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: 0-11412

AMTECH SYSTEMS, INC.

(Exact name of registrant as specified in its charter)

Arizona (State or other jurisdiction of incorporation or organization)	86-0411215 (I.R.S. Employer Identification No.)
131 South Clark Drive, Tempe, Arizona (Address of principal executive offices)	85288 (Zip Code)

Registrant's telephone number, including area code: 480-967-5146

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, par value $0.01 per share	ASYS	NASDAQ Global Select Market

Indicate by a 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 ☒

At August 4, 2023, there were outstanding 14,167,351 shares of Common Stock.

AMTECH SYSTEMS, INC. AND SUBSIDIARIES
TABLE OF CONTENTS

Cautionary Statement Regarding Forward-Looking Statements

Our discussion and analysis in this Quarterly Report on Form 10-Q ("Quarterly Report"), our Annual Report on Form 10-K for the fiscal year ended September 30, 2022 (the “2022 Form 10-K”), our other reports that we file with the Securities and Exchange Commission (the “SEC”), our press releases and in public statements of our officers and corporate spokespersons contain “forward-looking” statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and the Private Securities Litigation Reform Act of 1995. Forward-looking statements give our or our officers’ current expectations or forecasts of future events. You can identify these statements by the fact that they do not relate strictly to historical or current events. You can also identify forward-looking statements by discussions of strategy, plans or intentions of management. We have tried, wherever possible, to identify such statements by using words such as “may,” “plan,” “anticipate,” “seek,” “will,” “expect,” “intend,” “estimate,” “believe,” “continue,” “predict,” “potential,” “project,” “should,” “would,” “could,” “likely,” “future,” “target,” “forecast,” “goal,” “observe,” and “strategy” or the negative thereof or variations thereon or similar terminology relating to the uncertainty of future events or outcomes. Any expectations based on these forward-looking statements are subject to risks and uncertainties and other important factors. Some factors that could cause actual results to differ materially from those anticipated include, among others, future economic conditions, including changes in the markets in which we operate; changes in demand for our services and products; our revenue and operating performance; difficulties in successfully executing our growth initiatives; difficulties in executing on our strategic initiatives with respect to our material and substrate business segment; our ability to effectively integrate our acquisition of Entrepix, Inc., which we acquired in January 2023; the effects of competition in the markets in which we operate, including the adverse impact of competitive product announcements or new entrants into our markets and transfers of resources by competitors into our markets; the cyclical nature of the semiconductor industry; pricing and gross profit pressures; control of costs and expenses; risks associated with new technologies and the impact on our business; legislative, regulatory, and competitive developments in markets in which we operate; possible future claims, litigation or enforcement actions and the results of any such claim, litigation proceeding, or enforcement action; business interruptions, including those related to the COVID-19 pandemic, the potential impacts of the COVID-19 pandemic, including ongoing logistical and supply chain challenges, and any future pandemic on our business operations, financial results and financial position; the severity, magnitude and duration of the COVID-19 pandemic, including impacts of the pandemic and of businesses’ and governments’ responses to the pandemic on our operations and personnel, including any future Chinese government mandated shutdown in Shanghai; risks of future cybersecurity incidents; adverse developments affecting financial institutions, including bank failures; and other circumstances and risks identified in this Quarterly Report or referenced from time to time in our filings with the SEC. The occurrence of the events described, and the achievement of expected results, depend on many events, some or all of which are not predictable or within our control. These and many other factors could affect Amtech’s future operating results and financial condition and could cause actual results to differ materially from expectations based on forward-looking statements made in this document or elsewhere by Amtech or on its behalf.

You should not place undue reliance on these forward-looking statements. We cannot guarantee that any forward-looking statement will be realized, although we believe that the expectations reflected in the forward-looking statements are reasonable as of the date of this Quarterly Report. Achievement of future results is subject to events out of our control, risks, uncertainties and potentially inaccurate assumptions. The 2022 Form 10-K listed various important factors that could affect Amtech’s future operating results and financial condition and could cause actual results to differ materially from historical results and expectations based on forward-looking statements made in this document or elsewhere by Amtech or on its behalf. These factors can be found under the heading “Item 1A. Risk Factors” in our 2022 Form 10-K and investors should refer to them as well as the additional risk factors identified in this Quarterly Report. Because it is not possible to predict or identify all such factors, any such list cannot be considered a complete set of all potential risks or uncertainties.

The Company undertakes no obligation to update or publicly revise any forward-looking statement whether as a result of new information, future developments or otherwise. All subsequent written or oral forward-looking statements attributable to the Company or persons acting on its behalf are expressly qualified in their entirety by this paragraph. You are advised, however, to consult any further disclosures we make on related subjects in our subsequently filed Form 10-Q and Form 8-K reports and our other filings with the SEC. As noted above, we provide a cautionary discussion of risks, uncertainties and possibly inaccurate assumptions relevant to our business under “Item 1A. Risk Factors” of our 2022 Form 10-K. We note these factors for investors as permitted by the Private Securities Litigation Reform Act of 1995. You should understand it is not possible to predict or identify all such factors.

Unless the context indicates otherwise, the terms “Amtech,” the “Company,” “we,” “us” and “our” refer to Amtech Systems, Inc., an Arizona corporation, together with its subsidiaries.

PART I. FINANCIAL INFORMATION

Item 1. Condensed Consolidated Financial Statements

AMTECH SYSTEMS, INC. AND SUBSIDIARIES
Condensed Consolidated Balance Sheets
(in thousands, except share data)

Assets	**June 30, 2023** (Unaudited)	**September 30, 2022**
Current Assets		
Cash and cash equivalents	$ 14,305	$ 46,874
Accounts receivable (less allowance for doubtful accounts of $357 and $114 at June 30, 2023 and September 30, 2022, respectively)	28,398	25,013
Inventories	34,661	25,488
Other current assets	5,600	5,561
Total current assets	82,964	102,936
Property, Plant and Equipment - Net	9,146	6,552
Right-of-Use Assets - Net	11,643	11,258
Intangible Assets - Net	12,313	758
Goodwill	29,022	11,168
Deferred Income Taxes - Net	162	79
Other Assets	1,112	783
Total Assets	$ 146,362	$ 133,534
Liabilities and Shareholders' Equity		
Current Liabilities		
Accounts payable	$ 7,466	$ 7,301
Accrued compensation and related taxes	3,491	4,109
Other accrued liabilities	3,120	1,771
Current maturities of finance lease liabilities and long-term debt	2,244	107
Current portion of long-term operating lease liabilities	2,800	2,101
Contract liabilities	7,807	7,231
Income taxes payable	34	6
Total current liabilities	26,962	22,626
Finance Lease Liabilities and Long-Term Debt	8,987	220
Long-Term Operating Lease Liabilities	9,120	9,395
Income Taxes Payable	2,462	2,849
Other Long-Term Liabilities	124	76
Total Liabilities	47,655	35,166
Commitments and Contingencies (Note 11)		
Shareholders' Equity		
Preferred stock; 100,000,000 shares authorized; none issued	—	—
Common stock; $0.01 par value; 100,000,000 shares authorized; shares issued and outstanding: 14,076,472 and 13,994,154 at June 30, 2023 and September 30, 2022, respectively	141	140
Additional paid-in capital	125,525	124,458
Accumulated other comprehensive loss	(1,929)	(1,767)
Retained deficit	(25,030)	(24,463)
Total Shareholders' Equity	98,707	98,368
Total Liabilities and Shareholders' Equity	$ 146,362	$ 133,534

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

AMTECH SYSTEMS, INC. AND SUBSIDIARIES
Condensed Consolidated Statements of Operations
(Unaudited)
(in thousands, except per share data)

	Three Months Ended June 30, 2023	Three Months Ended June 30, 2022	Nine Months Ended June 30, 2023	Nine Months Ended June 30, 2022
Revenues, net	$ 30,740	$ 19,964	$ 85,608	$ 73,983
Cost of sales	19,755	14,064	52,850	47,025
Gross profit	10,985	5,900	32,758	26,958
Selling, general and administrative	10,300	7,157	30,924	21,008
Research, development and engineering	1,804	1,646	4,714	5,018
Gain on sale of fixed assets	—	(12,465)	—	(12,465)
Severance expense	—	—	400	—
Operating (loss) income	(1,119)	9,562	(3,280)	13,397
Interest income (expense) and other, net	303	680	(26)	627
(Loss) income before income tax provision	(816)	10,242	(3,306)	14,024
Income tax provision (benefit)	211	20	(2,739)	840
Net (loss) income	$ (1,027)	$ 10,222	$ (567)	$ 13,184
(Loss) Income Per Share:				
Net (loss) income per basic share	$ (0.07)	$ 0.74	$ (0.04)	$ 0.94
Net (loss) income per diluted share	$ (0.07)	$ 0.73	$ (0.04)	$ 0.93
Weighted average shares outstanding:				
Basic	14,058	13,889	14,031	14,042
Diluted	14,058	14,026	14,031	14,220

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

AMTECH SYSTEMS, INC. AND SUBSIDIARIES
Condensed Consolidated Statements of Comprehensive Income
(Unaudited)
(in thousands)

	Three Months Ended June 30,		Nine Months Ended June 30,	
	2023	2022	2023	2022
Net (loss) income	$ (1,027)	$ 10,222	$ (567)	$ 13,184
Foreign currency translation adjustment	(962)	(916)	(162)	(577)
Comprehensive (loss) income	$ (1,989)	$ 9,306	$ (729)	$ 12,607

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

AMTECH SYSTEMS, INC. AND SUBSIDIARIES
Condensed Consolidated Statements of Shareholders' Equity
(Unaudited)
(in thousands)

