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 June 30, 2023

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 August 2, 2023, the registrant had 97,171,333 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 ability 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 at which communications service providers or CSPs, deploy and invest 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 return to operating profitability in the future;
- the sufficiency of our cash resources and needs for additional financing;
- our ability to comply with all covenants, agreements and conditions under our credit facility;
- 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 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 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 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 interest rates and foreign currency exchange rates;
- impact of inflation and actions taken by central banks to counter inflation;
- 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, a potential economic downturn, banking industry liquidity concerns, or inflationary conditions;
- 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)

	June 30, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 64,265	$ 126,312
Accounts receivable, net of provision for doubtful accounts of $149 and $636 as of June 30, 2023 and December 31, 2022, respectively[1]	47,400	74,484
Inventory	84,085	81,795
Prepaid expenses and other current assets	4,927	2,836
Prepaid income taxes	3,421	6,352
Total current assets	204,098	291,779
Property and equipment, net	17,601	19,518
Right-of-use assets	4,220	5,199
Goodwill	50,177	50,177
Intangible assets, net	22,833	25,759
Other assets	5,018	5,862
Total assets	$ 303,947	$ 398,294
Liabilities and Stockholders' (Deficit) Equity		
Current liabilities:		
Accounts payable	$ 21,560	$ 29,283
Accrued expenses and other current liabilities	35,575	31,825
Warrant liability	15,232	—
Accrued income taxes	1,067	4,298
Deferred revenue[2]	53,598	31,305
Lease liability	1,715	2,040
Current portion of long-term debt, net of unamortized debt issuance costs	6,349	225,161
Total current liabilities	135,096	323,912
Accrued income taxes, net of current portion	6,426	6,640
Deferred tax liabilities	1,414	1,490
Deferred revenue, net of current portion	4,599	5,529
Long-term debt, net of current portion and unamortized debt issuance costs	171,918	—
Warrant Liability, net of current portion	5,073	—
Lease liability, long-term	2,741	3,416
Other liabilities, net of current portion	7,768	7,906
Total liabilities	335,035	348,893
Commitments and contingencies (Note 18)		
Stockholders' (deficit) equity:		
Preferred stock, $0.001 par value; 5,000 shares authorized; no shares issued and outstanding as of June 30, 2023 and December 31, 2022	—	—
Common stock, $0.001 par value; 500,000 shares authorized; 100,610 and 98,262 shares issued as of June 30, 2023 and December 31, 2022, respectively; 97,013 and 94,665 shares outstanding as of June 30, 2023 and December 31, 2022, respectively	101	98
Treasury stock, at cost; 3,597 shares as of June 30, 2023 and December 31, 2022	(14,837)	(14,837)
Additional paid-in capital	247,609	244,675
Accumulated other comprehensive loss	(2,937)	(2,305)
Accumulated deficit	(261,024)	(178,230)
Total stockholders' (deficit) equity	(31,088)	49,401
Total liabilities and stockholders' (deficit) equity	$ 303,947	$ 398,294

(1) Includes accounts receivable due from a related party of $3,635 and $6,044 at June 30, 2023 and December 31, 2022, respectively (see Note 16)

(2) Includes deferred revenue associated with a related party of $33,913 and $18,094 at June 30, 2023 and December 31, 2022, respectively (see Note 16)

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
(in thousands, except per share amounts)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Revenue:				
Product	$ 45,987	$ 59,141	$ 81,236	$ 111,686
Service	12,016	11,695	22,064	23,549
Total revenue[1]	58,003	70,836	103,300	135,235
Cost of revenue:				
Product	33,009	42,882	59,024	79,110
Service	1,178	1,319	2,305	2,811
Total cost of revenue	34,187	44,201	61,329	81,921
Gross profit	23,816	26,635	41,971	53,314
Operating expenses:				
Research and development	19,986	22,813	40,826	45,486
Selling, general and administrative	20,985	21,970	45,442	44,299
Total operating expenses	40,971	44,783	86,268	89,785
Loss from operations	(17,155)	(18,148)	(44,297)	(36,471)
Other income (expense):				
Interest income	853	274	1,819	308
Interest expense	(5,976)	(3,820)	(11,184)	(7,508)
Loss on extinguishment of debt[2]	(28,955)	—	(28,822)	—
Gain on foreign currency, net	680	816	388	543
Other income, net	577	161	610	179
Total other expense, net	(32,821)	(2,569)	(37,189)	(6,478)
Loss before provision for (benefit from) income taxes	(49,976)	(20,717)	(81,486)	(42,949)
Provision for (benefit from) income taxes	1,160	(4,020)	1,308	6,332
Net loss	(51,136)	(16,697)	(82,794)	(49,281)
Other comprehensive loss —foreign currency translation adjustment, net of tax	(940)	(2,065)	(632)	(1,946)
Comprehensive loss	$ (52,076)	$ (18,762)	$ (83,426)	$ (51,227)
Net loss per share attributable to common stockholders:				
Basic and diluted	$ (0.53)	$ (0.18)	$ (0.86)	$ (0.56)
Weighted-average shares used to compute net loss per share attributable to common stockholders:				
Basic and diluted	96,816	92,504	96,307	88,565

(1) Includes revenue of $4,287 and $7,283 during the three and six months ended June 30, 2023 and $10,550 during the three and six months ended June 30, 2022, during which a related party relationship existed (see Note 16)

(2) Loss related to Term Loan B refinancing and issuance of warrants during the three and six months ended June 30, 2023 (see Note 10)

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

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

	Common Stock		Treasury Stock		Additional Paid-in	Accumulated Other Comprehensive	Accumulated	Total Stockholders' Equity
	Shares	Amount	Shares	Amount	Capital	Loss	Deficit	(Deficit)
Balances at March 31, 2023	100,314	100	3,597	(14,837)	245,858	(1,997)	(209,888)	19,236
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	296	1	—	—	(57)	—	—	(56)
Foreign currency translation adjustment	—	—	—	—	—	(940)	—	(940)
Stock-based compensation	—	—	—	—	1,808	—	—	1,808
Net loss	—	—	—	—	—	—	(51,136)	(51,136)
Balances at June 30, 2023	100,610	101	3,597	(14,837)	247,609	(2,937)	(261,024)	(31,088)

	Common Stock		Treasury Stock		Additional Paid-in	Accumulated Other Comprehensive	Accumulated	Total Stockholders' Equity
	Shares	Amount	Shares	Amount	Capital	Loss	Deficit	(Deficit)
Balances at January 1, 2023	98,262	$ 98	3,597	$ (14,837)	$ 244,675	$ (2,305)	$ (178,230)	$ 49,401
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	2,348	3	—	—	(2,996)	—	—	(2,993)
Foreign currency translation adjustment	—	—	—	—	—	(632)	—	(632)
Stock-based compensation	—	—	—	—	5,930	—	—	5,930
Net loss	—	—	—	—	—	—	(82,794)	(82,794)
Balances at June 30, 2023	100,610	101	3,597	(14,837)	247,609	(2,937)	(261,024)	(31,088)

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

	Common Stock		Treasury Stock		Additional Paid-in	Accumulated Other Comprehensive Income (Loss)	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital		Deficit	Equity
Balances at March 31, 2022	88,452	$ 88	3,597	$ (14,837)	$ 194,973	$ 997	$ (131,640)	$ 49,581
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	234	1	—	—	37	—	—	38
Foreign currency translation adjustment	—	—	—	—	—	(2,065)	—	(2,065)
Sale of common stock, net of issuance cost	9,323	9			39,361			39,370
Stock-based compensation	—	—	—	—	2,935	—	—	2,935
Net loss	—	—	—	—	—	—	(16,697)	(16,697)
Balances at June 30, 2022	98,009	98	3,597	(14,837)	237,306	(1,068)	(148,337)	73,162

	Common Stock		Treasury Stock		Additional Paid-in	Accumulated Other Comprehensive Income (Loss)	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital		Deficit	Equity
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	871	1	—	—	(1,375)	—	—	(1,374)
Foreign currency translation adjustment	—	—	—	—	—	(1,946)	—	(1,946)
Repurchase 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					5,666			5,666
Net loss	—	—	—	—	—	—	(49,281)	(49,281)
Balances at June 30, 2022	98,009	$ 98	3,597	$ (14,837)	$ 237,306	$ (1,068)	$ (148,337)	$ 73,162

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)

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
Operating activities:		
Net loss	$ (82,794)	$ (49,281)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Depreciation and amortization	5,739	7,140
Stock-based compensation	5,930	5,507
Deferred income taxes	(77)	(2,210)
Change in provision for doubtful accounts	(487)	152
Change in provision for excess and obsolete inventory	2,934	4,230
Gain on disposal of assets	12	—
Non-cash operating lease expense	1,138	—
Loss on extinguishment of debt	28,822	—
Changes in operating assets and liabilities:		
Accounts receivable	27,155	17,585
Inventory	(5,251)	2,249
Prepaid expenses and other assets	(2,746)	1,226
Prepaid income taxes	2,943	21,441
Accounts payable	(6,549)	(13,865)
Accrued expenses and other current liabilities	2,352	(11,375)
Operating lease liabilities	(1,055)	—
Accrued income taxes	(3,440)	3,839
Deferred revenue	21,382	22,972
Net cash (used in) provided by operating activities	(3,992)	9,610
Investing activities:		
Purchases of property and equipment	(984)	(1,597)
Purchases of software licenses	(92)	(513)
Net cash used in investing activities	(1,076)	(2,110)
Financing activities:		
Principal repayments of debt	(41,988)	(1,500)
Payment for debt issuance costs	(13,279)	—
Proceeds from exercise of stock options	2	254
Employee taxes paid related to net share settlement of equity awards	(2,995)	(1,628)
Proceeds from sale of common stock, net of issuance costs	—	39,370
Payments of dividends and equitable adjustments	—	(1)
Repurchases of common stock	—	(1,192)
Net cash (used in) provided by financing activities	(58,260)	35,303
Effect of exchange rate changes on cash and cash equivalents	(207)	(1,671)
Net (decrease) increase in cash, cash equivalents and restricted cash	(63,535)	41,132
Cash, cash equivalents and restricted cash at beginning of period	129,425	157,804
Cash, cash equivalents and restricted cash at end of period [1]	$ 65,890	$ 198,936
Supplemental disclosures of cash flow information:		
Cash paid for interest	$ 9,114	$ 6,999
Cash paid for income taxes	$ 4,129	$ 7,511
Supplemental disclosures of non-cash operating, investing and financing activities:		
Purchases of property and equipment included in accounts payable	$ 20	$ 469

[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, the United States and New Zealand.

The Company offers physical, virtual and cloud-native 5G infrastructure and customer premise networking equipment solutions to help communications service providers ("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. Through the development of cloud, access devices and cable products, the Company’s 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. As technology has changed, the Company is now viewing offerings across three major product lines, cloud, access devices (which includes the Company's 4G/5G cell radio products) and cable, as opposed to our historical view of cable, wireless and fixed telco. The Company's revenue disclosures have been updated accordingly.

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, lengthy sales cycles, 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.

Prior to December 31, 2022, the Company was an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012 (the “JOBS Act”). The JOBS Act provided 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 elected not to “opt out” of such extended transition period, which means that when a standard was issued or revised and it had different application dates for public or private companies, the Company was required to adopt the new or revised standard at or prior to the time private companies were required to adopt the new or revised standard. As of December 31, 2022, the Company no longer qualifies as an emerging growth company and will now be required to adopt new or revised standards at the same time as other public companies.

The accompanying condensed consolidated balance sheet as of June 30, 2023, the condensed consolidated statements of operations and comprehensive loss for the three and six months ended June 30, 2023 and 2022, the condensed consolidated statements of cash flows for the six months ended June 30, 2023 and 2022, and the condensed consolidated statements of stockholders’ equity for the three and six months ended June 30, 2023 and 2022 are unaudited. The financial data and other information disclosed in these notes related to the three and six months ended June 30, 2023 and 2022 are also unaudited. The accompanying condensed consolidated balance sheet as of December 31, 2022 was derived from the Company’s audited consolidated financial statements for the year ended December 31, 2022, which was included in the Company’s Annual Report on Form 10-K filed with the Securities and Exchange Commission (“SEC”) on March 15, 2023 (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, 2023 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. Certain prior period amounts have been reclassified to conform to the current period presentation.

Going Concern

In accordance with the accounting guidance related to the presentation of financial statements, when preparing financial statements for each annual and interim reporting period, management evaluates whether there are conditions or events that, when considered in the aggregate, raise substantial doubt about the Company’s ability to continue as a going concern within one year after the date that the financial statements are issued. In making its assessment, management considered the Company’s current financial condition and liquidity sources including current funds available, forecasted future cash flows and conditional and unconditional obligations due over the next twelve months.

