,680

[1] Includes stock-based compensation expense related to stock options; SARs; RSUs; and PSUs, granted to employees, directors and non-employee consultants as follows:

	Three Months Ended September 30, 2022	Three Months Ended September 30, 2021	Nine Months Ended September 30, 2022	Nine Months Ended September 30, 2021
	(in thousands)		(in thousands)	
Cost of revenue	$ 31	$ 29	$ 92	$ 95
Research and development expense	824	557	2,113	1,971
Selling, general and administrative expense	2,816	3,112	6,973	9,179
Total stock-based compensation expense	$ 3,671	$ 3,698	$ 9,178	$ 11,245

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
	(as a percentage of total revenue)		(as a percentage of total revenue)	
Revenue:				
Product	82.9 %	88.4 %	82.7 %	88.5 %
Service	17.1	11.6	17.3	11.5
Total revenue	100.0	100.0	100.0	100.0
Cost of revenue:				
Product	57.4	57.8	58.1	50.8
Service	1.8	1.2	2.0	1.2
Warranty Settlement Provision	19.3	—	6.4	—
Total cost of revenue	78.5	59.1	66.5	52.0
Gross profit	21.5	40.9	33.5	48.0
Operating expenses:				
Research and development	33.0	21.7	33.4	21.4
Selling, general and administrative	33.5	21.2	33.0	21.8
Total operating expenses	66.5	42.9	66.4	43.2
(Loss) income from operations	(45.0)	(2.0)	(32.9)	4.8
Other expense, net	(3.4)	(4.2)	(4.3)	(4.2)
(Loss) income before (benefit from) provision for income taxes	(48.5)	(6.2)	(37.3)	0.6
(Benefit from) provision for income taxes	(1.9)	(5.3)	2.5	0.1
Net (loss) income	(46.6)%	(0.9)%	(39.8)%	0.6 %

Percentages in the table above are based on actual values. As a result, some totals may not sum due to rounding.

Three Months Ended September 30, 2022 Compared to the Three Months Ended September 30, 2021

	Three Months Ended September 30,				Change	
	2022		2021			
	Amount	% of Total	Amount	% of Total	Amount	%
	(dollars in thousands)					
Revenue:						
Product	$ 55,435	82.9 %	$ 87,752	88.4 %	$ (32,317)	(36.8)%
Service	11,464	17.1 %	11,467	11.6 %	(3)	0.0 %
Total revenue	$ 66,899	100.0 %	$ 99,219	100.0 %	$ (32,320)	(32.6)%
Revenue by geographic region:						
North America	$ 31,544	47.2 %	$ 51,758	52.2 %	$ (20,214)	(39.1)%
Europe, Middle East and Africa	10,936	16.3 %	6,547	6.6 %	4,389	67.0 %
Asia-Pacific	19,915	29.8 %	33,161	33.4 %	(13,246)	(39.9)%
Latin America	4,504	6.7 %	7,753	7.8 %	(3,249)	(41.9)%
Total revenue	$ 66,899	100.0 %	$ 99,219	100.0 %	$ (32,320)	(32.6)%

	Three Months Ended September 30,		Change	
	2022	2021	Amount	%
Product revenue:				
Wireless	$ 19,891	$ 43,070	$ (23,179)	(53.8)%
Fixed telco	14,971	20,187	(5,216)	(25.8)%
Cable	20,573	24,495	(3,922)	(16.0)%
Total product revenue	55,435	87,752	(32,317)	(36.8)%
Service revenue:				
Wireless	1,478	1,141	337	29.5%
Fixed telco	316	825	(509)	(61.7)%
Cable	9,670	9,501	169	1.8%
Total service revenue	11,464	11,467	(3)	0.0%
Total revenue	$ 66,899	$ 99,219	$ (32,320)	(32.6)%

Product revenues during the three months ended September 30, 2022 were adversely affected by supply chain delays across all of our markets. Wireless and cable revenues also decreased significantly due to decreased orders from certain Tier 1 customers in the period, as well as timing of certain orders.

Service revenues remained relatively consistent period over period.