	Common Stock		Treasury Stock			Accumulated Other		Total
	Shares	Par Value	Shares	Cost	Additional Paid-In Capital	Comprehensive Income (Loss)	Retained Deficit	Shareholders' Equity
Balance at September 30, 2021	14,304	$ 143	—	$ —	$ 126,380	$ 14	$ (40,903)	$ 85,634
Net income	—	—	—	—	—	—	997	997
Translation adjustment	—	—	—	—	—	237	—	237
Stock compensation expense	—	—	—	—	103	—	—	103
Repurchase of treasury stock	—	—	(291)	(2,713)	—	—	—	(2,713)
Retirement of treasury stock	(291)	(3)	291	2,713	(2,122)	—	(588)	—
Stock options exercised	12	—	—	—	69	—	—	69
Balance at December 31, 2021	14,025	140	—	—	124,430	251	(40,494)	84,327
Net income	—	—	—	—	—	—	1,965	1,965
Translation adjustment	—	—	—	—	—	102	—	102
Stock compensation expense	—	—	—	—	137	—	—	137
Repurchase of treasury stock	—	—	(143)	(1,402)	—	—	—	(1,402)
Retirement of treasury stock	(143)	(1)	143	1,402	(1,062)	—	(339)	—
Stock options exercised	5	—	—	—	29	—	—	29
Balance at March 31, 2022	13,887	139	—	—	123,534	353	(38,868)	85,158
Net income	—	—	—	—	—	—	10,222	10,222
Translation adjustment	—	—	—	—	—	(916)	—	(916)
Stock compensation expense	—	—	—	—	146	—	—	146
Stock options exercised	3	—	—	—	13	—	—	13
Balance at June 30, 2022	13,890	$ 139	—	$ —	$ 123,693	$ (563)	$ (28,646)	$ 94,623
Balance at September 30, 2022	13,994	$ 140	—	$ —	$ 124,458	$ (1,767)	$ (24,463)	$ 98,368
Net loss	—	—	—	—	—	—	(2,744)	(2,744)
Translation adjustment	—	—	—	—	—	416	—	416
Stock compensation expense	—	—	—	—	164	—	—	164
Stock options exercised	9	—	—	—	34	—	—	34
Balance at December 31, 2022	14,003	140	—	—	124,656	(1,351)	(27,207)	96,238
Net income	—	—	—	—	—	—	3,204	3,204
Translation adjustment	—	—	—	—	—	384	—	384
Stock compensation expense	—	—	—	—	174	—	—	174
Stock options exercised	36	—	—	—	297	—	—	297
Balance at March 31, 2023	14,039	140	—	—	125,127	(967)	(24,003)	100,297
Net loss	—	—	—	—	—	—	(1,027)	(1,027)
Translation adjustment	—	—	—	—	—	(962)	—	(962)
Stock compensation expense	—	—	—	—	190	—	—	190
Stock options exercised	37	1	—	—	208	—	—	209
Balance at June 30, 2023	14,076	$ 141	—	$ —	$ 125,525	$ (1,929)	$ (25,030)	$ 98,707

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

AMTECH SYSTEMS, INC. AND SUBSIDIARIES
Condensed Consolidated Statements of Cash Flows
(Unaudited)
(in thousands)

	Nine Months Ended June 30, 2023	Nine Months Ended June 30, 2022
Operating Activities		
Net (loss) income	$ (567)	$ 13,184
Adjustments to reconcile net income to net cash used in operating activities:		
Depreciation and amortization	3,435	1,330
Write-down of inventory	1,233	235
Deferred income taxes	(3,430)	—
Non-cash share-based compensation expense	528	386
Gain on sale of property, plant and equipment	—	(12,465)
Provision for allowance for doubtful accounts	109	10
Changes in operating assets and liabilities:		
Accounts receivable	2,391	1,714
Inventories	(4,724)	(5,617)
Other assets	1,775	(1,298)
Accounts payable	(1,586)	1,603
Accrued income taxes	(1,947)	713
Accrued and other liabilities	(2,993)	1,031
Contract liabilities	(1,374)	4,264
Net cash (used in) provided by operating activities	(7,150)	5,090
Investing Activities		
Purchases of property, plant and equipment	(1,922)	(325)
Proceeds from the sale of property, plant and equipment	6	19,908
Acquisition, net of cash and cash equivalents acquired	(34,938)	—
Net cash (used in) provided by investing activities	(36,854)	19,583
Financing Activities		
Proceeds from the exercise of stock options	539	111
Repurchase of common stock	—	(4,115)
Payments on long-term debt	(949)	(4,851)
Borrowings on long-term debt	12,000	—
Net cash provided by (used in) financing activities	11,590	(8,855)
Effect of Exchange Rate Changes on Cash, Cash Equivalents and Restricted Cash	(155)	(441)
Net (Decrease) Increase in Cash, Cash Equivalents and Restricted Cash	(32,569)	15,377
Cash and Cash Equivalents, Beginning of Period	46,874	32,836
Cash, Cash Equivalents and Restricted Cash, End of Period	$ 14,305	$ 48,213
Supplemental Cash Flow Information:		
Income tax payments, net	$ 2,559	$ 30
Interest paid	$ 283	$ 166

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

1. Basis of Presentation and Significant Accounting Policies

Nature of Operations and Basis of Presentation – Amtech Systems, Inc. (the "Company," "Amtech," "we," "our" or "us") is a leading, global manufacturer of capital equipment, including thermal processing and wafer polishing, and related consumables used in fabricating semiconductor devices, such as silicon carbide ("SiC") and silicon power devices, analog and discrete devices, electronic assemblies, and light-emitting diodes ("LEDs"). We sell these products to semiconductor device and module manufacturers worldwide, particularly in Asia, North America and Europe.

We serve niche markets in industries that are experiencing technological advances, and which historically have been very cyclical. Therefore, our future profitability and growth depend on our ability to develop or acquire and market profitable new products and on our ability to adapt to cyclical trends.

The accompanying unaudited condensed consolidated financial statements have been prepared pursuant to the rules and regulations of the U.S. Securities and Exchange Commission (the "SEC"), and consequently do not include all disclosures normally required by accounting principles generally accepted in the United States of America ("GAAP"). In the opinion of management, the accompanying unaudited interim condensed consolidated financial statements contain all adjustments necessary, all of which are of a normal and recurring nature, to present fairly our financial position, results of operations and cash flows. Certain information and note disclosures normally included in financial statements have been condensed or omitted pursuant to the rules and regulations of the SEC. The condensed consolidated balance sheet at September 30, 2022, has been derived from the audited consolidated financial statements at that date but does not include all of the information and footnotes required by GAAP for complete financial statements. These unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto included in our Annual Report on Form 10-K for the fiscal year ended September 30, 2022.

Our fiscal year is from October 1 to September 30. Unless otherwise stated, references to particular years, quarters, months or periods refer to our fiscal years ending or ended September 30, and the associated quarters, months, and periods of those fiscal years.

The consolidated results of operations for the three and nine months ended June 30, 2023, are not necessarily indicative of the results to be expected for the full fiscal year.

In March 2020, the outbreak of COVID-19 was recognized as a pandemic by the World Health Organization, and the outbreak became increasingly widespread, including in all of the markets in which we operate. We continue to monitor the impact of COVID-19 on all aspects of our business. We are a company operating in a critical infrastructure industry, as defined by the U.S. Department of Homeland Security. Consistent with federal guidelines and with foreign government, state and local orders to date, we have continued to operate across our footprint throughout the COVID-19 pandemic. There remain many unknowns and we continue to monitor the expected trends and related demand for our products and services and have and will continue to adjust our operations accordingly.

On March 28, 2022, the Chinese government issued a mandatory shutdown in Shanghai, the location of one of our manufacturing facilities. The factory was allowed to partially reopen in May 2022 and was fully reopened on June 1, 2022. Upon reopening on June 1, 2022, the factory was able to operate at near full capacity for the entire month of June. We were able to make up the shipments missed in the fourth quarter of fiscal 2022 and are now operating at normal capacity levels. Additionally, given the uncertainty surrounding the COVID-19 pandemic and the emergence of variations thereof, there can be no assurance that this facility will be allowed to remain open on a consistent basis in the future.

Principles of Consolidation – The consolidated financial statements include the accounts of the Company and our wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

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

Restricted Cash – Restricted cash includes collateral for bank guarantees required by certain customers from whom deposits have been received in advance of shipment. Our restricted cash at June 30, 2022 was $0.5 million. There was no restricted cash as of June 30, 2023.

Intangible Assets – Under Financial Accounting Standards Board (“FASB”) Accounting Standards Codification Topic No. 350, Intangibles - Goodwill and Other (“ASC 350”), finite-lived intangible assets are stated at acquisition-date fair value. Intangible assets are amortized using the straight-line method over their estimated useful life. We regularly perform reviews to determine if facts and circumstances exist which indicate that the useful lives of our intangible assets are shorter than originally estimated or the carrying amount of these assets may not be recoverable. Impairment, if any, is based on the excess of the carrying amount over the estimated fair value of those assets. Patent costs consist primarily of legal and filing fees incurred to file patents on proprietary methods and technology we developed. Patent costs are expensed when incurred, as they are insignificant.

Goodwill – The Company accounts for goodwill under ASC 350. Goodwill represents the excess of the fair value of the consideration conveyed in an acquisition over the fair value of net assets acquired. Goodwill is not subject to amortization but is tested for impairment annually or when it is determined that it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If it is concluded that there is a potential impairment, we would recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit’s fair value (although the loss would not exceed the total amount of goodwill allocated to the reporting unit).

Long-lived assets – We review our long-lived assets for impairment at least annually in our fourth quarter or whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Additional information on impairment testing of long-lived assets can be found in Notes 1 and 11 of our Annual Report on Form 10-K for the year ended September 30, 2022.

Contract Liabilities – Contract liabilities are reflected in current liabilities on the Condensed Consolidated Balance Sheets as all performance obligations are expected to be satisfied within the next 12 months. Contract liabilities relate to payments invoiced or received in advance of completion of performance obligations under a contract. Contract liabilities are recognized as revenue upon the fulfillment of performance obligations. Contract liabilities consist of customer deposits as of June 30, 2023 and September 30, 2022. Of the $7.2 million contract liabilities recorded at September 30, 2022, $1.0 million and $2.5 million was recorded as revenue for the three and nine months ended June 30, 2023, respectively. Of the $1.6 million contract liabilities recorded at September 30, 2021, $0 and $1.6 million was recorded as revenue for the three and nine months ended June 30, 2022, respectively.

Warranty – A limited warranty is provided free of charge, generally for periods of 12 to 36 months to all purchasers of our new products and systems. Accruals are recorded for estimated warranty costs at the time revenue is recognized, generally upon shipment or acceptance, as determined under our revenue recognition policy. On occasion, we have been required and may be required in the future to provide additional warranty coverage to ensure that the systems are ultimately accepted or to maintain customer goodwill. While our warranty costs have historically been within our expectations and we believe that the amounts accrued for warranty expenditures are sufficient for all systems sold through June 30, 2023, we cannot guarantee that we will continue to experience a similar level of predictability regarding warranty costs. In addition, technological changes or previously unknown defects in raw materials or components may result in more extensive and frequent warranty service than anticipated, which could result in an increase in our warranty expense. Our accrued warranty expense is $1.0 million at June 30, 2023 and $0.9 million at September 30, 2022. Our accrued warranty expense is included in other accrued liabilities on the Condensed Consolidated Balance Sheets.