The Company previously disclosed circumstances that gave rise to substantial doubt about the Company's ability to continue as a going concern. As of June 15, 2023, the Company believes those conditions were resolved as a result of the Company's June 15, 2023 refinancing of a substantial majority of the principal balance of the Original Term Loans under its December 20, 2016 credit facility, as further described in Note 10, *Debt*.

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, warrants and embedded derivatives, 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 disrupted the Company's global supply chain. Throughout 2022 and 2021, the Company experienced shipping bottlenecks and shortages of supply that resulted in its inability to fulfill certain customer orders within normal lead times. This adversely impacted the Company's revenue and operating results for the years ended December 31, 2022 and 2021. The Company also experienced, in some cases, significant increases in shipping costs. While the impact to the Company has subsided during 2023, the Company continues to work with its supply chain, contract manufacturers, logistics partners and customers to minimize the extent of such impacts and will continue to actively monitor supply chain developments. The Company cannot predict if or when such effects will recur or worsen, and in such a case, could 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 canceling their orders. The Company would be neither able to estimate the extent of these impacts nor predict whether its efforts to minimize or contain them will be successful.

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 will 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. The Company has evaluated all subsequent events and determined that there are no additional 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 June 30, 2023 and December 31, 2022, the Company's cash and cash equivalents consisted of investments in money market mutual funds.

Restricted cash as of June 30, 2023 consisted of cash of $1,000 pledged as collateral for a stand-by letter of credit required to support a contractual obligation and cash of $625 pledged as collateral in connection with two letters of credit to support contractual obligations, as further discussed in Note 17, *Leases*. As of December 31, 2022, restricted cash consisted of a certificate of deposit of $1,013, pledged as collateral for a stand-by letter of credit required to support a contractual obligation, as well as cash of $2,100, pledged as collateral in connection with two letters of credit to support contractual obligations, as further discussed in Note 17, *Leases*.

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:

	June 30, 2023	June 30, 2022
Cash and cash equivalents	$ 64,265	$ 195,832
Restricted cash included in other assets	1,625	3,104
	$ 65,890	$ 198,936

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 June 30, 2023 and December 31, 2022 consisted of the following:

	June 30, 2023	December 31, 2022
Current portion of accounts receivable, net:		
Accounts receivable, net	$ 47,400	$ 74,407
Accounts receivable, extended payment terms	—	77
	$ 47,400	$ 74,484

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 also provides an overall expected credit loss amount, based on historical loss rates, in accordance with ASC 326, *Credit Losses*. 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.

As of June 30, 2023 and December 31, 2022, the Company concluded that all amounts due under extended payment terms were collectible and recorded no reserve for credit losses. During the six months ended June 30, 2023 and 2022, the Company did not provide a reserve for credit losses and did not write off any uncollectible receivables due under extended payment terms.

The Company has entered into a customer-sponsored program administered by an unrelated financial institution that allows for the sales (factor) of certain accounts receivable at discounted rates to the financial institution, without recourse. Transactions under this agreement were accounted for as a sale of accounts receivable and the related accounts receivable were removed from our condensed consolidated balance sheet at the time of the sales transaction. Under this agreement, we sold $20,773 of accounts receivables during the three and six months ended June 30, 2023. Selling, general and administrative expenses include factoring costs associated with this accounts receivable sale program of $198 during the three and six months ended June 30, 2023.

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		Revenue	
	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Customer A	*	*	*	11%
Customer B	*	13%	*	12%
Customer C	*	15%	*	*

	Accounts Receivable, Net	
	As of June 30, 2023	As of December 31, 2022
Customer D	12%	*
Customer E	12%	*
Customer F	*	12%
Customer G	*	11%

* 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.

Warrant Liability

The Company’s liability for the Warrants, as further discussed and defined in Note 10, *Debt*, is based on a valuation model utilizing observable inputs from active markets. The fair value of the warrant liability is classified within Level 3 of the fair value hierarchy as it is based on significant inputs not observable in the market. The Company establishes the fair value for the Warrants using a Monte Carlo simulation model. Due to the variable number of shares for which the warrants were exercisable, they failed to qualify for equity classification under the indexation guidance in Accounting Standards Codification 815 ("ASC 815"). Therefore, the Warrants are classified as liabilities at fair value on the condensed consolidated balance sheet. Each reporting period, the Warrants are recorded at fair value, with changes in fair value recognized in the Company's consolidated statement of operations within interest expense.

Embedded Derivatives

In connection with the Superpriority Credit Agreement, as defined in Note 10, *Debt*, the Company identified certain embedded features requiring bifurcation as derivatives under ASC 815. These embedded derivatives are required to be bifurcated from the debt host contract at fair value with subsequent changes in fair value recognized in earnings at each balance sheet date (see Note 8, *Derivative Financial Instruments*).

The Superpriority Term Loans, as defined and discussed in Note 10, *Debt*, include three embedded features; contingent interest upon an uncured event of default; mandatory prepayment upon certain excess cash flow; and mandatory prepayment upon an uncured event of default. Pursuant to ASC 815, these features have been identified as embedded derivative financial instruments. These embedded derivatives are required to be accounted for as derivatives and bifurcated from the host debt contract, resulting in remeasurement at each balance sheet date, with the change in fair value recognized in the Company's condensed consolidated statement of operations. The fair value of the embedded derivatives is classified within Level 3 of the fair value hierarchy as it is based on significant inputs not observable in the market.

The fair value of the embedded derivatives is based on a valuation model utilizing a with and without analysis of the embedded features within the debt facility. The Company runs a Monte Carlo simulation model with the embedded derivatives, and then runs a separate Monte Carlo simulation model for the overall debt facility, without the embedded derivative features. The difference between these two Monte Carlo simulation models is used to obtain the value of the embedded features.

Impact of Recently Adopted or Issued Accounting Standards

There have been no recently adopted or issued accounting standards that are applicable to the Company since December 31, 2022.

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, 2022.

3. Goodwill and Intangible Assets

Goodwill

There have been no changes to the $50,177 carrying amount of goodwill during the three and six months ended June 30, 2023 and 2022.

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 June 30, 2023 and December 31, 2022, respectively:

	Cost	Accumulated Amortization	Net Balance
Developed Technology	$ 25,000	$ (14,288)	$ 10,712
Customer Relationships	18,000	(7,200)	10,800
Trade Name	1,000	(1,000)	—
Purchased software	2,638	(1,317)	1,321
Totals as of June 30, 2023	$ 46,638	$ (23,805)	$ 22,833

	Cost		Accumulated Amortization		Net Balance	
Developed Technology	$	25,000	$	(12,502)	$	12,498
Customer Relationships		18,000		(6,300)		11,700
Trade Name		1,000		(1,000)		—
Purchased software		2,545		(984)		1,561
Totals as of December 31, 2022	$	46,545	$	(20,786)	$	25,759

As of June 30, 2023, amortization expense on existing intangible assets for the next five years and beyond is as follows:

Year Ending December 31,		
Remainder of 2023	$	3,003
2024		5,929
2025		5,784
2026		3,617
2027		1,800
Thereafter		2,700
	$	22,833

A summary of amortization expense recorded during the three and six months ended June 30, 2023 and 2022 is as follows:

	Three Months Ended June 30,				Six Months Ended June 30,			
	2023		2022		2023		2022	
Product cost of revenue	$	893	$	893	$	1,786	$	1,786
Research and development		169		141		333		244
Selling, general and administrative		450		533		900		1,070
Totals	$	1,512	$	1,567	$	3,019	$	3,100

4. Inventory

Inventory as of June 30, 2023 and December 31, 2022 consisted of the following:

	June 30, 2023		December 31, 2022	
Raw materials	$	40,053	$	47,581
Finished goods:				
Manufactured finished goods		42,975		32,863
Deferred inventory costs		1,057		1,351
	$	84,085	$	81,795

5. Property and Equipment

Property and equipment as of June 30, 2023 and December 31, 2022 consisted of the following:

	June 30, 2023	December 31, 2022
Computers and purchased software	$ 23,660	$ 25,572
Leasehold improvements	4,197	4,226
Furniture and fixtures	2,381	2,471
Machinery and equipment	24,834	34,502
Land	3,091	3,091
Building	4,765	4,765
Building improvements	7,391	7,374
Trial systems at customers' sites	1,957	2,582
	72,276	84,583
Less: Accumulated depreciation and amortization	(54,675)	(65,065)
	$ 17,601	$ 19,518

Depreciation and amortization expense on property and equipment totaled $1,341 and $1,958 for the three months ended June 30, 2023 and 2022, respectively, and $2,720 and $4,040, for the six months ended June 30, 2023 and 2022, respectively.

6. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities as of June 30, 2023 and December 31, 2022 consisted of the following:

	June 30, 2023	December 31, 2022
Current liabilities		
Accrued compensation and related taxes	$ 14,671	$ 11,666
Accrued warranty	1,388	1,678
Inventory-related accruals	6,219	5,819
Warranty settlement provision (see Note 18)	3,659	3,761
Other accrued expenses	9,638	8,901
Accrued expenses and other current liabilities	$ 35,575	$ 31,825
Non-current liabilities		
Warranty settlement provision, net of current portion (see Note 18)	$ 5,911	$ 6,119
Other accrued expenses, net of current portion	1,857	1,787
Other liabilities, net of current portion	$ 7,768	$ 7,906

On March 14, 2023, Jerry Guo, the Company's co-founder, President and Chief Executive Officer, announced his retirement from his executive roles effective March 17, 2023. A separation agreement was entered into by Mr. Guo and the Company's board of directors on March 13, 2023. Pursuant to this agreement, Mr. Guo was entitled to certain termination benefits, including accelerated vesting of stock awards, for which additional stock-based compensation of $1,737 was recognized in the six months ended June 30, 2023, as discussed in Note 12, *Stock-based Compensation*, all of which was accrued for during the three months ended March 31, 2023. The agreement also included separation pay, equal to the sum of (i) Mr. Guo's annual base salary at the rate in effect as of March 17, 2023 and (ii) Mr. Guo's target bonus for the calendar year 2023. During the six months ended June 30, 2023, the Company accrued severance expenses of $2,199 related to Mr. Guo's separation agreement, which is included in accrued compensation and related taxes in the table above. Total expense recognized as a result of the separation agreement during the six months ended June 30, 2023 was $3,936.

Reduction in Force

In April 2023, the Company approved a plan for a reduction in force. The Company reduced its workforce by 134 employees, representing approximately 13% of the Company's total workforce. For the three and six months ended June 30, 2023, the Company incurred $2,151 of employee severance payments and other employee-related costs. As of June 30, 2023, substantially all of these charges have been paid.

Accrued Warranty

Substantially all of the Company's products are covered by warranties for software and hardware for periods ranging from 90 days to two years. 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 six months ended June 30, 2023 and 2022:

	Six Months Ended June 30,	
	2023	2022
Warranty reserve at beginning of period	$ 1,678	$ 2,392
Provisions	294	1,670
Charges	(584)	(931)
Warranty reserve at end of period	$ 1,388	$ 3,131

7. Fair Value Measurements

The following tables present information about the fair value of the Company's financial assets and liabilities as of June 30, 2023 and December 31, 2022 and indicate the level of the fair value hierarchy utilized to determine such fair values:

	Fair Value Measurements as of June 30, 2023 Using:			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market mutual funds	$ 36,265	$ —	$ —	$ 36,265
	$ 36,265	$ —	$ —	$ 36,265
Liabilities:				
Warrant liability	$ —	$ —	$ 20,305	$ 20,305
Embedded derivatives	—	—	1,240	1,240
	$ —	$ —	$ 21,545	$ 21,545

	Fair Value Measurements as of December 31, 2022 Using:			
	Level 1	Level 2	Level 3	Total
Assets:				
Certificates of deposit—restricted cash	$ —	$ 1,013	$ —	$ 1,013
Money market mutual funds	90,984	—	—	90,984
	$ 90,984	$ 1,013	$ —	$ 91,997

During the six months ended June 30, 2023 and 2022, there were no transfers between Level 1, Level 2 and Level 3.