Cost of Revenue and Gross Profit

	Three Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Cost of revenue:				
Product	$ 38,421	$ 57,372	$ (18,951)	(33.0)%
Service	1,195	1,223	(28)	(2.3)%
Warranty Settlement Provision	12,907	—	12,907	100.0%
Total cost of revenue	$ 52,523	$ 58,595	$ (6,072)	(10.4)%

	Three Months Ended September 30,				Change	
	2022		2021			
	Amount	Gross Margin	Amount	Gross Margin	Amount	Gross Margin (bps)
	(dollars in thousands)					
Gross profit:						
Product	$ 17,014	30.7%	$ 30,380	34.6%	$ (13,366)	(390)
Service	10,269	89.6%	10,244	89.3%	25	30
Warranty Settlement Provision	(12,907)	0.0%	—	0.0%	(12,907)	—
Total gross profit	$ 14,376	21.5%	$ 40,624	40.9%	$ (26,248)	(1,940)

The decrease in cost of product revenue and the decrease in product gross margin were due to product mix, with a lower proportion of higher margin software product revenue in the three months ended September 30, 2022 as compared to the three months ended September 30, 2021.

Cost of service revenue and service gross margin remained relatively consistent period over period.

The decrease in gross margin was further driven by a warranty settlement provision of $12.9 million recorded during the three months ended September 30, 2022, which reduced the margin by 19.3%. Please refer to Note 16 "Commitments and Contingencies" of the accompanying condensed consolidated financial statements for more discussion regarding this provision.

Research and Development

	Three Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Research and development	$ 22,059	$ 21,578	$ 481	2.2 %
Percentage of revenue	33.0 %	21.7 %		

The increase in research and development expense was primarily due to increased personnel costs of $0.3 million, driven by increased salaries of $0.3 million due to increased headcount and increased stock-based compensation of $0.3 million, partially offset by decreased bonus expense of $0.3 million. In addition, there was an increase in purchases of research and development materials of $0.3 million and an increase in facilities costs of $0.1 million due to increased headcount. These increases were partially offset by a decrease in depreciation of $0.3 million during the three months ended September 30, 2022 as compared to the three months ended September 30, 2021.

Selling, General and Administrative

	Three Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Selling, general and administrative	$ 22,442	$ 21,029	$ 1,413	6.7 %
Percentage of revenue	33.5 %	21.2 %		

The increase in selling, general and administrative expense was primarily due to increased legal and professional fees of $1.8 million and increased trade show expenses of $0.6 million. These increases were partially offset by decreased personnel costs of $0.4 million, driven by lower bonus and commissions, decreased depreciation expense of $0.3 million, and decreased other taxes of $0.2 million.

Other Expense, Net

	Three Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Other expense, net	$ (2,300)	$ (4,181)	$ 1,881	(45.0)%
Percentage of revenue	(3.4)%	(4.2)%		

The change in other expense, net was primarily due to a $1.9 million decrease in foreign exchange losses attributable to fluctuations in the Euro, Australian dollar and the China Renminbi exchange rates. Interest income also increased $0.7 million due to higher investment balances and increased interest rates during the three months ended September 30, 2022 as compared to the three months ended September 30, 2021. Interest expense increased $0.8 million due to the increased interest rates applied to our outstanding debt.

Benefit from Income Taxes

	Three Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Benefit from income taxes	$ (1,261)	$ (5,288)	$ 4,027	(76.2)%

The change in the benefit from income taxes for the three months ended September 30, 2022 compared to the three months ended September 30, 2021 was primarily due to a discrete benefit of $7.1 million recorded in the three months ended September 30, 2021 related to loss carrybacks associated with the CARES Act. The change in the benefit from income taxes was also impacted by changes in the jurisdictional mix of earnings period over period.