Shipping Expense – Shipping and handling fees associated with outbound freight are expensed as incurred and included in selling, general and administrative expenses. Shipping expense was $0.6 million and $0.3 million for the three months ended June 30, 2023 and 2022, respectively, and $2.0 million and $2.1 million for the nine months ended June 30, 2023 and 2022, respectively.

Concentrations of Credit Risk – Our customers consist of semiconductor manufacturers worldwide, as well as customers in the lapping and polishing marketplace. Financial instruments that potentially subject us to significant concentrations of credit risk consist principally of cash and trade accounts receivable. Credit risk is managed by performing ongoing credit evaluations of the customers' financial condition, by requiring significant deposits where appropriate, and by actively monitoring collections. Letters of credit are required of certain customers depending on the size of the order, type of customer or its creditworthiness, and country of domicile.

As of June 30, 2023, one Semiconductor segment customer individually represented 20% of accounts receivable. As of September 30, 2022, one Semiconductor segment customer individually represented 12% of accounts receivable.

We maintain our cash and cash equivalents in multiple financial institutions. Balances in the United States, which account for approximately 64% and 84% of total cash balances as of June 30, 2023 and September 30, 2022, respectively, are primarily invested in financial institutions insured by the FDIC as well as a money market account. The remainder of our cash is maintained with financial institutions with reputable credit in China, the United Kingdom, Singapore, and Malaysia. We maintain cash in bank accounts in amounts which at times may exceed federally insured limits. We have not experienced any losses on such accounts.

Refer to Note 13 to Condensed Consolidated Financial Statements for information regarding major customers, foreign sales and revenue in other countries subject to fluctuation in foreign currency exchange rates.

Impact of Recently Issued Accounting Pronouncements

In October 2021, the Financial Accounting Standards Board issued ASU 2021-08, Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers ("ASU 2021-08"), which requires an acquirer in a business combination to recognize and measure contract assets and contract liabilities in accordance with Accounting Standards Codification Topic 606. ASU 2021-08 is effective for fiscal years beginning after December 15, 2022 and early adoption is permitted. We adopted the amendments in ASU 2021-08 as of October 1, 2022, without a material impact on our unaudited condensed consolidated financial statements.

There were no other new accounting pronouncements issued or effective as of June 30, 2023 that had or are expected to have a material impact on our consolidated financial statements.

2. Long-Term Debt

Our finance lease liabilities and long-term debt consists of the following, in thousands:

	June 30, 2023	September 30, 2022
Senior revolving credit facility	$ —	$ —
Term loan	11,101	—
Finance leases	130	147
Equipment finance	—	180
Total	11,231	327
Less: current portion of finance lease liabilities and long-term debt	(2,244)	(107)
Finance Lease Liabilities and Long-Term Debt	$ 8,987	$ 220

Interest expense on finance lease liabilities and long-term debt was $0.2 million and less than $0.1 million for the three months ended June 30, 2023 and 2022, respectively, and $0.3 million and $0.2 million for the nine months ended June 30, 2023 and 2022, respectively.

Loan and Security Agreement

On January 17, 2023, we entered into a Loan and Security Agreement (the "LSA") by and among Amtech, its U.S. based wholly owned subsidiaries Bruce Technologies, Inc., a Massachusetts corporation, BTU International, Inc., a Delaware corporation, Intersurface Dynamics, Incorporated, a Connecticut corporation, P.R. Hoffman Machine Products, Inc., an Arizona corporation, and Entrepix, Inc., (collectively the "Borrowers") and UMB Bank, N.A., national banking association (the "Lender"). The LSA provides for (i) a term loan (the "Term Loan") in the amount of $12.0 million maturing January 17, 2028, and (ii) a revolving loan facility (the "Revolver") with an availability of $8.0 million maturing January 17, 2024. The recorded amount of the Term Loan has an interest rate of 6.38%. The Revolver has a floating per annum rate of interest equal to the Prime Rate, adjusted daily. Under the LSA, we are required to pay a non-utilization fee equal to 0.125% of any unused portion of the Revolver in excess of any letter of credit obligations. As of June 30, 2023, no amounts were borrowed against the Revolver.

The Term Loan and Revolver are secured by a first priority lien on substantially all of the Borrowers' assets (other than certain customary excluded assets) and the LSA contains customary events of default, representations and warranties, and covenants that restrict the Borrowers' ability to, among other things, incur additional indebtedness, other than permitted indebtedness, enter into mergers or acquisitions, sell or otherwise dispose of assets, or pay dividends, subject to customary exceptions.

The LSA additionally contains financial covenants such that, as of the end of each of their fiscal quarters, beginning March 31, 2023, the Borrowers must maintain (i) a ratio of consolidated debt owed to Lender to consolidated EBITDA (as defined in the LSA) for such fiscal quarter, of not greater than 1.50 to 1.00, through December 31, 2024, based on a building four quarters (as described in the LSA), and then 1.00 to 1.00 each fiscal quarter thereafter, (ii) a ratio of (a) the total for such fiscal quarter of EBITDAR (as defined in the LSA) minus the sum of all income taxes paid in cash plus cash dividends/distributions plus maintenance Capital Expenditures (as defined in the LSA) plus management fees paid in cash, to (b) the sum for such fiscal quarter of (1) Interest Charges (as defined in the LSA) plus (2) required payments of principal on Debt (as defined in the LSA) (including the Term Loan, but excluding the Revolver) plus (3) operating lease/rent expense, of not less than 1.30 to 1.00 based on a building four quarters (as described in the LSA), and (iii) a consolidated working capital of current assets (excluding related party receivables and prepaid expenses) minus current liabilities of at least $35.0 million.

Finance Lease Obligations

Our finance lease obligations totaled $0.1 million as of June 30, 2023 and September 30, 2022.

The current and long-term portions of our finance leases are included in the current and long-term portions of finance lease liabilities and long-term debt in the table above and in our Condensed Consolidated Balance Sheets as of June 30, 2023 and September 30, 2022. Further, see Note 7 for additional information.

3. Acquisition

Entrepix Merger

On January 17, 2023 (the "Closing Date"), the Company acquired 100% of the issued and outstanding shares of capital stock of Entrepix, Inc., an Arizona corporation ("Entrepix"), which primarily manufactures chemical mechanical polishing ("CMP") technology, through a reverse triangular merger. Entrepix's CMP technology portfolio and water cleaning equipment will complement our existing substrate polishing and wet process chemical offerings. Pursuant to the terms and conditions of the Agreement and Plan of Merger dated January 17, 2023 (the "Merger Agreement"), Emerald Merger Sub, Inc., a wholly-owned subsidiary of the Company ("Merger Sub"), merged with and into Entrepix (the "Merger"), resulting in Entrepix surviving the Merger and becoming a wholly-owned subsidiary of the Company (the "Acquisition" or "Transaction").

On the Closing Date, in connection with the Merger Agreement and in contemplation of the Transaction, the Company entered into a Loan and Security Agreement with UMB Bank, N.A., under which the Lender provided the Company with (i) a $12.0 million term loan maturing January 17, 2028, and (ii) an $8.0 million revolving loan facility maturing January 17, 2024 (see Note 2). The proceeds of the Term Loan were used to partially fund the Transaction.

The Acquisition is accounted for using the acquisition method of accounting for business combinations under FASB Accounting Standard Codification Topic No. 805, Business Combinations ("ASC 805"), with Amtech representing the accounting acquirer under this guidance. The Company elected to apply pushdown accounting per ASC 805-50-50-5.

Summary of Consideration Transferred

The total consideration for the Acquisition was $39.2 million, consisting of $35.2 million cash consideration to the sellers and $4.0 million cash paid for debt and Entrepix transaction costs.

Goodwill is calculated as the excess of the consideration transferred over the net assets recognized and represents the estimated future economic benefits arising from other assets acquired that could not be individually identified and separately recognized. Such assets include synergies the Company expects to achieve, such as deeper penetration into an overlapping customer base, complementary product offerings, and cost redundancy reductions. In accordance with the measurement principles in FASB Accounting Standard Codification Topic No. 820, Fair Value Measurement, the purchase consideration for the Acquisition has been allocated under the acquisition method of accounting to the estimated fair market value of the net assets acquired, including a residual amount of goodwill, none of which is deductible for tax purposes. Amtech's acquisition costs incurred were $2.5 million for the nine months ended June 30, 2023, and were recorded as "Selling, general and administrative expenses" in the accompanying Condensed Consolidated Statements of Operations. The following table summarizes the provisional fair values assigned to identifiable assets acquired and liabilities assumed, in thousands:

	March 31, 2023	Measurement Period Adjustments	June 30, 2023
Fair value of total cash consideration transferred	$ 39,787	$ (560)	$ 39,227
Estimated fair value of identifiable assets acquired and liabilities assumed:			
Cash and cash equivalents	$ 4,289	$ —	$ 4,289
Accounts receivable, net	5,681	203	5,884
Inventories	5,683	—	5,683
Other current assets	179	—	179
Property, plant, and equipment	2,051	(11)	2,040
Right-of-use assets	2,246	—	2,246
Intangible assets	12,800	800	13,600
Goodwill	18,089	(235)	17,854
Other assets	31	11	42
Total assets acquired	51,049	768	51,817
Accounts payable	1,574	—	1,574
Other accrued liabilities	1,170	837	2,007
Contract liabilities	1,662	167	1,829
Income taxes payable	1,447	142	1,589
Current portion of long-term operating lease liabilities	515	—	515
Long-term operating lease liabilities	1,730	—	1,730
Deferred tax liability	3,164	182	3,346
Total liabilities assumed	11,262	1,328	12,590
Net assets acquired	$ 39,787	$ (560)	$ 39,227

The establishment of the allocation to goodwill requires the extensive use of accounting estimates and management judgement. In accordance with ASC 805, the Company has up to one year from the acquisition date (referred to as the measurement period) to account for changes in the fair values of the identifiable assets acquired and the liabilities assumed in the acquired entity. As of the issuance of the condensed consolidated financial statements for the period ended June 30, 2023, the Company has not finalized its calculation of deferred tax assets or liabilities, income taxes payable, and the resulting adjustments to goodwill. The tax-related items will be finalized pending a consolidated analysis of the combined tax attributes of the Acquisition. If a change in any of these items is identified during the measurement period, the Company will record the cumulative impact of measurement period adjustments in the period the adjustment is identified. Certain measurement period adjustments were recorded during the quarter ended June 30, 2023, primarily arising from the Company's finalization of the valuation of acquired assets and updated assumptions underlying the tax provision. These adjustments were all offset against goodwill.