Warrant Liability

On June 15, 2023, in connection with the closing of the Superpriority Term Loans, as defined and discussed in Note 10, *Debt*, the Company issued certain penny warrants (the "Warrants"). The warrants are exercisable for a variable percentage of the Common Stock of the Company depending on how long the debt remains outstanding. Warrants representing the right to purchase an aggregate of 9,691 shares of the Company's common stock (the “10% Warrants”) were immediately vested as of the June 15, 2023 closing date. Warrants representing the right to purchase 4,846 shares of the Company's common stock (the “5% Warrants”) will vest on January 1, 2024, if the debt remains outstanding. Warrants representing the right to purchase 4,836 shares of the Company's common stock (the “4.99% Warrants”) will vest on January 1, 2025, if the debt remains outstanding. Due to the variable number of shares for which the warrants were exercisable, they failed to qualify for equity classification under the indexation guidance in ASC 815. Therefore, the Warrants are classified as liabilities at fair value on the condensed consolidated balance sheet. Each reporting period, the Warrants will be recorded at fair value, with changes in fair value recognized in the Company’s consolidated statement of operations within interest expense. Changes in the fair value of the warrant liability from June 15, 2023 to June 30, 2023 were immaterial.

The Company’s liability for the Warrants is based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy. The Company establishes the fair value for the Warrants using a Monte Carlo simulation model. The key inputs into the valuation models were as follows:

	Three Months Ended June 30, 2023
Risk-free interest rate	3.9%
Correlated random variable	(0.3)
Expected volatility - revenue	45.0%
Expected volatility - equity	90.0%
Vesting dates	6/15/2023 1/1/2024 1/1/2025
Simulated stock price	$1.01

Embedded Derivatives

Further, in connection with the Superpriority Credit Agreement, the Company identified certain embedded features requiring bifurcation as derivatives under ASC 815. These embedded derivatives are required to be bifurcated from the debt host contract at fair value with subsequent changes in fair value recognized in earnings at each balance sheet date (see Note 8). The fair value of the embedded derivatives is based on a Monte Carlo valuation model utilizing a with and without analysis of the embedded features within the debt facility. The Company ran a Monte Carlo simulation model with the embedded derivatives, and then ran a separate Monte Carlo simulation model for the overall debt facility, without the embedded derivative features. The difference between these two Monte Carlo simulation models was used to obtain the value of the embedded features. The key inputs into the valuation models for both the with and without were as follows:

	Three Months Ended June 30, 2023
Risk-free interest rate	3.9%
Correlated random variable	(0.3)
Expected volatility - revenue	45.0%
Expected volatility - equity	90.0%
Revenue discount rate	11.3%
Discount rate	17.0%

The Company’s liability for the embedded derivatives is based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy. Changes in the fair value of the embedded derivatives from June 15, 2023 to June 30, 2023 were immaterial.

Superiority Term Loans

The Company initially recognized the Superpriority Term Loans at fair value in the application of extinguishment accounting (see Note 10, *Debt*). The Company established the fair value for the debt facility, which is a nonrecurring fair value calculation, using a discounted-cash flow analysis, for which the initial fair value measurement on June 15, 2023 was $186,990. Under the discounted-cash flow analysis, the Company discounts each principal and interest payment by an applicable discount rate determined by referencing the Company’s current public credit rating and seniority of the debt instrument in hand. The stream of principal and interest payments (discounted to present value) are used to calculate the fair value of the debt.

The key inputs in valuing the debt and embedded derivatives include management projections (i.e., revenue, gross margin, operating expenses, R&D expenses, depreciation and amortization, and employee stock compensation), the Company’s cash balance, penalty amounts under an event of default (only applicable to the embedded derivatives), the forward SOFR curve, revenue volatility, revenue discount rate (derived using asset beta, metric volatility, asset volatility, risk-free rate, equity risk premium, small stock risk premium, company specific risk premium), and risk discount rate. The fair value of the Superiority Term Loans is classified within Level 3 of the fair value hierarchy.

Other than the valuation techniques used for the warrant liability, embedded derivatives and Superiority Term Loans, there were no changes to the valuation techniques used to measure asset and liability fair values on a recurring basis during the six months ended June 30, 2023 from those included in the Company’s consolidated financial statements for the year ended December 31, 2022.

8. Derivative Financial Instruments

Fair value accounting requires bifurcation of embedded derivative instruments in debt or equity instruments and measurement of their fair value for accounting purposes.

The Superpriority Term Loans, as defined and discussed in Note 10, *Debt*, include three embedded features; contingent interest upon an uncured event of default; mandatory prepayment upon certain excess cash flow; and mandatory prepayment upon an uncured event of default. Pursuant to ASC 815, these features have been identified as embedded derivative financial instruments. These embedded derivatives are required to be accounted for as derivatives and bifurcated from the debt host contract, resulting in remeasurement at each balance sheet date, with the change in fair value recognized in the Company’s condensed consolidated statement of operations. The total derivative liability related to these features as of June 30, 2023 was $1,240 and was included with accrued expenses and other current liabilities and other liabilities, net of current portion on the condensed consolidated balance sheet, as appropriate.

9. Income Taxes

The Company’s effective income tax rate was (2.3%) and 19.4% for the three months ended June 30, 2023 and 2022, respectively. The provision for (benefit from) income taxes was $1,160 and ($4,020) for the three months ended June 30, 2023 and 2022, respectively. The change in the provision for income taxes was primarily due to the period over period changes in the Company's valuation allowance against its deferred tax assets, the impact of changes in the Company's forecasted profitability and the jurisdictional mix of earnings.

The Company’s effective income tax rate was (1.6%) and (14.7%) for the six months ended June 30, 2023 and 2022, respectively. The provision for income taxes was $1,308 and $6,332 for the six months ended June 30, 2023 and 2022, respectively. The change in the provision for income taxes was primarily due to the period over period changes in the Company's valuation allowance against its deferred tax assets, the impact of changes in the Company's forecasted profitability and the jurisdictional mix of earnings.

The provision for income taxes for the three and six months ended June 30, 2023 and 2022, respectively, 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, and the valuation allowance maintained against the Company's deferred tax assets and withholding taxes.

10. Debt

Current debt obligations reflected in the condensed consolidated balance sheets as of June 30, 2023 and December 31, 2022 consisted of the following:

	June 30, 2023	December 31, 2022
Current liabilities:		
Original Term Loans	$ 5,036	$ 226,009
Superpriority Term Loans	1,870	—
Current portion of long-term debt	6,906	226,009
Unamortized debt issuance costs, current portion	(557)	(848)
Current portion of long-term debt, net of unamortized debt issuance costs	$ 6,349	$ 225,161
Non-current liabilities:		
Superpriority Term Loans	$ 185,841	$ —
Unamortized debt issuance costs, net of current portion	(13,923)	—
Long-term debt, net of current portion and unamortized debt issuance costs	$ 171,918	$ —

As of June 30, 2023, aggregate minimum future principal payments of the Company's debt are summarized as follows:

Year Ending December 31,	
Remainder of 2023	$ 5,973
2024	1,861
2025	1,842
2026	1,824
2027	181,247
	$ 192,747

On December 20, 2016, the Company entered into a credit agreement (the "Original Credit Agreement") with JPMorgan Chase Bank, N.A., as administrative agent, various lenders, JPMorgan Chase Bank, N.A. and Barclays Bank PLC providing for (i) a term loan facility of $300,000 (the “Original Term Loans”), due to mature on December 20, 2023, and (ii) a revolving credit facility (the "Original Revolving Loan") of up to $25,000 in revolving credit loans and letters of credit, which matured on December 20, 2021.

On June 15, 2023 (the “Effective Date”), the Borrower and certain of the Lenders entered into various agreements to effectively exchange $218,848 of the Original Term Loans, representing approximately 97.8% of the then outstanding principal balance, for loans of an equal principal amount having a first priority security interest in all or substantially all of the Company's and its domestic subsidiaries' assets, subject to permitted liens (the “Superpriority Credit Agreement” or “Superpriority Term Loans”), whereby the maturity date would be extended to December 20, 2027 in exchange for the Company paying down $40,000 of its exchanged Original Term Loans (as part of an early principal repayment), providing certain Warrants to the Lenders and paying certain in-kind fees, amongst other changes (the “Exchange”), and with $5,036 of the Original Term Loans principal remaining outstanding and still due to mature on December 20, 2023.

The Exchange was deemed to be an exchange of debt with substantially different terms under ASC Subtopic 470-50, “Modifications and Extinguishments,” and the Company recorded a loss on extinguishment of debt of approximately $28,956 in the condensed consolidated statement of operations for the three months ended June 30, 2023. In applying extinguishment accounting, the Company recorded the Superpriority Term Loans at fair value. Therefore, the current carrying value of the loans approximates fair value as of June 30, 2023.

The Superpriority Term Loans bear interest at the Adjusted Term SOFR Rate (as defined in the Superpriority Credit Agreement) (subject to a 2.00% per annum floor) or Base Rate (as defined in the Superpriority Credit Agreement), as applicable, plus (x) in the case of SOFR Rate Loans (as defined in the Superpriority Credit Agreement), 6.50% per annum or (y) in the case of Base Rate Loans (as defined in the Superpriority Credit Agreement), 5.50% per annum, provided that, the foregoing interest rate margin in respect of both SOFR Rate Loans and Base Rate Loans shall be increased (i) by 0.50% per annum on July 1, 2024 and (ii) by 1.00% per annum on and after January 1, 2025 (for a total increase of 1.50% per annum), if, in each case, the outstanding amount of Superpriority Term Loans on such date is in excess of $125,000 (with continuing effect from such date regardless of the outstanding amount of Superpriority Term Loans at any time after such date of determination); and any time after June 30, 2025, with respect to Superpriority Term Loans (x) in the case of SOFR Rate Loans, 13.00% per annum or (y) in the case of Base Rate Loans, 12.00% per annum. As of June 30, 2023, the interest rate on the Superpriority Term Loans was 12.22% per annum.

The Superpriority Term Loans are prepayable at par between the closing of the Superpriority Credit Agreement through December 31, 2023; thereafter, the Superpriority Term Loans are prepayable at any time and from time to time, subject to an exit fee increasing over time ranging from 3.0% to 20.0% through maturity. In the event the Superpriority Term Loans are accelerated prior to their maturity following any event of default, the maximum exit fee will be payable in connection therewith.

The Superpriority Term Loans are expected to mature on December 20, 2027 (subject to a springing maturity of December 20, 2025 if, unless otherwise waived by holders collectively owning or controlling at least 75% of the Superpriority Term Loans on the date of determination, (x)(1) the Total Net First Lien Leverage Ratio (as defined in the Superpriority Credit Agreement) is greater than 1.00:1.00, or (2) the Total Net Leverage Ratio (as defined in the Superpriority Credit Agreement) is greater than 1.50:1.00, in each case, as of September 30, 2025, or (y) a Default (as defined in the Superpriority Credit Agreement) or Event of Default (as defined in the Superpriority Credit Agreement) has occurred and is continuing under the Superpriority Credit Agreement as of December 20, 2025), unless earlier repaid or accelerated. The Superpriority Term Loans will amortize in equal quarterly installments, resulting in an aggregate annual amount equal to 1.0% of the principal amount of the Superpriority Term Loans outstanding on the date of the Term Loan Exchange (after giving effect to the Closing Date Prepayment).

The Superpriority Term Loans are subject to mandatory prepayments, including 75% of Excess Cash Flow, as defined by the Superpriority Credit Agreement, and the proceeds from certain non-ordinary course asset dispositions, the issuance of certain equity interests by Casa and the incurrence of certain indebtedness by Casa and its subsidiaries. Such prepayments shall be subject to the exit fee described above (to the extent otherwise then applicable). The Superpriority Credit Agreement also allows for the Company to retain up to $25,000 of proceeds from issuances of equity or subordinated debt, once the principal balance of the Superpriority Term Loans has been paid down by $20,000.

The Superpriority Credit Agreement contains customary representations and warranties, conditions, affirmative and negative covenants, liquidity-based financial covenants, events of default, and indemnification obligations. As of June 30, 2023, the Company was in compliance with the terms of the Superpriority Credit Agreement.

As a result of the Exchange, $5,036 principal remains outstanding under the Original Term Loans. As a result of the Exchange, the Company, certain lenders party to the Original Credit Agreement and JPMorgan Chase Bank, N.A., as agent, entered into Amendment No. 1 thereto ("Amendment No. 1") which, among other things, permitted the transaction contemplated by the Exchange and eliminated all mandatory prepayments (other than at maturity) and representations and warranties and most affirmative and negative covenants and events of default previously applicable to the Original Term Loans. The interest rates applicable to the Original Term Loans remain unchanged. Borrowings under the Original Term Loans bear interest at a floating rate, which could be either a synthetic Eurodollar rate plus an applicable margin or, at the Company's option, a base rate (defined as the highest of (x) the JPMorgan Chase Bank, 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 Original Term Loans 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 Original Term Loans 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 is 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 was effected prior to the end of the applicable interest period. As of June 30, 2023 and December 31, 2022, the interest rate on the Original Term Loans was 9.65% and 8.38% per annum, respectively, which was based on a three-month and one-month Eurodollar rate of 5.65% and 4.38% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans.