Nine Months Ended September 30, 2022 Compared to the Nine Months Ended September 30, 2021

	Nine Months Ended September 30,				Change	
	2022		2021			
	Amount	% of Total	Amount	% of Total	Amount	%
	(dollars in thousands)					
Revenue:						
Product	$ 167,121	82.7%	$ 262,019	88.5%	$ (94,898)	(36.2)%
Service	35,013	17.3%	34,207	11.5%	806	2.4%
Total revenue	$ 202,134	100.0%	$ 296,226	100.0%	$ (94,092)	(31.8)%
Revenue by geographic region:						
North America	$ 92,875	46.0%	$ 163,409	55.2%	$ (70,534)	(43.2)%
Europe, Middle East and Africa	22,102	10.9%	19,478	6.6%	2,624	13.5%
Asia-Pacific	72,798	36.0%	93,053	31.4%	(20,255)	(21.8)%
Latin America	14,359	7.1%	20,286	6.8%	(5,927)	(29.2)%
Total revenue	$ 202,134	100.0%	$ 296,226	100.0%	$ (94,092)	(31.8)%

	Nine Months Ended September 30,		Change	
	2022	2021	Amount	%
Product revenue:				
Wireless	$ 68,047	$ 116,081	$ (48,034)	(41.4)%
Fixed telco	42,625	51,209	(8,584)	(16.8)%
Cable	56,449	94,729	(38,280)	(40.4)%
Total product revenue	167,121	262,019	(94,898)	(36.2)%
Service revenue:				
Wireless	4,363	3,416	947	27.7%
Fixed telco	3,027	3,474	(447)	(12.9)%
Cable	27,623	27,317	306	1.1%
Total service revenue	35,013	34,207	806	2.4%
Total revenue	$ 202,134	$ 296,226	$ (94,092)	(31.8)%

Product revenues during the nine months ended September 30, 2022 were adversely affected by supply chain delays across all of our markets. Wireless and cable revenues also decreased significantly due to decreased orders from certain Tier 1 customers in the period, as well as timing of certain orders.

Service revenues remained relatively consistent period over period.

Cost of Revenue and Gross Profit

	Nine Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Cost of revenue:				
Product	$ 117,531	$ 150,515	$ (32,984)	(21.9)%
Service	4,006	3,532	474	13.4%
Warranty Settlement Provision	12,907	—	12,907	100.0%
Total cost of revenue	$ 134,444	$ 154,047	$ (19,603)	(12.7)%

	Nine Months Ended September 30,				Change	
	2022		2021			
	Amount	Gross Margin	Amount	Gross Margin	Amount	Gross Margin (bps)
	(dollars in thousands)					
Gross profit:						
Product	$ 49,590	29.7%	$ 111,504	42.6%	$ (61,914)	(1,290)
Service	31,007	88.6%	30,675	89.7%	332	(110)
Warranty Settlement Provision	(12,907)	0.0%	—	0.0%	(12,907)	—
Total gross profit	$ 67,690	33.5%	$ 142,179	48.0%	$ (74,489)	(1,450)

The decrease in cost of product revenue and the decrease in product gross margin were both due to lower sales volume during the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021, as well as a change in the product mix, with a lower proportion of higher margin software product revenue in the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021. The decrease in gross margin was also due to an increase in inventory reserves of $2.4 million period over period.

Cost of service revenue and service gross margin remained relatively consistent period over period.

The decrease in gross margin was further driven by a warranty settlement provision of $12.9 million recorded during the nine months ended September 30, 2022, which reduced the margin by 6.4%. Please refer to Note 16 "Commitments and Contingencies" of the accompanying condensed consolidated financial statements for more discussion regarding this provision.

Research and Development

	Nine Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Research and development	$ 67,545	$ 63,479	$ 4,066	6.4%
Percentage of revenue	33.4%	21.4%		

The increase in research and development expense was primarily due to a $3.9 million increase in personnel costs, driven by the impact of a reduction in payroll taxes due to a CARES Act credit of $2.6 million during the nine months ended September 30, 2021, which did not repeat in 2022, and increased salaries, benefits and bonuses of $1.3 million due to increased headcount and annual salary increases in 2022. In addition, there was an increase in purchases of research and development materials of $0.7 million and allocated facilities costs of $0.4 million, partially offset by a decrease in depreciation of $0.9 million during the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021.