The fair value associated with acquired intangible assets and their associated weighted-average amortization periods consist of the following, in thousands:

	Classification of Amortization		Amount	Weighted-Average Amortization Period
Developed technology	Cost of sales	$	6,700	5.0 years
Customer relationships	Selling, general and administrative		2,800	10.0 years
Backlog	Selling, general and administrative		2,100	1.0 year
Trade names	Selling, general and administrative		1,800	10.0 years
Noncompetition agreements	Selling, general and administrative		200	5.0 years
Total intangible assets		$	13,600	6.1 years

Unaudited Pro Forma Financial Information

Entrepix is included in the Company’s consolidated results beginning January 17, 2023. Total revenues and net income attributable to Entrepix for the period from January 17, 2023 to June 30, 2023 were $13.6 million and $0.3 million, respectively.

The following unaudited pro forma financial information presents the combined results of operations of Amtech and Entrepix, in thousands, as if the acquisition occurred on October 1, 2021. The unaudited pro forma financial information is presented for informational purposes only and is not indicative of the results of operations that would have been achieved if the acquisition had taken place on the date indicated or of results that may occur in the future.

	Three Months Ended June 30,				Nine Months Ended June 30,			
		2023		2022		2023		2022
Revenues, Net	$	30,740	$	25,496	$	93,206	$	91,321
Net (Loss) Income	$	(580)	$	9,694	$	883	$	9,670

The unaudited pro forma financial information presented above include the following adjustments:

3 Months Ended June 30, 2023 and June 30, 2022

- reversal of amortization expense on intangible assets acquired of $0.6 million and incremental amortization expense of $1.0 million for the three months ended June 30, 2023 and June 30, 2022, respectively; and
- incremental interest expense on the Term Loan of $0.1 million and $0.2 million for the three months ended June 30, 2023 and June 30, 2022, respectively.

9 Months Ended June 30, 2023 and June 30, 2022

- reversal of amortization expense on intangible assets acquired of $0.6 million and incremental amortization expense of $2.9 million for the nine months ended June 30, 2023 and June 30, 2022, respectively;
- incremental interest expense on the Term Loan of $0.4 million and $0.5 million for the nine months ended June 30, 2023 and June 30, 2022, respectively; and

•non-recurring adjustments directly attributable to the business combination, including acquisition related costs of $2.5 million for the nine months ended June 30, 2022.

The unaudited pro forma financial information includes adjustments to align accounting policies, which were materially similar to the Company's accounting policies. Any differences in accounting policies were adjusted to reflect the accounting policies of the Company in the unaudited pro forma financial information presented.

4. Sale and Leaseback of Real Estate

On June 23, 2022, our subsidiary, BTU International, Inc. ("BTU"), completed the sale and leaseback of BTU's building in Billerica, Massachusetts (the "Property"). The sale price was $20.6 million, of which $0.7 million was deducted at closing for commission and other closing expenses. Simultaneously with the closing, BTU entered into a two-year leaseback of the Property. The lease terms include annual base rent of $1.5 million in an absolute triple net lease. In connection with the sale, BTU recognized a pre-tax gain on sale of $12.5 million. This sale-leaseback transaction resulted in a net cash inflow of approximately $14.9 million, after repayment of the existing mortgage and settlement of related sale expenses.

5. Earnings Per Share

Basic earnings per share ("EPS") is computed by dividing net income by the weighted average number of common shares outstanding for the period. Diluted EPS is computed similarly to basic EPS except that the denominator is increased to include the number of additional common shares that would have been outstanding if potentially dilutive common shares had been issued. Dilutive potential common shares include outstanding restricted stock units ("RSUs") and stock options. In the case of a net loss, diluted earnings per share is calculated in the same manner as basic EPS.

For the three and nine months ended June 30, 2023, options for 332,000 and 306,000 weighted average shares, respectively, were excluded from the diluted EPS calculations because they were anti-dilutive. For the three and nine months ended June 30, 2022, options for 204,000 and 176,000 weighted average shares, respectively, were excluded from the diluted EPS calculations because they were anti-dilutive. These shares could become dilutive in the future.

A reconciliation of the components of the basic and diluted EPS calculations follows, in thousands, except per share amounts:

	Three Months Ended June 30,		Nine Months Ended June 30,	
	2023	2022	2023	2022
Numerator:				
Net (loss) income	$ (1,027)	$ 10,222	$ (567)	$ 13,184
Denominator:				
Weighted-average shares used to compute basic EPS	14,058	13,889	14,031	14,042
Dilutive potential common shares due to stock options (1)	—	137	—	178
Dilutive potential common shares due to RSUs (1)	—	—	—	—
Weighted-average shares used to compute diluted EPS	14,058	14,026	14,031	14,220
(Loss) Income per share:				
Net (loss) income per basic share	$ (0.07)	$ 0.74	$ (0.04)	$ 0.94
Net (loss) income per diluted share	$ (0.07)	$ 0.73	$ (0.04)	$ 0.93

(1)The number of common stock equivalents is calculated using the treasury method and the average market price during the period.

6. Inventories

The components of inventories are as follows, in thousands:

	June 30, 2023	September 30, 2022
Purchased parts and raw materials	$ 20,729	$ 15,377
Work-in-process	7,948	6,146
Finished goods	5,984	3,965
	$ 34,661	$ 25,488

7. Leases

The following table provides information about the financial statement classification of our lease balances reported within the Condensed Consolidated Balance Sheets, in thousands:

	June 30, 2023	September 30, 2022
Assets		
Right-of-use assets - operating	$ 11,643	$ 11,258
Right-of-use assets - finance	131	149
Total right-of-use assets	$ 11,774	$ 11,407
Liabilities		
Current		
Operating lease liabilities	$ 2,800	$ 2,101
Finance lease liabilities	78	71
Total current portion of long-term lease liabilities	2,878	2,172
Long-term		
Operating lease liabilities	9,120	9,395
Finance lease liabilities	52	76
Total long-term lease liabilities	9,172	9,471
Total lease liabilities	$ 12,050	$ 11,643

The following table provides information about the financial statement classification of our lease expenses reported in the Condensed Consolidated Statements of Operations, in thousands:

		Three Months Ended June 30,		Nine Months Ended June 30,	
Lease cost	**Classification**	**2023**	**2022**	**2023**	**2022**
Operating lease cost	Cost of sales	$ 708	$ 292	$ 1,857	$ 687
Operating lease cost	Selling, general and administrative	204	41	583	211
Operating lease cost	Research, development and engineering	3	10	10	10
Finance lease cost	Cost of sales	1	1	3	3
Finance lease cost	Selling, general and administrative	20	18	56	53
Short-term lease cost	Cost of sales	8	—	25	—
Total lease cost		$ 944	$ 362	$ 2,534	$ 964

Future minimum lease payments under non-cancelable leases as of June 30, 2023 are as follows, in thousands:

	Operating Leases	Finance Leases	Total
Remainder of 2023	$ 822	$ 21	$ 843
2024	2,895	67	2,962
2025	1,728	19	1,747
2026	1,380	19	1,399
2027	765	11	776
Thereafter	7,828	1	7,829
Total lease payments	15,418	138	15,556
Less: Interest	3,498	8	3,506
Present value of lease liabilities	$ 11,920	$ 130	$ 12,050

Operating lease payments include $6.2 million related to optional lease extension periods for multiple leases that are not yet exercisable but are reasonably certain of being exercised.

The following table provides information about the remaining lease terms and discount rates applied:

	June 30, 2023	September 30, 2022
Weighted average remaining lease term		
Operating leases	11.55 years	12.65 years
Finance leases	2.53 years	2.45 years
Weighted average discount rate		
Operating leases	4.54 %	4.17 %
Finance leases	4.78 %	4.17 %

As of June 30, 2023, we have entered into a lease that has not yet commenced. We expect to record $2.5 million of ROU asset and lease liability upon the commencement of this new lease in the first quarter of fiscal 2024.

8. Goodwill and Intangible Assets

The Company accounts for goodwill at acquisition-date fair value and other intangible assets at acquisition-date fair value less accumulated amortization. See Note 1 for a summary of the Company's policies relating to goodwill and intangible assets.

Intangible Assets

As of June 30, 2023, the Company's intangible assets, net consists of the following, in thousands:

	Weighted Average Amortization Period	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Noncompetition agreements	5.0 years	$ 200	$ (20)	$ 180
Backlog	1.0 year	2,100	(1,050)	1,050
Trade names	3.0-15.0 years	2,679	(585)	2,094
Developed technology	5.0 years	6,700	(670)	6,030
Customer relationships	6.0-10.0 years	4,409	(1,450)	2,959
Total intangible assets	6.6 years	$ 16,088	$ (3,775)	$ 12,313

As of September 30, 2022, the Company's intangible assets, net consists of the following, in thousands:

	Weighted Average Amortization Period	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Customer relationships	6.0-10.0 years	$ 1,609	$ (1,280)	$ 329
Trade names	3.0-15.0 years	879	(450)	429
Total intangible assets	9.8 years	$ 2,488	$ (1,730)	$ 758

The estimated aggregate amortization expense for each of the five succeeding fiscal years as of June 30, 2023 is as follows, thousands:

Year ending September 30:		**Amount**
2023	$	1,010
2024		2,463
2025		1,937
2026		1,937
2027		1,937
Thereafter		3,029
Total	$	12,313

The aggregate amortization expense during the three months ended June 30, 2023 and 2022 were $1.0 million and less than $0.1 million, respectively. The aggregate amortization expense during the nine months ended June 30, 2023 and 2022 were $2.0 million and $0.1 million, respectively.