Upon entering into the Original Term Loans, the Company incurred debt issuance costs of $7,811, which were initially recorded as a reduction of the debt liability and were amortized to interest expense using the effective interest method from the issuance date of the Original Term Loans until the Effective Date. Upon entering into the Superpriority Term Loan, the remaining $509 of debt issuance costs from the Original Term Loans was included in the loss on extinguishment of debt in the condensed consolidated statement of operations. The Company also incurred additional debt issuance costs of $13,279 upon entering into the Superpriority Term Loan, which were recorded as a reduction of the debt liability and will be amortized to interest expense using the effective interest method from the issuance date of the Superpriority Term Loan until the maturity date.

The Company made principal payments of $40,751 and $1,500 during the six months ended June 30, 2023 and 2022, respectively, in addition to the repurchase as discussed below. Interest expense, including the amortization of debt issuance costs, totaled $6,046 and $3,797 for the three months ended June 30, 2023 and 2022, respectively, and totaled $10,955 and $7,574 for the six months ended June 30, 2023 and 2022, respectively.

On October 27, 2022, the Company's board of directors authorized the use of up to $50,000 of cash to fund the partial repurchase of debt outstanding under the Original Term Loans. Subsequent to this authorization and prior to the Superiority Term Loan refinancing on June 15, 2023, the Company repurchased a portion of its outstanding Original Term Loans from certain of its debt holders. During the six months ended June 30, 2023 but prior to the June 15, 2023 refinancing, the Company made a payment of $1,237 to retire $1,375 of its outstanding debt. The Company recognized a gain on extinguishment of debt, net of fees, of $133, and also recognized $4 of interest expense for the pro-rata portion of unamortized debt issuance costs attributed to the debt repurchased. Total payments made under this authorization from October 27, 2022 through June 30, 2023 amounted to $47,116, which were paid using funds included in cash and cash equivalents in the condensed consolidated balance sheets. Based on the applicable fair value of debt repurchased, the amount of outstanding principal of the Original Term Loans that was retired was $50,591.

The Original Term Loans, with a remaining principal balance of $5,036 as of June 30, 2023, are scheduled to mature on December 20, 2023 and is subject to amortization in equal quarterly installments, which commenced on March 31, 2017, in an annual aggregate amount equal to 1.0% of the original principal amount of the Original Term Loans of $300,000, with any remaining outstanding balance payable at the original date of maturity on December 20, 2023.

Voluntary prepayments of principal amounts outstanding under the Original Term Loans 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 thereunder for any funding losses and expenses incurred as a result of the prepayment.

The Original Term Loans, which are now subordinated to the Superpriority Term Loans, is secured by, among other things, a second priority security interest, subject to permitted liens, in substantially all of the Company’s assets and a pledge of certain of the stock of certain of its subsidiaries, in each case subject to specified exceptions. The Company was in compliance with all the terms of the Original Credit Agreement June 30, 2023 and December 31, 2022.

11. 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 six months ended June 30, 2022. There were no repurchases made during the three and six months ended June 30, 2023 and during the three months ended June 30, 2022. As of June 30, 2023, $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 June 30, 2023, as described in Note 10, *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. Issuance costs related to this transaction totaled $160 and were net against the amount recorded to additional paid in capital on the condensed consolidated balance sheet. The Company filed a resale registration statement for the Shares with the SEC on May 17, 2022.

12. 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 17,007 shares as of June 30, 2023, of which 3,606 shares remained available for future grant.

Stock Options

A summary of stock option activity for the six months ended June 30, 2023 is as follows:

	Number of Shares		Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)		Aggregate Intrinsic Value
Outstanding at January 1, 2023	6,537	$	7.55	4.42	$	134
Granted	29		1.15			
Exercised	(1)		2.23			
Forfeited	(301)		6.23			
Outstanding at June 30, 2023	6,264	$	7.59	3.95	$	3
Options exercisable at June 30, 2023	5,302	$	8.25	3.08	$	—
Vested or expected to vest at June 30, 2023	6,215	$	7.62	3.91	$	3

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 June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Risk-free interest rate	3.9%	3.0%–3.2%	3.5%–3.9%	1.7–3.2%
Expected term (in years)	6.1	5.6–6.3	6.1	5.6–6.3
Expected volatility	44.75%	40.5–41.5%	44.3%–44.8%	38.5–41.5%
Expected dividend yield	0.0%	0.0%	0.0%	0.0%

The weighted-average grant-date fair value of options granted during the six months ended June 30, 2023 and 2022 was $0.48 and $1.62 per share, respectively. Cash proceeds received upon the exercise of options were $2 and $255 during the six months ended June 30, 2023 and 2022, respectively. The intrinsic value of stock options exercised during the six months ended June 30, 2023 and 2022 was $1 and $299, 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 six months ended June 30, 2023 is as follows:

	Number of Shares		Weighted-Average Grant Date Fair Value		Aggregate Fair Value
Unvested balance at January 1, 2023	5,505	$	4.49		
Granted	4,324		1.02		
Vested	(2,531)		4.04	$	6,132
Forfeited	(185)		5.14		
Unvested balance at June 30, 2023	7,113	$	2.46		

The Company withheld 1,422 and 355 shares of common stock in settlement of employee tax withholding obligations due upon the vesting of RSUs and PSUs during the six months ended June 30, 2023 and 2022, respectively.

Performance-Based Stock Units

During the six months ended June 30, 2022, 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. All PSUs granted prior to the six months ended June 30, 2022, and a portion of PSUs granted during the three months ended June 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 remaining portion of PSUs granted during the three months ended June 30, 2022 consisted of performance-based vesting conditions determined by the Company's achievement of performance targets with respect to a certain customer agreement. Vesting of these performance-based PSUs occurred during the three months ended June 30, 2023 pursuant to Jerry Guo's retirement as discussed below. No PSUs were granted during the six months ended June 30, 2023.

A summary of PSU activity for the six months ended June 30, 2023 is as follows:

	Number of Shares	Weighted-Average Grant Date Fair Value	Aggregate Fair Value
Unvested balance at January 1, 2023	1,262	$ 4.15	
Granted	—	—	
Vested	(1,238)	3.48	$ 2,102
Forfeited	—	—	
Unvested balance at June 30, 2023	24	$ 7.89	

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:

	Three and six months ended June 30, 2022
Risk-free interest rate	2.8%
Volatility	79.1%
Dividend yield	0.0%
Cost of equity	13.2%

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.

There was no SAR liability as of June 30, 2023 or December 31, 2022, as the exercise price of all outstanding SARs exceeded the fair value of the Company's common stock as of each applicable date. There were no grants, exercises or forfeitures during the six-month period ending June 30, 2023.

Stock-Based Compensation Expense

Stock-based compensation expense related to stock options, RSUs, SARs and PSUs for the three and six months ended June 30, 2023 and 2022 was classified in the condensed consolidated statements of operations and comprehensive loss as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Cost of revenue	$ 11	$ 26	$ 37	$ 61
Research and development expenses	552	694	1,252	1,289
Selling, general and administrative expenses	1,245	2,159	4,641	4,157
Total stock-based compensation	$ 1,808	$ 2,879	$ 5,930	$ 5,507

The Company recognized stock-based compensation expense for the three and six months ended June 30, 2023 and 2022 in the condensed consolidated balance sheet as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Change in fair value of SAR Liability	$ —	$ (56)	$ —	$ (159)
Recognized as additional paid-in capital	1,808	2,935	5,930	5,666
Total stock-based compensation	$ 1,808	$ 2,879	$ 5,930	$ 5,507

As of June 30, 2023, there was $15,989 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 2.18 years.

Retirement of Jerry Guo

On March 14, 2023, Jerry Guo, the Company’s co-founder, President and Chief Executive Officer, announced his retirement from his executive roles effective March 17, 2023. A separation agreement was entered into by Mr. Guo and the Company’s board of directors on March 13, 2023. Pursuant to this agreement, Mr. Guo was entitled to certain termination benefits, including the acceleration of vesting of all unvested stock-based awards upon his termination. This resulted in the accelerated vesting and release of 551 RSUs and 883 PSUs during the six months ended June 30, 2023. Incremental stock-based compensation recognized in selling, general and administrative expense on the condensed consolidated statement of comprehensive loss for the six months ended June 30, 2023 was $1,737.

13. Net Loss per Share

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Options to purchase common stock	6,264	7,110	6,264	7,110
Unvested restricted stock units	7,113	5,108	7,113	5,108
Unvested performance-based stock units	24	1,262	24	1,262

14. 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. 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 June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
North America:				
United States	$ 15,345	$ 22,697	$ 32,571	$ 36,232
Canada	11,773	9,340	15,557	25,099
Total North America	27,118	32,037	48,128	61,331
Europe, Middle East and Africa:	5,520	4,886	11,428	11,166
Asia-Pacific:				
Australia	13,079	20,774	25,841	37,292
Other	5,842	7,411	9,646	15,591
Total Asia-Pacific	18,921	28,185	35,487	52,883
Latin America	6,444	5,728	8,257	9,855
Total revenue(1)	$ 58,003	$ 70,836	$ 103,300	$ 135,235

(1) Other than the United States, 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 lines as determined by the technical characteristics of the product. As telecommunication technologies, and the market for them evolves, the categorization of our products is subject to shifts that management monitors and reevaluates as necessary. Accordingly, beginning with the three months ended March 31, 2023, the Company updated its product line reporting. Revenue amounts for the three and six months ended June 30, 2022 have been reclassified to conform with 2023 reporting.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Product revenue:				
Access devices	$ 26,984	$ 35,005	$ 51,892	$ 66,753
Cable	18,727	16,102	25,645	35,875
Cloud	276	8,034	3,699	9,058
Total product revenue	45,987	59,141	81,236	111,686
Service revenue:				
Access devices	$ 1,233	$ 1,869	2,079	3,630
Cable	8,766	9,097	17,182	17,953
Cloud	2,017	729	2,803	1,966
Total service revenue	12,016	11,695	22,064	23,549
Total revenue	$ 58,003	$ 70,836	$ 103,300	$ 135,235

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 Company's revenue recognition policy. During the three and six months ended June 30, 2023, the Company recognized revenue of $3,368 and $10,605, respectively, that was included in deferred revenue in the condensed consolidated balance sheet as of December 31, 2022. During the three and six months ended June 30, 2022, the Company recognized revenue of $2,855 and $8,491, respectively, that was included in deferred revenue in the condensed consolidated balance sheet as of December 31, 2021.

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 June 30, 2023 and December 31, 2022, the Company included contract assets of $3,533 and $2,674, respectively, in accounts receivable, net in the condensed consolidated balance sheets.

Transaction Price Allocated to the Remaining Performance Obligations

As of June 30, 2023, the aggregate remaining amount of revenue expected to be recognized related to unsatisfied or partially unsatisfied performance obligations was $58,197, which consisted of deferred revenue. The Company expects approximately 92% 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.

15. 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 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:

	June 30, 2023	December 31, 2022
U.S.	$ 13,663	$ 14,679
China	2,666	3,017
Australia	665	1,054
Other	607	768
Total property and equipment, net	$ 17,601	$ 19,518

16. 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, who served as the Company's Senior Vice President of Operations until her retirement on December 31, 2022, and remains serving as a member of the Company's board of directors. Rongke Xie is also the sister-in-law of Jerry Guo, who served as the Company's President and Chief Executive Officer until his retirement on March 17, 2023, and remains serving as a member of the Company's board of directors. Casa China paid Rongke Xie $123 and $144 in total compensation during the six months ended June 30, 2023 and 2022, 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 June 30, 2023 and 2022, the Company recognized selling, general and administrative expenses of $24 and $30 related to these awards. During the six months ended June 30, 2023 and 2022, the Company recognized selling, general and administrative expenses of $52 and $61 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 11, *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 six months ended June 30, 2023, the Company recognized revenue of $4,287 and $7,284, respectively, from transactions with Verizon and Affiliates, and amounts received in cash resulting from revenue transactions with Verizon and Affiliates during the six months ended June 30, 2023 totaled $26,110. During the three and six months ended June 30, 2022, the Company recognized revenue of $10,550 from transactions with Verizon and Affiliates during which a related party relationship existed, and amounts received in cash resulting from revenue transactions with Verizon and Affiliates during the six months ended June 30, 2022 totaled $1,201. As of June 30, 2023 and December 31, 2022, amounts due from Verizon and Affiliates totaled $3,635 and $6,044, respectively, and were included in accounts receivable, net in the condensed consolidated balance sheet. As of June 30, 2023 and December 31, 2022, revenue from transactions that did not meet the criteria for recognition totaling $33,913 and $18,094, respectively, with Verizon and Affiliates were included in deferred revenue in the condensed consolidated balance sheet.