Selling, General and Administrative

	Nine Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Selling, general and administrative	$ 66,741	$ 64,492	$ 2,249	3.5%
Percentage of revenue	33.0%	21.8%		

The increase in selling, general and administrative expense was primarily due to an increase in personnel costs of $0.9 million, driven by the impact of a reduction in payroll taxes due to a CARES Act credit of $1.6 million during the nine months ended September 30, 2022, which did not repeat in 2022, increased travel expenses of $1.0 million, offset by decreased salaries and benefits of $1.7 million driven by lower variable compensation costs. Trade show expense increased $1.1 million and legal and professional fees also increased $2.2 million during the nine months ended September 30, 2022. These increases were partially offset by decreased depreciation expense of $0.6 million, decreased other taxes of $0.6 million and decreased facilities expenses of $0.8 million during the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021.

Other Income (Expense), Net

	Nine Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Other expense, net	$ (8,778)	$ (12,308)	$ 3,530	(28.7)%
Percentage of revenue	(4.3)%	(4.2)%		

The change in other income (expense), net was primarily due to a $3.4 million decrease in foreign exchange losses due to fluctuations in the Euro, Australian dollar and the China Renminbi exchange rates and a $0.8 million increase in interest income due to higher investment balances and increased interest rates in the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021. Interest expense increased $0.4 million due to the increase in interest rates applied to our outstanding debt.

Provision for Income Taxes

	Nine Months Ended September 30,		Change	
	2022	2021	Amount	%
	(dollars in thousands)			
Provision for income taxes	$ 5,071	$ 220	$ 4,851	2205.0%

The change in the provision for income taxes for the nine months ended September 30, 2022 compared to the nine months ended September 30, 2021 was impacted by a discrete benefit of $7.1 million recorded in the nine months ended September 30, 2021 related to loss carrybacks associated with the CARES Act. The change in the provision for income taxes was also impacted by the new requirement to capitalize and amortize all research and experimentation expenditures for U.S. tax purposes, which became effective under the Tax Cuts and Jobs Act (“TCJA”) as of January 1, 2022. This new requirement resulted in significant forecasted U.S. current income tax for the 2022 year and the corresponding deferred tax asset created is offset by a full valuation allowance. The change in the provision for income taxes was also impacted by changes in the jurisdictional mix of earnings and the valuation allowance maintained against our deferred tax assets.

Liquidity and Capital Resources

Our principal sources of liquidity have been and continue to be our cash and cash equivalents and cash flows from operations. The following tables set forth our cash and cash equivalents and working capital as of September 30, 2022 and December 31, 2021 and our cash flows for the nine months ended September 30, 2022 and 2021:

	September 30, 2022	December 31, 2021
	(in thousands)	
Consolidated Balance Sheet Data:		
Cash and cash equivalents	$ 193,494	$ 154,703
Working capital	234,000	264,157

		Nine Months Ended September 30,		
		2022		2021
		(in thousands)		
Consolidated Cash Flow Data:				
Net cash provided by operating activities	$	11,663	$	15,197
Net cash used in investing activities		(3,325)		(4,404)
Net cash provided by (used in) financing activities		34,157		(11,905)

As of September 30, 2022, we had cash, cash equivalents and restricted cash of $196.6 million and net accounts receivable of $49.1 million.

Cash Flows

Operating Activities

Our primary source of cash from operating activities has been cash collections from our customers. We expect cash flows from operating activities to be affected by changes in sales volumes and timing of collections, and by purchases and shipments of inventory. Our primary uses of cash from operating activities have been for personnel costs and investment in our selling, general and administrative departments and research and development. Future cash outflows from operating activities may increase as a result of further investment in research and development and selling, general and administrative requirements, as well as increases in personnel costs as we continue to grow our business by enhancing our existing products and introducing new products.

During the nine months ended September 30, 2022, cash provided by operating activities was $11.7 million, primarily resulting from net cash provided by changes in our operating assets and liabilities of $68.9 million and net non-cash adjustments of $23.2 million, partially offset by our net loss of $80.4 million. Net cash provided by changes in our operating assets and liabilities during the nine months ended September 30, 2022 was primarily due to a $35.6 million decrease in accounts receivable due to collections during the period; a $21.0 million decrease in prepaid income taxes; a $18.0 million increase in deferred revenue due to the timing of revenue recognition; a $7.5 million increase in accrued expenses due to the timing of certain accrual payments; a $2.1 million increase in accrued income taxes; and a $1.8 million decrease in prepaid expenses. These sources of cash were partially offset by a $13.6 million decrease in accounts payable due to timing of vendor payments; and a $3.4 million increase in inventory.