Goodwill

The Company evaluates goodwill at the reporting unit level, which, for the Company, is at the level of the reportable segments, semiconductor, material and substrate. The changes in carrying amount of goodwill allocated to each of the reporting units for the nine months ended June 30, 2023 is as follows, in thousands:

		Semiconductor		**Material and Substrate**		**Total Goodwill**
Goodwill	$	5,905	$	5,263	$	11,168
Accumulated impairment losses		—		—		—
Balance at September 30, 2022		5,905		5,263		11,168
Goodwill acquired during 2023		—		17,854		17,854
Impairment of goodwill during 2023		—		—		—
Balance at June 30, 2023	$	5,905	$	23,117	$	29,022
Goodwill	$	5,905	$	23,117	$	29,022
Accumulated impairment losses		—		—		—
Balance at June 30, 2023	$	5,905	$	23,117	$	29,022

9. Income Taxes

Income Tax (Benefit) Provision

Our effective tax rate was 82.8% and 6.0% for the nine months ended June 30, 2023 and 2022, respectively. The effective tax rate for the nine months ended June 30, 2023 differs from the U.S. statutory tax rate of 21% primarily due to the release of a portion of our valuation allowance in connection with a deferred tax liability related to the Entrepix acquisition resulting in recognition of previously recorded deferred tax assets. For the three months ended June 30, 2023 and 2022, we recorded income tax expense of $0.2 million and $20,000, respectively. For the nine months ended June 30, 2023 and 2022, we recorded an income tax benefit of $2.7 million and income tax expense of $0.8 million, respectively. The quarterly income tax provision is calculated using an estimated annual effective tax rate, based upon expected annual income, permanent items, statutory rates and planned tax strategies in the various jurisdictions in which we operate. However, losses in certain jurisdictions and discrete items are excluded from the determination of the estimated annual effective tax rate.

Deferred Income Taxes and Valuation Allowance

GAAP requires that a valuation allowance be established when it is "more likely than not" that all or a portion of deferred tax assets will not be realized. A review of all available positive and negative evidence needs to be considered, including a company's performance, the market environment in which the company operates and the length of carryback and carryforward periods. According to those principles, it is difficult to conclude that a valuation allowance is not needed when the negative evidence includes cumulative losses in recent years. Based on the considerations of all available evidence, we have concluded that we will maintain a full valuation allowance for all net deferred tax assets related to the carryforwards of U.S. net operating losses and foreign tax credits. We will continue to monitor our cumulative income and loss positions in the U.S. and foreign jurisdictions to determine whether full valuation allowances on U.S. net deferred tax assets are appropriate.

We expect to pay minimal U.S federal cash taxes for the foreseeable future as a result of our U.S. net operating losses that are carried forward.

10. Equity and Stock-Based Compensation

Stock-based compensation expense was $0.2 million and $0.1 million in the three months ended June 30, 2023 and 2022, respectively, and $0.5 million and $0.4 million in the nine months ended June 30, 2023 and 2022, respectively. Stock-based compensation expense is included in selling, general and administrative expenses.

The following table summarizes our stock option activity during the nine months ended June 30, 2023:

	Options	Weighted Average Exercise Price
Outstanding at beginning of period	589,341	$ 8.06
Granted	166,500	9.12
Exercised	(58,813)	5.38
Forfeited	(43,850)	11.10
Outstanding at end of period	653,178	$ 8.37
Exercisable at end of period	412,192	$ 7.55
Weighted average fair value of options granted during the period	$ 4.74	

The fair value of options was estimated at the applicable grant date using the Black-Scholes option pricing model with the following assumptions:

	Nine Months Ended June 30, 2023	Nine Months Ended June 30, 2022
Risk free interest rate	4 %	2 %
Expected term	5 years	5 years
Dividend rate	— %	— %
Volatility	56 %	57 %

The following table summarizes our RSU activity during the nine months ended June 30, 2023:

	Number	Weighted Average Grant Date Fair Value
Nonvested at beginning of year	—	$ —
Granted	23,421	9.56
Released	(3,000)	9.61
Forfeited	—	—
Nonvested at end of period	20,421	$ 9.55

2023 Stock Repurchase Plan

On February 7, 2023, our Board of Directors (the "Board") approved a stock repurchase program, pursuant to which we may repurchase up to $5 million of our outstanding Common Stock over a one-year period, commencing on February 10, 2023. Repurchases under the program will be made in open market transactions at prevailing market prices, in privately negotiated transactions, or by other means in compliance with the rules and regulations of the Securities and Exchange Commission; however, we have no obligation to repurchase shares and the timing, actual number, and value of shares to be repurchased is subject to management's discretion and will depend on our stock price and other market conditions. We may, in the sole discretion of the Board, terminate the repurchase program at any time while it is in effect. Repurchased shares may be retired or kept in treasury for further issuance. There were no repurchases during the quarter ended June 30, 2023.

2022 Stock Repurchase Plan

On February 10, 2022, the Board approved a new stock repurchase program, pursuant to which we may repurchase up to $5 million of our outstanding Common Stock over a one-year period, commencing on February 16, 2022. Repurchases under the program will be made in open market transactions at prevailing market prices, in privately negotiated transactions, or by other means in compliance with the rules and regulations of the SEC; however, we have no obligation to repurchase shares and the timing, actual number, and value of shares to be repurchased is subject to management's discretion and will depend on our stock price and other market conditions. We may, in the sole discretion of the Board, terminate the repurchase program at any time while it is in effect. Repurchased shares may be retired or kept in treasury for further issuance. During the quarter ended March 31, 2022, we repurchased 143,430 shares of our Common Stock on the open market at a total cost of approximately $1.4 million (an average price of $9.78 per share). All repurchased shares have been retired. The term of this repurchase program expired during the quarter ended March 31, 2023.

11. Commitments and Contingencies

Purchase Obligations – As of June 30, 2023, we had unrecorded purchase obligations in the amount of $26.1 million. These purchase obligations consist of outstanding purchase orders for goods and services. While the amount represents purchase agreements, the actual amounts to be paid may be less in the event that any agreements are renegotiated, canceled or terminated.

Legal Proceedings and Other Claims – From time to time, we are a party to claims and actions for matters arising out of our business operations. We regularly evaluate the status of the legal proceedings and other claims in which we are involved to assess whether a loss is probable or there is a reasonable possibility that a loss, or an additional loss, may have been incurred and determine if accruals are appropriate. If accruals are not appropriate, we further evaluate each legal proceeding to assess whether an estimate of possible loss or range of possible loss can be made for disclosure. Although the outcome of claims and litigation is inherently unpredictable, we believe that we have adequate provisions for any probable and estimable losses. It is possible, nevertheless, that our consolidated financial position, results of operations or liquidity could be materially and adversely affected in any period by the resolution of a claim or legal proceeding. Legal expenses related to defense, negotiations, settlements, rulings and advice of outside legal counsel are expensed as incurred.

Employment Contracts – We have employment contracts and change in control agreements with, and severance plans covering, certain officers and management employees under which severance payments would become payable in the event of specified terminations without cause or terminations under certain circumstances after a change in control. If severance payments under the current employment contracts or severance plans were to become payable, the severance payments would generally range from six to twelve months of salary.

12. Reportable Segments

Amtech has two operating segments that are structured around the types of product offerings provided to our customers. In addition, the operating segments may be further distinguished by the Company's respective brands. These two operating segments comprise our two reportable segments discussed below. Our two reportable segments are as follows:

Semiconductor – We design, manufacture, sell and service thermal processing equipment and related controls for use by leading semiconductor manufacturers, and in electronics, automotive and other industries.

Material and Substrate – We produce consumables and machinery for lapping (fine abrading) and polishing of materials, such as sapphire substrates, optical components, silicon wafers, numerous types of crystal materials, ceramics and metal components. Our Material and Substrate segment includes the results of Entrepix from the date of acquisition (see Note 3).

Information concerning our reportable segments is as follows, in thousands:

	Three Months Ended June 30, 2023	Three Months Ended June 30, 2022	Nine Months Ended June 30, 2023	Nine Months Ended June 30, 2022
Net Revenues:				
Semiconductor	$ 19,841	$ 15,135	$ 58,775	$ 61,484
Material and Substrate	10,899	4,829	26,833	12,499
	$ 30,740	$ 19,964	$ 85,608	$ 73,983
Operating income (loss):				
Semiconductor	$ 1,042	$ 10,521	$ 4,861	$ 16,246
Material and Substrate	481	1,156	1,411	1,991
Non-segment related	(2,642)	(2,115)	(9,552)	(4,840)
	$ (1,119)	$ 9,562	$ (3,280)	$ 13,397

	June 30, 2023	September 30, 2022
Identifiable Assets:		
Semiconductor	$ 71,853	$ 75,622
Material and Substrate	70,687	22,032
Non-segment related*	3,822	35,880
	$ 146,362	$ 133,534

* Non-segment related assets include cash, property, and other assets.

Goodwill and other long-lived assets

We review our long-lived assets, including goodwill, for impairment at least annually in our fourth quarter or whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Additional information on impairment testing of long-lived assets, intangible assets and goodwill can be found in Notes 1 and 11 of our Annual Report on Form 10-K for the year ended September 30, 2022.

13. Major Customers and Foreign Sales

During the nine months ended June 30, 2023, one Semiconductor segment customer individually represented 11% of our net revenues. During the nine months ended June 30, 2022, two Semiconductor segment customers individually represented 17% and 10% of our net revenues.

Our net revenues were from customers in the following geographic regions:

	Nine Months Ended June 30,	
	2023	2022
United States	34 %	24 %
Canada	8 %	2 %
Other	3 %	5 %
Total Americas	**45 %**	**31 %**
China	15 %	19 %
Malaysia	7 %	8 %
Taiwan	6 %	13 %
Other	7 %	6 %
Total Asia	**35 %**	**46 %**
Germany	2 %	5 %
Austria	5 %	11 %
Other	13 %	7 %
Total Europe	**20 %**	**23 %**
	100 %	**100 %**

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our "Condensed Consolidated Financial Statements" in Item 1 of this Quarterly Report on Form 10-Q ("Quarterly Report") and our consolidated financial statements and related notes included in "Item 8. Financial Statements and Supplementary Data" in our Annual Report on Form 10-K for the fiscal year ended September 30, 2022 (the "2022 Form 10-K").

Overview

We are a leading, global manufacturer of capital equipment, including thermal processing and wafer polishing, and related consumables used in fabricating semiconductor devices, such as silicon carbide ("SiC") and silicon power, analog and discrete devices, and electronic assemblies and modules focusing on enabling technologies for electric vehicles (EV) and clean technology (CleanTech) applications. We sell these products to semiconductor device and module manufacturers worldwide, particularly in Asia, North America and Europe.