17. Leases

The Company leases manufacturing, warehouse and office space in the United States, Ireland, China, Hong Kong, Spain and Australia under non-cancelable operating leases with expiration dates through 2028, as well as various equipment leases. The leases have remaining lease terms of 1 year to 6 years, some of which contain options to extend the leases for up to 3 additional years and some which include options to terminate the leases within 1 year. The lease agreements contain lease and non-lease components, which are generally accounted for together.

After the adoption of ASC 842, the Company determines if an arrangement is a lease at inception. Operating leases are included in the operating lease right-of-use, (“ROU”), assets and the short-term and long-term lease liabilities on the consolidated balance sheets. ROU assets represent the Company’s right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As most of the leases do not provide an implicit rate, the Company used its incremental borrowing rate based on information available at commencement date in determining the present value of lease payments. The operating lease ROU asset also includes any lease payments made and excludes lease incentives. Lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

Pursuant to the terms of the lease agreement for the Company’s Australia office, the Company obtained six standby letters of credit in the amount of approximately $625 and $2,100 as security on the lease obligation, as of June 30, 2023 and December 31, 2022, respectively. The letters of credit are classified as restricted cash in the accompanying condensed consolidated balance sheets as of June 30, 2023 and December 31, 2022.

The components of lease expense were as follows:

	Three Months Ended June 30, 2023	Six Months Ended June 30, 2023
Financing lease cost	$ —	$ —
Operating lease cost	551	1,106
Short-term lease cost	1	2
Variable lease cost	73	128
Total lease cost	$ 625	$ 1,236

Supplemental cash flow information related to leases was as follows:

	Six Months Ended June 30, 2023
Cash paid for operating leases included in cash flows from operating activities	$ 1,055
Right-of-use assets obtained in exchange for new operating leases	55

Supplemental balance sheet information related to leases was as follows:

	Six Months Ended June 30, 2023	Year Ended December 31, 2022
Weighted average remaining lease term for operating leases	3.32 years	3.58 years
Weighted average discount rate for operating leases	4.1%	4.0%

Maturities of operating lease liabilities were as follows:

Year Ending December 31,		
2023	$	1,110
2024		1,319
2025		948
2026		841
2027		565
Thereafter		2
Total future minimum lease payments	$	4,785
Less: amounts representing interest		(329)
Total lease liabilities		4,456
Less: current operating lease liability		(1,715)
Long term operating lease liability		2,741

18. Commitments and Contingencies

Indemnification

The Company has, in the ordinary course of business, agreed to defend and indemnify certain customers and partners 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 June 30, 2023 and December 31, 2022 the Company accrued $500 and $1,487, respectively, as a minimum estimated liability related to ongoing indemnification claims. As of June 30, 2023 and December 31, 2022, 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

From time to time, the Company is 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 the Company in the form of letters and other communications. The Company is not presently subject to any pending or threatened litigation that it believes, if determined adversely to the Company, individually, or taken together, would reasonably be expected to have a material adverse effect on its business or financial results.

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.

On December 23, 2022, the Company executed a settlement deed with the customer, whereby the Company agreed to, among other things, a settlement amount of 20,000 Australian dollars, to be paid in four equal annual installments, the first of which was paid upon execution of the settlement deed in the amount of 5,000 Australian dollars, or $3,398. As of June 30, 2023, the remaining accrued expense balance, representing the estimated net present value of the remaining payments, plus the estimated cost of other non-monetary obligations under the settlement deed was $9,570, as shown in Note 6, *Accrued Expenses* *and Other Current Liabilities*.

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 June 30, 2022 and June 30, 2021, please refer to our Quarterly Report on Form 10-Q filed with the SEC on August 4, 2022.

Overview

With our physical, virtual and cloud-native 5G broadband and customer premise networking equipment solutions, we help our communication service providers, or 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. Through our deployment of cloud, access devices and cable products, 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 end-to-end cloud-native, virtual, physical and distributed infrastructure and customer premise network solutions that enable our customers to provide wireless and fixed-line broadband services to consumers and enterprises. Our solutions are scalable so that CSPs can meet the evolving bandwidth needs of 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

Rising Inflation and Interest Rates

The recent rise in inflation 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. Continued 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 in the future 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.

Banking Institution Liquidity

In March 2023, the bank failures of Silicon Valley Bank and Signature Bank created significant market disruption and uncertainty within the U.S. banking sector, particularly with respect to regional banks, and a number of other financial institutions experienced turbulence and a precipitous decline in market value. We are closely monitoring ongoing events involving limited liquidity, defaults, non-performance or other adverse developments that affect financial institutions or other companies in the financial services industry or the financial services industry generally. While we do not hold a cash balance at Silicon Valley Bank or Signature Bank and we do not believe we have exposure to loss as a result of the failure of either institution, we have historically held our cash in a limited number of financial institutions.

COVID-19 Pandemic

The COVID-19 pandemic disrupted our global supply chain. Throughout 2022 and 2021, we experienced shipping bottlenecks and 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 years ended December 31, 2022 and 2021. We have also seen, in some cases, significant increases in shipping costs. While we have seen the effects begin to subside during 2023, we continue to work with our supply chain, contract manufacturers, logistics partners and customers to minimize the extent of such impacts and will continue to actively monitor supply chain developments. We cannot predict if or when such effects will recur or worsen, which in such a case, could 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 canceling their orders. We are not able to estimate the extent of these impacts nor predict whether our efforts to minimize or contain them would be successful.

Due to the above circumstances, our results of operations for the three months ended June 30, 2023 and 2022 are not necessarily indicative of the results to be expected in future years.

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 June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands)		(in thousands)	
Revenue:				
Product	$ 45,987	$ 59,141	$ 81,236	$ 111,686
Service	12,016	11,695	22,064	23,549
Total revenue	58,003	70,836	103,300	135,235
Cost of revenue[1]:				
Product	33,009	42,882	59,024	79,110
Service	1,178	1,319	2,305	2,811
Total cost of revenue	34,187	44,201	61,329	81,921
Gross profit	23,816	26,635	41,971	53,314
Operating expenses:				
Research and development[1]	19,986	22,813	40,826	45,486
Selling, general and administrative[1]	20,985	21,970	45,442	44,299
Total operating expenses	40,971	44,783	86,268	89,785
Loss from operations	(17,155)	(18,148)	(44,297)	(36,471)
Other expense, net	(32,821)	(2,569)	(37,189)	(6,478)
Loss before provision for (benefit from) income taxes	(49,976)	(20,717)	(81,486)	(42,949)
Provision for (benefit from) income taxes	1,160	(4,020)	1,308	6,332
Net loss	$ (51,136)	$ (16,697)	$ (82,794)	$ (49,281)

(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 June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands)		(in thousands)	
Cost of revenue	$ 11	$ 26	$ 37	$ 61
Research and development expense	552	694	1,252	1,289
Selling, general and administrative expense	1,245	2,159	4,641	4,157
Total stock-based compensation expense	$ 1,808	$ 2,879	$ 5,930	$ 5,507

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(as a percentage of total revenue)		(as a percentage of total revenue)	
Revenue:				
Product	79.3 %	83.5 %	78.6 %	82.6 %
Service	20.7	16.5	21.4	17.4
Total revenue	100.0	100.0	100.0	100.0
Cost of revenue:				
Product	56.9	60.5	57.1	58.5
Service	2.0	1.9	2.2	2.1
Total cost of revenue	58.9	62.4	59.4	60.6
Gross profit	41.1	37.6	40.6	39.4
Operating expenses:				
Research and development	34.5	32.2	39.5	33.6
Selling, general and administrative	36.2	31.0	44.0	32.8
Total operating expenses	70.6	63.2	83.5	66.4
Loss from operations	(29.6)	(25.6)	(42.9)	(27.0)
Other expense, net	(56.6)	(3.6)	(36.0)	(4.8)
Loss before provision for (benefit from) income taxes	(86.2)	(29.2)	(78.9)	(31.8)
Provision for (benefit from) income taxes	2.0	(5.7)	1.3	4.7
Net loss	(88.2)%	(23.6)%	(80.1)%	(36.4)%

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

Three Months Ended June 30, 2023 Compared to the Three Months Ended June 30, 2022

	Three Months Ended June 30,				Change	
	2023		2022			
	Amount	% of Total	Amount	% of Total	Amount	%
	(dollars in thousands)					
Revenue:						
Product	$ 45,987	79.3 %	$ 59,141	83.5 %	$ (13,154)	(22.2)%
Service	12,016	20.7 %	11,695	16.5 %	321	2.7 %
Total revenue	$ 58,003	100.0 %	$ 70,836	100.0 %	$ (12,833)	(18.1)%
Revenue by geographic region:						
North America	$ 27,118	46.8 %	$ 32,037	45.2 %	$ (4,919)	(15.4)%
Europe, Middle East and Africa	5,520	9.5 %	4,886	6.9 %	634	13.0 %
Asia-Pacific	18,921	32.6 %	28,185	39.8 %	(9,264)	(32.9)%
Latin America	6,444	11.1 %	5,728	8.1 %	716	12.5 %
Total revenue	$ 58,003	100.0 %	$ 70,836	100.0 %	$ (12,833)	(18.1)%

	Three Months Ended June 30,		Change	
	2023	2022	Amount	%
Product revenue:				
Access devices	$ 26,984	$ 35,005	$ (8,021)	(22.9)%
Cable	18,727	16,102	2,625	16.3 %
Cloud	276	8,034	(7,758)	(96.6)%
Total product revenue	45,987	59,141	(13,154)	(22.2)%
Service revenue:				
Access devices	1,233	1,869	(636)	(34.0)%
Cable	8,766	9,097	(331)	(3.6)%
Cloud	2,017	729	1,288	176.7 %
Total service revenue	12,016	11,695	321	2.7 %
Total revenue	$ 58,003	$ 70,836	$ (12,833)	(18.1)%

Product revenue decreased during the three months ended June 30, 2023 as compared to the three months ended June 30, 2022 due to reduced demand and timing of orders from various Tier 1 customers, particularly in our access device and cloud markets. Cable revenue increased due to expanding deployments of our hardware and software license solutions.

Service revenue increased during the three months ended June 30, 2023 as compared to the three months ended June 30, 2022 due to increased delivery of professional services with a Tier 1 customer, partially offset by lower support services revenue that are highly correlated to declines in product revenues in access devices and cable.

Cost of Revenue and Gross Profit

	Three Months Ended June 30,		Change	
	2023	2022	Amount	%
	(dollars in thousands)			
Cost of revenue:				
Product	$ 33,009	$ 42,882	$ (9,873)	(23.0)%
Service	1,178	1,319	(141)	(10.7)%
Total cost of revenue	$ 34,187	$ 44,201	$ (10,014)	(22.7)%

	Three Months Ended June 30,				Change	
	2023		2022			
	Amount	Gross Margin	Amount	Gross Margin	Amount	Gross Margin (bps)
	(dollars in thousands)					
Gross profit:						
Product	$ 12,978	28.2 %	$ 16,259	27.5 %	$ (3,281)	70
Service	10,838	90.2 %	10,376	88.7 %	462	150
Total gross profit	$ 23,816	41.1 %	$ 26,635	37.6 %	$ (2,819)	350

Cost of product and service revenue decreased in the three months ended June 30, 2023 as compared to the three months ended June 30, 2022 in direct relation to the decrease in related revenue.

Gross margin increased during the three months ended June 30, 2023 as compared to the three months ended June 30, 2022 due to favorable shifts in product revenue mix, increased professional service revenues, and reductions in direct labor costs.