Investing Activities

Our investing activities have consisted primarily of expenditures for lab and computer equipment and software to support the development of new products. In addition, our investing activities included expansion of and improvements to our facilities. To the extent our business expands, we expect that we will continue to invest in these areas.

Net cash used in investing activities during the nine months ended September 30, 2022 was $3.3 million, consisting of purchases of property and equipment and software licenses.

Financing Activities

Net cash provided by financing activities during the nine months ended September 30, 2022 was $34.2 million, which was mainly due to the $39.5 million received from the Securities Purchase Agreement, or SPA, with Verizon Ventures LLC on April 18, 2022, net of issuance costs of $0.1 million, combined with proceeds from the exercises of stock options of $0.3 million. These amounts were partially offset by employee taxes paid related to net share settlement of equity awards of $2.1 million, primarily due to certain RSUs that vested during the nine months ended September 30, 2022; repurchases of treasury stock of $1.2 million; and debt principal repayments of $2.3 million.

Cash Flows from Future Operations

We believe our existing cash and cash equivalents and anticipated cash flows from future operations will be sufficient to meet our working capital and capital expenditure needs and debt service obligations for at least the next 12 months. As described in Note 9 within our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q, our outstanding Term Loan is scheduled to mature in December 2023, and we have commenced the refinancing process. If we are unable to successfully complete a refinancing of a sufficient portion of the outstanding balance prior to maturity or otherwise satisfy our repayment obligations, there may be substantial doubt about our ability to continue as a going concern beyond the maturity date of the loan.

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

Term Loan and Revolving Credit Facilities

On December 20, 2016, we entered into a credit agreement with JPMorgan Chase Bank, N.A., as administrative agent, various lenders and JPMorgan Chase Bank, N.A. and Barclays Bank PLC, as joint lead arrangers and joint bookrunners, providing for:

- a term loan facility, or the Term Loan, of $300.0 million; and
- a revolving credit facility of up to $25.0 million in revolving credit loans and letters of credit.

As of September 30, 2022 and December 31, 2021, we had borrowings of $276.0 million and $278.2 million, respectively, outstanding under the Term Loan. On December 20, 2021, the revolving credit facility matured.

Borrowings under the Term Loan bear interest at a floating rate, which can be either a Eurodollar rate plus an applicable margin or, at our option, a base rate (defined as the highest of (x) the JPMorgan Chase, N.A. prime rate, (y) the federal funds effective rate, plus one-half percent (0.50%) per annum and (z) a one-month Eurodollar rate plus 1.00% per annum) plus an applicable margin. The applicable margin for borrowings under the Term Loan is 4.00% per annum for Eurodollar rate loans (subject to a 1.00% per annum interest rate floor) and 3.00% per annum for base rate loans. The interest rates payable under the Term Loan are subject to an increase of 2.00% per annum during the continuance of any payment default.

For Eurodollar rate loans, we may select interest periods of one, three or six months or, with the consent of all relevant affected lenders, twelve months. Interest will be payable at the end of the selected interest period, but no less frequently than every three months within the selected interest period. Interest on any base rate loan is not set for any specified period and is payable quarterly. We have the right to convert Eurodollar rate loans into base rate loans and the right to convert base rate loans into Eurodollar rate loans at our option, subject, in the case of Eurodollar rate loans, to breakage costs if the conversion is effected prior to the end of the applicable interest period. As of September 30, 2022, the interest rate on the Term Loan was 7.12% per annum, which was based on a one-month Eurodollar rate of 3.12% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans. As of December 31, 2021, the interest rate on the Term Loan was 5.00% per annum, which was based on a one-month Eurodollar rate, at the applicable floor of 1.00% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans.

The Term Loan matures on December 20, 2023 and is subject to amortization in equal quarterly installments, which commenced on March 31, 2017, of principal in an annual aggregate amount equal to 1.0% of the original principal amount of the term loans of $300.0 million, with the remaining outstanding balance payable at the date of maturity.