We operate in two reportable segments, based primarily on the industry they serve: (i) Semiconductor and (ii) Material and Substrate. In our Semiconductor segment, we supply thermal processing equipment, including solder reflow ovens, horizontal diffusion furnaces and custom high-temp belt furnaces for use by semiconductor, electronics and electro/mechanical assembly manufacturers. Our semiconductor customers are primarily manufacturers of integrated circuits and optoelectronic sensors and discrete ("O-S-D") components used in analog, power and radio frequency ("RF"). In our Material and Substrate segment, we produce substrate consumables, chemicals and machinery for lapping (fine abrading) and polishing of materials, such as silicon wafers for semiconductor products, sapphire wafers for LED applications, and compound substrates, like silicon carbide wafers, for power device applications.

The semiconductor industry is cyclical, but not seasonal, and historically has experienced fluctuations. Our revenue is impacted by these broad industry trends.

Strategy

We continue to focus on our plans to profitably grow our business and have developed a strategic growth plan and a capital allocation plan that we believe will support our growth objectives. Our power semiconductor strategic growth plan leverages our experience, products and capabilities in pursuit of growth, profitability and sustainability. Our core focus areas are:

- Emerging opportunities in the SiC industry – We believe we are well-positioned to participate in this significant growth area, specifically as it relates to silicon carbide wafer capacity expansion. We are working closely with our customers to understand their SiC growth plans, needs and opportunities. We are investing in our capacity, next generation product development, and in our people. During the second quarter of 2023, we completed the acquisition of Entrepix, Inc. ("Entrepix"), which added chemical mechanical polishing ("CMP") and wafer cleaning equipment to our existing substrate polishing and wet process chemical offerings. During 2021, we completed the acquisition of Intersurface Dynamics, Inc. ("Intersurface Dynamics"), which added numerous coolants and chemical products to our existing consumable and machine product lines. We believe these investments will help fuel our growth in the emerging growth SiC industry.

- 300mm Horizontal Diffusion Furnace – We have a highly successful and proven 300mm horizontal diffusion furnace solution used for power semiconductor device manufacturing applications. We have a strong foundation with the leading 300mm power chip manufacturer. We believe we have a strong opportunity to continue expanding our customer base and grow revenue with our 300mm solution.

- As the largest revenue contributor to our organization, we expect our subsidiary, BTU International, Inc. ("BTU"), will continue to track semiconductor industry growth cycles for our advanced semi-packaging and surface-mount technology products, in addition to specialized custom belt furnaces used in automotive and other specialized industrial applications. We believe that our investments in product innovation will provide BTU with opportunities to grow further, especially in high growth applications of consumer and industrial electronics, Internet of Things, electric vehicles and 5G communications.

We anticipate future investments will be required to meet the expected demand from the growing markets we serve to achieve our revenue growth targets, including investments in research and development as well as capital expenditures, which also includes additional investments in capacity expansion, talent, and management information systems. In June 2022, we completed the sale of the real property where our manufacturing facility in Massachusetts is located. In connection with this sale, we entered into a two-year leaseback of the facility. This sale-leaseback transaction resulted in a net cash inflow of approximately $14.9 million, after repayment of the existing mortgage and settlement of related sale expenses. During the two-year leaseback period, we are exploring various options, including negotiating with the landlord for an extension of the lease-back period and conducting a search for a new manufacturing facility more in line with the needs of our Semiconductor product lines. In addition, we are evaluating business continuity and resiliency within our operations, our management information systems, and our needs to allow for greater efficiencies and to ensure our infrastructure can support our future growth plans. As a capital equipment manufacturer, we will continue to invest in our business to drive future growth.

In addition to investments in our organic growth, another key aspect of our capital allocation policy is our plan to grow through acquisitions. We have the expertise and track record to identify complimentary and synergistic acquisition targets in the Semiconductor and SiC growth environments and to execute transactions and integrations to provide for value creating, profitable growth in both the short-term and long-term. On March 3, 2021, we acquired Intersurface Dynamics, a Connecticut-based manufacturer of substrate process chemicals used in various manufacturing processes, including semiconductors, silicon and compound semiconductor wafers, and optics. On January 17, 2023, we acquired Entrepix, an Arizona-based expert in CMP and wafer cleaning. As of the date of the filing of this Quarterly Report, we do not have an agreement to acquire any additional acquisition target.

COVID-19 Update

On March 28, 2022, the Chinese government issued a mandatory shutdown in Shanghai, the location of one of our manufacturing facilities. The factory was allowed to partially reopen in May 2022 and fully reopened on June 1, 2022. After such reopening, the factory was able to operate near full capacity for the entire month of June. We were able to make up the shipments missed in the fourth quarter of fiscal 2022 and are now operating at normal capacity levels. Given the uncertainty surrounding the COVID-19 pandemic, there can be no assurance that our Shanghai facility will be allowed to remain open on a consistent basis.

Results of Operations

The following table sets forth certain operational data as a percentage of net revenue for the periods indicated:

	Three Months Ended June 30,		Nine Months Ended June 30,	
	2023	2022	2023	2022
Net revenue	100 %	100 %	100 %	100 %
Cost of sales	64 %	70 %	62 %	64 %
Gross margin	36 %	30 %	38 %	36 %
Selling, general and administrative	34 %	36 %	36 %	28 %
Research, development and engineering	6 %	8 %	6 %	7 %
Gain on sale of fixed assets	— %	(62)%	— %	(17)%
Severance expense	— %	— %	— %	— %
Operating (loss) income	(4)%	48 %	(4)%	18 %
Interest income (expense) and other, net	1 %	3 %	— %	1 %
(Loss) income before income taxes	(3)%	51 %	(4)%	19 %
Income tax provision (benefit)	— %	— %	(3)%	1 %
Net (loss) income	(3)%	51 %	(1)%	18 %

Net Revenue

Net revenue consists of revenue recognized upon shipment or delivery of equipment. Spare parts sales are recognized upon shipment and service revenue is recognized upon completion of the service activity, which is generally ratable over the term of the service contract. Since the majority of our revenue is generated from large system sales, revenue, gross profit and operating income can be significantly impacted by the timing of system shipments.

Our net revenue by reportable segment was as follows, dollars in thousands:

	Three Months Ended June 30,				Nine Months Ended June 30,			
Segment	**2023**	**2022**	**Change**	**% Change**	**2023**	**2022**	**Change**	**% Change**
Semiconductor	19,841	$ 15,135	$ 4,706	31 %	58,775	$ 61,484	$ (2,709)	(4)%
Material and Substrate	10,899	4,829	6,070	126 %	26,833	12,499	14,334	115 %
Total net revenue	$ 30,740	$ 19,964	$ 10,776	54 %	$ 85,608	$ 73,983	$ 11,625	16 %

Total net revenue for the three months ended June 30, 2023 and 2022 was $30.7 million and $20.0 million, respectively, an increase of approximately $10.8 million or 54%. Our Semiconductor results for the third quarter of fiscal 2023 reflect increases in our belt furnace, surface-mount technology ("SMT"), and packaging equipment production, partially offset by decreases in shipments of our horizontal diffusion furnaces. We continue to experience softness in shipments of our advanced packaging and SMT equipment, primarily related to a slowdown in global demand in the consumer markets. Our Semiconductor results for the third quarter of fiscal 2022 reflect the closure of our Shanghai manufacturing facility, which partially reopened in mid-May and fully reopened on June 1, 2022. Material and Substrate revenue increased due to the addition of Entrepix, effective January 17, 2023. Entrepix accounted for approximately $7.2 million of revenue in the Material and Substrate segment during the quarter ended June 30, 2023.

Total net revenue for the nine months ended June 30, 2023 and 2022 was $85.6 million and $74.0 million, respectively, an increase of approximately $11.6 million or 16%. Revenue from the Semiconductor segment decreased $2.7 million compared to the prior year period. This decrease is primarily attributable to lower shipments of our SMT, advanced packaging and horizontal diffusion furnace product lines, partially offset by increased shipments of high temperature belt furnaces and increased parts and services revenues. Revenue from our Material and Substrate segment increased $14.3 million due to the addition of Entrepix, effective January 17, 2023, and increased shipments of consumables resulting from capacity expansion and production increases by our customers.

Orders and Backlog

New orders booked in the three and nine months ended June 30, 2023 and 2022 were as follows, dollars in thousands:

	Three Months Ended June 30,				Nine Months Ended June 30,			
Segment	**2023**	**2022**	**Change**	**% Change**	**2023**	**2022**	**Change**	**% Change**
Semiconductor	$ 18,293	$ 24,144	$ (5,851)	(24)%	$ 63,983	$ 79,992	$ (16,009)	(20)%
Material and Substrate	7,924	6,001	1,923	32 %	21,729	15,485	6,244	40 %
Total new orders	$ 26,217	$ 30,145	$ (3,928)	(13)%	$ 85,712	$ 95,477	$ (9,765)	(10)%

Our backlog as of June 30, 2023 and 2022 was as follows, dollars in thousands:

	June 30,			
Segment	**2023**	**2022**	**Change**	**% Change**
Semiconductor	$ 53,219	$ 58,344	$ (5,125)	(9)%
Material and Substrate	8,096	4,387	3,709	85 %
Total backlog	$ 61,315	$ 62,731	$ (1,416)	(2)%

As of June 30, 2023, one customer of both our Semiconductor and Material and Substrate segments accounted for 19% of our backlog. Additionally, three Semiconductor segment customers individually accounted for 20%, 17% and

13% of our backlog. No other customer accounted for more than 10% of our backlog as of June 30, 2023. The orders included in our backlog are generally credit approved customer purchase orders believed to be firm and are generally expected to ship within the next twelve months. Because our orders are typically subject to cancellation or delay by the customer, our backlog at any point in time is not necessarily representative of actual sales for future periods, nor is backlog any assurance that we will realize profit from completing these orders.