Research and Development

	Three Months Ended June 30,		Change	
	2023	2022	Amount	%
	(dollars in thousands)			
Research and development	$ 19,986	$ 22,813	$ (2,827)	(12.4)%
Percentage of revenue	34.5 %	32.2 %		

The decrease in research and development expense in the three months ended June 30, 2023 as compared to the three months ended June 30, 2022 was primarily due to decreased personnel costs of $1.5 million, driven by decreased salaries, payroll taxes and benefits of $2.4 million due to a shift in headcount from the United States to China and an overall decrease in headcount and decreased bonus expense of $0.9 million, partially offset by an increase in severance costs related to the April 2023 reduction in force of $1.8 million. In addition, there was a decrease in purchases of research and development materials of $1.1 million and a decrease in depreciation of $0.3 million during the three months ended June 30, 2023 compared to the three months ended June 30, 2022.

Selling, General and Administrative

	Three Months Ended June 30,		Change	
	2023	2022	Amount	%
	(dollars in thousands)			
Selling, general and administrative	$ 20,985	$ 21,970	$ (985)	(4.5)%
Percentage of revenue	36.2 %	31.0 %		

The decrease in selling, general and administrative expense in the three months ended June 30, 2023 as compared to the three months ended June 30, 2022 was primarily due to decreased personnel costs of $1.6 million, driven by decreased salaries, payroll taxes and benefits of $1.3 million, decreased commissions of $0.9 million, decreased stock-based compensation of $0.9 million, partially offset by increased bonus expense of $1.3 million and increased severance expense related to the April 2023 reduction in force of $0.2 million. In addition, depreciation expense decreased by $0.3 million during the three months ended June 30, 2023 compared to the three months ended June 30, 2022. These decreases were partially offset by increased legal and professional fees of $0.7 million during the three months ended June 30, 2023 and the addition of factoring costs of $0.2 million during the three months ended June 30, 2023.

Other Expense, Net

	Three Months Ended June 30,		Change	
	2023	2022	Amount	%
	(dollars in thousands)			
Other expense, net	$ (32,821)	$ (2,569)	$ (30,252)	1177.6%
Percentage of revenue	(56.6)%	(3.6)%		

Other expense increased primarily due to a $29.0 million loss on debt extinguishment related to our debt refinancing on June 15, 2023. The increase was also due to an increase in interest expense of $2.2 million in the three months ended June 30, 2023 due to the increased interest rates applied to our outstanding debt. Interest income also increased $0.6 million due to increased interest rates during the three months ended June 30, 2023 as compared to the three months ended June 30, 2022.

Provision for (Benefit from) Income Taxes

	Three Months Ended June 30,		Change	
	2023	2022	Amount	%
	(dollars in thousands)			
Provision for (benefit from) income taxes	$ 1,160	$ (4,020)	$ 5,180	(128.9)%

The change in the provision for (benefit from) income taxes for the three months ended June 30, 2023 compared to the three months ended June 30, 2022 was primarily due to the period over period changes in our valuation allowance against deferred tax assets and the impact of changes in our forecasted profitability and the jurisdictional mix of earnings.

Six Months Ended June 30, 2023 Compared to the Six Months Ended June 30, 2022

	Six Months Ended June 30,					
	2023		2022		Change	
	Amount	% of Total	Amount	% of Total	Amount	%
	(dollars in thousands)					
Revenue:						
Product	$ 81,236	78.6%	$ 111,686	82.6%	$ (30,450)	(27.3)%
Service	22,064	21.4%	23,549	17.4%	(1,485)	(6.3)%
Total revenue	$ 103,300	100.0%	$ 135,235	100.0%	$ (31,935)	(23.6)%
Revenue by geographic region:						
North America	$ 48,128	46.5%	$ 61,331	45.4%	$ (13,203)	(21.5)%
Europe, Middle East and Africa	11,428	11.1%	11,166	8.3%	262	2.3%
Asia-Pacific	35,487	34.4%	52,883	39.1%	(17,396)	(32.9)%
Latin America	8,257	8.0%	9,855	7.2%	(1,598)	(16.2)%
Total revenue	$ 103,300	100.0%	$ 135,235	100.0%	$ (31,935)	(23.6)%

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change Amount	Change %
Product revenue:				
Access devices	$ 51,892	$ 66,753	$ (14,861)	(22.3)%
Cable	25,645	35,875	(10,230)	(28.5)%
Cloud	3,699	9,058	(5,359)	(59.2)%
Total product revenue	81,236	111,686	(30,450)	(27.3)%
Service revenue:				
Access devices	2,079	3,630	(1,551)	(42.7)%
Cable	17,182	17,953	(771)	(4.3)%
Cloud	2,803	1,966	837	42.6%
Total service revenue	22,064	23,549	(1,485)	(6.3)%
Total revenue	$ 103,300	$ 135,235	$ (31,935)	(23.6)%

Product revenues decreased during the six months ended June 30, 2023 as compared to the six months ended June 30, 2022 due to reduced demand and timing of orders from various Tier 1 customers across all markets.

Service revenues decreased during the six months ended June 30, 2023 as compared to the six months ended June 30, 2022 due to reduced professional services revenue in the access devices market, and lower support services in the cable market, partially offset by an increase in professional services revenue from a Tier 1 customer in the cloud market.

Cost of Revenue and Gross Profit

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change Amount	Change %
	(dollars in thousands)			
Cost of revenue:				
Product	$ 59,024	$ 79,110	$ (20,086)	(25.4)%
Service	2,305	2,811	(506)	(18.0)%
Total cost of revenue	$ 61,329	$ 81,921	$ (20,592)	(25.1)%

	Six Months Ended June 30, 2023 Amount	2023 Gross Margin	2022 Amount	2022 Gross Margin	Change Amount	Change Gross Margin (bps)
	(dollars in thousands)					
Gross profit:						
Product	$ 22,212	27.3%	$ 32,576	29.2%	$ (10,364)	(190)
Service	19,759	89.6%	20,738	88.1%	(979)	150
Total gross profit	$ 41,971	40.6%	$ 53,314	39.4%	$ (11,343)	120

Cost of revenue and gross profit decreased in the six months ended June 30, 2023 as compared to the six months ended June 30, 2022 in direct relation to decreases in the corresponding revenue. Gross margin increased primarily due to service gross margin resulting from lower labor costs, partially offset by decreased product gross margins due to the impact of unfavorable changes in product mix.

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

Research and Development

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change Amount	Change %
	(dollars in thousands)			
Research and development	$ 40,826	$ 45,486	$ (4,660)	(10.2)%
Percentage of revenue	39.5%	33.6%		

The decrease in research and development expense in the six months ended June 30, 2023 as compared to the six months ended June 30, 2022 was primarily due to a $3.3 million decrease in personnel costs, driven by lower salaries and benefits of $3.4 million due to a shift in headcount from the United States to China and an overall decrease in headcount and decreased bonus expense of $1.7 million, partially offset by an increase in severance costs related to the April 2023 reduction in force of $1.8 million. In addition, there was a decrease in purchases of research and development materials of $0.7 million and a decrease in depreciation of $0.8 million during the six months ended June 30, 2023 as compared to the six months ended June 30, 2022.

Selling, General and Administrative

	Six Months Ended June 30,		Change	
	2023	2022	Amount	%
	(dollars in thousands)			
Selling, general and administrative	$ 45,442	$ 44,299	$ 1,143	2.6 %
Percentage of revenue	44.0 %	32.8 %		

The increase in selling, general and administrative expense was primarily due to expenses incurred in connection with the retirement of the Company's co-founder and CEO, who, under the terms of a separation agreement, received certain termination benefits which resulted in total additional expense of $3.9 million during the six months ended June 30, 2023, consisting of cash and stock-based compensation expenses of $2.2 million and $1.7 million, respectively. In addition, there was an increase in professional services costs of $2.3 million during the six months ended June 30, 2023 compared to the six months ended June 30, 2022 and $0.2 million in factoring expense during the six months ended June 30, 2023. These increases were offset by decreased bad debt expense of $0.6 million and decreased depreciation of $0.6 million during the six months ended June 30, 2023 compared to the six months ended June 30, 2022. Excluding the retirement expenses above, personnel costs decreased by $4.2 million in the period, caused by decreased salaries and benefits of $2.4 million as a result of lower headcount, decreased commissions of $2.1 million, decreased stock-based compensation of $1.2 million, partially offset by increased bonus expense of $1.3 million and severance costs of $0.2 million related to the April 2023 reduction in force.

Other Expense, Net

	Six Months Ended June 30,		Change	
	2023	2022	Amount	%
	(dollars in thousands)			
Other expense, net	$ (37,189)	$ (6,478)	$ (30,711)	474.1 %
Percentage of revenue	(36.0)%	(4.8)%		

Other expense increased during the six months ended June 30, 2023 as compared to the six months ended June 30, 2022 primarily due to a $28.8 million loss on debt extinguishment related to our debt refinancing on June 15, 2023. The increase was also due to an increase in interest expense of $3.7 million in the six months ended June 30, 2023 due to the increased interest rates applied to our outstanding debt. Interest income also increased $1.5 million due to increased interest rates during the six months ended June 30, 2023 as compared to the six months ended June 30, 2022

Provision for Income Taxes

	Six Months Ended June 30,		Change	
	2023	2022	Amount	%
	(dollars in thousands)			
Provision for income taxes	$ 1,308	$ 6,332	$ (5,024)	(79.3)%

The change in the provision for income taxes for the six months ended June 30, 2023 compared to the six months ended June 30, 2022 was primarily due to the period over period changes in the Company's valuation allowance against deferred tax assets and the impact of changes in the Company's forecasted profitability and the jurisdictional mix of earnings.

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 June 30, 2023 and December 31, 2022 and our cash flows for the six months ended June 30, 2023 and 2022:

	June 30, 2023	December 31, 2022
	(in thousands)	
Consolidated Balance Sheet Data:		
Cash and cash equivalents	$ 64,265	$ 126,312
Working capital	69,002	(32,133)

	Six Months Ended June 30,	
	2023	2022
	(in thousands)	
Consolidated Cash Flow Data:		
Net cash (used in) provided by operating activities	$ (3,992)	$ 9,610
Net cash used in investing activities	(1,076)	(2,110)
Net cash (used in) provided by financing activities	(58,260)	35,303

As of June 30, 2023, we had cash, cash equivalents and restricted cash of $65.9 million and net accounts receivable of $47.4 million.

We previously disclosed circumstances that gave rise to substantial doubt about our ability to continue as a going concern. As of June 15, 2023, we believe those conditions were resolved as a result of our June 15, 2023 refinancing of the term loan under our December 20, 2016 credit facility. Our future capital requirements may vary materially from those currently planned and will depend on many factors, including our rate of revenue growth; the mix of revenues and impact on related gross margins; 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 our sales and marketing activities; the 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; and 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.

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 purchases of inventory, 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 six months ended June 30, 2023, cash used in operating activities was $4.0 million, primarily resulting from our net loss of $82.8 million, partially offset by net cash provided by changes in our operating assets and liabilities of $34.8 million and net non-cash adjustments of $44.0 million, including $28.8 million for loss on extinguishment of debt. Net cash provided by changes in our operating assets and liabilities during the six months ended June 30, 2023 was primarily due to a $27.2 million decrease in accounts receivable due to collections during the period; a $21.4 million increase in deferred revenue due to the timing of revenue recognition; a $2.9 million decrease in prepaid income taxes; and a $2.4 million increase in accrued expenses due to the timing of certain accrual payments. These sources of cash were partially offset by a $6.5 million decrease in accounts payable due to timing of vendor payments; a $5.3 million increase in inventory; a $3.4 million decrease in accrued income taxes; a $2.7 million increase in prepaid expenses; and a $1.1 million decrease in operating lease liability.

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 six months ended June 30, 2023 was $1.1 million, consisting of purchases of property and equipment.

Financing Activities

Net cash used in financing activities during the six months ended June 30, 2023 was $58.3 million, which was mainly due to debt principal repayments of $42.0 million, payments for deferred financing fees related to our loan refinancing of $13.3 million and employee taxes paid related to the net share settlement of equity awards of $3.0 million, primarily due to RSUs that vested during the six months ended June 30, 2023.

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:

- the Original Term Loans under our December 20, 2026 credit facility of $300.0 million; and
- a revolving credit facility of up to $25.0 million in revolving credit loans and letters of credit.

On June 15, 2023, the Borrower and the Lenders entered into various agreements to effectively exchange $218.8 million of the Original Term Loans for loans of an equal principal amount, or the Superpriority Term Loans, under the Superpriority Credit Agreement, dated June 15, 2023, with JPMorgan Chase Bank, N.A., as administrative agent, Delaware Trust Company, as collateral agent, and the lenders party thereto, or Superpriority Credit Agreement, whereby the maturity date would be extended to December 20, 2027 in exchange for the Company paying down $40,000 of its exchanged Original Term Loans (as part of an early principal repayment), providing certain penny warrants, or the Warrants, to the lenders and paying certain in-kind fees, amongst other changes, which we collectively refer to as the Exchange.