Voluntary prepayments of principal amounts outstanding under the Term Loan are permitted at any time; however, if a prepayment of principal is made with respect to a Eurodollar loan on a date other than the last day of the applicable interest period, we are required to compensate the lenders for any funding losses and expenses incurred as a result of the prepayment.

In addition, we are required to make mandatory prepayments under the Term Loan with respect to (i) 100% of the net cash proceeds from certain asset dispositions (including casualty and condemnation events) by us or certain of our subsidiaries, subject to certain exceptions and reinvestment provisions, (ii) 100% of the net cash proceeds from the issuance or incurrence of any additional debt by us or certain of our subsidiaries, subject to certain exceptions, and (iii) 50% of our excess cash flow, as defined in the credit agreement, subject to reduction upon our achievement of specified performance targets.

The Term Loan is secured by, among other things, a first priority security interest, subject to permitted liens, in substantially all of our assets and all of the assets of certain of our subsidiaries and a pledge of certain of the stock of certain of our subsidiaries, in each case subject to specified exceptions. The Term Loan contains customary affirmative and negative covenants, including certain restrictions which are currently in effect based upon our total net leverage ratio, such as our ability to pay dividends and repurchase outstanding shares. As of September 30, 2022 and December 31, 2021, we were in compliance with all applicable covenants of the Term Loan.

Tax Cuts and Jobs Act

Of our total cash and cash equivalents of $196.6 million as of September 30, 2022, $101.0 million was held by our foreign subsidiaries. The TCJA established a modified territorial system requiring a mandatory deemed repatriation tax on undistributed earnings of foreign subsidiaries. As of September 30, 2022, we had $28.1 million of undistributed earnings in China that were not indefinitely reinvested. The remaining unremitted earnings of our foreign subsidiaries are either indefinitely reinvested or could be remitted with an immaterial tax cost.

The TCJA included a provision requiring companies to capitalize all of their research and development costs incurred in tax years beginning after 2021. As a result, research and development costs can no longer be expensed as incurred for tax purposes, and must be capitalized and amortized, 5 years for domestic research and 15 years for international. While it is possible that Congress may retroactively defer, modify or repeal this provision, any such actions would be accounted for in the period of enactment. Absent such Congressional action, this change in tax law will result in significant cash tax payments and have a material adverse effect on our liquidity.

Securities Purchase Agreement with Verizon Ventures LLC

On April 18, 2022, we entered into a Stock Purchase Agreement, or SPA, with Verizon Ventures LLC providing for the private placement of an aggregate of 9.3 million shares of our common stock, par value $0.001 per share, at a price of $4.24 per share, for an aggregate purchase price of approximately $39.5 million.

We filed a resale registration statement with the SEC on May 17, 2022, and intend to use the net proceeds from the private placement for general corporate purposes.

Stock Repurchase Program

On February 21, 2019, we announced a stock repurchase program under which we were authorized to repurchase up to $75.0 million of our common stock. During the nine months ended September 30, 2022, we repurchased approximately 0.2 million shares for a total cost of approximately $1.2 million. During the nine months ended September 30, 2021 we did not repurchase any shares. As of September 30, 2022, approximately $60.2 million remained authorized for repurchases of our common stock under the stock repurchase program. However, based on our net leverage ratio at September 30, 2022, as described in Note 9 of the above notes to our condensed consolidated financial statements, our ability to repurchase shares is currently restricted. The stock repurchase program has no expiration date and does not require us to purchase a minimum number of shares, and we may suspend, modify or discontinue the stock repurchase program at any time without prior notice.