Gross Profit and Gross Margin

Gross profit is the difference between net revenue and cost of goods sold. Cost of goods sold consists of purchased material, labor and overhead to manufacture equipment and spare parts and the cost of service and support to customers for installation, warranty and paid service calls. Gross margin is gross profit as a percent of net revenue. Our gross profit and gross margin by business segment were as follows, dollars in thousands:

	Three Months Ended June 30,					Nine Months Ended June 30,				
Segment	**2023**	**Gross Margin**	**2022**	**Gross Margin**	**Change**	**2023**	**Gross Margin**	**2022**	**Gross Margin**	**Change**
Semiconductor	$ 6,707	34 %	$ 3,590	24 %	$ 3,117	$ 21,810	37 %	$ 21,507	35 %	$ 303
Material and Substrate	4,278	39 %	2,310	48 %	1,968	10,948	41 %	5,451	44 %	5,497
Total gross profit	$ 10,985	36 %	$ 5,900	30 %	$ 5,085	$ 32,758	38 %	$ 26,958	36 %	$ 5,800

Our gross margins can be affected by capacity utilization and the type and volume of machines and consumables sold each quarter. Gross profit for the three months ended June 30, 2023 and 2022 was $11.0 million (36% of net revenue) and $5.9 million (30% of net revenue), respectively, an increase of $5.1 million. Gross margin on products from our Semiconductor segment increased due to changes in our product mix and improved capacity utilization in our Billerica and Shanghai facilities. Gross margin on products from our Semiconductor segment were lower in the prior year period due to the above-mentioned closure of our Shanghai manufacturing facility. Gross margin on products from our Material and Substrate segment decreased compared to the three months ended June 30, 2022, due to higher equipment sales, primarily at Entrepix, which have lower margins than our consumables. We are experiencing increased material costs across all our segments. In response to such increased costs, we continually review our pricing plans and supplier agreements, with the objective of passing these increased costs to our customers where possible; however, we continue to experience pricing pressure from our customers. We are also exploring partnerships with contract manufacturers, who can leverage their buying power on a larger scale. Additionally, we have experienced rising labor costs across our divisions, and we expect this trend to continue, as the labor markets in which we operate remain competitive.

Gross profit for the nine months ended June 30, 2023 and 2022 was $32.8 million (38% of net revenue) and $27.0 million (36% of net revenue), respectively, an increase of $5.8 million. Gross margin on products from our Semiconductor segment increased slightly compared to the nine months ended June 30, 2022. Gross margin on products from our Material and Substrate segment decreased between periods due to higher equipment sales, primarily at Entrepix, which have lower margins than our consumables.

Selling, General and Administrative

Selling, general and administrative expenses (“SG&A”) consists of the cost of employees, consultants and contractors, facility costs, sales commissions, shipping costs, promotional marketing expenses, legal and accounting expenses and bad debt expense.

SG&A expenses for the three months ended June 30, 2023 and 2022 were $10.3 million and $7.2 million, respectively. SG&A increased compared to the prior year quarter due primarily to $1.9 million of added SG&A from our acquisition of Entrepix as well as increased consulting and ERP project expenses.

SG&A expenses for the nine months ended June 30, 2023 and 2022 were $30.9 million and $21.0 million, respectively. SG&A increased compared to the prior year period due primarily to $3.8 million of added SG&A from our acquisition of Entrepix, $3.2 million of transaction expenses related to the acquisition of Entrepix and $2.0 million of audit and consulting expenses.

Research, Development and Engineering

Research, development and engineering ("RD&E") expenses consist of the cost of employees, consultants and contractors who design, engineer and develop new products and processes as well as materials and supplies used in producing prototypes. RD&E expenses may vary from period to period depending on the engineering projects in process. Expenses related to engineers working on strategic projects or sustaining engineering projects are recorded in RD&E. However, from time to time we add functionality to our products or develop new products during engineering and manufacturing to fulfill specifications in a customer's order, in which case the cost of development, along with other costs of the order, are charged to cost of goods sold. Occasionally, we receive reimbursements through governmental research and development grants which are netted against these expenses when certain conditions have been met.

RD&E expense, net of grants earned, for the three months ended June 30, 2023 and 2022 were $1.8 million and $1.6 million, respectively, and $4.7 million and $5.0 million in the nine months ended June 30, 2023 and 2022, respectively. The decrease in RD&E in the nine-month period is due to the timing of purchases related to specific strategic-development projects at our Semiconductor segment. Grants earned are immaterial in all periods presented.

Severance Expense

We recorded severance expense of $0.4 million in the nine months ended June 30, 2023. This one-time charge relates to the retirement of our founder, Mr. J.S. Whang. There was no severance expense recorded in the three and nine months ended June 30, 2022.

Income Taxes

Our effective tax rate was 82.8% and 6.0% for the nine months ended June 30, 2023 and 2022, respectively. The effective tax rate for the nine months ended June 30, 2023 differs from the U.S. statutory tax rate of 21% primarily due to the release of a portion of our valuation allowance in connection with a deferred tax liability related to the Entrepix acquisition resulting in recognition of previously recorded deferred tax assets. For the three months ended June 30, 2023 and 2022, we recorded income tax expense of $0.2 million and $20,000, respectively. For the nine months ended June 30, 2023 and 2022, we recorded income tax benefit of $2.7 million and income tax expense of $0.8 million, respectively. The quarterly income tax provision is calculated using an estimated annual effective tax rate, based upon expected annual income, permanent items, statutory rates and planned tax strategies in the various jurisdictions in which we operate. However, losses in certain jurisdictions and discrete items are excluded from the determination of the estimated annual effective tax rate.

Generally accepted accounting principles of the United States ("GAAP") require that a valuation allowance be established when it is "more likely than not" that all or a portion of deferred tax assets will not be realized. A review of all available positive and negative evidence needs to be considered, including a company's performance, the market environment in which the company operates and the length of carryback and carryforward periods. According to those principles, it is difficult to conclude that a valuation allowance is not needed when the negative evidence includes cumulative losses in recent years. Based on the consideration of all available evidence, we have concluded that we will maintain a full valuation allowance for all net deferred tax assets related to the carryforwards of U.S. net operating losses and foreign tax credits. We will continue to monitor our cumulative income and loss positions in the U.S. and foreign jurisdictions to determine whether full valuation allowances on U.S. net deferred tax assets are appropriate.

We expect to pay minimal U.S federal cash taxes for the foreseeable future as a result of our U.S. net operating losses that are carried forward.

Our future effective income tax rate depends on various factors, such as the amount of income (loss) in each tax jurisdiction, tax regulations governing each region, non-tax deductible expenses incurred as a percent of pre-tax income and the effectiveness of our tax planning strategies.

Liquidity and Capital Resources

The following table sets forth for the periods presented certain consolidated cash flow information, in thousands:

	Nine Months Ended June 30,	
	2023	2022
Net cash (used in) provided by operating activities	$ (7,150)	$ 5,090
Net cash (used in) provided by investing activities	(36,854)	19,583
Net cash provided by (used in) financing activities	11,590	(8,855)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(155)	(441)
Net (decrease) increase in cash, cash equivalents and restricted cash	(32,569)	15,377
Cash and cash equivalents, beginning of period	46,874	32,836
Cash, cash equivalents and restricted cash, end of period	$ 14,305	$ 48,213

Cash and Cash Flow

The decrease in cash and cash equivalents from September 30, 2022 of $32.6 million was primarily due to the acquisition of Entrepix, which was partially funded with cash on-hand as well as with a new term loan (see Note 2). We maintain a portion of our cash and cash equivalents in Renminbis, a Chinese currency, at our operations in China; therefore, changes in the exchange rates have an impact on our cash balances. Our working capital was $56.0 million as of June 30, 2023 and $80.3 million as of September 30, 2022. The decrease in working capital was primarily due to the decrease in cash. Our ratio of current assets to current liabilities was 3.1:1 as of June 30, 2023, and 4.5:1 as of September 30, 2022.

During periods of weakening demand, we typically generate cash from operating activities. Conversely, we are more likely to use operating cash flows for working capital requirements during periods of higher growth. The success of our growth strategy is dependent upon the availability of additional capital resources on terms satisfactory to management. Our sources of capital in the past have included the sale of equity securities, which includes common stock sold in private transactions and public offerings, the incurrence of long-term debt and customer deposits. Additionally, in January 2023, we entered into a credit facility, which includes a revolving line of credit with availability up to $8.0 million. There can be no assurance that we can raise such additional capital resources when needed or on satisfactory terms. We believe that our principal sources of liquidity discussed above are sufficient to support operations for at least the next twelve months. We have never paid dividends on our common stock.

Cash Flows from Operating Activities

Cash used in our operating activities was approximately $7.2 million for the nine months ended June 30, 2023, compared to $5.1 million provided by operating activities for the nine months ended June 30, 2022. During the first nine months of fiscal 2023, we used cash to increase our inventory balances in preparation for shipments scheduled over the next four quarters and to pay the related accounts payable. During the nine months ended June 30, 2022, we received several large customer deposits, primarily related to orders of our horizontal diffusion and high temp furnaces, which were expected to ship over the next two quarters. During the 2022 period, our accounts receivable collections exceeded new accounts receivable, primarily due to the shutdown of our Shanghai facility.

Cash Flows from Investing Activities

Cash used in investing activities was $36.9 million in the nine months ended June 30, 2023, and cash provided by investing activities was $19.6 million in the nine months ended June 30, 2022. The fiscal 2023 amount consists primarily of cash paid for the acquisition of Entrepix. The fiscal 2022 amount consists of $19.9 million in proceeds from the sale of our real property in Billerica, Massachusetts as well as $0.3 million of capital expenditures. We expect capital expenditures to increase throughout fiscal 2023 as we make targeted investments in our IT systems and additional capacity improvements.

Cash Flows from Financing Activities

For the nine months ended June 30, 2023, cash provided by financing activities was $11.6 million, comprised of $12.0 million in borrowings on our term loan and $0.5 million of proceeds received from the exercise of stock options partially offset by $0.9 million in payments on long-term debt. For the nine months ended June 30, 2022, $8.9 million of cash used in financing activities was comprised of $4.1 million of cash used for the repurchase of common stock and payments on long-term debt of $4.9 million, partially offset by $0.1 million of proceeds received from the exercise of stock options. Fiscal 2022 payments on long-term debt include the full repayment of the $4.5 million mortgage balance on the real property in Billerica, Massachusetts.

Financing Facilities

Our debt balance as of June 30, 2023 was $11.2 million, including our finance lease obligations. Our credit facility contains various covenants customary for transactions of this type, including complying with a minimum Debt to EBITDA ratio, a Fixed Charge Coverage ratio and a Working Capital ratio (as defined in the agreements) and meeting quarterly and annual reporting requirements. The credit facility agreement contains customary affirmative and negative covenants and events of default for facilities of this type. At June 30, 2023, we were in compliance with all such covenants.