As of June 30, 2023 and December 31, 2022, we had borrowings of $192.7 million and $226.0 million, respectively, outstanding under the Original Term Loans and Superpriority Term Loans. On December 20, 2021, the revolving credit facility matured.

The Exchange was deemed to be an exchange of debt with substantially different terms under ASC Subtopic 470-50, “Modifications and Extinguishments,” and we recorded a loss on extinguishment of debt of approximately $29.0 million in the condensed consolidated statement of operations for the three months ended June 30, 2023. In applying extinguishment accounting, we recorded the Superpriority Term Loans at fair value. Therefore, the current carrying value of the loans approximates fair value as of June 30, 2023.

The Superpriority Term Loans bear interest at the Adjusted Term SOFR Rate (as defined in the Superpriority Credit Agreement) (subject to a 2.00% per annum floor) or Base Rate (as defined in the Superpriority Credit Agreement), as applicable, plus (x) in the case of SOFR Rate Loans (as defined in the Superpriority Credit Agreement), 6.50% per annum or (y) in the case of Base Rate Loans (as defined in the Superpriority Credit Agreement), 5.50% per annum, provided that, the foregoing interest rate margin in respect of both SOFR Rate Loans and Base Rate Loans shall be increased (i) by 0.50% per annum on July 1, 2024 and (ii) by 1.00% per annum on and after January 1, 2025 (for a total increase of 1.50% per annum), if, in each case, the outstanding amount of Superpriority Term Loans on such date is in excess of $125,000 (with continuing effect from such date regardless of the outstanding amount of Superpriority Term Loans at any time after such date of determination); and any time after June 30, 2025, with respect to Superpriority Term Loans (x) in the case of SOFR Rate Loans, 13.00% per annum or (y) in the case of Base Rate Loans, 12.00% per annum. The effective interest rate of the Superpriority Term Loans is approximately 22%. As of June 30, 2023, the interest rate on the Superpriority Term Loans was 12.22% per annum.

The Superpriority Term Loans are prepayable at par between the closing of the Superpriority Credit Agreement through December 31, 2023; thereafter, the Superpriority Term Loans are prepayable at any time and from time to time, subject to an exit fee increasing over time ranging from 3.0% to 20.0% through maturity. In the event the Superpriority Term Loans are accelerated prior to their maturity following any event of default, the maximum exit fee will be payable in connection therewith.

The Superpriority Term Loans are expected to mature on December 20, 2027 (subject to a springing maturity on December 20, 2025 if, unless otherwise waived by holders collectively owning or controlling at least 75% of the Superpriority Term Loans on the date of determination, (x)(1) the Total Net First Lien Leverage Ratio (as defined in the Superpriority Credit Agreement) is greater than 1.00:1.00, or (2) the Total Net Leverage Ratio (as defined in the Superpriority Credit Agreement) is greater than 1.50:1.00, in each case, as of September 30, 2025 or (y) a Default (as defined in the Superpriority Credit Agreement) or Event of Default (as defined in the Superpriority Credit Agreement) has occurred and is continuing under the Superpriority Credit Agreement as of December 20, 2025), unless earlier repaid or accelerated. The Superpriority Term Loans will amortize in equal quarterly installments in the aggregate annual amount equal to 1.0% of the principal amount of the

Superpriority Term Loans outstanding on the date of the Term Loan Exchange (after giving effect to the closing date prepayment).

The Superpriority Term Loans are subject to mandatory prepayments, including 75% of excess cash flow, certain non-ordinary course asset dispositions, the issuance of certain equity interests by us and the incurrence of certain indebtedness by us and our subsidiaries. Such prepayments shall be subject to the exit fee described above (to the extent otherwise then applicable). The Superpriority Credit Agreement contains customary representations and warranties, conditions, affirmative and negative covenants, liquidity-based financial covenants, events of default and indemnification obligations. As of June 30, 2023, we were in compliance with the terms of the Superpriority Credit Agreement.

As a result of the Exchange, $5.0 million principal remains under the Original Term Loans. As a result of the Exchange, the Company, certain lenders party to the Original Credit Agreement and JPMorgan Chase Bank, N.A., as agent, entered into Amendment No. 1 which, among other things, permitted the transaction contemplated by the Exchange and eliminated all mandatory prepayments (other than at maturity) and representations and warranties and most affirmative and negative covenants and events of default previously applicable to the Original Term Loans. The interest rates applicable to the Original Term Loans remain unchanged. Borrowings under the Original Term Loans bear interest at a floating rate, which can be either a synthetic Eurodollar rate plus an applicable margin or, at our option, a base rate (defined as the highest of (x) the JPMorgan Chase Bank, 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 Original Term Loans 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 Original Term Loans 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 June 30, 2023, the interest rate on the Original Term Loans was 9.65% per annum, which was based on a one-month Eurodollar rate of 5.65% per annum plus the applicable margin of 4.0% per annum for Eurodollar rate loans. As of December 31, 2022, the interest rate on the Original Term Loans was 8.38% per annum, which was based on a one-month Eurodollar rate of 4.38% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans.

Voluntary prepayments of principal amounts outstanding under the Original Term Loans 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.

The Original Term Loans is secured by, among other things, a second priority security interest, subject to permitted liens, in substantially all of the Company's assets and a pledge of certain of the stock of certain of our subsidiaries, in each case subject to specified exceptions. As of June 30, 2023 and December 31, 2022, we were in compliance with the terms of the Original Term Loans.

Restructuring

During the three months ended June 30, 2023, we reduced our current workforce by 134 employees, representing approximately 13% of our total workforce. We incurred total one-time cash charges of approximately $2.1 million in connection with the reduction in force, primarily consisting of severance payments and other employee-related costs. The reduction in workforce is substantially complete as of June 30, 2023.

Together with certain other actions undertaken by management, the expected net reduction in operating expenses for the remainder of 2023 is approximately $5.1 million.

Tax Cuts and Jobs Act

Of our total cash and cash equivalents of $64.3 million as of June 30, 2023, $33.6 million was held by our foreign subsidiaries. The Tax Cuts and Jobs Act of 2017, or TCJA, established a modified territorial system requiring a mandatory deemed repatriation tax on undistributed earnings of foreign subsidiaries. As of June 30, 2023, we had $13.9 million of undistributed earnings in China that are 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.

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 six months ended June 30, 2023, we did not repurchase any shares. During the six months ended June 30, 2022, we repurchased approximately 0.2 million shares for a total cost of approximately $1.2 million. As of June 30, 2023, 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 June 30, 2023, as described in Note 10 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 refinancing of our term loan, as discussed above, 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, 2022.

Critical Accounting Policies and Significant Judgments and Estimates

We prepare our condensed consolidated financial statements in accordance with GAAP. 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.

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 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Interim Chief Executive Officer and Chief Financial Officer, after evaluating 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, has concluded that, based on such evaluation and as a result of the material weaknesses discussed below, our disclosure controls and procedures were not effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms and is accumulated and communicated to our management including our Interim Chief Executive Officer and Chief Financial Officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

Notwithstanding the identified material weaknesses, our management believes the unaudited condensed consolidated financial statements included in this Quarterly Report on Form 10-Q fairly present, in all material respects, our financial condition, results of operations and cash flows as of and for the periods presented in accordance with U.S. GAAP.

Material Weaknesses and Remediation of Material Weaknesses

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) or 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, the company's principal executive and principal financial officers and effected by the company's board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. Internal control over financial reporting includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

As disclosed in the Company's Annual Report on Form 10-K filed with the SEC on March 15, 2023, management and our independent registered public accounting firm identified material weaknesses in our internal control over financial reporting. A material weakness is a weakness or deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our financial statements will not be prevented or detected on a timely basis. Management and our independent registered public accounting firm identified material weaknesses that are pervasive in our internal control processes and involve the control environment, risk assessment, control activity, information and communication, and monitoring components of the Committee of Sponsoring Organizations of the Treadway Commission framework. Specifically, the material weaknesses relate to: an insufficiently staffed finance organization with the requisite knowledge or skills in and ability to focus on internal control over financial reporting matters; not fully designing, implementing and monitoring policies or financial reporting controls that identify and sufficiently mitigate risks of material misstatement to the financial statements; and insufficient design, implementation and monitoring of general information technology controls to support the effective operation of financial controls. Because of the material weaknesses described above, our management believes that our internal control over financial reporting was not effective.

Remediation of the Material Weaknesses in Internal Control Over Financial Reporting

Immediately following the identification of the material weaknesses described above, and with the oversight of the audit committee of our board of directors, we commenced a process to remediate the underlying causes of these material weaknesses, enhance the control environment and strengthen our internal control over financial reporting. We are committed and are taking steps necessary to remediate the control deficiencies that caused the above material weaknesses by implementing changes to our internal control over financial reporting. We have begun the process to remediate the material weakness and will continue our efforts through fiscal 2023. Our plans for remediation include the following:

- We have added and will continue the process of adding a sufficient number of qualified personnel within our accounting function to establish the appropriate level of resources to ensure successful remediation, and thereafter, ongoing maintenance of adequate internal controls over financial reporting. We have recently hired a new Director of Revenue and an additional IT resource, we have engaged accounting advisory consultants to provide additional oversight and expertise to enhance our period end close, technical accounting, and financial reporting capabilities, and we will continue to utilize such additional resources as necessary;
- As these resources are added, we will continuously evaluate the assignment of responsibilities, internal and external, associated with the performance of control activities and will continue to consider hiring additional accounting, finance and IT personnel as necessary;

- We have delivered, and will continue delivering, training on a regular basis related to internal control over financial reporting to our team members including, but not limited to, finance and accounting personnel, to educate control owners and enhance policies to ensure that all design elements of control activities are addressed in the performance of control activities;
- We will continue the process of implementing and/or enhancing control activities, including automating certain manual processes, which is expected to help increase the efficiency of processing transactions and produce accurate and timely information;
- We have engaged third-party consultants to continue to re-assess our control environment and assist with re-designing existing controls and the development of new controls where needed, including Information Technology General Controls. This effort will also include updating and improving existing control documentation as well as developing and performing ongoing and separate evaluations of our internal control environment to ascertain whether the components of internal control are present and functioning at an appropriate level; and
- In addition, under the direction of the audit committee of the board of directors, management will continue to review and make necessary changes to the overall design of our internal control environment, as well as to refine and monitor policies and procedures to improve the overall effectiveness of internal control over financial reporting of our company.

When fully implemented and operational, we believe the measures described above will remediate the material weaknesses we have identified and strengthen our internal control over financial reporting. As we continue to evaluate and work to improve our internal control over financial reporting, our management may determine to take additional measures.

The measures we are implementing are subject to continued management review supported by confirmation and testing, as well as audit committee oversight. Management and the audit committee of the board of directors remain committed to the implementation of remediation efforts to address the material weaknesses. We will continue to implement measures to remedy our internal control deficiencies, though there can be no assurance that our efforts will be successful or avoid potential future material weaknesses. In addition, until remediation steps have been completed and are operated for a sufficient period of time, and subsequent evaluation of their effectiveness is completed, the material weakness previously disclosed, and as described above, will continue to exist.

Changes in Internal Control over Financial Reporting

Except as otherwise noted above under “Remediation of Material Weaknesses in Internal Control Over Financial Reporting” including the on-going remediation efforts described, 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, 2022, or the 2022 Annual Report on Form 10-K, which could materially affect our business, financial condition or future results. As a supplement to the risk factors identified in the 2022 10-K, below we have updated several others for recent changes in our business. Other than as provided below, there have been no material changes from the risk factors previously disclosed in the 2022 10-K.

If we are unable to hire, retain, train and motivate qualified personnel and senior management, our business, financial condition, results of operations and prospects could be adversely affected.

Our future success depends, in part, on our ability to continue to attract and retain highly skilled personnel, particularly software engineering and sales personnel. Competition for highly skilled personnel is often intense, particularly in the greater Boston region where we are headquartered, and we may not be able to attract and retain the highly skilled employees that we need to support our business. Many of the companies with which we compete for experienced personnel have greater resources than we have to provide more attractive compensation packages and other amenities. Research and development personnel are aggressively recruited by startup and growth companies, which are especially active in many of the technical areas and geographic regions in which we conduct product development. In addition, in making employment decisions, particularly in the high-technology industry, job candidates often consider the value of the stock-based compensation they are to receive in connection with their employment. Declines in the market price of our stock could adversely affect our ability to attract, motivate or retain key employees. If we are unable to attract or retain qualified personnel, or if there are delays in hiring required personnel, our business, financial condition, results of operations and prospects could be materially adversely affected.