Contractual Obligations, Commitments and Contingencies

Our material contractual obligations include our term loan, operating leases and purchase agreements with our contract manufacturers and suppliers. Other than the addition of a warranty settlement provision during the three months ended September 30, 2022, as discussed above and in the notes to the accompanying condensed consolidated financial statements, there have been no material changes to our contractual obligations, commitments and contingencies from those disclosed in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

Critical Accounting Policies and Significant Judgments and Estimates

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

Other than our adoption of ASU 2021-08, as described in Note 2 within our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q, there have been no material changes to our critical accounting policies and estimates from those disclosed in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

Recent Accounting Pronouncements

Refer to the "Summary of Significant Accounting Policies" footnote within our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q for our analysis of recent accounting pronouncements that are applicable to our business.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Market risk is the risk of loss to future earnings, values or future cash flows that may result from changes in the price of a financial instrument. The value of a financial instrument may change as a result of changes in interest rates, exchange rates, commodity prices, equity prices and other market changes. We are exposed to market risk related to changes in foreign currency exchange rates and interest rates. We currently mitigate certain foreign currency exchange rate risks with derivative instruments and enter into exchange rate hedging arrangements to manage certain of the risks described below. We do not engage in foreign currency speculation.

Interest Rate Sensitivity

As described above, we have a credit agreement that provides us with a Term Loan of $300.0 million. Borrowings under the Term Loan bear interest at a floating rate, which can be either a Eurodollar rate plus an applicable margin or, at our option, a base rate (defined as the highest of (x) the JPMorgan Chase, N.A. prime rate, (y) the federal funds effective rate, plus one-half percent (0.50%) per annum and (z) a one-month Eurodollar rate plus 1.00% per annum) plus an applicable margin. The applicable margin for borrowings under the Term Loan is 4.00% per annum for Eurodollar rate loans (subject to a 1.00% per annum interest rate floor) and 3.00% per annum for base rate loans.

As a result of the interest rate floor and our election to select longer interest rate periods, also as described above, through September 30, 2022, we have not been materially impacted by recent interest rate increases. However, we will incur increased interest expenses subsequent to September 30, 2022. Based on the amount of borrowings outstanding as of September 30, 2022, an increase or decrease of 10% in the Eurodollar rate as of September 30, 2022 would cause a pre-tax decrease and increase, respectively, to our earnings and cash flows of approximately $0.9 million per year, assuming such rate were to remain in effect for a year.

Other than as described above, there have been no material changes to our market risks related to foreign currency exchange and interest rate sensitivity as disclosed in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

Inflation Risk

The Company has experienced a significant increase in the costs of components and subcontract manufacturing of our products, as well as increased operating expenses as a result of recent increases in inflation, which we were not able to fully recover through price increases to our customers. While it is not possible to measure or estimate the direct impact, continued period of high inflation could have a material adverse effect on our business, operating results and financial condition.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a- 15(e) and 15d- 15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act), as of the end of the period covered by this Quarterly Report on Form 10-Q. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and our management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q, our Chief Executive Officer and Chief Financial Officer have concluded that as of such date, our disclosure controls and procedures were effective.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during our most recently completed fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

From time to time, we are a party to various litigation matters and subject to claims that arise in the ordinary course of business including, for example, patent infringement lawsuits by non-practicing entities. In addition, third parties may from time to time assert claims against us in the form of letters and other communications.

Item 1A. Risk Factors.

In addition to the other information set forth in this Quarterly Report on Form 10-Q, you should carefully consider the factors discussed in "Part I, Item 1A Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, or the 2021 10-K, which could materially affect our business, financial condition or future results. As a supplement to the risk factors identified in the 2021 10-K, below we have set forth a new risk factor (regarding inflation). Other than as provided below, there have been no material changes from the risk factors previously disclosed in the 2021 10-K.

Risks Related to Our Operations

Rising inflation rates could negatively impact our revenues and profitability if increases in the prices of our products and services or a decrease in customer spending results in lower sales. If we are not able to pass cost increases on to our customers, our gross margin and net income would be adversely affected, and the adverse impact may be material. In addition, rising inflation rates have resulted in a significant increase in interest rates, which will also have an adverse impact on our financial results.