Off-Balance Sheet Arrangements

As of June 30, 2023, we had no off-balance sheet arrangements as defined in Item 303(a)(4) of Regulation S-K promulgated by the SEC that have or are reasonably likely to have a current or future effect on financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that are material to investors.

Contractual Obligations

Unrecorded purchase obligations were $26.1 million as of June 30, 2023, compared to $20.0 million as of September 30, 2022, an increase of $6.1 million.

In January 2023, we entered into a Loan and Security Agreement with UMB Bank. See Note 2 “Long-Term Debt" of our condensed consolidated financial statements for a description of this agreement. There were no other material changes to the contractual obligations included in "Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” of our 2022 Form 10-K.

Critical Accounting Estimates

"Part I, Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations” of this Quarterly Report discusses our condensed consolidated financial statements that have been prepared in accordance with GAAP. The preparation of these condensed consolidated financial statements requires us to make estimates and assumptions that affect the reported amount of assets and liabilities at the date of the condensed consolidated financial statements, the disclosure of contingent assets and liabilities at the date of the condensed consolidated financial statements and the reported amounts of revenue and expenses during the reporting period.

On an ongoing basis, we evaluate our estimates and judgments, including those related to revenue recognition, income taxes, inventory valuation, and goodwill. We base our estimates and judgments on historical experience, expectations regarding the future and on various other factors that we believe to be reasonable under the circumstances. The results of these estimates and judgments form the basis for making conclusions about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

A critical accounting estimate is one that is both important to the presentation of our financial position and results of operations, and requires management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain. These uncertainties are discussed in Part I, Item 1A of our 2022 Form 10-K. We believe our critical accounting estimates relate to the more significant judgments and estimates used in the preparation of our consolidated financial statements.

We believe the critical accounting estimates discussed in the section entitled "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies" in our 2022 Form 10-K represent the most significant judgments and estimates used in the preparation of our consolidated financial statements. There have been no material changes in our critical accounting estimates during the nine months ended June 30, 2023, except as set forth below.

Business Combinations

We follow the acquisition method of accounting to record identifiable assets acquired and liabilities assumed in connection with acquired businesses at their estimated fair value as of the date of acquisition.

Identifiable intangible assets from business combinations are recognized at their estimated fair values as of the date of acquisition and consist of non-compete agreements, backlog, customer relationships, developed technology and tradenames. Determination of the estimated fair value of identifiable intangible assets requires judgment. The fair value of acquired identifiable intangible assets were estimated using various valuation methodologies. The multi-period excess earnings method was used to value the acquired developed technology and the distributor method for the acquired customer relationships. Both approaches are income-based methods, which required judgment in estimating appropriate discount rates, obsolescence, customer attrition, and remaining useful lives. The acquired intangible assets all had finite lives, ranging from one to ten years. The fair value of identifiable intangible assets acquired in connection with the Acquisition was $13.6 million. Goodwill represents the excess of the fair value of the consideration conveyed in an acquisition over the fair value of net assets acquired. See Note 3 "Acquisition" for additional information.

Impact of Recently Issued Accounting Pronouncements

For discussion of the impact of recently issued accounting pronouncements, see "Part I, Item 1. Financial Information" under "Impact of Recently Issued Accounting Pronouncements."

Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

As a smaller reporting company, as defined by Rule 12b-2 of the Exchange Act and in Item 10(f)(1) of Regulation S-K, we are electing scaled disclosure reporting obligations and, therefore, are not required to provide the information requested by this Item.

Item 4. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

Our management, including our Chief Executive Officer ("CEO") and our Chief Financial Officer ("CFO"), has carried out an evaluation of the effectiveness of our disclosure controls and procedures as of June 30, 2023, pursuant to Exchange Act Rules 13a-15(e) and 15(d)-15(e). Disclosure controls and procedures means controls and other procedures that are designed to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is accumulated and communicated to management, including the principal executive and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure. Based upon that evaluation, our CEO and CFO have concluded that as of such date, our disclosure controls and procedures in place were effective. We completed the acquisition of Entrepix on January 17, 2023. As permitted under U.S. Securities and Exchange Commission guidance, management's assessment as of June 30, 2023 did not include an assessment of controls and procedures of Entrepix, which is included in the consolidated financial statements as of June 30, 2023.

Changes in Internal Control Over Financial Reporting

Except as described below, there have not been any changes in the Company's internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the third fiscal quarter to which this report relates that materially affected, or are reasonably likely to materially affect, the internal control over financial reporting of the Company.

As noted above, on January 17, 2023 we completed the acquisition of Entrepix. We are currently integrating Entrepix into our control environment. In executing this integration, we are analyzing, evaluating, and where necessary, making changes in controls and procedures related to the Entrepix business, which is expected to be completed in the year ended September 30, 2024.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

For discussion of legal proceedings, see Note 11 to our condensed consolidated financial statements under “Part I, Item 1. Financial Information” under “Commitments and Contingencies” of this Quarterly Report.

Item 1A. Risk Factors

We refer you to documents filed by us with the SEC, specifically “Item 1A. Risk Factors” in our 2022 Form 10-K and in our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2023 (the “March 2023 Quarterly Report”), which identify important risk factors that could materially affect our business, financial condition and future results. We also refer you to the factors and cautionary language set forth in the section entitled “Cautionary Statements Regarding Forward-Looking Statements” immediately preceding “Item 1. Condensed Consolidated Financial Statements” of this Quarterly Report. This Quarterly Report, including the accompanying condensed consolidated financial statements and related notes, should be read in conjunction with such risks and other factors for a full understanding of our operations and financial condition. The risks described in our 2022 Form 10-K and March 2023 Quarterly Report and any described herein are not the only risks facing us. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition or operating results. There have been no material changes to the risk factors previously disclosed in our 2022 Form 10-K or March 2023 Quarterly Report.

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

Issuer Purchases of Equity Securities

On February 7, 2023, the Board approved a stock repurchase program, pursuant to which the Company may repurchase up to $5 million of its outstanding Common Stock over a one-year period, commencing on February 10, 2023. Repurchases under the program will be made in open market transactions at prevailing market prices, in privately negotiated transactions, or by other means in compliance with the rules and regulations of the Securities and Exchange Commission; however, the Company has no obligation to repurchase shares and the timing, actual number, and value of shares to be repurchased is subject to management’s discretion and will depend on the Company’s stock price and other market conditions. The Company may, in the sole discretion of the Board, terminate the repurchase program at any time while it is in effect. Repurchased shares may be retired or kept in treasury for further issuance.

During the three months ended June 30, 2023, we did not repurchase any of our equity securities nor did we sell any equity securities that were not registered under the Securities Act of 1933, as amended.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

During the three months ended June 30, 2023, none of our directors or officers (as defined in Rule 16a-1(f) promulgated under the Securities Exchange Act of 1934, as amended) adopted, terminated, or modified a Rule 10b5-1 trading arrangement or a non-Rule 10b5-1 trading arrangement (as such terms are defined in Item 408 of Regulation S-K).

Item 6. Exhibits

EXHIBIT NO.	EXHIBIT DESCRIPTION	INCORPORATED BY REFERENCE FORM	FILE NO.	EXHIBIT NO.	FILING DATE	FILED HEREWITH
31.1	Certification Pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as Amended					X
31.2	Certification Pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as Amended					X
32.1	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
32.2	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
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.					X
101.SCH	Inline XBRL Taxonomy Extension Schema Document					X
101.PRE	Inline Taxonomy Presentation Linkbase Document					X
101.CAL	Inline XBRL Taxonomy Calculation Linkbase Document					X
101.LAB	Inline XBRL Taxonomy Label Linkbase Document					X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document					X
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)					X

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.

AMTECH SYSTEMS, INC.

By	/s/ Lisa D. Gibbs Lisa D. Gibbs Vice President and Chief Financial Officer (Principal Financial Officer and Duly Authorized Officer)	Dated:	August 9, 2023

Exhibit 31.1

AMTECH SYSTEMS, INC. AND ITS SUBSIDIARIES
CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, Robert C. Daigle, certify that:

1.I have reviewed this Quarterly Report on Form 10-Q of Amtech Systems, Inc. (the “registrant”),

2.Based on my knowledge, this quarterly 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 quarterly 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 quarterly report;

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

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

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

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

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

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

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

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

By /s/ Robert C. Daigle
Robert C. Daigle
Chairman of the Board and Chief Executive Officer
Amtech Systems, Inc.

Date: August 9, 2023

Exhibit 31.2

AMTECH SYSTEMS, INC. AND ITS SUBSIDIARIES
CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, Lisa D. Gibbs, certify that:

1.I have reviewed this Quarterly Report on Form 10-Q of Amtech Systems, Inc. (the “registrant”),

2.Based on my knowledge, this quarterly 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 quarterly 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 quarterly report;

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

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

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

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

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

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

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

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

By /s/ Lisa D. Gibbs
Lisa D. Gibbs
Vice President and Chief Financial Officer
Amtech Systems, Inc.

Date: August 9, 2023

Exhibit 32.1

AMTECH SYSTEMS, INC. AND ITS SUBSIDIARIES

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

In connection with the Quarterly Report of Amtech Systems, Inc. (the “Company”) on Form 10-Q for the period ended June 30, 2023, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Robert C. Daigle, Chairman of the Board and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. section 1350, as adopted pursuant to section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1)The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2)The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By /s/ Robert C. Daigle
Robert C. Daigle
Chairman of the Board and Chief Executive Officer
Amtech Systems, Inc.

Date: August 9, 2023

The foregoing certification is being furnished pursuant to 18 U.S.C. Section 1350. It is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and it is not to be incorporated by reference into any filing of the Company, regardless of any general incorporation language in such filing.

Exhibit 32.2

AMTECH SYSTEMS, INC. AND ITS SUBSIDIARIES

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

In connection with the Quarterly Report of Amtech Systems, Inc. (the "Company") on Form 10-Q for the period ended June 30, 2023, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Lisa D. Gibbs, Vice President and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. sections 1350, as adopted pursuant to sections 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1)The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2)The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By /s/ Lisa D. Gibbs
Lisa D. Gibbs
Vice President and Chief Financial Officer
Amtech Systems, Inc.

Date: August 9, 2023

The foregoing certification is being furnished pursuant to 18 U.S.C. Section 1350. It is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and it is not to be incorporated by reference into any filing of the Company, regardless of any general incorporation language in such filing.