Also, to the extent we hire personnel from competitors, or from certain customers or other third parties whose employees we have agreed not to solicit, we may be subject to allegations that such personnel have been improperly solicited, that such personnel have divulged proprietary or other confidential information, or that former employers own certain inventions or other work product. Such claims could result in litigation.

Our future performance also depends on the continued services and continuing contributions of our senior management to execute our business plan and to identify and pursue new opportunities and product innovations. Our employment arrangements with our employees do not require that they continue to work for us for any specified period, and therefore, they could terminate their employment with us at any time. Further, the loss of members of our senior management team, sales and marketing team or engineering team, or any difficulty attracting or retaining other highly qualified personnel in the future, could significantly delay or prevent the achievement of our development and strategic objectives, which could materially adversely affect our business, financial condition, results of operations and prospects.

On March 14, 2023, Jerry Guo announced his retirement from his positions as president and chief executive officer, and our board of directors appointed Edward Durkin, our chief financial officer, as interim chief executive officer. On July 12, 2023, the Company announced the appointment of Michael Glickman as our new president and chief executive officer, effective August 1, 2023. Leadership transitions can be inherently difficult to manage, and an inadequate transition to a new chief executive officer may cause disruption, adversely affecting our financial performance and ability to meet operational goals and strategic plans. Management turnover also inherently causes some loss of institutional knowledge, which can negatively affect strategy and execution. If we are unable to attract and retain qualified management personnel, our business could suffer.

We do not maintain “key person” life insurance on our officers, directors or key employees.

The issuance and sale of common stock upon exercise of warrants may cause substantial dilution to existing shareholders and may also depress the market price of our common stock. Warrants to purchase shares of our common stock have cashless exercise rights.

On June 15, 2023, we issued warrants (or rights to obtain warrants) to certain of our lenders representing up to 19.99% of the total number of shares of our common stock outstanding as of that date, or 19,373 shares of common stock in the aggregate. As of June 30, 2023, certain of our lenders hold warrants (or the rights to obtain warrants) that are currently vested for an aggregate of 9,691 shares of our common, with an exercise price of $0.01 per share. Warrants representing an additional 4,846 shares of our common stock will vest and become exercisable on January 1, 2024, and warrants representing an additional 4,836 shares of our common stock will vest and become exercisable on January 1, 2025, provided certain of our debt remains outstanding as of each such date. If the holders of the warrants choose to exercise the warrants, it may cause significant dilution to the then holders of our common stock. If exercises of the warrants and sales of such shares issuable upon exercise thereof take place, the price of our common stock may decline.

We have outstanding debt that could limit our ability to make expenditures and investments in the conduct of our business and adversely impact our ability to obtain future financing.

As of June 30, 2023, we had $192.7 million of outstanding borrowings under our credit facilities, $5.0 million of which matures on December 20, 2023 and the remainder of which matures on December 20, 2027 (subject, under certain circumstances, to an earlier springing maturity of December 20, 2025). We may be unable to generate cash sufficient to pay when due the principal of, interest on, or other amounts due in respect of our indebtedness. We may be required to dedicate significant cash flows from operations to make such payments, which could limit our ability to make other expenditures and investments in the conduct of our business. Our indebtedness may also reduce our flexibility in planning for or reacting to changes in our business and market conditions. Our indebtedness also exposes us to interest rate risk, since our debt obligations generally bear interest at variable rates. In addition, we may incur additional indebtedness in the future to meet future financing needs. If we add new debt, the risks described above could increase.

In addition, primarily as a result of the completion of the refinancing of our outstanding debt on June 15, 2023, our cash available for operations has decreased from $126.3 million to $64.3 million at December 31, 2022 and June 30, 2023, respectively. While management presently expects such available cash on hand to be sufficient to fund its operations and meet its debt service requirements, the reduced level of available cash could impede the company's ability to manage its cash flows and sustain operations in the event of any significant unforeseeable negative trends or events, such as significant delays in customer payments or other unexpected negative cash flow developments.

Our superpriority credit facility contains restrictive covenants that may limit our operating flexibility.

Our superpriority credit facility contains certain restrictive covenants that either limit our ability to, or require a mandatory prepayment in the event we incur additional indebtedness and liens, merge with other companies or consummate certain changes of control, acquire other companies, engage in new lines of business, change business locations, make certain investments, make any payments on our equity interests or any subordinated debt, transfer or dispose of assets, amend certain material agreements, and enter into various specified transactions. We, therefore, may not be able to engage in any of the foregoing transactions unless we obtain the consent of our lenders or prepay the outstanding amount under our superpriority credit facility.

Furthermore, our future working capital, borrowings or equity financing could be unavailable to repay or refinance the amounts outstanding under the credit facilities. In the event of a liquidation, our secured lenders would be repaid all outstanding principal and interest prior to distribution of assets to unsecured creditors, and the holders of our common stock would receive a portion of any liquidation proceeds only if all of our creditors, including our lenders, were first repaid in full.

Our superpriority credit facility contains liquidity covenants that may limit our operating flexibility and with which the failure to comply could materially adversely affect our business, financial condition, results of operations and prospects.

Our superpriority credit facility contains a liquidity covenant that is tested on a monthly basis and is further tested on November 15, 2023 and December 10, 2023. The amount of liquidity to be maintained increases monthly. The failure to comply with such covenant results in an event of default under the superpriority credit facility and, as a result, affords the lenders thereunder the right to declare the superpriority term loans thereunder immediately due and payable. The liquidity covenant may impede our ability to grow our business or respond to competitive pressures.

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 June 30, 2023, we had used approximately $13.4 million of the net offering proceeds for general corporate purposes, including working capital, operating expenses, satisfying accounts payable, and capital expenditures, and we have invested the balance of 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 June 30, 2023:

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)
April 1 - April 30,2023	—	$ —	—	$ 60,234
May 1 - May 31, 2023	—	$ —	—	$ 60,234
June 1 - June 30,2023	—	$ —	—	$ 60,234

(1) 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 June 30, 2023, 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. However, based on our net leverage ratio at June 30, 2023, our ability to repurchase shares is currently restricted.

Warrant Issuances

On June 15, 2023, in connection with the Superpriority Credit Agreement and the Exchange, we entered into a Warrant Agreement with American Stock Transfer & Trust Company, LLC, as warrant agent. Subject to the terms and conditions set forth therein, the Lenders (or their affiliates or designees) received (or have the right to receive) warrants (the “Warrants”) exercisable for an aggregate of 19,373 shares of our common stock when vested, with an exercise price of $0.01 per share of common stock. The Warrants were issued to the Lenders on a pro rata basis in accordance with the amount of the Superpriority Term Loans held by such Lender. The shares underlying the Warrants vest in three tranches: the first tranche, which represents the right to purchase an aggregate of up to 9,691 shares of our common stock, was immediately exercisable upon issuance of the Warrants; the second tranche, representing the right to purchase up to 4,846 shares of our common stock, vests on January 1, 2024, provided that the Superpriority Term Loans remain outstanding as of such date; and the third tranche, representing the right to purchase up to 4,836 shares of our common stock, vests on January 1, 2025, provided the Superpriority Term Loans remain outstanding as of such date. In the aggregate, the Warrants are exercisable for up to 19,373 shares of our common stock, which represents up to 19.99% of the shares of our common stock that were issued and outstanding as of the date the Warrants were issued. The Warrants will expire on June 15, 2033. We will receive proceeds from any cash exercise of the Warrants, however, the Warrants provide for exercise on a “cashless basis” that, if elected by the selling stockholders, will reduce the number of shares of common stock issued upon exercise of the warrants in lieu of cash payment.

The foregoing summary of the Warrant Agreement is qualified in its entirety by reference to the full text of the Warrant Agreement, which is referenced hereto as Exhibit 10.6 and is incorporated herein by reference

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)
10.1	Transaction Support Agreement (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on May 9, 2023)
10.2	Restricted Stock Unit Agreement by and between the Company and Edward Durkin, dated as of May 12, 2023
10.3†	Exchange Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on June 21, 2023)
10.4	First Amendment to Original Credit Agreement (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on June 21, 2023)
10.5†	Superpriority Credit Agreement (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on June 21, 2023)
10.6	Warrant Agreement (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on June 21, 2023)
10.7†	Registration Agreement (incorporated by reference to Exhibit 10.5 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on June 21, 2023)
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.
† Certain identified information has been omitted from this exhibit because it is both not material and is the type that the registrant treats as private or confidential, in compliance with Regulation S-K Item 601(b)(10).

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: August 8, 2023		/s/ Michael Glickman
		Michael Glickman
		President, Chief Executive Officer and Director
		(Principal Executive Officer)
Date: August 8, 2023	By:	/s/ Edward Durkin
		Edward Durkin
		Chief Financial Officer
		(Principal Financial Officer)

Exhibit 10.2

May 12, 2023

Edward Durkin
[
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We are pleased to inform you that you have been selected to receive a retention award. Your skills and capabilities play a critical role in Casa's success, and we want to ensure your continued focus on Casa's goals and objectives. In exchange for your agreement to do so and the continued performance of your duties in accordance with the expected standards of performance, you will receive the award under the following terms.

In consideration of your continued employment, you will be eligible for a retention award of $400,000 to be paid in four (4) equal quarterly installments over the next year. Installment payments will be made on the first regularly scheduled payroll date following each of July 1, 2023, October 1, 2023, January 1, 2024, and April 1, 2024. To receive any installment payment, you must be an employee of the Company or one of its affiliates and not have given notice of termination as of the date of the applicable installment payment. Payments are subject to applicable taxes and withholdings.

In the event of your involuntary termination without cause, your voluntary termination as CFO for good reason, or your removal from the position of Interim CEO in connection with the Company's hiring of a permanent CEO other than you, you will be eligible to receive any remaining installment payments in a lump sum within thirty (30) days of termination, conditioned on the Company's receipt of a separation agreement within thirty (30) days of termination (or such lesser period set forth in the separation agreement), which will include a general release of claims. If you voluntarily resign as CFO without good reason or are terminated by the Company for cause, you will not be eligible to receive any further installment payments under this program, but you will not be required to repay any installment payments already made to you.

For purposes of this award, the term "cause" means:

- failure to perform, or negligence in performing, your employment duties,
- dishonesty or willful misconduct in the performance of your duties,
- material breach of any agreements, covenants or representations made in any employment agreement or other agreements with the Company or violation of the Company's policies or procedures,
- material violation of any law, rule, regulation or by-law of any governmental authority (local, state, federal or foreign) applicable to you, or
- your indictment for or plea of guilty or nolo contender to a felony or a crime that impairs your ability to perform services to the Company, or reasonably could result in a loss to the Company or damage the Company's reputation.

For purposes of this award, the term "good reason" means the occurrence of one of the following events, provided that you have first provided written notice to the Company within ninety (90) days following such event, the Company fails to cure such event within thirty (30) days following the delivery of such notice and you terminate employment within thirty (30) days after expiration of such cure period:

- a material reduction in your base salary, except for across-the-board salary reductions based on the Company's financial performance similarly affecting all or substantially all senior management employees of the Company;
- a relocation of your principal place of employment by more than fifty (50) miles;

- a material, adverse change in your title, authority, duties, or responsibilities (other than temporarily while you are physically or mentally incapacitated or as required by applicable law), or
- a material adverse change in your reporting structure.

It is generally intended that compensation paid or delivered to you (or your beneficiaries) pursuant to this arrangement is exempt from Section 409A of the Internal Revenue Code (the “Code”). For purposes of Section 409A of the Code, each payment made under this arrangement shall be a “separate payment.”

This retention award is made at the sole discretion of the Company and does not represent a contract nor a guarantee of employment.

We want to thank you in advance for your dedication and commitment to Casa Systems. Your continued support is vital to the success of the business. If you have any questions, please don’t hesitate to contact me.

Sincerely,

Name:
Title:

I have read and agree to the terms of this Retention Award.

Signature:

Date:

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, Michael Glickman, 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: August 8, 2023	By:	/s/ Michael Glickman
		Michael Glickman
		President, Chief Executive Officer and Director

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: August 8, 2023

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 June 30, 2023 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Michael Glickman, as President, Chief Executive Officer and Director 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: August 8, 2023	By:	/s/ Michael Glickman
		Michael Glickman
		President, Chief Executive Officer and Director

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 June 30, 2023 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: August 8, 2023	By:	/s/ Edward Durkin
		Edward Durkin
		Chief Financial Officer