Recent significant increases in inflation rates may result in decreased demand for our products and services, increased manufacturing and operating costs (including our labor costs), reduced liquidity, and limitations on our ability to access credit or otherwise raise debt and equity capital. In an inflationary environment, because certain of our customer contracts provide for fixed pricing and/or due to our competitor's pricing strategies, we may be unable to raise the sales prices of our products and services at or above the rate at which our costs increase, which would reduce our profit and operating margins and could have a material adverse effect on our financial results. We also may experience lower than expected sales and potential adverse impacts on our competitive position if there is a decrease in customer spending or a negative reaction to any price increases we are able to implement. A reduction in our revenue would be detrimental to our profitability and financial condition and could also have an adverse impact on our future growth. In addition, the United States Federal Reserve has raised, and may continue to raise, interest rates in response to concerns about inflation. We have significant outstanding debt that carries interest at variable rates, and thus, increases in interest rates have a material adverse impact on our profitability.

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

Use of Proceeds

On December 14, 2017, the SEC declared our registration statement on Form S-1 (File No. 333-221658) for our initial public offering, or IPO, effective. The net offering proceeds to us from the IPO, after deducting underwriting discounts of $6.3 million and offering expenses payable by us totaling $4.1 million, were approximately $79.3 million. No offering discounts, commissions or expenses were paid directly or indirectly to any of our directors or officers (or their associates) or persons owning 10.0% or more of any class of our equity securities or to any other affiliates. There has been no material change in the planned use of proceeds from our IPO as described in our final prospectus filed with the SEC on December 15, 2017 pursuant to Rule 424(b)(4). As of September 30, 2022, we had not used any of the net offering proceeds and we have invested the proceeds into an investment portfolio with the primary objective of preserving principal and providing liquidity without significantly increasing risk.

Stock Repurchase Program

The following table sets forth information with respect to repurchases of shares of our common stock during the three-month period ended September 30, 2022:

Casa Systems, Inc. Purchase of Equity Securities

Period	Total Number of Shares Purchased	Average Price Paid per Share (1)	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs (2)	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs
	(In thousands)		(In thousands)	(In thousands)
July 1 - July 31, 2022	—	$ —	—	$ 60,234
August 1 - August 31, 2022	—	$ —	—	$ 60,234
September 1 - September 30, 2022	—	$ —	—	$ 60,234

(1) The calculation of average price included above excludes the cost of commissions.

(2) On February 21, 2019, we announced that our Board of Directors authorized the repurchase of up to $75.0 million of our common stock under a stock repurchase program. From inception through September 30, 2022, we repurchased approximately 3.6 million shares under the program. The stock repurchase program has no expiration date and does not require us to purchase a minimum number of shares. We may suspend, modify or discontinue the stock repurchase program at any time without prior notice.

Item 6. Exhibits.

Exhibit Index

Exhibit Number	Description
3.1	Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on December 19, 2017)
3.2	By-laws of the Registrant (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on December 19, 2017)
31.1	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101)

* Furnished herewith.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

		CASA SYSTEMS, INC.
Date: November 9, 2022	By:	/s/ Jerry Guo **Jerry Guo** **President, Chief Executive Officer and Chairman** **(Principal Executive Officer)**
Date: November 9, 2022	By:	/s/ Edward Durkin **Edward Durkin** **Chief Financial Officer** **(Principal Financial Officer)**

Exhibit 31.1

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

I, Jerry Guo, certify that:

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

Date: November 9, 2022

By: /s/ Jerry Guo

Jerry Guo

President, Chief Executive Officer and Chairman

Exhibit 31.2

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

I, Edward Durkin, certify that:

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

Date: November 9, 2022

By: /s/ Edward Durkin

Edward Durkin

Chief Financial Officer

Exhibit 32.1

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

In connection with this Quarterly Report on Form 10-Q of Casa Systems, Inc. (the "Company") for the period ended September 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Jerry Guo, as President, Chief Executive Officer and Chairman of the Company, hereby certify, as of the date hereof, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge, the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company at the dates and for the periods indicated.

Date: November 9, 2022

By: /s/ Jerry Guo
Jerry Guo
President, Chief Executive Officer and Chairman

Exhibit 32.2

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

In connection with this Quarterly Report on Form 10-Q of Casa Systems, Inc. (the "Company") for the period ended September 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Edward Durkin, as Chief Financial Officer of the Company, hereby certify, as of the date hereof, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge, the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company at the dates and for the periods indicated.

Date: November 9, 2022	By:	/s/ Edward Durkin
		Edward Durkin
		Chief Financial Officer